

The MINOR PLANET CIRCULARS/MINOR PLANETS AND COMETS are published, on behalf of
Commission 20 of the International Astronomical Union, usually in batches
on or near the date of each full moon, by:

Minor Planet Center, Smithsonian Astrophysical Observatory, Cambridge, MA 02138, U.S.A.

IAUSUBS@CFA.HARVARD.EDU or FAX 617-495-7231 (subscriptions)

BMARSDEN@CFA.HARVARD.EDU or GWILLIAMS@CFA.HARVARD.EDU (science)

Phone 617-495-7244/7444/7440 (for emergency use only).

World-Wide Web address <http://cfa-www.harvard.edu/iau/mpc.html> ISSN 0736-6884

Brian G. Marsden, Director

Gareth V. Williams, Associate Director

© Copyright 1999 Minor Planet Center

Syuichi Nakano, Liaison in Japan

Prepared using the Tamkin Foundation Computer Network

ERRATA

MPC	Line	
36846		The orbit of 1999 TU ₁₄ = 1998 ML ₁₆ should be removed.
36947	9 to 10	Delete a swamp that is
36947	-9	For Frederick read Frederic

NEW OBSERVATORY CODES

The following listing is a continuation to that on MPC 36607. The longitudes λ are measured in degrees eastward from Greenwich, and the parallax constants $\rho \cos \phi'$ and $\rho \sin \phi'$ are the product of the geocentric distance (in earth equatorial radii) and the cosine and sine, respectively, of the geocentric latitude.

Obs.	λ	$\rho \cos \phi'$	$\rho \sin \phi'$	
855	266.5383	0.7093	+0.7026	Wayside Observatory, Minnetonka
944	354.0828	0.79661	+0.60248	Observatorio Geminis, Dos Hermanas

CORRECTED OBSERVATIONS

The following observations correct those previously published.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	Obs.
1999 KL ₆	1999 10 02.11231		19 35 24.52	+03 31 51.4	MPS 6743	704
1999 KL ₆	1999 10 02.12557		19 35 25.88	+03 31 38.7	MPS 6743	704
1999 KL ₆	1999 10 02.13873		19 35 27.24	+03 31 26.6	MPS 6743	704
1999 KL ₆	1999 10 02.15190		19 35 28.63	+03 31 14.9	MPS 6743	704
1999 KL ₆	1999 10 02.16505		19 35 29.98	+03 31 02.3	MPS 6743	704

DELETED OBSERVATIONS

The following observations are to be deleted.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	N Obs.
1999 VC ₁₁	* 1999 11 09.82569		01 50 32.79	+16 25 36.2	MPS 7445	1 143
1999 VC ₁₁	1999 11 09.83196		01 50 32.38	+16 25 33.2	MPS 7445	1 143
1999 VC ₁₁	1999 11 09.84020		01 50 31.98	+16 25 29.7	MPS 7445	1 143
1999 VC ₁₁	1999 11 10.78756		01 49 48.77	+16 19 14.6	MPS 7445	1 143
1999 VC ₁₁	1999 11 10.79579		01 49 48.38	+16 19 11.4	MPS 7445	1 143

Note 1: published under correct designation (8671) on MPS 7658.

IDENTIFICATION CHANGES

Continuation to MPC 36607.

Object	Date	UT	α_{2000}	δ_{2000}	Originally	Mag.	Obs.
1981 UA ₃₀	* 1981 10 23.90821		03 03 33.37	+15 47 54.6	1981 UO	17.5	095
1988 TJ ₅	* 1988 10 11.92763		00 57 12.53	+08 36 30.2	1988 TL ₂		046
1988 TJ ₅	1988 10 11.94034		00 57 12.08	+08 36 32.4	1988 TL ₂		046
1991 RZ ₄₁	* 1991 09 12.27431		22 06 23.10	-08 51 11.6	1991 PX ₁₈	18.0	675
1991 RZ ₄₁	1991 09 12.31458		22 06 21.56	-08 51 23.6	1991 PX ₁₈		675
1994 NB ₁₃	* 1994 07 05.03715		20 18 38.50	-16 45 33.8	1994 ND ₂		010
1994 NB ₁₃	1994 07 05.04763		20 18 38.22	-16 45 38.4	1994 ND ₂		010
1994 NB ₁₃	1994 07 05.05810		20 18 37.83	-16 45 41.7	1994 ND ₂		010
1997 AH ₂₅	* 1997 01 03.27198		08 22 13.71	+20 21 41.4	1043 T-2	18.8 V	691
1997 AH ₂₅	1997 01 03.29413		08 22 12.51	+20 21 44.9	1043 T-2	19.3 V	691
1997 AH ₂₅	1997 01 03.31642		08 22 11.31	+20 21 48.7	1043 T-2	18.8 V	691
1999 TB ₃₆	* 1999 10 10.42844		07 04 48.10	+16 30 53.4	1994 RL ₂₃	19.2	704
1999 TB ₃₆	1999 10 10.44768		07 04 48.87	+16 30 48.8	1994 RL ₂₃	19.6	704
1999 TB ₃₆	1999 10 10.46254		07 04 49.46	+16 30 45.9	1994 RL ₂₃	19.5	704
1999 TB ₃₆	1999 10 10.47748		07 04 50.04	+16 30 41.4	1994 RL ₂₃	19.0	704
1999 TB ₃₆	1999 10 10.49356		07 04 50.69	+16 30 38.1	1994 RL ₂₃	19.3	704
1999 VU ₇₂	* 1999 11 10.30267		04 13 50.52	+21 25 14.2	1999 VG ₂₆	18.6	704
1999 VU ₇₂	1999 11 10.31914		04 13 49.62	+21 25 14.1	1999 VG ₂₆	19.0	704
1999 VU ₇₂	1999 11 10.33549		04 13 48.70	+21 25 11.8	1999 VG ₂₆	19.0	704
1999 VU ₇₂	1999 11 10.35182		04 13 47.82	+21 25 10.3	1999 VG ₂₆	18.9	704
1999 VU ₇₂	1999 11 10.36812		04 13 46.90	+21 25 08.1	1999 VG ₂₆	19.6	704
1999 VV ₇₂	* 1999 11 10.12860		01 34 00.70	+09 10 13.1	1999 VC ₁₀	16.6 R	757
1999 VV ₇₂	1999 11 10.14458		01 34 00.29	+09 10 11.6	1999 VC ₁₀	16.4 R	757
1999 VW ₇₂	* 1999 11 12.31952		03 11 27.32	+14 47 13.8	1999 VE ₆₆	20.4	704
1999 VW ₇₂	1999 11 12.33382		03 11 26.20	+14 47 13.4	1999 VE ₆₆	20.1	704
1999 VW ₇₂	1999 11 12.34813		03 11 25.28	+14 47 11.4	1999 VE ₆₆	20.3	704

CRITICAL LIST OF MINOR PLANETS

The following list updates and is in the same form as that on *MPC* 33152:

1. Object observed at only one opposition:
(719)
2. Objects observed at only two oppositions:
(4581) (4688) (5335) (5797) (7025) (7236) (7822) (7839)
(8014) (8034) (9767) (10636) (10860) (11885)
3. Objects observed at only three oppositions:
(2608) (3360) (3757) (3908) (4544) (5324) (5370) (6130)
(6489) (6491) (7335) (7336) (8709) (9172) (9950) (10145)
(10150) (11318) (11398)
4. Objects observed at four or more oppositions, last more than seven years ago:
(1876) (1915) (2135) (3554) (4995)
5. Objects observed at four or more oppositions, only one night in last seven years:
(1037) (2049) (2139) (2830) (3150) (3745) (3934) (4531)
(5207)
6. Other poorly-observed objects observed at four or more oppositions:
(2100) (2340) (3200) (3362) (3753) (3800) (4034) (4769)
(5011) (5381) (5590) (5604) (5620) (5786) (5828) (7546)
(8114) (8193) (8358) (8507) (8548) (8656) (8683) (8798)
(8956) (9188) (9202) (9242) (9413) (9452) (9457) (9460)
(9468) (9511) (10165) (10563)

OBSERVATIONS OF COMETS

Observations are published here for the following observatory codes:

- 046 Kletř. 0.57-m $f/5.2$ reflector + CCD. Observers J. Tichá, M. Tichý and Z. Moravec.
- 071 Rozhen. 0.5-m $f/1.4$ Schmidt + CCD. Observers G. Borisov, A. Marinov, V. Radeva and I. Darganov. Measured by V. Radeva.
- 107 Cavezzo. 0.40-m $f/5.5$ reflector + CCD. Observers M. Nicolini and P. Negrelli. Measured by M. Nicolini.
- 108 Montelupo. 0.30-m $f/5.7$ Schmidt-Cassegrain + CCD. Observers M. Tombelli, D. Guidetti, G. Forti and E. Masotti.
- 113 Drebach. 0.14-m $f/3.5$ camera. Observers J. Kandler and G. Lehmann.
- 118 Modra. 0.6-m $f/5.5$ reflector + CCD. Observers Š. Gajdoš, A. Galád and J. Tóth.
- 120 Višňjan. 0.41-m $f/4.3$ reflector + CCD. Observer K. Korlević.
- 249 SOHO. SOHO-SWAN $\text{Ly}\alpha$ photometer. Observer T. Mäkinen. Reduction by B. G. Marsden.
- 250 Hubble Space Telescope. 2.4-m reflector + CCD. Observers P. Lamy and H. Weaver.
- 349 Ageo. 0.18-m $f/5.5$ reflector + CCD. Observer K. Kadota. Measured by S. Yoshida and K. Kadota.
- 351 Sakamoto. 0.15-m $f/7.0$ lens + CCD. Observer Y. Kitamura.
- 352 Konan. 0.25-m $f/6$ reflector + CCD. Observer M. Hotta.
- 355 Hadano. 0.28-m $f/5.0$ reflector + CCD. Observer A. Asami.

- 360 Kuma Kogen. 0.60-m $f/5.8$ Ritchey-Chrétien + CCD. Observer A. Nakamura.
- 367 Yatsuka. 0.26-m $f/4.8$ reflector. Observer H. Abe.
- 372 Geisei. 0.60-m $f/3.5$ reflector. Observer T. Seki.
- 402 Dync Astronomical Observatory. 0.60-m $f/3.7$ reflector + CCD. Observer A. Sugie.
- 423 North Ryde. 0.20-m $f/4$ hyperbolic astrograph + CCD Observer S. G. McAndrew.
- 428 Reedy Creek. 0.25-m $f/6.3$ Schmidt-Cassegrain + CCD. Observer J. Broughton.
- 504 Le Creusot. 0.40-m $f/5$ reflector + CCD. Observer J. C. Merlin.
- 557 Ondřejov. 0.65-m $f/3.6$ reflector + CCD. Observer L. Šarounová.
- 587 Sormano. 0.5-m reflector + CCD. Observers A. Testa, M. Cavagna, A. Volta, F. Manca and P. Sicoli.
- 610 Pianoro. 0.25-m $f/4$ Schmidt-Cassegrain. Observer V. Goretti.
- 627 Blauvac. 0.26-m $f/4.7$ reflector + CCD. Observer R. Roy.
- 629 Szeged. 0.28-m Schmidt-Cassegrain + CCD. Observers L. Kiss and K. Sárneczky.
- 642 Oak Bay, Victoria. 0.20-m $f/3.7$ Schmidt-Cassegrain + CCD. Observer C. E. Spratt.
- 691 Kitt Peak. 0.91-m Spacewatch telescope. Observers J. Montani, A. E. Gleason and J. V. Scotti.
- 695 Kitt Peak. 2.3-m reflector + CCD. Observer C. W. Hergenrother.
- 699 LONEOS. 0.59-m Schmidt + CCD. Observers B. A. Skiff, M. E. Van Ness and W. Ferris. Measured by B. W. Koehn.
- 704 LINEAR. 1.0-m $f/2.15$ reflector + CCD. Observers M. Blythe, F. Shelly, M. Bezpalko, M. Elowitz and R. Huber. Measured by J. Stuart, H. Viggh and R. Sayer.
- 720 Monterrey. 0.18-m $f/15.0$ Maksutov + focal reducer + CCD. Observer P. V. Sada.
- 734 Eskridge. 0.30-m Schmidt-Cassegrain + CCD. Observers G. Hug and G. Bell.
- 750 Hobbs Observatory, Fall Creek. 0.6-m $f/5$ telescope + CCD. Observer R. Elliott.
- 808 El Leoncito. 0.5-m $f/7.5$ double astrograph + CCD. Observer H. S. Lepez and J. E. Torres. Measured by C. E. Lopez.
- 834 Buenos Aires-AAAA. 0.25-m $f/6.3$ reflector + CCD. Observers R. Caprio, H. Ruggio and R. Mackintosh. Measured by R. Caprio, R. Mackintosh and A. Rotzajt.
- 888 Gekko. 0.50-m $f/4.0$ reflector + CCD. Observer T. Kagawa.
- 897 Chiyoda. 0.25-m $f/6.0$ reflector + CCD. Observer T. Kojima.
- 900 Moriyama. 0.25-m $f/6.3$ reflector + CCD. Observer Y. Ikari.
- 903 Fukuchiyama. 0.25-m $f/6.3$ Schmidt-Cassegrain + CCD. Observer M. Yoshimi.

Object	Date	UT	α_{2000}	δ_{2000}	Mag.	N Obs.
C/1995 O1 (Hale-Bopp)						
C/1995 O1	1999 12 03.16354		06 22 30.97	-77 27 48.0		808
C/1995 O1	1999 12 03.19826		06 22 27.21	-77 27 54.6		808
C/1995 O1	1999 12 05.22153		06 18 54.29	-77 33 39.4		808
C/1995 O1	1999 12 05.23961		06 18 52.60	-77 33 42.9		808

C/1997 J2 (Meunier-Dupouy)

C/1997 J2	1999 09 10.15285	22 48 28.75	-46 34 08.4	1 834
C/1997 J2	1999 09 12.15417	22 46 49.37	-46 46 34.8	834
C/1997 J2	1999 09 17.10349	22 42 48.59	-47 14 08.7	1 834
C/1997 J2	1999 09 17.14288	22 42 46.68	-47 14 21.0	1 834
C/1997 J2	1999 09 30.03094	22 33 13.65	-48 05 22.8	1 834
C/1997 J2	1999 09 30.09990	22 33 10.73	-48 05 36.3	1 834

C/1997 K2

C/1997 K2	1997 05 20.884	00 51.1	-22 16	249
Geocentric position (AU)	+0.00428	+0.00973	+0.00347	
C/1997 K2	1997 05 22.946	00 54.3	-23 01	249
Geocentric position (AU)	+0.00461	+0.00959	+0.00339	
C/1997 K2	1997 05 24.867	01 03.6	-25 20	249
Geocentric position (AU)	+0.00439	+0.00973	+0.00344	
C/1997 K2	1997 05 27.902	01 12.3	-27 43	249
Geocentric position (AU)	+0.00381	+0.01002	+0.00355	
C/1997 K2	1997 05 29.959	01 12.9	-27 38	249
Geocentric position (AU)	+0.00423	+0.00989	+0.00348	
C/1997 K2	1997 06 01.020	01 18.8	-30 21	249
Geocentric position (AU)	+0.00327	+0.01025	+0.00363	
C/1997 K2	1997 06 04.982	01 30.2	-33 22	249
Geocentric position (AU)	+0.00367	+0.01015	+0.00359	
C/1997 K2	1997 06 07.367	01 35.6	-35 16	249
Geocentric position (AU)	+0.00324	+0.01026	+0.00365	
C/1997 K2	1997 06 11.463	01 52.6	-38 37	249
Geocentric position (AU)	+0.00298	+0.01028	+0.00369	
C/1997 K2	1997 06 13.068	01 56.6	-40 58	249
Geocentric position (AU)	+0.00199	+0.01040	+0.00375	
C/1997 K2	1997 06 14.816	02 05.8	-42 15	249
Geocentric position (AU)	+0.00299	+0.01026	+0.00371	
C/1997 K2	1997 06 17.820	02 21.3	-46 32	249
Geocentric position (AU)	+0.00278	+0.01026	+0.00375	
C/1997 K2	1997 06 19.885	02 26.0	-47 34	249
Geocentric position (AU)	+0.00308	+0.01025	+0.00377	
C/1997 K2	1997 06 21.474	02 40.7	-50 15	249
Geocentric position (AU)	+0.00233	+0.01025	+0.00380	
C/1997 K2	1997 06 24.514	03 03.8	-53 48	249
Geocentric position (AU)	+0.00293	+0.01028	+0.00387	
C/1997 K2	1997 06 26.576	03 19.8	-56 02	249
Geocentric position (AU)	+0.00184	+0.01023	+0.00388	
C/1997 K2	1997 06 28.695	03 43.4	-58 29	249
Geocentric position (AU)	+0.00263	+0.01032	+0.00396	
C/1997 K2	1997 07 01.990	04 14.7	-61 37	249
Geocentric position (AU)	+0.00199	+0.01027	+0.00401	
C/1997 K2	1997 07 06.244	05 26.4	-65 25	249
Geocentric position (AU)	+0.00046	+0.00996	+0.00398	
C/1997 K2	1997 07 09.665	06 01.0	-66 32	249
Geocentric position (AU)	+0.00057	+0.00996	+0.00407	
C/1997 K2	1997 07 11.570	06 34.2	-67 00	249
Geocentric position (AU)	+0.00040	+0.00990	+0.00409	
C/1997 K2	1997 07 13.035	06 56.8	-67 03	249
Geocentric position (AU)	+0.00007	+0.00978	+0.00408	

C/1997 K2	1997 07 15.579	07 49.6	-66 37	249
Geocentric position (AU)	-0.00024	+0.00965	+0.00410	
C/1997 K2	1997 07 18.483	08 33.7	-65 13	249
Geocentric position (AU)	-0.00056	+0.00952	+0.00412	
C/1997 K2	1997 07 19.538	08 45.5	-64 36	249
Geocentric position (AU)	-0.00022	+0.00969	+0.00423	
C/1997 K2	1997 07 22.554	09 23.6	-62 43	249
Geocentric position (AU)	-0.00089	+0.00941	+0.00419	
C/1997 K2	1997 07 24.617	09 45.0	-61 15	249
Geocentric position (AU)	-0.00087	+0.00948	+0.00428	

C/1998 K2 (LINEAR)

C/1998 K2	1999 11 30.21227	03 31 09.14	-27 28 51.2	17.0 T	704
C/1998 K2	1999 11 30.22671	03 31 08.37	-27 28 45.4	17.3 T	704
C/1998 K2	1999 11 30.24113	03 31 07.67	-27 28 41.3	17.1 T	704
C/1998 K2	1999 11 30.25559	03 31 06.93	-27 28 35.3	17.4 T	704
C/1998 K2	1999 11 30.27000	03 31 06.15	-27 28 30.4	17.0 T	704
C/1998 K2	1999 12 03.60538	03 28 27.65	-27 07 26.6	16.5 T	360
C/1998 K2	1999 12 03.60955	03 28 27.45	-27 07 24.8		360
C/1998 K2	1999 12 03.61441	03 28 27.19	-27 07 23.0		360

C/1998 M5 (LINEAR)

C/1998 M5	1999 11 13.83840	10 56 46.12	-09 54 35.0		402
C/1998 M5	1999 11 13.84301	10 56 46.13	-09 54 38.2	14.7 T	402
C/1998 M5	1999 11 30.80412	10 56 37.99	-13 11 49.0	15.3 T	349
C/1998 M5	1999 11 30.83248	10 56 37.69	-13 12 09.8		349
C/1998 M5	1999 11 30.83374	10 56 37.73	-13 12 09.7		349
C/1998 M5	1999 12 07.83542	10 55 13.79	-14 30 12.0	14.9 T	360
C/1998 M5	1999 12 07.83785	10 55 13.74	-14 30 13.6		360

P/1998 U3 (Jäger)

P/1998 U3	1999 02 08.09139	06 18 31.51	+29 15 03.4		834
P/1998 U3	1999 02 10.05246	06 18 46.13	+28 47 09.5		834
P/1998 U3	1999 02 12.09628	06 19 09.94	+28 18 21.2		834

P/1998 U4 (Spahr)

P/1998 U4	1999 11 13.50409	08 16 53.18	-13 08 35.0		695
P/1998 U4	1999 11 13.50759	08 16 53.21	-13 08 36.5	18.7 T	695
P/1998 U4	1999 12 03.70990	08 17 47.23	-14 58 28.0	18.6 T	360
P/1998 U4	1999 12 03.71545	08 17 47.13	-14 58 29.2		360
P/1998 U4	1999 12 03.71979	08 17 47.12	-14 58 30.6		360

C/1999 E1 (Li)

C/1999 E1	1999 12 07.82569	10 36 30.52	+23 02 00.4	16.6 T	360
C/1999 E1	1999 12 07.82986	10 36 30.60	+23 02 02.2		360
C/1999 E1	1999 12 12.76397	10 38 06.52	+23 39 18.3		355
C/1999 E1	1999 12 12.77257	10 38 06.70	+23 39 22.8		355
C/1999 E1	1999 12 12.77579	10 38 06.74	+23 39 23.3	16.6 T	355

C/1999 H1 (Lee)

C/1999 H1	1999 10 29.15764	22 38 47.47	+18 43 36.0		720
C/1999 H1	1999 10 29.16215	22 38 47.07	+18 43 22.3		720
C/1999 H1	1999 10 29.16493	22 38 46.78	+18 43 15.0		720
C/1999 H1	1999 10 29.17326	22 38 46.00	+18 42 50.0		720
C/1999 H1	1999 10 30.11979	22 37 22.41	+17 57 37.5		720
C/1999 H1	1999 10 30.12257	22 37 22.19	+17 57 29.7		720

C/1999 H1	1999 10 30.12535	22 37 21.92	+17 57 22.2		720
C/1999 H1	1999 11 01.10625	22 34 45.47	+16 28 16.4		720
C/1999 H1	1999 11 01.10972	22 34 45.21	+16 28 07.3		720
C/1999 H1	1999 11 01.11632	22 34 44.74	+16 27 50.1		720
C/1999 H1	1999 11 14.53425	22 25 13.47	+09 03 30.1		352
C/1999 H1	1999 11 14.55470	22 25 13.02	+09 02 59.1		352
C/1999 H1	1999 11 18.41638	22 24 19.12	+07 34 29.0	13.9 T	349
C/1999 H1	1999 11 18.41773	22 24 19.13	+07 34 28.0		349
C/1999 H1	1999 11 18.42177	22 24 18.98	+07 34 22.6		349
C/1999 H1	1999 11 26.78781	22 24 09.33	+05 04 07.8	14.1 T	504
C/1999 H1	1999 11 26.78925	22 24 09.35	+05 04 06.4	13.9 T	504
C/1999 H1	1999 11 26.79045	22 24 09.34	+05 04 04.5	13.5 T	504
C/1999 H1	1999 11 26.79203	22 24 09.34	+05 04 03.9	13.6 T	504
C/1999 H1	1999 11 26.79278	22 24 09.37	+05 04 02.9	13.8 T	504
C/1999 H1	1999 11 26.79363	22 24 09.40	+05 04 02.3	14.3 T	504
C/1999 H1	1999 11 26.79403	22 24 09.41	+05 04 01.1	13.7 T	504
C/1999 H1	1999 11 26.79714	22 24 09.42	+05 03 59.8	14.0 T	504
C/1999 H1	1999 11 26.79756	22 24 09.42	+05 03 57.7	13.2 T	504
C/1999 H1	1999 11 26.79876	22 24 09.41	+05 03 56.7	14.2 T	504
C/1999 H1	1999 11 26.79998	22 24 09.39	+05 03 56.3	13.8 T	504
C/1999 H1	1999 11 26.80115	22 24 09.39	+05 03 55.4	13.2 T	504
C/1999 H1	1999 11 26.80269	22 24 09.40	+05 03 53.3	13.7 T	504
C/1999 H1	1999 11 26.80343	22 24 09.43	+05 03 53.0	13.9 T	504
C/1999 H1	1999 11 28.40094	22 24 21.09	+04 40 32.5	14.6 T	349
C/1999 H1	1999 11 28.40288	22 24 21.04	+04 40 31.4		349
C/1999 H1	1999 11 28.40426	22 24 21.08	+04 40 29.5		349
C/1999 H1	1999 11 28.43135	22 24 21.69	+04 40 02.6	15.4 T	351
C/1999 H1	1999 11 28.43984	22 24 21.39	+04 40 01.1		351
C/1999 H1	1999 11 28.44537	22 24 21.51	+04 39 53.8		351
C/1999 H1	1999 11 28.44901	22 24 21.44	+04 39 52.1		900
C/1999 H1	1999 11 28.45324	22 24 21.51	+04 39 48.5		900
C/1999 H1	1999 11 30.46024	22 24 41.25	+04 12 34.3	14.3 T	360
C/1999 H1	1999 11 30.46250	22 24 41.28	+04 12 32.5		360
C/1999 H1	1999 12 03.06384	22 25 14.98	+03 40 23.8	16.8 T	704
C/1999 H1	1999 12 03.07973	22 25 15.16	+03 40 11.6	17.0 T	704
C/1999 H1	1999 12 03.10924	22 25 15.50	+03 39 50.6	17.1 T	704
C/1999 H1	1999 12 03.12400	22 25 15.45	+03 39 34.6	16.8 T	704
C/1999 H1	1999 12 08.06304	22 26 41.07	+02 47 23.6	13.7 T	699
C/1999 H1	1999 12 08.07830	22 26 41.62	+02 47 15.2		699
C/1999 H1	1999 12 08.09355	22 26 42.13	+02 47 07.9		699
C/1999 H1	1999 12 08.38741	22 26 47.31	+02 44 18.6	15.8 T	402
C/1999 H1	1999 12 08.38866	22 26 47.34	+02 44 17.4		402
C/1999 H1	1999 12 08.39120	22 26 47.40	+02 44 16.1		402

C/1999 J3 (LINEAR)

C/1999 J3	1999 10 14.27684	07 41 22.81	-09 57 50.9		834
C/1999 J3	1999 10 14.31395	07 41 16.65	-10 05 16.8		834
C/1999 J3	1999 10 14.33992	07 41 12.42	-10 10 28.7		834
C/1999 J3	1999 10 16.34032	07 35 34.60	-16 58 25.7		834
C/1999 J3	1999 10 18.30883	07 29 22.22	-23 48 00.1		834
C/1999 J3	1999 10 20.27439	07 22 23.23	-30 33 18.1		834
C/1999 J3	1999 10 26.33474	06 54 10.50	-49 11 03.0		834
C/1999 J3	1999 11 09.22640	04 43 30.70	-72 15 20.9		834

C/1999 J3	1999 11 09.25112	04 43 10.64	-72 16 28.7		834
C/1999 J3	1999 11 17.21808	02 52 56.81	-75 18 48.3		834
C/1999 J3	1999 11 17.25919	02 52 24.21	-75 18 58.0		834
C/1999 J3	1999 11 20.17948	02 17 11.87	-75 18 23.0		834
C/1999 J3	1999 11 20.21655	02 16 46.92	-75 18 13.5		834
C/1999 J3	1999 12 01.03090	00 53 07.72	-73 10 14.5		808
C/1999 J3	1999 12 01.08090	00 52 52.41	-73 09 27.7		808
C/1999 J3	1999 12 04.03438	00 40 14.29	-72 22 39.3		808
C/1999 J3	1999 12 04.08576	00 40 03.19	-72 21 51.1		808
C/1999 J3	1999 12 05.03403	00 36 39.01	-72 06 40.6		808
C/1999 J3	1999 12 05.08819	00 36 27.42	-72 05 47.5		808
C/1999 J3	1999 12 05.46860	00 35 11.20	-71 59 43.8	14.4 T	428
C/1999 J3	1999 12 06.04028	00 33 21.05	-71 50 36.0		808
C/1999 J3	1999 12 06.09444	00 33 10.93	-71 49 43.0		808

C/1999 K6 (LINEAR)

C/1999 K6	1999 11 30.43698	20 45 20.94	+29 18 52.4	17.2 T	360
C/1999 K6	1999 11 30.44080	20 45 21.43	+29 18 51.8		360
C/1999 K6	1999 12 08.44167	21 02 14.37	+28 57 39.1	17.2 T	360
C/1999 K6	1999 12 08.44531	21 02 14.84	+28 57 38.5		360
C/1999 K6	1999 12 08.44913	21 02 15.32	+28 57 38.4		360

C/1999 K8 (LINEAR)

C/1999 K8	1999 11 28.44383	21 40 23.41	+18 34 57.2	15.0 T	349
C/1999 K8	1999 11 28.44595	21 40 23.56	+18 34 55.9		349
C/1999 K8	1999 11 28.45268	21 40 23.92	+18 34 53.1	15.7 T	351
C/1999 K8	1999 11 28.45804	21 40 24.21	+18 34 48.5		351
C/1999 K8	1999 11 28.46483	21 40 24.35	+18 34 46.2		351
C/1999 K8	1999 11 28.46538	21 40 24.46	+18 34 46.1		349
C/1999 K8	1999 11 29.46328	21 41 12.41	+18 25 42.8	14.6 T	900
C/1999 K8	1999 11 29.47250	21 41 12.88	+18 25 38.6		900
C/1999 K8	1999 12 03.42465	21 44 28.81	+17 51 00.1	14.7 T	2 360
C/1999 K8	1999 12 08.39363	21 48 47.87	+17 10 21.2	14.6 T	402
C/1999 K8	1999 12 08.39616	21 48 47.99	+17 10 19.4		402
C/1999 K8	1999 12 08.39743	21 48 48.08	+17 10 19.3		402
C/1999 K8	1999 12 08.42847	21 48 49.65	+17 10 04.7	14.8 T	360
C/1999 K8	1999 12 08.43142	21 48 49.82	+17 10 03.2		360

C/1999 L3 (LINEAR)

C/1999 L3	1999 11 29.83097	12 23 02.48	-07 48 18.4	14.7 T	349
C/1999 L3	1999 11 29.84576	12 23 02.11	-07 48 13.7		349
C/1999 L3	1999 11 29.84745	12 23 02.10	-07 48 12.3		349
C/1999 L3	1999 11 30.82271	12 22 38.97	-07 42 47.7	14.2 T	349
C/1999 L3	1999 11 30.82418	12 22 38.95	-07 42 46.9		349
C/1999 L3	1999 11 30.82838	12 22 38.88	-07 42 46.0		349
C/1999 L3	1999 12 07.79289	12 18 59.76	-06 56 48.7	14.2 T	402
C/1999 L3	1999 12 07.79417	12 18 59.72	-06 56 48.8		402
C/1999 L3	1999 12 07.86042	12 18 57.07	-06 56 17.8	13.5 T	360
C/1999 L3	1999 12 07.86302	12 18 56.96	-06 56 16.6		360

P/1999 RO₂₈ (LONEOS)

P/1999 RO ₂₈	1999 11 13.27638	02 27 56.56	-14 49 39.9		695
P/1999 RO ₂₈	1999 11 13.27985	02 27 56.78	-14 49 35.1		695
P/1999 RO ₂₈	1999 11 13.28332	02 27 57.00	-14 49 30.7	18.9 T	695

C/1999 S2 (McNaught-Watson)						
C/1999 S2	1999 12 05.49675	02 16 53.64	-61 36 29.5	17.3 T	428	
C/1999 S3 (LINEAR)						
C/1999 S3	1999 10 18.79874	22 58 15.98	+58 32 30.6	13 T	629	
C/1999 S3	1999 10 18.80164	22 58 14.80	+58 32 32.3		629	
C/1999 S3	1999 10 18.80662	22 58 12.89	+58 32 33.6		629	
C/1999 S3	1999 11 14.74943	20 56 06.71	+55 44 16.5	13.8 T	071	
C/1999 S3	1999 11 14.75469	20 56 06.01	+55 44 12.9	13.7 T	071	
C/1999 S3	1999 11 14.75723	20 56 05.77	+55 44 10.7	13.8 T	071	
C/1999 S3	1999 11 14.75905	20 56 05.70	+55 44 08.6	13.7 T	071	
C/1999 S3	1999 11 14.76119	20 56 05.46	+55 44 07.8	13.7 T	071	
C/1999 S3	1999 11 15.70853	20 53 54.52	+55 34 06.6	13.7 T	071	
C/1999 S3	1999 11 15.70961	20 53 54.28	+55 34 06.0	13.7 T	071	
C/1999 S3	1999 11 15.71097	20 53 54.11	+55 34 05.2	13.6 T	071	
C/1999 S3	1999 11 15.71245	20 53 53.99	+55 34 04.1	13.7 T	071	
C/1999 S3	1999 11 15.71370	20 53 53.77	+55 34 03.5	13.7 T	071	
C/1999 S3	1999 11 17.69626	20 49 40.77	+55 13 41.1	13.6 T	071	
C/1999 S3	1999 11 17.69727	20 49 40.59	+55 13 39.9	13.6 T	071	
C/1999 S3	1999 11 17.69780	20 49 40.49	+55 13 40.1	13.6 T	071	
C/1999 S3	1999 11 17.69833	20 49 40.40	+55 13 40.0	13.6 T	071	
C/1999 S3	1999 11 17.69932	20 49 40.25	+55 13 38.9	13.6 T	071	
C/1999 S3	1999 11 18.42791	20 48 13.87	+55 06 21.7		349	
C/1999 S3	1999 11 18.43096	20 48 13.52	+55 06 19.9	12.6 T	349	
C/1999 S3	1999 11 18.43413	20 48 13.13	+55 06 18.1		349	
C/1999 S3	1999 11 21.44781	20 42 53.53	+54 37 41.5		349	
C/1999 S3	1999 11 21.45435	20 42 52.90	+54 37 38.2	12.9 T	349	
C/1999 S3	1999 11 21.45565	20 42 52.79	+54 37 37.6		349	
C/1999 S3	1999 11 23.06554	20 40 24.54	+54 23 25.9	15.0 T	750	
C/1999 S3	1999 11 23.07308	20 40 23.86	+54 23 21.9	14.9 T	750	
C/1999 S3	1999 11 26.48539	20 35 55.84	+53 56 04.9	12.6 T	351	
C/1999 S3	1999 11 26.49484	20 35 55.06	+53 56 00.2		351	
C/1999 S3	1999 11 26.77059	20 35 36.26	+53 53 59.6	12.7 T	504	
C/1999 S3	1999 11 26.77365	20 35 36.03	+53 53 58.0	12.5 T	504	
C/1999 S3	1999 11 26.77859	20 35 35.65	+53 53 56.1	12.6 T	504	
C/1999 S3	1999 11 26.78166	20 35 35.44	+53 53 54.6	12.7 T	504	
C/1999 S3	1999 11 26.85353	20 35 30.66	+53 53 22.7	14.0 T	113	
C/1999 S3	1999 11 26.85837	20 35 30.23	+53 53 19.5	14.1 T	113	
C/1999 S3	1999 11 26.86028	20 35 30.07	+53 53 18.9	14.1 T	113	
C/1999 S3	1999 11 28.47734	20 33 45.80	+53 42 01.8		349	
C/1999 S3	1999 11 28.48557	20 33 45.23	+53 41 58.4		349	
C/1999 S3	1999 11 28.49275	20 33 44.82	+53 41 55.0	13.0 T	349	
C/1999 S3	1999 11 29.47822	20 32 47.17	+53 35 31.5	12.7 T	351	
C/1999 S3	1999 11 29.48292	20 32 46.94	+53 35 29.3		351	
C/1999 S3	1999 11 29.49816	20 32 46.18	+53 35 23.4		351	
C/1999 S3	1999 11 30.09745	20 32 13.03	+53 31 39.3	15.5 T	750	
C/1999 S3	1999 11 30.10439	20 32 12.65	+53 31 36.5	15.7 T	750	
C/1999 S3	1999 11 30.13564	20 32 10.96	+53 31 24.9	16.2 T	750	
C/1999 S3	1999 12 03.41701	20 29 36.35	+53 13 33.2	12.9 T	360	
C/1999 S3	1999 12 03.41962	20 29 36.24	+53 13 32.4		360	
C/1999 S3	1999 12 08.40118	20 26 54.85	+52 54 25.6	13.4 T	402	
C/1999 S3	1999 12 08.40244	20 26 54.82	+52 54 25.5		402	
C/1999 S3	1999 12 08.40370	20 26 54.78	+52 54 25.0		402	

C/1999 S4 (LINEAR)						
C/1999 S4	1999 11 13.41616	04 02 43.38	+37 07 29.2		695	
C/1999 S4	1999 11 13.42882	04 02 41.76	+37 07 29.2		695	
C/1999 S4	1999 11 13.43575	04 02 40.86	+37 07 29.3	14.8 T	695	
C/1999 S4	1999 11 16.73260	03 55 28.44	+37 07 36.4	15.1 T	349	
C/1999 S4	1999 11 16.73912	03 55 27.60	+37 07 36.1		349	
C/1999 S4	1999 11 16.74248	03 55 27.14	+37 07 35.7		349	
C/1999 S4	1999 11 17.86383	03 52 56.44	+37 06 57.6	15.5 T	071	
C/1999 S4	1999 11 17.86790	03 52 55.92	+37 06 57.8	14.4 T	071	
C/1999 S4	1999 11 18.01910	03 52 35.24	+37 06 51.7	14.6 T	071	
C/1999 S4	1999 11 18.72117	03 50 59.61	+37 06 16.0		903	
C/1999 S4	1999 11 18.72406	03 50 59.19	+37 06 15.8	15.3 T	903	
C/1999 S4	1999 11 19.61769	03 48 56.69	+37 05 18.8	15.1 T	355	
C/1999 S4	1999 11 19.62065	03 48 56.29	+37 05 18.8		355	
C/1999 S4	1999 11 19.62424	03 48 55.76	+37 05 18.4		355	
C/1999 S4	1999 11 19.71824	03 48 42.70	+37 05 11.3	15.0 T	349	
C/1999 S4	1999 11 19.73851	03 48 39.90	+37 05 09.4		349	
C/1999 S4	1999 11 19.74324	03 48 39.27	+37 05 08.6		349	
C/1999 S4	1999 11 20.79444	03 46 13.53	+37 03 41.9	14.7 T	372	
C/1999 S4	1999 11 26.62792	03 32 25.24	+36 49 36.5	15.2 T	903	
C/1999 S4	1999 11 26.63293	03 32 24.52	+36 49 35.4		903	
C/1999 S4	1999 11 26.63754	03 32 23.86	+36 49 33.8		903	
C/1999 S4	1999 11 26.81311	03 31 58.68	+36 48 58.5	14.2 T	504	
C/1999 S4	1999 11 26.81451	03 31 58.50	+36 48 58.4		504	
C/1999 S4	1999 11 26.81692	03 31 58.18	+36 48 57.5		504	
C/1999 S4	1999 11 26.82139	03 31 57.54	+36 48 57.1	14.4 T	504	
C/1999 S4	1999 11 26.82278	03 31 57.31	+36 48 56.8	13.9 T	504	
C/1999 S4	1999 11 26.82416	03 31 57.12	+36 48 56.5	14.6 T	504	
C/1999 S4	1999 11 26.93979	03 31 40.27	+36 48 33.2	15.1 T	113	
C/1999 S4	1999 11 26.96174	03 31 37.10	+36 48 28.6	14.9 T	113	
C/1999 S4	1999 11 27.00524	03 31 30.75	+36 48 20.4	15.6 N	046	
C/1999 S4	1999 11 27.00686	03 31 30.53	+36 48 20.1	14.4 T	046	
C/1999 S4	1999 11 27.00795	03 31 30.36	+36 48 19.7		046	
C/1999 S4	1999 11 27.98252	03 29 09.48	+36 44 50.7		108	
C/1999 S4	1999 11 27.99922	03 29 06.97	+36 44 47.1		108	
C/1999 S4	1999 11 28.00561	03 29 06.06	+36 44 46.7		108	
C/1999 S4	1999 11 28.50891	03 27 53.30	+36 42 50.2	14.8 T	351	
C/1999 S4	1999 11 28.51324	03 27 52.64	+36 42 51.0		351	
C/1999 S4	1999 11 28.52322	03 27 51.13	+36 42 48.9		351	
C/1999 S4	1999 11 28.53687	03 27 49.18	+36 42 45.6		349	
C/1999 S4	1999 11 28.53804	03 27 49.04	+36 42 45.3		349	
C/1999 S4	1999 11 28.54428	03 27 48.08	+36 42 43.8	14.8 T	349	
C/1999 S4	1999 11 28.54793	03 27 47.57	+36 42 43.3	14.8 T	900	
C/1999 S4	1999 11 28.57918	03 27 42.98	+36 42 35.8	15.1 T	355	
C/1999 S4	1999 11 28.58310	03 27 42.42	+36 42 34.6		355	
C/1999 S4	1999 11 28.58718	03 27 41.80	+36 42 33.5		355	
C/1999 S4	1999 11 28.62553	03 27 36.19	+36 42 24.5		900	
C/1999 S4	1999 11 28.88442	03 26 58.76	+36 41 22.3	15.4 T	610	
C/1999 S4	1999 11 28.88860	03 26 58.14	+36 41 21.5		610	
C/1999 S4	1999 11 28.89277	03 26 57.52	+36 41 20.8		610	
C/1999 S4	1999 11 28.89693	03 26 56.90	+36 41 20.0		610	
C/1999 S4	1999 11 28.90110	03 26 56.28	+36 41 19.2		610	
C/1999 S4	1999 11 29.21244	03 26 11.08	+36 40 03.1		642	

C/1999 S4	1999 11 29.22132	03 26 09.74	+36 40 01.4		642
C/1999 S4	1999 11 29.22920	03 26 08.70	+36 39 57.8		642
C/1999 S4	1999 11 29.23838	03 26 07.29	+36 39 56.7		642
C/1999 S4	1999 11 29.24311	03 26 06.64	+36 39 56.2		642
C/1999 S4	1999 11 29.57764	03 25 17.98	+36 38 33.5		900
C/1999 S4	1999 11 29.59028	03 25 16.09	+36 38 30.2	14.8 T	900
C/1999 S4	1999 12 03.17925	03 16 34.06	+36 21 27.5		642
C/1999 S4	1999 12 03.18664	03 16 33.01	+36 21 26.0		642
C/1999 S4	1999 12 03.19399	03 16 31.97	+36 21 23.5		642
C/1999 S4	1999 12 03.51405	03 15 45.33	+36 19 42.5	15.4 T	402
C/1999 S4	1999 12 03.51531	03 15 45.15	+36 19 42.1		402
C/1999 S4	1999 12 03.51657	03 15 44.95	+36 19 41.7		402
C/1999 S4	1999 12 03.57604	03 15 36.23	+36 19 22.8	14.8 T	360
C/1999 S4	1999 12 03.57847	03 15 35.88	+36 19 22.1		360
C/1999 S4	1999 12 03.87345	03 14 53.08	+36 17 46.0	15.8 N	610
C/1999 S4	1999 12 03.87686	03 14 52.61	+36 17 43.8		610
C/1999 S4	1999 12 03.88022	03 14 52.14	+36 17 41.6		610
C/1999 S4	1999 12 03.88368	03 14 51.66	+36 17 39.4		610
C/1999 S4	1999 12 06.75378	03 07 56.76	+36 00 46.0	15.3 T	627
C/1999 S4	1999 12 06.77829	03 07 53.24	+36 00 35.9	15.3 T	627
C/1999 S4	1999 12 06.81939	03 07 47.28	+36 00 20.9	15.4 T	627
C/1999 S4	1999 12 06.83745	03 07 44.63	+36 00 14.4	15.4 T	627
C/1999 S4	1999 12 07.54532	03 06 02.79	+35 55 43.2	15.3 T	355
C/1999 S4	1999 12 07.54966	03 06 02.17	+35 55 41.3		355
C/1999 S4	1999 12 07.55385	03 06 01.56	+35 55 39.7		355
C/1999 S4	1999 12 07.59612	03 05 55.44	+35 55 23.4	15.5 T	402
C/1999 S4	1999 12 07.59738	03 05 55.25	+35 55 22.8		402
C/1999 S4	1999 12 07.59865	03 05 55.08	+35 55 22.4		402
C/1999 S4	1999 12 08.06160	03 04 48.89	+35 52 18.9		107
C/1999 S4	1999 12 08.06417	03 04 48.42	+35 52 17.2		107
C/1999 S4	1999 12 08.06630	03 04 48.10	+35 52 16.5		107
C/1999 S4	1999 12 10.66310	02 58 39.71	+35 34 09.7	15.1 T	903
C/1999 S4	1999 12 10.66582	02 58 39.30	+35 34 08.9		903
C/1999 S4	1999 12 10.91277	02 58 04.66	+35 32 19.8	15.2 T	504
C/1999 S4	1999 12 10.91453	02 58 04.50	+35 32 19.7	14.8 T	504
C/1999 S4	1999 12 10.91612	02 58 04.21	+35 32 18.4	15.5 T	504
C/1999 S4	1999 12 10.91934	02 58 03.78	+35 32 16.4	14.9 T	504
C/1999 S4	1999 12 10.92282	02 58 03.31	+35 32 15.1	14.6 T	504
C/1999 S4	1999 12 10.92650	02 58 02.70	+35 32 13.9	15.4 T	504
C/1999 S4	1999 12 10.92927	02 58 02.38	+35 32 12.4	15.1 T	504
C/1999 S4	1999 12 12.23090	02 55 00.86	+35 22 25.4	16.6 T	704
C/1999 S4	1999 12 12.25694	02 54 57.30	+35 22 14.0	16.7 T	704
C/1999 S4	1999 12 12.28486	02 54 53.43	+35 21 58.4	16.7 T	704
C/1999 S4	1999 12 12.31046	02 54 49.80	+35 21 49.8	16.9 T	704
C/1999 S4	1999 12 12.32825	02 54 47.19	+35 21 41.5	16.8 T	704

C/1999 T1 (McNaught-Hartley)

C/1999 T1	1999 11 30.48524	01 20 50.50	-42 58 27.6	15.8 T	3 360
C/1999 T1	1999 11 30.48767	01 20 50.42	-42 58 27.5		3 360
C/1999 T1	1999 11 30.49045	01 20 50.29	-42 58 27.8		3 360
C/1999 T1	1999 12 01.04062	01 20 29.41	-42 57 50.7		808
C/1999 T1	1999 12 01.09063	01 20 27.26	-42 57 45.3		808
C/1999 T1	1999 12 03.04514	01 19 15.35	-42 55 15.9		808

C/1999 T1	1999 12 03.08333	01 19 13.96	-42 55 11.7		808
C/1999 T1	1999 12 03.48744	01 18 59.53	-42 54 36.4	16.0 T	428
C/1999 T1	1999 12 04.05486	01 18 39.73	-42 53 43.5		808
C/1999 T1	1999 12 04.10486	01 18 37.98	-42 53 40.1		808
C/1999 T1	1999 12 05.04722	01 18 05.44	-42 52 03.0		808
C/1999 T1	1999 12 05.09792	01 18 03.55	-42 51 56.3		808
C/1999 T1	1999 12 05.50412	01 17 49.99	-42 51 12.1	15.6 T	428
C/1999 T1	1999 12 06.05069	01 17 31.54	-42 50 10.7		808
C/1999 T1	1999 12 06.10347	01 17 29.96	-42 50 03.4		808
C/1999 T1	1999 12 11.42832	01 14 48.73	-42 37 27.6	15.8 T	423
C/1999 T1	1999 12 11.45053	01 14 48.05	-42 37 24.0	15.8 T	423
C/1999 T1	1999 12 12.49757	01 14 19.86	-42 34 28.0	15.4 T	3 360
C/1999 T1	1999 12 12.50017	01 14 19.80	-42 34 27.8		3 360
C/1999 T1	1999 12 12.50243	01 14 19.70	-42 34 27.5		3 360
C/1999 T1	1999 12 14.42677	01 13 30.86	-42 28 33.4	16.0 T	423
C/1999 T1	1999 12 14.44898	01 13 30.38	-42 28 29.4	15.9 T	423
C/1999 T1	1999 12 14.46565	01 13 29.94	-42 28 26.6	15.9 T	423
C/1999 T1	1999 12 14.47675	01 13 29.67	-42 28 24.7	16.1 T	423

C/1999 T2 (LINEAR)

C/1999 T2	1999 11 26.86492	22 18 12.27	+25 40 34.5	16.2 T	113
C/1999 T2	1999 11 26.91307	22 18 10.85	+25 40 21.4	16.5 T	113
C/1999 T2	1999 11 28.50826	22 17 24.68	+25 33 22.9	16.5 T	349
C/1999 T2	1999 11 28.50950	22 17 24.74	+25 33 21.7		349
C/1999 T2	1999 11 29.48756	22 16 57.82	+25 29 10.9	15.5 T	900
C/1999 T2	1999 11 29.50028	22 16 57.47	+25 29 07.8		900
C/1999 T2	1999 11 30.45243	22 16 32.40	+25 25 08.5	16.5 T	360
C/1999 T2	1999 11 30.45486	22 16 32.33	+25 25 08.1		360
C/1999 T2	1999 12 03.43604	22 15 20.45	+25 13 14.0	16.4 T	402
C/1999 T2	1999 12 03.43730	22 15 20.41	+25 13 13.7		402
C/1999 T2	1999 12 03.43856	22 15 20.37	+25 13 13.3		402
C/1999 T2	1999 12 08.45434	22 13 41.05	+24 55 16.9	16.5 T	360
C/1999 T2	1999 12 08.45677	22 13 41.00	+24 55 16.5		360

C/1999 T3 (LINEAR)

C/1999 T3	1999 11 26.77950	02 28 27.03	+13 00 46.1	18.1 T	120
C/1999 T3	1999 11 26.79230	02 28 26.47	+13 00 37.4		120
C/1999 T3	1999 11 28.54958	02 27 13.01	+12 42 22.6		349
C/1999 T3	1999 11 28.55878	02 27 12.42	+12 42 18.2		349
C/1999 T3	1999 11 28.56189	02 27 12.32	+12 42 16.6	17.2 T	349
C/1999 T3	1999 11 28.60219	02 27 10.64	+12 41 50.5	16.2 T	897
C/1999 T3	1999 11 28.61295	02 27 10.21	+12 41 44.5		897
C/1999 T3	1999 11 29.54722	02 26 31.81	+12 32 07.4		900
C/1999 T3	1999 11 29.55986	02 26 31.19	+12 31 59.8	17.5 T	900
C/1999 T3	1999 11 29.57222	02 26 30.82	+12 31 52.0		897
C/1999 T3	1999 11 29.59471	02 26 29.92	+12 31 38.7	17.0 T	897
C/1999 T3	1999 11 29.60087	02 26 29.64	+12 31 34.7		897
C/1999 T3	1999 11 30.54363	02 25 51.44	+12 21 54.7		355
C/1999 T3	1999 11 30.55801	02 25 50.81	+12 21 46.1	17.1 T	355
C/1999 T3	1999 11 30.56508	02 25 50.55	+12 21 42.0		355
C/1999 T3	1999 11 30.57031	02 25 50.35	+12 21 38.8	17.7 T	360
C/1999 T3	1999 11 30.57448	02 25 50.16	+12 21 36.2		360
C/1999 T3	1999 12 03.48343	02 23 55.46	+11 52 09.9	17.3 T	402
C/1999 T3	1999 12 03.48469	02 23 55.38	+11 52 09.3		402

1999 DEC. 22

M.P.C. 36983

C/1999 T3	1999 12 03.48595	02 23 55.35	+11 52 08.5		402
C/1999 T3	1999 12 08.47266	02 20 50.79	+11 03 07.4	17.4 T	402
C/1999 T3	1999 12 08.47391	02 20 50.77	+11 03 07.0		402
C/1999 T3	1999 12 08.47517	02 20 50.74	+11 03 05.8		402
C/1999 T3	1999 12 09.54855	02 20 13.19	+10 52 48.4	17 T	888
C/1999 T3	1999 12 09.55701	02 20 12.88	+10 52 43.4		888
C/1999 T3	1999 12 09.56207	02 20 12.67	+10 52 40.8		888

C/1999 U1 (Ferris)

C/1999 U1	1999 11 04.66285	04 22 27.16	+09 17 09.6		372
C/1999 U1	1999 11 07.62778	04 19 23.22	+09 26 40.6		372
C/1999 U1	1999 11 08.72912	04 18 13.79	+09 30 16.1		349
C/1999 U1	1999 11 08.74128	04 18 12.95	+09 30 16.9	16.7 T	349
C/1999 U1	1999 11 08.74444	04 18 12.78	+09 30 17.6	18.5 T	372
C/1999 U1	1999 11 08.74822	04 18 12.57	+09 30 17.8		349
C/1999 U1	1999 11 12.63993	04 14 04.57	+09 43 09.5		372
C/1999 U1	1999 11 13.62150	04 13 01.26	+09 46 25.9	16.3 T	349
C/1999 U1	1999 11 13.63269	04 13 00.59	+09 46 29.4		349
C/1999 U1	1999 11 13.66445	04 12 58.51	+09 46 34.9	15.5 T	402
C/1999 U1	1999 11 13.66847	04 12 58.27	+09 46 35.9		402
C/1999 U1	1999 11 18.63746	04 07 35.85	+10 03 28.7		355
C/1999 U1	1999 11 18.64458	04 07 35.41	+10 03 30.4	16.5 T	355
C/1999 U1	1999 11 18.65162	04 07 34.97	+10 03 31.2		355
C/1999 U1	1999 11 18.73065	04 07 29.80	+10 03 46.1		903
C/1999 U1	1999 11 18.73772	04 07 29.18	+10 03 48.7	16.5 T	903
C/1999 U1	1999 12 03.54413	03 51 35.26	+10 56 52.9	17.0 T	402
C/1999 U1	1999 12 03.54539	03 51 35.21	+10 56 53.3		402
C/1999 U1	1999 12 03.54666	03 51 35.10	+10 56 53.7		402
C/1999 U1	1999 12 03.59410	03 51 32.11	+10 57 04.9	16.8 T	360
C/1999 U1	1999 12 03.59707	03 51 31.95	+10 57 04.6	16.4 T	355
C/1999 U1	1999 12 03.59826	03 51 31.85	+10 57 05.6		360
C/1999 U1	1999 12 03.60146	03 51 31.63	+10 57 04.8		355
C/1999 U1	1999 12 03.61826	03 51 30.62	+10 57 08.9		355
C/1999 U1	1999 12 11.58103	03 43 26.58	+11 27 11.4	17 T	888
C/1999 U1	1999 12 11.58926	03 43 26.10	+11 27 13.7		888
C/1999 U1	1999 12 11.59443	03 43 25.79	+11 27 14.7		888

P/1999 U3 (LINEAR)

P/1999 U3	1999 11 18.61207	03 21 17.82	+58 08 00.2	16.1 T	355
P/1999 U3	1999 11 18.61579	03 21 17.73	+58 07 58.9		355
P/1999 U3	1999 11 18.61940	03 21 17.67	+58 07 57.0		355
P/1999 U3	1999 11 20.77222	03 20 28.57	+57 53 09.7	16.5 T	372
P/1999 U3	1999 11 28.60653	03 18 10.96	+56 37 18.1		355
P/1999 U3	1999 11 28.60992	03 18 10.89	+56 37 16.0	16.1 T	355
P/1999 U3	1999 11 28.61359	03 18 10.76	+56 37 13.1		349
P/1999 U3	1999 11 28.61559	03 18 10.79	+56 37 11.5		355
P/1999 U3	1999 11 28.62693	03 18 10.63	+56 37 04.4	16.5 T	349
P/1999 U3	1999 11 28.63371	03 18 10.38	+56 36 59.8		349
P/1999 U3	1999 11 28.67575	03 18 09.77	+56 36 29.1	15.3 T	900
P/1999 U3	1999 11 28.68839	03 18 09.58	+56 36 19.8		900
P/1999 U3	1999 11 30.49531	03 17 51.39	+56 14 09.4		355
P/1999 U3	1999 11 30.50925	03 17 51.25	+56 13 58.5	16.1 T	355
P/1999 U3	1999 11 30.51635	03 17 51.01	+56 13 52.8		355
P/1999 U3	1999 12 03.44375	03 17 33.41	+55 34 34.5	16.7 T	372

P/1999 U3	1999 12 03.55344	03 17 32.49	+55 33 03.4	16.4 T	402
P/1999 U3	1999 12 03.55470	03 17 32.49	+55 33 02.1		402
P/1999 U3	1999 12 03.58368	03 17 32.32	+55 32 38.2	16.1 T	360
P/1999 U3	1999 12 03.58611	03 17 32.31	+55 32 36.2		360
P/1999 U3	1999 12 06.92697	03 17 34.56	+54 42 54.7		587
P/1999 U3	1999 12 06.93206	03 17 34.53	+54 42 50.1	16.0 T	587
P/1999 U3	1999 12 07.60427	03 17 37.84	+54 32 17.7		355
P/1999 U3	1999 12 07.60709	03 17 37.83	+54 32 14.7	16.4 T	355
P/1999 U3	1999 12 07.61005	03 17 37.87	+54 32 12.0		355
P/1999 U3	1999 12 08.87905	03 17 47.68	+54 11 51.2		118
P/1999 U3	1999 12 08.88131	03 17 47.72	+54 11 48.9	15.5 T	118
P/1999 U3	1999 12 10.78473	03 18 09.49	+53 40 15.8		118
P/1999 U3	1999 12 10.78881	03 18 09.53	+53 40 11.7	15.9 T	118

C/1999 U4 (Catalina-Skiff)

C/1999 U4	1999 11 04.63281	02 06 26.45	+20 18 31.0		372
C/1999 U4	1999 11 07.61042	02 04 50.74	+20 20 01.9	17.5 T	372
C/1999 U4	1999 11 28.57051	01 54 26.52	+20 28 16.9	17.2 T	349
C/1999 U4	1999 11 28.57257	01 54 26.50	+20 28 16.2		349
C/1999 U4	1999 11 28.58053	01 54 26.13	+20 28 15.5		349
C/1999 U4	1999 11 30.56024	01 53 34.60	+20 29 03.5	17.5 T	360
C/1999 U4	1999 11 30.56441	01 53 34.47	+20 29 03.6		360
C/1999 U4	1999 12 03.46250	01 52 21.92	+20 30 17.3	17.0 T	372
C/1999 U4	1999 12 03.48941	01 52 21.39	+20 30 16.8	17.6 T	402
C/1999 U4	1999 12 03.49066	01 52 21.34	+20 30 17.0		402
C/1999 U4	1999 12 03.49192	01 52 21.29	+20 30 17.0		402
C/1999 U4	1999 12 07.50944	01 50 47.39	+20 32 09.8	17.1 T	355
C/1999 U4	1999 12 07.51310	01 50 47.35	+20 32 09.2		355
C/1999 U4	1999 12 07.51650	01 50 47.16	+20 32 09.4		355
C/1999 U4	1999 12 07.54879	01 50 46.54	+20 32 11.2	17.2 T	900
C/1999 U4	1999 12 07.55892	01 50 46.22	+20 32 11.7		900
C/1999 U4	1999 12 08.49080	01 50 25.69	+20 32 39.5	17.0 T	360
C/1999 U4	1999 12 08.49740	01 50 25.51	+20 32 39.8		360

P/1999 V1 (Catalina)

P/1999 V1	1999 11 12.44964	09 43 34.45	+10 24 58.4		695
P/1999 V1	1999 11 12.45398	09 43 34.67	+10 24 56.0		695
P/1999 V1	1999 11 12.45815	09 43 34.89	+10 24 53.6	18.1 T	695
P/1999 V1	1999 11 13.79679	09 44 42.92	+10 12 10.4	17.0 T	402
P/1999 V1	1999 11 13.80254	09 44 43.10	+10 12 06.6		402
P/1999 V1	1999 11 20.82743	09 50 11.72	+09 06 06.0	17.3 T	372
P/1999 V1	1999 12 05.45526	09 58 50.69	+06 54 04.5	18.9 T	704
P/1999 V1	1999 12 05.48359	09 58 51.38	+06 53 50.8	18.3 T	704
P/1999 V1	1999 12 05.49783	09 58 51.67	+06 53 43.0	18.4 T	704
P/1999 V1	1999 12 07.79705	09 59 50.89	+06 33 54.3	17.9 T	360
P/1999 V1	1999 12 07.80087	09 59 50.96	+06 33 52.2		360
P/1999 V1	1999 12 07.80486	09 59 51.09	+06 33 50.2		360
P/1999 V1	1999 12 13.52122	10 01 49.74	+05 46 00.7	19.2 T	691
P/1999 V1	1999 12 13.53816	10 01 50.04	+05 45 52.4		691

P/1999 X1 (Hug-Bell)

P/1999 X1	1999 10 10.43233	07 42 57.11	+17 55 55.2	19.2 N	4 704
P/1999 X1	1999 10 10.45176	07 42 58.81	+17 55 54.4	19.5 N	4 704
P/1999 X1	1999 10 10.46677	07 43 00.07	+17 55 54.4	19.6 N	4 704

P/1999 X1	1999 12 07.43651	08 25 05.23	+19 50 39.1	19.2 N	4 704	10P	1999 11 28.41388	22 13 17.76	-23 50 07.2		349
P/1999 X1	1999 12 07.48098	08 25 04.70	+19 50 56.1	19.6 N	4 704	10P	1999 11 29.44220	22 16 03.12	-23 34 33.6	15.1 T	351
P/1999 X1	1999 12 07.49563	08 25 04.54	+19 51 01.8	20.2 N	4 704	10P	1999 11 29.46649	22 16 07.19	-23 34 11.7		351
P/1999 X1	1999 12 10.33347	08 24 32.66	+20 07 54.0	18.8 T	734	10P	1999 11 30.42326	22 18 40.32	-23 19 41.8	12.7 T	360
P/1999 X1	1999 12 10.34351	08 24 32.52	+20 07 57.5	19.0 T	734	10P	1999 11 30.42552	22 18 40.66	-23 19 39.5		360
P/1999 X1	1999 12 10.35909	08 24 32.20	+20 08 03.7	18.6 T	734		37P/Forbes				
P/1999 X1	1999 12 10.41434	08 24 31.30	+20 08 24.0	18.5 T	734	37P	1999 10 02.21230	00 05 18.91	+08 32 28.0	16.5 T	699
P/1999 X1	1999 12 10.43169	08 24 31.07	+20 08 30.1	18.7 T	734	37P	1999 10 02.24284	00 05 17.08	+08 32 21.5		699
P/1999 X1	1999 12 10.44889	08 24 30.81	+20 08 37.3	18.7 T	734	37P	1999 10 02.27340	00 05 15.21	+08 32 14.5		699
P/1999 X1	1999 12 10.47539	08 24 30.32	+20 08 46.9	18.9 T	734	37P	1999 11 12.16356	23 48 58.04	+06 55 56.8		695
P/1999 X1	1999 12 10.49344	08 24 30.07	+20 08 53.2	18.7 T	734	37P	1999 11 12.16652	23 48 58.06	+06 55 57.3		695
P/1999 X1	1999 12 11.16675	08 24 20.00	+20 13 04.0	19.0 N	557	37P	1999 11 12.16926	23 48 58.08	+06 55 57.4	17.0 T	695
P/1999 X1	1999 12 11.17537	08 24 19.86	+20 13 06.8	18.1 T	557	37P	1999 11 30.46823	23 56 18.25	+07 17 41.3	17.1 T	360
P/1999 X1	1999 12 11.18090	08 24 19.77	+20 13 09.1		557	37P	1999 11 30.47240	23 56 18.40	+07 17 41.8		360
P/1999 X1	1999 12 11.37899	08 24 16.76	+20 14 23.7	19.0 T	734		50P/Arend				
P/1999 X1	1999 12 11.44802	08 24 15.41	+20 14 50.8	18.8 T	734	50P	1999 12 03.69002	08 20 15.96	+49 57 21.2	16.3 T	355
P/1999 X1	1999 12 11.46484	08 24 15.22	+20 14 56.1	19.1 T	734	50P	1999 12 03.69935	08 20 15.91	+49 57 24.7		355
P/1999 X1	1999 12 11.48086	08 24 14.91	+20 15 01.1		734	50P	1999 12 03.70207	08 20 15.80	+49 57 26.5		355
P/1999 X1	1999 12 11.49819	08 24 14.50	+20 15 09.5		734	50P	1999 12 07.73837	08 19 05.53	+50 21 41.7	16.8 T	360
P/1999 X1	1999 12 11.96788	08 24 07.09	+20 18 06.0		5 118	50P	1999 12 07.74236	08 19 05.43	+50 21 43.0		360
P/1999 X1	1999 12 11.97990	08 24 06.80	+20 18 11.8		5 118	50P	1999 12 07.76286	08 19 04.70	+50 21 52.1	16.3 T	402
P/1999 X1	1999 12 11.98285	08 24 06.85	+20 18 13.0		5 118	50P	1999 12 07.76993	08 19 04.68	+50 21 52.8		402
P/1999 X1	1999 12 13.33339	08 23 41.83	+20 26 55.0	19.5 T	734	50P	1999 12 07.77119	08 19 04.62	+50 21 52.9		402
P/1999 X1	1999 12 13.33955	08 23 41.71	+20 26 57.1	19.3 T	734	50P					
P/1999 X1	1999 12 13.35024	08 23 41.43	+20 27 01.5	18.9 T	734		59P/Kearns-Kwee				
	2P/Encke					59P	1999 11 05.39902	08 22 49.97	+26 08 40.5	17.7 T	699
2P	1999 11 13.20918	22 40 31.41	-02 47 43.5		695	59P	1999 11 05.42956	08 22 51.89	+26 08 31.7		699
2P	1999 11 13.21269	22 40 31.38	-02 47 44.9		695	59P	1999 11 05.46015	08 22 53.63	+26 08 24.3		699
2P	1999 11 13.21616	22 40 31.29	-02 47 44.7	20.4 T	695	59P	1999 11 19.71374	08 34 27.67	+25 14 08.3		355
	4P/Faye					59P	1999 11 19.73259	08 34 28.33	+25 14 04.0	16.8 T	355
4P	1999 11 19.45368	10 07 25.76	+02 06 20.9	17.1 T	699	59P	1999 11 19.73605	08 34 28.46	+25 14 03.1		355
4P	1999 11 19.46641	10 07 26.38	+02 06 15.4		699	59P	1999 11 29.68146	08 39 03.46	+24 42 28.3	15.8 T	900
4P	1999 11 19.47915	10 07 26.87	+02 06 11.4		699	59P	1999 11 29.69060	08 39 03.47	+24 42 27.2		900
4P	1999 12 07.81059	10 18 40.34	+00 19 47.2	16.0 T	360	59P	1999 12 07.74882	08 40 29.17	+24 21 21.2	16.7 T	402
4P	1999 12 07.81458	10 18 40.44	+00 19 46.0		360	59P	1999 12 07.74931	08 40 29.16	+24 21 21.4	16.4 T	360
4P	1999 12 12.79853	10 20 21.64	-00 01 41.3	16.9 T	355	59P	1999 12 07.75134	08 40 29.15	+24 21 20.8		402
4P	1999 12 12.80200	10 20 21.73	-00 01 43.0		355	59P	1999 12 07.75260	08 40 29.16	+24 21 20.6		402
4P	1999 12 12.80546	10 20 21.83	-00 01 43.2		355	59P	1999 12 07.75330	08 40 29.19	+24 21 20.8		360
	10P/Tempel 2					59P	1999 12 12.74920	08 40 18.86	+24 10 13.2		355
10P	1999 11 02.02917	20 57 03.03	-29 25 57.4		808	59P	1999 12 12.75321	08 40 18.88	+24 10 12.7	16.5 T	355
10P	1999 11 02.04931	20 57 06.54	-29 25 44.2		808	59P	1999 12 12.75730	08 40 18.81	+24 10 12.4		355
10P	1999 11 03.01146	21 00 03.84	-29 16 19.2		808		63P/Wild 1				
10P	1999 11 03.02431	21 00 06.19	-29 16 11.5		808	63P	1999 11 08.82056	11 40 10.64	+12 09 35.7		349
10P	1999 11 05.00243	21 06 08.36	-28 55 55.9		808	63P	1999 11 08.83537	11 40 12.44	+12 09 19.2	15.7 T	349
10P	1999 11 05.02882	21 06 13.01	-28 55 36.7		808	63P	1999 11 12.84907	11 48 09.00	+10 57 39.3	16.1 T	367
10P	1999 11 18.40392	21 45 35.59	-26 13 30.4	13.7 T	349	63P	1999 11 12.85139	11 48 09.23	+10 57 36.9		367
10P	1999 11 18.40963	21 45 36.64	-26 13 26.4		349	63P	1999 11 12.85370	11 48 09.55	+10 57 34.1		367
10P	1999 11 20.37120	21 51 09.75	-25 46 33.0	13.7 T	402	63P	1999 11 12.85602	11 48 09.82	+10 57 32.0		367
10P	1999 11 20.37212	21 51 09.93	-25 46 31.8		402	63P	1999 11 16.85590	11 55 58.64	+09 45 25.9	15.6 T	360
10P	1999 11 20.37303	21 51 10.03	-25 46 30.9		402	63P	1999 11 16.85781	11 55 58.87	+09 45 23.8		360
10P	1999 11 28.40774	22 13 16.78	-23 50 13.4	14.3 T	349	63P	1999 11 19.80331	12 01 40.15	+08 51 54.0		349
						63P	1999 11 19.81464	12 01 41.46	+08 51 41.6	15.7 T	349

1999 DEC. 22

M.P.C. 36985

63P	1999 11 30.84063	12 22 28.31	+05 28 57.5		349
63P	1999 11 30.84279	12 22 28.55	+05 28 54.9	15.5 T	349
63P	1999 11 30.85267	12 22 29.57	+05 28 43.1		349
63P	1999 12 07.85382	12 35 13.62	+03 18 29.9	14.9 T	360
63P	1999 12 07.85642	12 35 13.90	+03 18 27.1		360
63P	1999 12 12.82810	12 44 01.71	+01 45 31.0	16.1 T	355
63P	1999 12 12.83231	12 44 02.12	+01 45 26.0		355
63P	1999 12 12.83660	12 44 02.57	+01 45 21.5		355

65P/Gunn

65P	1999 11 13.68367	05 57 06.02	+26 22 57.7	18.2 T	402
65P	1999 11 13.68943	05 57 05.83	+26 22 58.3		402

74P/Smirnova-Chernykh

74P	1999 11 13.74947	07 39 21.27	+24 29 00.6	15.9 T	402
74P	1999 11 13.75267	07 39 21.26	+24 29 00.9		402
74P	1999 12 03.34728	07 36 51.71	+25 10 26.0	16.1 T	699
74P	1999 12 03.37788	07 36 51.14	+25 10 30.9		699
74P	1999 12 03.40847	07 36 50.53	+25 10 35.2		699
74P	1999 12 03.66189	07 36 45.71	+25 11 13.4		355
74P	1999 12 03.66951	07 36 45.52	+25 11 13.9	15.7 T	355
74P	1999 12 03.67245	07 36 45.43	+25 11 14.5		355
74P	1999 12 03.69097	07 36 45.16	+25 11 17.7	16.5 T	360
74P	1999 12 03.69618	07 36 45.05	+25 11 18.6		360
74P	1999 12 07.37032	07 35 25.57	+25 20 56.7	17.6 T	704
74P	1999 12 07.38498	07 35 25.28	+25 20 59.9	19.1 T	704
74P	1999 12 07.39969	07 35 24.83	+25 21 04.1	18.9 T	704
74P	1999 12 07.41438	07 35 24.36	+25 21 04.7	18.7 T	704
74P	1999 12 07.42907	07 35 23.86	+25 21 09.6	18.3 T	704

84P/Giclas

84P	1999 11 05.66912	05 23 57.66	+13 04 01.9	16.2 T	352
84P	1999 11 05.71755	05 23 56.85	+13 04 03.7		352
84P	1999 11 12.40811	05 21 50.38	+13 12 18.2		695
84P	1999 11 12.41234	05 21 50.26	+13 12 18.6		695
84P	1999 11 12.41647	05 21 50.14	+13 12 19.0		695
84P	1999 11 13.69781	05 21 15.61	+13 14 22.8	15.3 T	402
84P	1999 11 13.70184	05 21 15.48	+13 14 23.1		402
84P	1999 11 30.62222	05 09 48.04	+13 57 49.4	15.4 T	360
84P	1999 11 30.62604	05 09 47.84	+13 57 50.1		360
84P	1999 12 03.23056	05 07 37.66	+14 07 16.0		808
84P	1999 12 03.25694	05 07 36.25	+14 07 20.8		808
84P	1999 12 03.62963	05 07 17.62	+14 08 35.7	15.2 T	355
84P	1999 12 03.63510	05 07 17.30	+14 08 36.9		355
84P	1999 12 03.64061	05 07 17.02	+14 08 38.0		355
84P	1999 12 06.28726	05 05 03.10	+14 18 47.9	16.7 T	704
84P	1999 12 06.30151	05 05 02.25	+14 18 51.4	17.6 T	704
84P	1999 12 06.31578	05 05 01.47	+14 18 55.6	18.0 T	704
84P	1999 12 06.33001	05 05 00.70	+14 18 59.0	17.5 T	704
84P	1999 12 06.34431	05 04 59.72	+14 19 03.1	17.4 T	704
84P	1999 12 06.98183	05 04 27.78	+14 21 33.2		587
84P	1999 12 06.98692	05 04 27.50	+14 21 34.4	14.8 T	587

106P/Schuster

106P	1999 11 12.17499	00 13 22.77	-17 20 28.2		695
106P	1999 11 12.18057	00 13 22.76	-17 20 15.7		695
106P	1999 11 12.18606	00 13 22.72	-17 20 07.1	13.6 T	695
106P	1999 11 18.45075	00 14 02.68	-13 58 36.6		349
106P	1999 11 18.45421	00 14 02.62	-13 58 29.7		349
106P	1999 11 18.45743	00 14 02.70	-13 58 23.7	13.5 T	349
106P	1999 11 28.49266	00 18 39.04	-08 24 06.9	13.7 T	351
106P	1999 11 28.49763	00 18 39.32	-08 23 55.0		351
106P	1999 11 28.49969	00 18 39.41	-08 23 50.8	13.6 T	900
106P	1999 11 28.50139	00 18 39.50	-08 23 48.3		351
106P	1999 11 28.50889	00 18 39.75	-08 23 32.4		900
106P	1999 11 28.52051	00 18 40.10	-08 23 09.7		349
106P	1999 11 28.52141	00 18 40.17	-08 23 08.6	13.9 T	349
106P	1999 11 28.52403	00 18 40.30	-08 23 02.3		349
106P	1999 11 30.47830	00 20 02.78	-07 17 21.2	14.0 T	360
106P	1999 11 30.48073	00 20 02.88	-07 17 16.5		360
106P	1999 12 02.10304	00 21 18.06	-06 22 47.5	15.9 T	704
106P	1999 12 02.11887	00 21 19.44	-06 22 11.8	15.5 T	704
106P	1999 12 02.13679	00 21 19.77	-06 21 37.4	15.5 T	704
106P	1999 12 02.15608	00 21 21.00	-06 20 56.9	15.4 T	704
106P	1999 12 02.17419	00 21 21.44	-06 20 26.9	15.7 T	704
106P	1999 12 03.05903	00 22 05.75	-05 50 39.7	15.6 T	704
106P	1999 12 03.07492	00 22 06.29	-05 50 08.2	15.7 T	704
106P	1999 12 03.08966	00 22 06.98	-05 49 38.3	15.6 T	704
106P	1999 12 03.10440	00 22 07.68	-05 49 07.9	15.2 T	704
106P	1999 12 08.46563	00 27 08.30	-02 50 02.2	14.1 T	360
106P	1999 12 08.46806	00 27 08.46	-02 49 57.3		360
106P	1999 12 09.15214	00 27 51.67	-02 27 13.0		699

108P/Ciffréo

108P	1999 11 13.10471	21 26 08.05	-29 06 20.7		695
108P	1999 11 13.10916	21 26 08.36	-29 06 17.6		695
108P	1999 11 13.11262	21 26 08.57	-29 06 15.4	20.0 T	695
108P	1999 11 30.40573	21 48 29.80	-25 38 31.0	19.5 T	1 360
108P	1999 11 30.40990	21 48 30.25	-25 38 27.8		1 360
108P	1999 11 30.41510	21 48 30.69	-25 38 24.0		1 360

110P/Hartley 3

110P	1999 09 13.25726	22 13 32.81	+02 24 37.5		695
110P	1999 09 13.25940	22 13 32.73	+02 24 37.2		695
110P	1999 09 13.26166	22 13 32.64	+02 24 36.7	20.8 T	695
110P	1999 11 13.19510	22 00 22.10	-00 14 52.4		695
110P	1999 11 13.19861	22 00 22.16	-00 14 53.3		695
110P	1999 11 13.20207	22 00 22.23	-00 14 53.4	21.3 T	695

112P/Urata-Niijima

112P	1999 09 08.61126	21 48 23.58	-51 17 31.8		250
Geocentric position (km)					
		- 4406.20	- 5362.66	-	741.40
112P	1999 11 13.09000	21 42 06.44	-34 02 55.6		695
112P	1999 11 13.09701	21 42 06.98	-34 02 46.1		695
112P	1999 11 13.10052	21 42 07.20	-34 02 42.6	21.5 T	695

114P/Wiseman-Skiff

114P	1999 11 18.46391	02 22 20.04	+43 16 57.0		349
114P	1999 11 18.47418	02 22 19.90	+43 16 46.0	14.7 T	349
114P	1999 11 18.47525	02 22 19.90	+43 16 45.0		349
114P	1999 11 19.60359	02 22 08.86	+42 55 26.4	14.4 T	355
114P	1999 11 19.60619	02 22 08.79	+42 55 23.3		355
114P	1999 11 19.60884	02 22 08.75	+42 55 20.1		355
114P	1999 11 21.52205	02 21 57.39	+42 17 34.9	14.8 T	349
114P	1999 11 21.53471	02 21 57.31	+42 17 19.5		349
114P	1999 11 27.87043	02 22 15.99	+39 59 10.0		046
114P	1999 11 27.87201	02 22 15.99	+39 59 07.9		046
114P	1999 11 27.87473	02 22 16.02	+39 59 04.2		046
114P	1999 11 27.87645	02 22 16.02	+39 59 01.8		046
114P	1999 11 27.91910	02 22 16.28	+39 58 03.7		587
114P	1999 11 27.92407	02 22 16.32	+39 57 56.7	13.8 T	587
114P	1999 11 28.58507	02 22 23.78	+39 42 32.4	14.1 T	349
114P	1999 11 28.58772	02 22 23.78	+39 42 27.7		349
114P	1999 11 28.59610	02 22 23.88	+39 42 16.4		349
114P	1999 11 28.64617	02 22 24.30	+39 41 05.7	13.7 T	900
114P	1999 11 28.65358	02 22 24.32	+39 40 55.0		900
114P	1999 11 29.50797	02 22 36.76	+39 20 45.1	14.7 T	351
114P	1999 11 29.51238	02 22 36.71	+39 20 37.5		351
114P	1999 11 29.53470	02 22 36.83	+39 20 06.8		351
114P	1999 11 30.60417	02 22 53.76	+38 54 27.1	14.4 T	360
114P	1999 11 30.60625	02 22 53.80	+38 54 24.2		360
114P	1999 12 03.50810	02 23 56.19	+37 43 04.4	14.0 T	402
114P	1999 12 03.50936	02 23 56.21	+37 43 02.5		402
114P	1999 12 03.51062	02 23 56.23	+37 43 00.6		402
114P	1999 12 06.78757	02 25 33.89	+36 20 02.1	17.4 T	118
114P	1999 12 06.79291	02 25 34.05	+36 19 54.0		118
114P	1999 12 07.52508	02 25 59.51	+36 01 10.9	14.1 T	355
114P	1999 12 07.52949	02 25 59.65	+36 01 04.0		355
114P	1999 12 07.53350	02 25 59.78	+36 00 57.9		355
114P	1999 12 08.50608	02 26 36.59	+35 35 56.0	13.9 T	360
114P	1999 12 08.50816	02 26 36.66	+35 35 52.9		360
114P	1999 12 11.12156	02 28 28.62	+34 28 14.7	15.8 T	704
114P	1999 12 11.13726	02 28 29.00	+34 27 48.6	16.6 T	704
114P	1999 12 11.15240	02 28 29.64	+34 27 24.6	16.0 T	704
114P	1999 12 11.16823	02 28 30.32	+34 27 00.9	16.1 T	704
114P	1999 12 12.15375	02 29 17.45	+34 01 27.3	15.8 T	704
114P	1999 12 12.17381	02 29 18.25	+34 00 55.0	16.1 T	704
114P	1999 12 12.19280	02 29 19.33	+34 00 30.5	17.8 T	704
114P	1999 12 12.20795	02 29 19.49	+34 00 00.6	16.1 T	704

124P/Mrkos

124P	1999 09 13.32285	00 19 44.14	+03 02 00.4		695
124P	1999 09 13.32491	00 19 44.06	+03 02 00.3		695
124P	1999 09 13.32691	00 19 43.97	+03 01 59.9	22.1 T	695
124P	1999 11 13.24086	23 41 59.85	+01 17 43.4		695
124P	1999 11 13.24801	23 41 59.71	+01 17 43.6		695
124P	1999 11 13.25494	23 41 59.58	+01 17 42.6	22.4 T	695

136P/Mueller 3

136P	1999 11 13.30338	03 33 11.22	+05 19 55.9		695
136P	1999 11 13.31046	03 33 10.87	+05 19 54.8	17.4 T	695
136P	1999 11 13.64539	03 32 57.05	+05 19 08.7	17.1 T	402
136P	1999 11 13.65115	03 32 56.77	+05 19 08.1		402
136P	1999 11 30.55657	03 21 44.05	+04 56 46.2	17.9 T	897
136P	1999 11 30.56347	03 21 43.77	+04 56 46.9		897
136P	1999 11 30.57224	03 21 43.48	+04 56 47.0		897
136P	1999 11 30.61163	03 21 42.02	+04 56 44.8	17.9 T	360
136P	1999 11 30.61545	03 21 41.84	+04 56 44.7		360
136P	1999 12 02.64513	03 20 29.41	+04 56 23.0	17.6 T	897
136P	1999 12 02.65468	03 20 29.15	+04 56 22.6		897

137P/Shoemaker-Levy 2

137P	1999 11 13.07722	20 42 04.86	-13 24 10.0	18.5 T	695
137P	1999 12 08.38007	21 30 07.27	-10 41 14.7	18.7 T	402
137P	1999 12 08.38132	21 30 07.33	-10 41 13.6		402
137P	1999 12 08.38258	21 30 07.58	-10 41 13.4		402
137P	1999 12 08.40972	21 30 10.87	-10 40 59.3	18.5 T	360
137P	1999 12 08.41389	21 30 11.35	-10 40 57.2		360
137P	1999 12 08.41806	21 30 11.89	-10 40 55.5		360

141P/Machholz 2

141P-D	1999 11 06.36971	18 27 55.93	-11 56 59.6		349
141P-D	1999 11 06.38936	18 27 59.12	-11 57 00.4	15.2 T	349
141P-D	1999 11 18.35993	19 04 41.27	-11 43 00.2	14.1 T	349
141P-D	1999 11 18.36571	19 04 42.39	-11 42 57.9		349
141P-A	1999 11 26.68594	19 34 05.76	-11 28 39.7	17 N	046
141P-A	1999 11 26.68722	19 34 06.06	-11 28 40.3		046
141P-A	1999 11 26.69059	19 34 06.83	-11 28 40.3		046
141P-A	1999 11 26.69304	19 34 07.40	-11 28 39.3		046
141P-A	1999 11 26.69414	19 34 07.58	-11 28 40.2		046
141P-A	1999 11 26.69523	19 34 07.76	-11 28 39.3		046
141P-A	1999 11 26.69633	19 34 08.00	-11 28 39.3		046
141P-D	1999 11 26.69633	19 33 53.49	-11 30 36.0	18 N	046
141P-A	1999 11 26.69764	19 34 08.28	-11 28 40.5		046
141P-D	1999 11 26.69764	19 33 53.57	-11 30 34.9		046
141P-A	1999 11 26.69889	19 34 08.59	-11 28 39.9		046
141P-D	1999 11 26.69889	19 33 53.84	-11 30 33.9		046
141P-A	1999 11 26.69998	19 34 08.96	-11 28 40.2		046
141P-D	1999 11 26.69998	19 33 54.44	-11 30 34.9		046
141P-A	1999 11 27.69508	19 37 50.80	-11 27 45.2		046
141P-A	1999 11 27.69628	19 37 51.21	-11 27 42.9		046
141P-A	1999 11 27.69749	19 37 51.42	-11 27 43.0		046
141P-A	1999 11 27.69978	19 37 51.86	-11 27 43.1		046
141P-A	1999 11 29.70517	19 45 28.55	-11 26 16.7		046
141P-A	1999 11 29.71103	19 45 29.81	-11 26 16.6		046
141P-A	1999 11 29.71510	19 45 30.82	-11 26 16.1		046
141P-A	1999 11 29.71632	19 45 31.10	-11 26 17.0		046
141P-A	1999 11 29.71755	19 45 31.32	-11 26 16.4		046
141P-A	1999 11 30.39392	19 48 08.18	-11 25 53.6	13.1 T	360
141P-A	1999 11 30.39653	19 48 08.77	-11 25 53.8		360
141P-A	1999 11 30.39878	19 48 09.28	-11 25 53.5		360
141P-A	1999 11 30.70218	19 49 20.47	-11 25 46.9		046

141P-A	1999 11 30.70337	19 49 20.64	-11 25 45.5		046
141P-A	1999 11 30.70521	19 49 21.16	-11 25 47.4		046
141P-A	1999 11 30.70638	19 49 21.47	-11 25 48.5		046
141P-A	1999 12 03.37510	19 59 59.00	-11 25 25.4	14.0 T	402
141P-A	1999 12 03.37637	19 59 59.24	-11 25 25.1		402
141P-A	1999 12 03.37763	19 59 59.55	-11 25 25.6		402
141P-A	1999 12 03.39375	20 00 03.41	-11 25 25.5	12.5 T	360
141P-A	1999 12 03.39635	20 00 04.04	-11 25 25.3		360
141P-A	1999 12 03.39878	20 00 04.63	-11 25 24.9		360
141P-A	1999 12 08.36971	20 21 07.38	-11 29 40.6	13.5 T	402
141P-A	1999 12 08.37097	20 21 07.78	-11 29 40.8		402
141P-A	1999 12 08.37223	20 21 08.01	-11 29 41.0		402
141P-A	1999 12 08.39670	20 21 14.48	-11 29 42.7	11.9 T	360
141P-A	1999 12 08.39948	20 21 15.19	-11 29 43.0		360
141P-A	1999 12 10.35947	20 30 04.66	-11 33 33.6	13.1 T	349
141P-A	1999 12 10.36168	20 30 05.23	-11 33 33.4		349
141P-A	1999 12 11.37387	20 34 46.66	-11 36 09.3		349
141P-A	1999 12 11.37461	20 34 46.83	-11 36 07.6		349
141P-A	1999 12 11.37689	20 34 47.48	-11 36 08.6	12.6 T	349

Note 1: faint image. 2: involved with star. 3: bad image. 4: prediscovery observation. 5: poor image.

OBSERVATIONS OF MINOR PLANETS

The summary lists, for each observatory code, the designation of each object observed (an asterisk signifying a new discovery), with three numbers indicating the number of observations, the number of different nights on which the object was observed and the arc (in days) covered by the observations; at the end of each observatory listing there is a count of the total number of observations, of the number of objects and of the number of discoveries followed by an asterisk, together with the total range of dates covered by the observations.

012 Uccle

E. W. Elst, Koninklijke Sterrenwacht van België, Ringlaan 3, B-1180 Brussels, Belgium [Thierry.Pauwels@oma.be] (1)

T. Pauwels, Koninklijke Sterrenwacht van België, Ringlaan 3, B-1180 Brussels, Belgium [Thierry.Pauwels@oma.be] (2)

Observers E. W. Elst, T. Pauwels, S. Ipatov, H. Boffin

Measurers E. W. Elst, T. Pauwels

0.85-m $f/2.5$ Schmidt + CCD

GSC-1.2

{1} 1998 FN₁₂₆, 2, 1, 0; 1999 VF₁, 4, 2, 9; 1999 VM₁, 2, 1, 0; 1999 VT₇₂ *, 4, 2, 2; 1999 VX₇₂ *, 4, 2, 2; 1999 XR₄₃, 4, 1, 0; 1999 XW₄₃, 6, 2, 3; (2383), 2, 1, 0; (12403), 2, 1, 0; [30, 9, 2*, 1999/11/01–1999/11/15]

{2} 1999 VO₁, 3, 1, 0; (1781), 1, 1, 0; (1902), 3, 1, 0; [7, 3, 0*, 1999/12/02–1999/12/11]

046 Kleť

J. Tichá, Hvězdárna Kleť, Zátkovo nábřeží 4, CZ-37001 České Budějovice, Czech Republic [klet@klet.cz]

Observers J. Tichá, M. Tichý, Z. Moravec

Measurers M. Tichý, Z. Moravec

0.57-m $f/5.2$ reflector + CCD

USNO-A2.0

1988 TR₂, 4, 1, 0; 1989 BV₁, 6, 2, 1; 1995 UT₂, 6, 2, 1; 1995 UW₂, 6, 2, 1; 1995 WN₄, 4, 1, 0; 1995 WE₆, 13, 4, 3; 1995 WF₆, 9, 3, 2; 1997 CM₄, 6, 2, 1; 1997 CN₁₃, 6, 2, 1; 1998 KK₉, 6, 2, 1; 1998 KG₃₅, 3, 1, 0; 1998 SU₁₂₉, 5, 2, 2; 1999 RL₃, 4, 1, 0; 1999 RR₂₃, 3, 1, 0; 1999 RH₂₇, 3, 1, 0; 1999 SL₅, 3, 1, 0; 1999 TF₆, 2, 1; 1999 TX₄, 6, 2, 3; 1999 TD₅, 4, 1, 0; 1999 TD₁₀, 3, 1, 0; 1999 TO₁₁, 5, 1, 0; 1999 TT₁₂, 5, 2, 1; 1999 UN₁, 4, 1, 0; 1999 UM₃, 5, 1, 0; 1999 UV₃, 6, 2, 1; 1999 UJ₁₃, 9, 2, 1; 1999 VA₁₀, 3, 8; 1999 VB₁₁, 3, 8; 1999 VU₄, 1, 0; 1999 VV₃, 1, 0; 1999 VN₆, 5, 1, 0; 1999 VP₆, 4, 1, 0; 1999 VS₆, 5, 1, 0; 1999 VO₁₁, 9, 2, 15; 1999 VP₁₁, 8, 2, 3; 1999 VQ₁₁, 4, 1, 0; 1999 VL₁₂, 5, 1, 0; 1999 VG₂₂, 6, 2, 3; 1999 VN₂₃, 13, 3, 2; 1999 VQ₂₅, 6, 2, 2; 1999 VR₂₅, 8, 2, 2; 1999 VT₂₅, 4, 1, 0; 1999 VM₄₀, 17, 4, 9; 1999 VL₄₆, 8, 2, 3; 1999 WZ₅, 1, 0; 1999 WF₁ *, 27, 6, 13; 1999 WG₁ *, 24, 5, 4; 1999 WH₁ *, 29, 5, 8; 1999 WJ₁ *, 17, 4, 3; 1999 WK₁ *, 12, 5, 10; 1999 WL₁ *, 15, 4, 3; 1999 WM₁ *, 23, 6, 9; 1999 WN₁ *, 13, 3, 2; 1999 WO₁ *, 12, 3, 2; 1999 WP₁ *, 13, 3, 2; 1999 WA₂, 10, 2, 6; 1999 WB₂, 9, 2, 9; 1999 WC₂, 9, 2, 6; 1999 WS₂ *, 15, 3, 3; 1999 WT₂ *, 16, 4, 8; 1999 WU₂ *, 17, 3, 8; 1999 WV₂ *, 11, 3, 3; 1999 WE₅ *, 11, 2, 1; 1999 WJ₉, 7, 2, 2; 1999 WK₁₃, 17, 4, 11; 1999 XB₄, 7, 2, 2; 1999 XZ₇, 5, 1, 0; 1999 XM₃₅, 8, 2, 4; 1999 XN₃₅, 5, 1, 0; 1999 XO₃₅, 8, 2, 2; 1999 XR₃₅, 4, 1, 0; 1999 XS₃₅, 8, 2, 3; 1999 XT₃₅ *, 9, 2, 2; 1999 XK₁₃₆, 4, 1, 0; 1999 XM₁₃₆, 5, 1, 0; 1999 XN₁₃₆, 4, 1, 0; (993), 3, 1, 0; (1791), 3, 1, 0; (2095), 6, 2, 1; (11714), 3, 1, 0; [664, 80, 16*, 1999/11/20–1999/12/15]

049 Kvistaberg

C.-I. Lagerkvist, Uppsala Astronomical Observatory, Box 515, S-751 20 Uppsala, Sweden [classe@astro.uu.se]

G. Hahn, DLR - Institute Space Sensor Technology and of Planetary Exploration, Rutherfordstrasse 2, D-12489 Berlin, Germany [Gerhard.Hahn@DLR.de]

Observers T. Oja, O. Karlsson, C.-I. Lagerkvist, J. Warell

Measurers J. Warell, C.-I. Lagerkvist, A. Erikson, G. Hahn, S. Mottola

1.0m Schmidt + CCD

USNO-SA2.0

1979 QF₂, 3, 1, 0; 1983 RP₃, 6, 2, 1; 1991 XD₃, 3, 1, 0; 1993 FX₂₁, 3, 1, 0; 1993 TX₁₄, 3, 1, 0; 1994 PL₃₄, 6, 2, 2; 1996 AH₉, 3, 1, 0; 1997 AR₆, 3, 1, 0; 1997 EF₃, 3, 1, 0; 1997 GF₁₇, 3, 1, 0; 1997 HW₇, 3, 1, 0; 1998 JD₂, 3, 1, 0; 1998 JK₄, 6, 1, 0; 1998 KG₃₅, 9, 3, 5; 1998 MT₃₂, 3, 1, 0; 1999 RR₁₁₀, 3, 1, 0; 1999 RM₂₁₁, 3, 1, 0; 1999 TX₁₆, 6, 2, 3; 1999 VA₆, 6, 2, 2; 1999 VL₉, 3, 1, 0; 1999 VH₁₁, 3, 1, 0; 1999 VU₁₂, 6, 2, 5; 1999 VP₂₄, 3, 1, 0; 1999 VD₂₆, 3, 1, 0; 1999 VX₂₆, 3, 1, 0; 1999 VY₂₆, 3, 1, 0; 1999 VQ₃₀, 3, 1, 0; 1999 VD₃₁, 6, 2, 5; 1999 VO₃₃, 6, 2, 8; 1999 VF₃₃, 3, 1, 0; 1999 VB₃₄, 3, 1, 0; 1999 VP₃₈, 3, 1, 0; 1999 VD₃₉, 3, 1, 0; 1999 VG₃₉, 3, 1, 0; 1999 VJ₃₉, 3, 1, 0; 1999 VK₃₉, 6, 2, 5; 1999 VO₆₈, 3, 1, 0; 1999 WM₁, 6, 2, 2; 1999 WN₁, 3, 1, 0; 1999 WF₃ *, 12, 4, 13; 1999 WG₃ *, 6, 2, 8; 1999 WB₈ *, 6, 2, 2; 1999 WC₈ *, 6, 2, 2; 1999 WD₈ *, 6, 2, 2; 1999 WE₈ *, 9, 3, 5; 1999 WF₈ *, 6, 2, 2; 1999 WG₈ *, 6, 2, 2; 1999 XM₈ *, 6, 2, 1; 1999 XN₈ *, 6, 2, 1; 4638 P-L, 6, 2, 2; 4647 P-L, 9, 3, 5; (150), 12, 3, 5; (396), 3, 1, 0; (993), 6, 2, 2; (1483), 6, 2, 5; (1658), 3, 1, 0; (1745), 3, 1, 0; (3684), 3, 1, 0; (3941), 3, 1, 0; (4005), 3, 1, 0; (4073), 3, 1, 0; (4291), 3, 1, 0; (4737), 3, 1, 0; (5679), 6, 2, 2; (6225), 3, 1, 0; (6469), 3, 1, 0; (7693), 3, 1, 0; (8854), 3, 1, 0; (9008), 3, 1, 0; (9340), 6, 2, 10; (9358), 3, 1, 0; (9646), 6, 2, 5; (10612), 3, 1, 0; (11511), 3, 1, 0; (11804), 3, 1, 0; (12183), 3, 1, 0; (12216), 3, 1, 0; (12218), 3, 1, 0; (12344), 3, 1, 0; (12356), 6, 2, 2; (12371), 6, 2, 2; (12564), 3, 1, 0; (12639), 3, 1, 0; (12645), 6, 2, 2; [372, 85, 10*, 1999/11/19–1999/12/05]

071 Bulgarian National Observatory

V. Ivanova, Institute of Astronomy, 72 Tsarigradsko Shosse Blvd., Sofia, Bulgaria [ivanova@astro.bas.bg] (1)

V. Radeva, Astronomical Observatory and Planetarium, P.O. Box 120, Varna, Bulgaria [radevi@mail.varna.techno-link.com] (2)

Observers L. Vasileva (1), A. Tsvetkova (1), V. Radeva (2), G. Borisov (2), A. Marinov (2), I. Darganov (2)

Measurers V. Ivanova (1), V. Radeva (2)

0.50-m $f/1.4$ Schmidt + CCD

USNO-A2.0

{1} 1995 WC₅, 4, 1, 0; 1999 SE₁₀, 7, 2, 1; 1999 TD₅, 7, 2, 1; 1999 TA₁₀, 7, 2, 1; 1999 TK₁₂, 7, 2, 1; 1999 UM₃, 8, 2, 1; 1999 US₃, 7, 2, 1; 1999 VV₄, 1, 0; [51, 8, 0*, 1999/11/12–1999/11/14]

{2} 1999 TK₁₂, 6, 2, 1; 1999 US₃, 6, 2, 3; 1999 VS₆, 4, 1, 0; 1999 VO₁₁, 1, 1, 0; [17, 4, 0*, 1999/11/14–1999/11/17]

094 Simeiš

Yu. N. Krugly, Astronomical Observatory of the Kharkov State University,
Sumskaya Str. 35, UA-310022 Kharkov, Ukraine
[krugly@astron.kharkov.ua]

Observer N. M. Gaftonyuk

Measurer Yu. N. Krugly

1-m Ritchey-Chrétien relector + CCD

GSC

1998 FD₁₁₄, 7, 3, 6; 1999 QW₂ *, 12, 4, 4; 1999 QX₂ *, 12, 3, 2; 1999 QY₂ *, 8, 2, 1; 1999 RQ₇₇, 5, 2, 1; (2572), 6, 1, 0; (5221), 1, 1, 0; (11521), 13, 4, 4; [64, 8, 3*, 1999/08/09–1999/08/29]

104 San Marcello Pistoiese

L. Tesi, Osservatorio di Pian dei Termini, Viale Panoramico 45, I-51028 San
Marcello Pistoiese (PT), Italy [iau@arcetri.astro.it]

Observers L. Tesi, A. Boattini, M. Tombelli

Measurers G. Forti, L. Tesi, A. Boattini, M. Tombelli

0.40-m $f/5$ reflector + CCD

GSC

1994 AW₁, 3, 1, 0; 1995 FS, 4, 1, 0; 1995 OF, 9, 3, 4; 1997 EQ₄₀, 12, 4, 12; 1997 GR₅, 4, 1, 0; 1998 OJ, 4, 1, 0; 1998 OA₁, 9, 3, 17; 1998 PA₁, 3, 1, 0; 1999 TO₁₀, 4, 1, 0; 1999 TX₁₁, 7, 2, 4; 1999 VU₁₁, 7, 2, 5; 1999 VV₁₁, 7, 2, 5; 1999 VW₂₀, 9, 2, 13; 1999 WC₉ *, 18, 5, 12; 1999 WJ₉, 4, 1, 0; 1999 XG₇₄, 9, 2, 4; [113, 16, 1*, 1999/10/08–1999/12/11]

106 Črni vrh

H. Mikuž, Kersnikova 11, SI-61000 Ljubljana, Slovenia [herman.mikuz@uni-lj.si]

Observers H. Mikuž, S. Matičič

0.36-m $f/6.7$ Schmidt-Cassegrain + CCD

USNO-A2.0

1979 QF₂, 6, 2, 2; 1993 TG₂₆, 3, 1, 0; 1995 OR, 2, 1, 0; 1996 YR, 2, 1, 0; 1997 GQ₇, 3, 1, 0; 1997 JT₁₅, 3, 1, 0; 1998 FC₆₆, 3, 1, 0; 1998 FT₇₉, 3, 1, 0; 1998 HK₁₂₄, 2, 1, 0; 1998 JJ₁, 3, 1, 0; 1998 KK₁, 3, 1, 0; 1998 KU₄, 3, 1, 0; 1998 KE₅, 2, 1, 0; 1998 KG₅₁, 3, 1, 0; 1998 MA₈, 3, 1, 0; 1998 MF₃₇, 3, 1, 0; 1998 OZ₅, 2, 1, 0; 1998 OL₈, 3, 1, 0; 1998 ON₁₁, 3, 1, 0; 1998 OV₁₂, 3, 1, 0; 1998 PA₁, 3, 1, 0; 1998 QQ₈, 3, 1, 0; 1998 QC₁₇, 3, 1, 0; 1998 QL₁₈, 3, 1, 0; 1998 QV₂₂, 3, 1, 0; 1998 QW₃₄, 3, 1, 0; 1998 QG₄₃, 2, 1, 0; 1998 QP₄₃, 3, 1, 0; 1998 QS₄₄, 3, 1, 0; 1998 QP₅₇, 3, 1, 0; 1998 QF₇₀, 3, 1, 0; 1998 QE₇₃, 3, 1, 0; 1998 QG₇₃, 3, 1, 0; 1998 QL₇₃, 3, 1, 0; 1998 QN₇₃, 2, 1, 0; 1998 QK₇₅, 3, 1, 0; 1998 QM₇₆, 3, 1, 0; 1998 QH₇₇, 2, 1, 0; 1998 QR₇₇, 2, 1, 0; 1998 QQ₈₄, 2, 1, 0; 1998 QD₉₉, 2, 1, 0; 1998 QV₁₀₂, 2, 1, 0; 1998 RV, 3, 1, 0; 1998 RN₁₃, 2, 1, 0; 1998 RF₅₀, 3, 1, 0; 1998 RW₅₂, 3, 1, 0; 1998 RW₇₅, 3, 1, 0; 1998 RB₈₀, 3, 1, 0; 1998 SQ, 3, 1, 0; 1998 SW₄₃, 3, 1, 0; 1998 SD₅₈, 3, 1, 0; 1998 SK₁₂₁, 2, 1, 0; 1998 SF₁₂₇, 3, 1, 0; 1998 SF₁₃₈, 3, 1, 0; 1998 SL₁₆₁, 3, 1, 0; 1998 UQ₁₆, 9, 2, 1; 1998 VM₁₅, 2, 1, 0; 1998 WA₁₅, 3, 1, 0; 1998 WR₂₁, 3, 1, 0; 1999 OH₃, 2, 1, 0; 1999 PY, 2, 1, 0; 1999 PC₁, 3, 1, 0; 1999 RL₃, 2, 1, 0; 1999 RH₂₇, 2, 1, 0; 1999 RW₂₇, 2, 1, 0; 1999 RT₃₈, 3, 1, 0; 1999 RT₄₃, 2, 1, 0; 1999 RA₄₄, 3, 1, 0; 1999 RB₄₄, 3, 1, 0; 1999 RS₄₄, 3, 1, 0; 1999 SN₁, 3, 1, 0; 1999 SH₂, 3, 1, 0; 1999 SD₁₁, 11, 4, 7; 1999 SW₁₁, 10, 4, 8; 1999 TY₁, 3, 1, 0; 1999 TA₃, 3, 1, 0; 1999 TJ₅, 3, 1, 0; 1999 TV₅, 3, 1, 0; 1999 TG₈, 3, 1, 0; 1999 TP₁₁, 2, 1, 0; 1999 TQ₁₁, 6, 2, 8; 1999 TS₁₁, 3, 1, 0; 1999 TU₁₁, 5, 2, 2; 1999 TB₁₂, 3, 1, 0; 1999 TP₁₂, 3, 1, 0; 1999 TX₁₂, 3, 1, 0; 1999 TB₁₃, 3, 1, 0; 1999 TC₁₃, 3, 1, 0; 1999 TD₁₃, 3, 1, 0; 1999 TG₁₃, 9, 3, 9; 1999 TX₁₃, 3, 1, 0; 1999 TF₁₄, 3, 1, 0; 1999 TK₁₄, 3, 1, 0; 1999 TN₁₄, 3, 1, 0; 1999 TW₁₄, 6, 2, 2; 1999 TZ₁₄, 3, 1, 0; 1999 TT₁₅, 3, 1, 0; 1999 TV₁₅, 3, 1, 0; 1999 TB₁₇, 3, 1, 0; 1999 TF₁₇, 6, 2, 2; 1999 TH₁₇, 3, 1, 0; 1999 TO₁₇, 3, 1, 0; 1999 TF₁₈, 3, 1, 0; 1999 TJ₁₈, 5, 2, 2; 1999 TU₁₈, 6, 2, 2; 1999 TY₁₈, 5, 2, 2; 1999 TZ₁₈, 3, 1, 0; 1999 TC₂₇, 3, 1, 0; 1999 UC₁, 9, 3, 2; 1999 UF₁, 3, 1, 0; 1999 UY₁, 6, 2, 2; 1999 VP₇, 6, 2, 1; 1999 VT₇, 11, 3, 7; 1999 WD₁, 3, 1, 0; 1999 WM₁, 6, 2, 1; 1999 WD₉ *, 12, 4, 8; 1999 WE₉ *, 6, 2, 1; 1999 WF₉ *, 14, 5, 14; 1999 WS₁₃ *, 6, 2, 5; 1999 XH₂₉, 6, 2, 6; 1999 XO₃₅, 3, 1, 0; 1999 XO₃₇ *, 8, 3, 7; 1999 XP₃₇ *, 6, 3, 7; 1999 XX₄₃, 6, 2, 6; 1999 XU₇₃, 3, 1, 0; 1999 XB₁₀₄, 6, 2, 6; 1999 XW₁₂₅, 3, 1, 0; 1999 XT₁₂₇ *, 6, 2, 6; 1999 XU₁₂₇ *, 6, 2, 6; 3024 P-L, 2, 1, 0; 3040 P-L, 3, 1, 0; 3541 P-L, 3, 1, 0; 4026 P-L, 3, 1, 0; 4161 P-L, 5, 2, 2; 4517 P-L, 3, 1, 0; 6054 P-L, 3, 1, 0; 6634 P-L, 2, 1, 0; 6670 P-L, 2, 1, 0; 6745 P-L, 3, 1, 0; 1290 T-1, 3, 1, 0; 3099 T-1, 6, 2, 2; 4290 T-1, 6, 2, 2; 4321 T-1, 3, 1, 0; 1264 T-2, 3, 1, 0; 2039 T-2, 2, 1, 0; 2232 T-2, 3, 1, 0; 3159 T-2, 3, 1, 0; 4165 T-2, 2, 1, 0; 4297 T-2, 3, 1, 0; 1036 T-3, 3, 1, 0; 1194 T-3, 3, 1, 0; 4012 T-3, 3, 1, 0; 4072 T-3, 6, 2, 2; (248), 6, 2, 1; (2315), 3, 1, 0; (2442), 3, 1, 0; (5873), 3, 1, 0; (8714), 3, 1, 0; (9213), 1, 1, 0; (9273), 2, 1, 0; (9337), 3, 1, 0; (9403), 2, 1, 0; (11920), 3, 1, 0; (12155), 3, 1, 0; (12489), 3, 1, 0; (12492), 3, 1, 0; (12505), 3, 1, 0; (12523), 3, 1, 0; (12535), 3, 1, 0; (12540), 3, 1, 0; (12543), 3, 1, 0; (12547), 5, 2, 1; (12549), 3, 1, 0;

(12552), 3, 1, 0; (12559), 1, 1, 0; (12562), 3, 1, 0; (12565), 3, 1, 0; (12566), 3, 1, 0; (12582), 2, 1, 0; (12610), 3, 1, 0; (12611), 1, 1, 0; (12614), 6, 2, 2; (12617), 6, 2, 2; (12619), 6, 2, 2; (12623), 6, 2, 2; (12624), 2, 1, 0; (12625), 6, 2, 2; (12629), 5, 2, 2; (12637), 3, 1, 0; (12638), 3, 1, 0; (12639), 9, 3, 2; (12643), 6, 2, 2; (12644), 3, 1, 0; (12645), 6, 2, 2; (12651), 3, 1, 0; (12655), 3, 1, 0; (12656), 3, 1, 0; [719, 197, 8*, 1999/10/01–1999/12/14]

107 Cavezzo

M. Nicolini, via C. Battisti 48, I-41032 Carpi (MO), Italy [mnico@iol.it]

Observers M. Nicolini, M. Facchini

Measurer M. Nicolini

0.40-m $f/5.5$ reflector + CCD

GSC

1995 DZ₁, 3, 1, 0; (1517), 2, 1, 0; [5, 2, 0*, 1999/12/08]

108 Montelupo

M. Tombelli, Via Bozzeto 26, I-50056 Montelupo (Fi), Italy

[iau@arcetri.astro.it]

Observers M. Tombelli, A. Boattini, L. Tesi, D. Guidetti, E. Masotti

Measurers M. Tombelli, A. Boattini, L. Tesi, S. Bartolini, G. Forti

0.30-m $f/5.7$ Schmidt-Cassegrain + CCD

GSC

1996 CU₈, 9, 3, 10; 1999 GK₄, 3, 1, 0; 1999 RV₂, 4, 1, 0; 1999 RH₂₇, 3, 1, 0; 1999 VV, 3, 1, 0; 1999 VN₆, 7, 2, 10; 1999 VO₁₁, 3, 1, 0; 1999 VW₂₀, 3, 1, 0; 1999 WK₁₃, 9, 2, 1; 1999 XS₃₅, 6, 2, 1; (9426), 2, 1, 0; (9808), 3, 1, 0; [55, 12, 0*, 1999/11/27–1999/12/07]

113 Volkssternwarte Drebach, Schönbrunn

G. Lehmann, Persterstrasse 6h, D-09430 Drebach, Germany

[g.lehmann@abo.freiepresse.de]

0.50-m $f/4.0$ reflector + CCD

USNO-A2.0

1990 TD₁₂, 2, 1, 0; 1994 RR₁₁, 2, 1, 0; 1999 RW₃₂, 2, 1, 0; 1999 RC₃₆, 3, 1, 0; (777), 4, 1, 0; (12298), 2, 1, 0; (12323), 2, 1, 0; [17, 7, 0*, 1999/11/26–1999/11/29]

116 Giesing

H. Beuchat, European Patent Office, Erhardstrasse 27, D-80331 Munich, Germany

[100341.75@compuserve.com]

Observers J.-L. Dighaye, P. Sala

Measurers P. Sala, H. Beuchat

0.20-m reflector + CCD

1999 TZ₁₆, 4, 4, 39; [4, 1, 0*, 1999/10/18–1999/11/26]

118 Modra

A. Galád, AGO MFF UK, P.O. Box 4, SK-90001 Modra, Slovakia

[ago@fmph.uniba.sk]

Observers A. Galád, P. Kolény, J. Tóth, L. Kornoš, Š. Gajdoš

0.6-m $f/5.5$ reflector + CCD

USNO-A1.0, USNO-A2.0

1986 TV₆, 2, 1, 0; 1991 BB, 2, 1, 0; 1995 UY₄₄, 5, 2, 2; 1996 AX₁, 4, 2, 11; 1996 DB₃, 2, 1, 0; 1997 WU₂₂, 1, 1, 0; 1998 KG₃₅, 3, 1, 0; 1998 XS₁₆, 2, 1, 0; 1999 RV₂, 5, 2, 4; 1999 RH₂₇, 4, 2, 3; 1999 TD₅, 7, 3, 11; 1999 UM₃, 3, 1, 0; 1999 UU₄, 4, 2, 3; 1999 UV₄, 3, 2, 3; 1999 VU₂, 2, 1, 0; 1999 VV, 5, 2, 2; 1999 VN₆, 3, 1, 0; 1999 VO₁₁, 7, 3, 5; 1999 VQ₁₁, 2, 1, 0; 1999 VY₂₇, 6, 3, 11; 1999 VM₄₀, 2, 1, 0; 1999 VL₄₆, 3, 1, 0; 1999 WY, 4, 2, 11; 1999 WZ, 2, 1, 0; 1999 WA₂, 5, 2, 4; 1999 WK₁₃, 5, 2, 5; 1999 XZ₇, 3, 1, 0; 1999 XO₃₅, 9, 3, 5; 1999 XS₃₅, 6, 2, 1; 1999 XU₃₅ *, 13, 5, 5; 1999 XK₁₃₆, 4, 1, 0; 1999 XM₁₃₆, 4, 1, 0; (3200), 2, 1, 0; (6909), 2, 1, 0; (7092), 2, 1, 0; [138, 35, 1*, 1999/11/27–1999/12/14]

120 Višnjan

K. Korlević, Istarska 5, HR-51463 Višnjan, Croatia [korado@visnjan.hr]

Observers K. Korlević, P. Korlević

Measurer K. Korlević

0.41-m $f/4.3$ reflector + CCD

USNO-SA1.0

1934 JP₄, 4, 2, 8; 1981 EB₄₃, 2, 1, 0; 1982 VU₂, 6, 2, 6; 1983 RP₃, 2, 1, 0; 1987 SJ₂, 5, 2, 1; 1989 TR₂, 2, 1, 0; 1991 LF₂, 2, 1, 0; 1991 PT₁, 4, 2, 1; 1991 VE₂, 2, 1, 0; 1992 DY₇, 4, 2, 8; 1992 OL₃, 2, 1, 0; 1992 UT₂, 4, 2, 1; 1992 UK₈, 2, 1, 0; 1993 FU₁₁, 6, 2, 2; 1993 FO₂₇, 2, 1, 0; 1993 FJ₃₃, 2, 1, 0; 1994 WE₄, 7, 3, 2; 1995 TR₄, 4, 2, 6; 1995 UN₄, 4, 2, 2; 1995 VH₂, 3, 1, 0; 1995 WM₄, 4, 2, 12; 1995 WQ₇, 3, 1, 0; 1995 WV₇, 5, 2, 1; 1996 AU₆, 4, 2, 1; 1996 ES₁, 2, 1, 0; 1996 HT₁₅, 3, 1, 0; 1996 HF₁₈, 2, 1, 0; 1997 AS₇, 2, 1, 0; 1997 AQ₁₅, 2, 1, 0; 1997 GK₁₆, 2, 1, 0; 1997 MB₉, 6, 2, 1; 1998 FK₆₅, 3, 1, 0; 1998 HO₃₀, 4, 2, 1; 1998 HL₃₄, 6, 2, 1; 1998 JX₂, 2, 1, 0; 1998 JK₄, 2, 1, 0; 1998 KS₁, 9, 4, 14; 1998 KD₅, 3, 1, 0; 1998 MT₃₂, 2, 1, 0; 1998 MZ₄₁, 3, 1, 0; 1998 OM₄, 2, 9; 1998 QF₃₁, 3, 1, 0; 1998 QW₇₀, 2, 1, 0; 1998 QG₇₃, 5, 2, 10; 1998 RN₁₃, 10, 5, 15; 1998 RN₆₂, 2, 1, 0; 1998 RB₆₅, 4, 2, 5; 1998 RJ₇₂, 2, 1, 0; 1998 SQ₄, 2, 2, 10; 1998 SN₂₇, 3, 1, 0; 1999 OJ₃, 3, 1, 0; 1999 RX₃₄, 3, 1, 0; 1999 TJ₆, 3, 1, 0; 1999 TW₁₁, 6, 2, 2; 1999 TM₁₄, 8, 3, 9; 1999 TE₁₇, 2, 1, 0; 1999 TG₂₀, 2, 1, 0; 1999 TN₂₇, 7, 3, 2; 1999 TQ₂₇, 5, 2, 2; 1999 US₂, 1, 0; 1999 UE₂, 3, 1, 0; 1999 UG₂, 2, 1, 0; 1999 UN₃, 6, 3, 14; 1999 UE₄, 2, 1, 0; 1999 UZ₆, 6, 3, 2; 1999 UQ₈, 4, 2, 1; 1999 UU₈, 2, 1, 0; 1999 UF₉, 2, 1, 0; 1999 UM₁₁, 3, 1, 0; 1999 VK₁, 3, 1, 0; 1999 VC₂, 2, 1, 0; 1999 VS₄, 2, 1, 0; 1999 VT₄, 3, 1, 0; 1999 VV₄, 11, 4, 5; 1999 VW₄, 2, 1, 0; 1999 VX₄, 4, 2, 4; 1999 VZ₄, 2, 1, 0; 1999 VD₅, 3, 1, 0; 1999 VE₅, 3, 1, 0; 1999 VF₅, 2, 1, 0; 1999 VG₅, 7, 3, 2; 1999 VL₅, 2, 1, 0; 1999 VU₅, 2, 1, 0; 1999 VV₅, 2, 1, 0; 1999 VW₅, 4, 2, 1; 1999 VX₅, 5, 2, 1; 1999 VY₅, 2, 1, 0; 1999 VB₆, 6, 3, 8; 1999 VC₆, 4, 2, 9; 1999 VD₆, 3, 1, 0; 1999 VG₆, 2, 1, 0; 1999 VJ₆, 2, 1, 0; 1999 VU₆, 8, 3, 2; 1999 VC₇, 6, 2, 1; 1999 VD₇, 8, 3, 2; 1999 VE₇, 3, 1, 0; 1999 VG₇, 3, 1, 0; 1999 VH₇, 2, 1, 0; 1999 VJ₇, 7, 3, 2; 1999 VK₇, 3, 1, 0; 1999 VL₇, 3, 1, 0; 1999 VN₇, 8, 3, 9; 1999 VO₇, 2, 1, 0; 1999 VP₇, 7, 3, 4; 1999 VS₇, 5, 2, 1; 1999 VZ₇, 6, 3, 10; 1999 VB₈, 2, 1, 0; 1999 VC₈, 4, 2, 1; 1999 VE₈, 7, 3, 9; 1999 VF₈, 5, 2, 1; 1999 VG₈, 6, 2, 1; 1999 VJ₈, 2, 1, 0; 1999 VK₈, 2, 1, 0; 1999 VG₉, 2, 1, 0; 1999 VL₉, 2, 1, 0; 1999 VN₉, 3, 1, 0; 1999 VQ₉, 4, 2, 8; 1999 VR₉, 3, 1, 0; 1999 VH₁₀, 2, 1, 0; 1999 VM₁₀, 5, 2, 8; 1999 VR₁₀, 4, 2, 7; 1999 VD₁₁, 2, 1, 0; 1999 VG₁₁, 2, 1, 0; 1999 VK₁₁, 5, 1, 0; 1999 VN₁₂, 5, 2, 1; 1999 VU₁₂, 5, 2, 1; 1999 VH₁₉, 5, 2, 6; 1999 VJ₁₉, 4, 2, 1; 1999 VK₁₉, 2, 1, 0; 1999 VL₁₉, 3, 1, 0; 1999 VM₁₉, 6, 2, 2; 1999 VP₁₉, 2, 1, 0; 1999 VV₁₉, 2, 1, 0; 1999 VX₁₉, 2, 1, 0; 1999 VE₂₀, 2, 1, 0; 1999 VY₂₀, 4, 2, 1; 1999 VN₂₁, 3, 1, 0; 1999 VP₂₁, 7, 3, 2; 1999 VQ₂₁, 2, 1, 0; 1999 VR₂₁, 6, 3, 4; 1999 VS₂₁, 11, 5, 12; 1999 VU₂₁, 2, 1, 0; 1999 VX₂₁, 6, 2, 1; 1999 VY₂₁, 3, 1, 0; 1999 VB₂₂, 2, 1, 0; 1999 VC₂₂, 6, 3, 4; 1999 VZ₂₂, 2, 1, 0; 1999 VJ₂₆, 5, 1, 0; 1999 VX₂₆, 5, 2, 1; 1999 VS₂₇, 7, 2, 1; 1999 VS₃₀, 9, 4, 4; 1999 VC₃₁, 9, 4, 4; 1999 VG₃₁, 5, 2, 1; 1999 VJ₃₁, 5, 2, 1; 1999 VK₃₃, 5, 1, 0; 1999 VS₃₃, 4, 2, 1; 1999 VH₃₄, 4, 2, 1; 1999 VJ₃₄, 4, 2, 1; 1999 VM₃₄, 4, 2, 1; 1999 VO₃₄, 2, 1, 0; 1999 VP₃₄, 3, 1, 0; 1999 VS₃₄, 7, 3, 8; 1999 VT₃₄, 4, 2, 1; 1999 VB₃₅, 4, 2, 1; 1999 VM₃₅, 4, 2, 1; 1999 VO₃₅, 4, 2, 1; 1999 VR₃₅, 4, 2, 1; 1999 VS₃₅, 6, 3, 3; 1999 VU₃₅, 8, 4, 3; 1999 VD₃₆, 8, 3, 10; 1999 VJ₃₆, 4, 2, 6; 1999 VM₃₆, 4, 2, 1; 1999 VR₃₆, 6, 3, 2; 1999 VS₃₆, 4, 2, 1; 1999 VY₃₆, 6, 2, 1; 1999 VJ₃₇, 6, 3, 2; 1999 VL₃₇, 2, 1, 0; 1999 VJ₃₉, 7, 3, 2; 1999 VL₅₄, 6, 2, 1; 1999 VN₅₆, 6, 2, 1; 1999 VV₅₉, 7, 3, 2; 1999 VU₆₀, 8, 3, 2; 1999 VF₆₁, 4, 2, 1; 1999 VJ₆₂, 4, 2, 1; 1999 VK₆₂, 7, 3, 2; 1999 VR₆₂, 4, 2, 1; 1999 VZ₆₅, 8, 3, 2; 1999 VO₆₈, 6, 3, 2; 1999 VN₇₂, 11, 4, 5; 1999 WF₄, 2, 1; 1999 WP₄, 4, 2, 1; 1999 WR₁ *, 9, 4, 5; 1999 WS₁ *, 15, 6, 18; 1999 WT₁ *, 12, 5, 12; 1999 WU₁ *, 12, 5, 18; 1999 WV₁ *, 9, 4, 12; 1999 WW₁ *, 4, 2, 1; 1999 WX₁ *, 7, 3, 2; 1999 WY₁ *, 7, 3, 5; 1999 WZ₁ *, 6, 3, 5; 1999 WJ₂ *, 8, 3, 4; 1999 WK₂ *, 6, 3, 4; 1999 WL₂ *, 4, 2, 1; 1999 WM₂ *, 7, 3, 2; 1999 WN₂ *, 9, 4, 3; 1999 WO₂ *, 6, 3, 9; 1999 WP₂ *, 8, 3, 10; 1999 WW₂ *, 8, 4, 10; 1999 WX₂ *, 7, 3, 2; 1999 WY₂ *, 7, 3, 2; 1999 WZ₂ *, 4, 2, 1; 1999 WA₃ *, 6, 3, 9; 1999 WB₃ *, 9, 4, 9; 1999 WC₃ *, 6, 3, 2; 1999 WA₆ *, 5, 2, 1; 1999 WB₆ *, 7, 3, 9; 1999 WC₆ *, 8, 3, 9; 1999 WD₆ *, 7, 3, 9; 1999 WE₆ *, 7, 3, 9; 1999 WF₆ *, 8, 3, 9; 1999 WG₆ *, 6, 2, 1; 1999 WH₆ *, 8, 3, 9; 1999 WJ₆ *, 8, 3, 9; 1999 WK₆ *, 6, 3, 9; 1999 WL₆ *, 7, 3, 8; 1999 WM₆ *, 9, 4, 9; 1999 WN₆ *, 6, 3, 2; 1999 WO₆ *, 9, 4, 9; 1999 WP₆ *, 7, 3, 8; 1999 WQ₆ *, 9, 4, 9; 1999 WR₆ *, 7, 3, 2; 1999 WS₆ *, 8, 4, 8; 1999 WT₆ *, 11, 5, 15; 1999 WU₆ *, 8, 4, 8; 1999 WV₆ *, 8, 4, 9; 1999 WW₆ *, 8, 4, 9; 1999 WX₆ *, 8, 4, 9; 1999 WY₆ *, 4, 2, 1; 1999 WZ₆ *, 8, 4, 8; 1999 WA₇ *, 11, 5, 15; 1999 WB₇ *, 10, 5, 15; 1999 WC₇ *, 9, 4, 15; 1999 WD₇ *, 4, 2, 1; 1999 WE₇ *, 12, 5, 15; 1999 WF₇ *, 10, 5, 9; 1999 WG₇ *, 4, 2, 1; 1999 WH₇ *, 4, 2, 1; 1999 WJ₇ *, 8, 4, 9; 1999 WK₇ *, 7, 3, 8; 1999 WL₇ *, 4, 2, 1; 1999 WM₇ *, 8, 4, 15; 1999 WN₇ *, 6, 3, 8; 1999 WO₇ *, 4, 2, 1; 1999 WP₇ *, 6, 3, 7; 1999 WQ₇ *, 6, 3, 8; 1999 WR₇ *, 6, 3, 8; 1999 WS₇ *, 11, 5, 15; 1999 WT₇ *, 6, 3, 7; 1999 WU₇ *, 11, 5, 9; 1999 WV₇ *, 9, 3, 7; 1999 WW₇ *, 6, 3, 7; 1999 WX₇ *, 8, 4, 8; 1999 WY₇ *, 7, 3, 7; 1999 WL₉, 2, 1, 0; 1999 WB₁₁, 2, 1, 0; 1999 WC₁₁, 2, 1, 0; 1999 WL₁₃ *, 6, 3, 8; 1999 WM₁₃ *, 4, 2, 6; 1999 WN₁₃ *, 6, 3, 8; 1999 WO₁₃ *, 4, 2, 6; 1999 WP₁₃ *, 6, 3, 7; 1999 WQ₁₃ *, 4, 2, 6; 1999 WR₁₃ *, 8, 4, 14; 1999 WG₁₈ *, 5, 2, 8; 1999 WH₁₈ *, 5, 2, 7; 1999 WJ₁₈ *, 6, 3, 8; 1999 WK₁₈ *, 7, 3, 8; 1999 WL₁₈ *, 6, 3, 8; 1999 WM₁₈ *, 4, 2, 6; 1999 XK₂, 2, 1, 0; 1999 XQ₂, 2, 1, 0; 1999 XO₁₃, 5, 2, 2; 1999 XJ₁₅ *, 8, 3, 8; 1999 XK₁₅ *, 7, 4, 8; 1999 XL₁₅ *, 9, 4, 8; 1999 XM₁₅ *, 7, 3, 8; 1999 XN₁₅ *, 6, 3, 8; 1999 XO₁₅ *, 4, 2, 1; 1999 XP₁₅ *, 6, 3, 2; 1999 XQ₁₅ *, 8, 4, 8; 1999 XR₁₅ *, 6, 3, 8; 1999 XS₁₅ *, 6, 3, 2; 1999 XT₁₅ *, 5, 3, 2; 1999 XU₁₅ *, 5, 3, 2; 1999 XV₁₅ *, 6, 3, 2; 1999 XW₁₅ *, 5, 3, 2; 1999 XX₁₅ *, 4, 2, 1; 1999 XY₁₅ *, 6, 2, 1; 1999 XZ₁₅ *, 6, 2, 1; 1999 XP₂₂, 3, 1, 0; 1999 XS₂₅, 2, 1, 0; 1999 XJ₃₆ *, 4, 2, 1; 1999 XK₃₆ *, 7, 3, 7; 1999 XZ₇₀, 2, 1, 0; 1999 XQ₁₂₇ *, 4, 2, 7;

6745 P-L, 2, 1, 0; 9534 P-L, 5, 2, 1; 3156 T-2, 2, 1, 0; (342), 4, 1, 0; (555), 5, 2, 1; (818), 2, 1, 0; (822), 3, 1, 0; (832), 2, 1, 0; (1060), 6, 2, 6; (1198), 5, 2, 1; (1253), 2, 1, 0; (1281), 5, 2, 1; (1389), 3, 1, 0; (1483), 2, 1, 0; (1551), 2, 1, 0; (1611), 4, 2, 2; (1745), 2, 1, 0; (1748), 6, 3, 8; (1779), 2, 1, 0; (1909), 3, 1, 0; (1964), 2, 1, 0; (2129), 4, 2, 2; (2149), 2, 1, 0; (2155), 2, 1, 0; (2225), 5, 2, 1; (2256), 2, 1, 0; (2277), 2, 1, 0; (2549), 2, 1, 0; (2707), 2, 1, 0; (2780), 7, 3, 7; (2783), 6, 3, 2; (2812), 7, 3, 10; (2847), 2, 1, 0; (2863), 2, 1, 0; (2882), 2, 1, 0; (3061), 5, 2, 1; (3071), 9, 4, 5; (3108), 2, 1, 0; (3111), 2, 1, 0; (3247), 2, 1, 0; (3355), 5, 2, 1; (3455), 9, 4, 5; (3510), 2, 1, 0; (3634), 2, 1, 0; (3646), 7, 3, 4; (3756), 2, 1, 0; (3848), 8, 3, 9; (3889), 2, 1, 0; (3916), 2, 1, 0; (4039), 2, 1, 0; (4073), 3, 1, 0; (4108), 4, 2, 3; (4199), 6, 3, 10; (4211), 2, 1, 0; (4294), 2, 1, 0; (4376), 3, 1, 0; (4500), 2, 1, 0; (5019), 2, 1, 0; (5021), 4, 2, 8; (5100), 2, 1, 0; (5258), 2, 1, 0; (5309), 3, 1, 0; (5371), 3, 1, 0; (5581), 2, 1, 0; (5599), 2, 1, 0; (5880), 2, 1, 0; (6003), 7, 3, 2; (6012), 5, 2, 7; (6111), 2, 1, 0; (6236), 4, 2, 4; (6537), 3, 1, 0; (6658), 6, 3, 7; (6660), 2, 1, 0; (6661), 4, 2, 6; (6903), 2, 1, 0; (6983), 3, 1, 0; (7056), 6, 3, 2; (7208), 2, 1, 0; (7210), 4, 2, 6; (7312), 7, 3, 5; (7396), 2, 1, 0; (7401), 2, 1, 0; (7478), 11, 5, 15; (7492), 3, 1, 0; (7619), 2, 1, 0; (7700), 2, 1, 0; (7796), 4, 2, 7; (8670), 7, 2, 1; (8785), 2, 1, 0; (8979), 4, 2, 2; (9045), 7, 3, 9; (9050), 2, 1, 0; (9110), 2, 1, 0; (9130), 2, 1, 0; (9259), 2, 1, 0; (9273), 2, 1, 0; (9330), 2, 1, 0; (9371), 3, 1, 0; (9384), 2, 1, 0; (9386), 3, 1, 0; (9393), 4, 2, 3; (9422), 2, 1, 0; (9472), 6, 3, 9; (9473), 2, 1, 0; (9519), 2, 1, 0; (9646), 7, 3, 2; (9657), 2, 1, 0; (9664), 7, 3, 15; (9721), 3, 1, 0; (9891), 2, 1, 0; (11377), 7, 3, 7; (11826), 3, 1, 0; (11845), 2, 1, 0; (12183), 2, 1, 0; (12196), 2, 1, 0; (12241), 4, 2, 1; (12263), 2, 1, 0; (12280), 2, 1, 0; (12293), 2, 1, 0; (12297), 2, 1, 0; (12333), 9, 4, 5; (12378), 4, 2, 1; (12382), 2, 1, 0; (12404), 2, 1, 0; (12426), 2, 1, 0; (12450), 9, 3, 5; (12489), 2, 1, 0; (12491), 11, 5, 15; (12537), 2, 1, 0; (12633), 2, 1, 0; (12643), 2, 1, 0; [1997, 436, 105*, 1999/11/25–1999/12/13]

127 Bornheim

N. Ehring, Stationenweg 54, D-53332 Bornheim, Germany [norbert.ehring@t-online.de]

0.30-m $f/3.2$ FFC + CCD

USNO-A2.0

1999 TU₁₇, 6, 3, 20; [6, 1, 0*, 1999/11/15–1999/12/05]

130 Lumezzane

S. Foglia, F. Bisleri 11, I-20418 Milan, Italy [s.foglia@libero.it]

Observers G. Pizzetti, W. Marinello, S. Foglia, L. Cocca

0.40-m $f/4$ reflector + CCD

USNO-A1.0

1999 US₃, 5, 1, 0; 1999 XD₁₂₇, 14, 2, 6; (7628), 4, 1, 0; [23, 3, 0*, 1999/11/27–1999/12/13]

132 Bedoin

P. Antonini, 47 rue Guillaume Puy, F-84000 Avignon, France

[Pierre.Antonini@wanadoo.fr]

0.305-m $f/3.0$ reflector + CCD

USNO

1999 UO₇, 4, 1, 0; 1999 VM₈, 4, 1, 0; 1999 WK₉ *, 9, 3, 7; 1999 WB₁₃ *, 7, 3, 7; [24, 4, 2*, 1999/11/26–1999/12/06]

133 Les Tardieux

M. Boeuf, Les Tardieux, St Julien, F-13500 Martigues, France

[Michel.Boeuf@wanadoo.fr]

0.20-m $f/3.5$ reflector + CCD

GSC

1997 AB₁₃, 3, 1, 0; 1999 XG₂ *, 8, 3, 5; 1999 XJ₁₀₅ *, 8, 3, 2; (3790), 3, 1, 0; (9480), 6, 2, 5; [28, 5, 2*, 1999/12/02–1999/12/12]

143 Gnosca

S. Sposetti, CH-6525 Gnosca, Switzerland [spo@bluewin.ch]

0.20-m $f/7.1$ reflector + CCD

USNO-SA1.0,GSC

1978 VO₂, 8, 3, 9; 1990 VF₈, 3, 1, 0; 1993 FP₂₉, 4, 1, 0; 1999 TW₁₀, 3, 1, 0; 1999 TA₁₁, 3, 2, 1; 1999 TD₁₂, 3, 2, 1; 1999 TY₁₃, 4, 2, 1; 1999 UZ₃, 4, 2, 1; 1999 UA₄, 8, 2, 1; 1999 VA₆, 2, 1, 0; 1999 VP₈, 5, 2, 1; 1999 VY₁₀, 8, 2, 1; 1999 VZ₁₀, 2, 2, 1; 1999 VA₁₁, 5, 2, 1; 1999 VB₁₁, 5, 2, 3; 1999 VR₂₀, 8, 2, 1; 1999 VZ₂₂, 4, 1, 0; 1999 VA₂₃, 6, 3, 6; 1999 VB₂₃, 6, 3, 3; 1999 VC₂₃, 5, 2,

7; 1999 VD₂₃, 2, 1, 0; 1999 VE₂₃, 8, 2, 2; 1999 VK₂₃, 3, 1, 0; 1999 WO₈ *, 11, 4, 9; 1999 WP₈ *, 9, 4, 8; 1999 WQ₈ *, 11, 4, 8; 1999 WR₈ *, 9, 3, 2; 1999 WS₈ *, 10, 4, 9; 1999 WT₈ *, 10, 3, 2; 1999 WU₈ *, 10, 3, 2; 1999 WV₈ *, 12, 4, 9; 1999 WW₈ *, 9, 3, 2; 1999 WX₈ *, 10, 4, 9; 1999 WY₈ *, 7, 3, 2; 1999 WZ₈ *, 12, 4, 9; 1999 WA₉ *, 7, 4, 9; 1999 XZ₃₇ *, 4, 2, 1; 1999 XA₃₈ *, 6, 2, 1; 1999 XB₃₈ *, 5, 2, 1; 1999 XC₃₈ *, 5, 2, 1; 1999 XP₁₂₇ *, 7, 3, 7; (6094), 3, 1, 0; (8424), 8, 2, 1; (8671), 4, 2, 1; (12523), 4, 1, 0; [282, 45, 18*, 1999/11/17–1999/12/13]

151 Eschenberg Observatory, Winterthur

M. Griesser, Breitenstrasse 2, CH-8542 Wiesendangen, Switzerland

[griesser@spectraweb.ch]

0.25-m $f/8.0$ reflector + CCD

GSC

1994 RR₁₁, 9, 2, 6; 1999 RH₂₇, 11, 2, 6; 1999 VU, 5, 1, 0; 1999 XO₃₅, 6, 1, 0; 1999 XS₃₅, 10, 2, 3; (3838), 4, 1, 0; [45, 6, 0*, 1999/11/27–1999/12/08]

158 Promiod

G. A. Sala, CCD Astronomy Research Centre, Via Cottalorda 27, I-21022 Azzate

(VA), Italy [g.sala@skylink.it]

0.30-m $f/6.9$ Schmidt-Cassegrain + CCD

USNO-SA1.0

1999 VD₁₀, 2, 1, 0; [2, 1, 0*, 1999/11/29]

159 Monte Agliale

S. Donati, Monte Agliale Astronomical Observatory, Borgo a Mozzano, Lucca,

Italy [ilra@comune.lucca.it]

Observers M. M. M. Santangelo, S. Donati, M. Ziboli

0.51-m $f/4.5$ Newtonian reflector + CCD

USNO-A1.0, USNO-A2.0

1991 XD, 3, 1, 0; 1999 PL, 4, 1, 0; 1999 RY₃₂, 6, 1, 0; 1999 SX₄, 4, 1, 0; 1999 SX₉, 4, 1, 0; 1999 TD₁₁, 5, 1, 0; 1999 TY₁₂, 3, 1, 0; 1999 VZ₂, 6, 1, 0; 1999 VR₁₁, 17, 3, 10; 1999 VX₂₀, 11, 3, 3; 1999 WR₂ *, 21, 4, 16; 1999 WZ₇ *, 10, 2, 1; 1999 WL₈ *, 14, 3, 3; 1999 WM₈ *, 20, 3, 3; 1999 WN₈ *, 21, 3, 3; 1999 XL₉, 3, 1, 0; 1999 XR₃₇ *, 10, 2, 4; 1999 XS₃₇ *, 10, 2, 4; 1999 XT₃₇ *, 11, 2, 4; 1999 XU₃₇ *, 9, 2, 4; (352), 5, 1, 0; (3050), 2, 1, 0; (6908), 4, 1, 0; (12268), 4, 1, 0; [207, 24, 9*, 1999/11/25–1999/12/13]

162 Potenza

A. M. Giambersio, 22 R. Scotellaro Street, I-85100 Potenza, Italy

[agiamber@tin.it]

0.20-m $f/6.3$ reflector + CCD

GSC

(6), 4, 2, 3; [4, 1, 0*, 1999/12/03–1999/12/06]

169 Rosignano

S. Puccini, Airali Observatory, Via Montegrappa 16, I-15030 Rosignano, Italy

[starfield@tin.it]

Observer S. Puccini

0.25-m Schmidt-Cassegrain + CCD

GSC

1999 VL₅, 2, 1, 0; 1999 VO₅, 7, 2, 1; (3607), 5, 1, 0; (3646), 8, 2, 1; [22, 4, 0*, 1999/11/14–1999/11/28]

171 Flarestar Observatory, San Gwann

S. M. Brincat, Fl. 5 Ent. B, Silver Jubilee Apt., Ta' Zwej, San Gwann SGN 09,

Malta [sbrincat@orbit.net.mt]

0.25-m $f/2.6$ Schmidt-Cassegrain + CCD

GSC-ACT

1999 US₃, 5, 2, 2; [5, 1, 0*, 1999/12/02–1999/12/05]

174 Nyrola Observatory, Jyväskylä

A. Oksanen, Verkkoniementie 30, SF-40950 Muurame, Finland

[Arto.Oksanen@tietoenator.com]

Observers H. Hyvonen, M. Moilanen

0.41-m $f/3.3$ Schmidt-Cassegrain + CCD

GSC

1999 VO₂₄, 1, 1, 0; [1, 1, 0*, 1999/11/30]

294 Astrophysical Observatory, College of Staten Island

I. Robbins, The College of Staten Island, 2800 Victory Boulevard, Staten Island,

NY 10314, U.S.A. [robbins@postbox.csi.cuny.edu]

Observers I. Robbins, S. Joyce

Measurers K. Rowan, S. Parello

0.41-m $f/4.7$ Schmidt-Cassegrain + CCD

GSC

1999 RH₂₇, 5, 2, 2; 1999 XO₃₅, 3, 1, 0; 1999 XS₃₅, 3, 1, 0; (3838), 5, 2, 2; (4727), 3, 1, 0; (8875), 5, 2, 2; [24, 6, 0*, 1999/11/05–1999/12/09]

327 Peking Observatory, Xinglong Station

J. Zhu, Peking Astronomical Observatory, Chinese Academy of Sciences,

Zhongguancun, Peking 100101, Peoples Republic of China

[zj@bac.pku.edu.cn]

Observers J. Zhu, X. M. Teng, X. Y. Li

Measurers X. Y. Li, X. M. Teng

0.60-m Schmidt + CCD

1992 WR, 6, 2, 2; 1994 GF, 6, 2, 3; 1996 AN, 7, 2, 6; 1996 XG₃, 3, 1, 0; 1997 AZ₁₇, 6, 2, 2; 1997 AS₂₂, 3, 1, 0; 1998 KQ₄₄, 6, 2, 7; 1998 RP₇₀, 6, 2, 7; 1999 OG₃, 6, 2, 1; 1999 RN₁₄, 3, 1, 0; 1999 RZ₁₉₉, 6, 2, 4; 1999 SU₁₀, 7, 2, 5; 1999 TO₇, 9, 3, 14; 1999 TY₁₈, 9, 3, 3; 1999 UP₃, 6, 2, 14; 1999 UK₆, 7, 2, 4; 1999 UO₆, 6, 2, 1; 1999 UM₁₁, 6, 2, 4; 1999 VS₁, 6, 2, 7; 1999 VV₆, 6, 2, 1; 1999 VV₁₀, 6, 2, 1; 1999 VE₁₉, 6, 2, 1; 1999 VK₂₁, 7, 2, 2; 1999 VF₂₈, 15, 5, 8; 1999 VL₂₈, 6, 2, 7; 1999 VD₃₆, 6, 2, 4; 1999 VN₃₆, 12, 4, 8; 1999 VO₃₆, 6, 2, 1; 1999 VQ₃₆, 6, 2, 1; 1999 VA₃₇, 9, 3, 4; 1999 VR₅₈, 13, 4, 8; 1999 VS₅₈, 6, 2, 1; 1999 VB₅₉, 9, 3, 7; 1999 VY₆₆, 9, 3, 3; 1999 VB₆₈, 6, 2, 1; 1999 VC₆₈, 6, 2, 7; 1999 VX₇₁ *, 6, 2, 7; 1999 VY₇₁ *, 7, 2, 7; 1999 VZ₇₁ *, 6, 2, 6; 1999 VA₇₂ *, 12, 4, 9; 1999 VB₇₂ *, 12, 4, 8; 1999 VC₇₂ *, 9, 3, 9; 1999 VD₇₂ *, 15, 5, 9; 1999 VE₇₂ *, 6, 2, 6; 1999 VF₇₂ *, 9, 3, 8; 1999 VG₇₂ *, 6, 2, 4; 1999 VH₇₂ *, 6, 2, 4; 1999 VJ₇₂ *, 9, 3, 7; 1999 VK₇₂ *, 6, 2, 7; 1999 VL₇₂ *, 6, 2, 5; 1999 VM₇₂ *, 7, 2, 3; 1999 VN₇₂ *, 7, 2, 4; 1999 VO₇₂ *, 7, 2, 2; 1999 WD₁ *, 6, 2, 3; 1999 WE₁ *, 6, 2, 3; 1043 T-1, 6, 2, 4; 2139 T-3, 12, 4, 8; (797), 12, 4, 4; (822), 6, 2, 4; (2263), 9, 3, 14; (2443), 18, 3, 3; (2513), 6, 2, 1; (2556), 15, 5, 8; (2797), 12, 2, 4; (2847), 6, 2, 4; (2961), 6, 2, 4; (3016), 6, 2, 3; (3181), 6, 2, 4; (4213), 6, 2, 1; (4294), 10, 3, 9; (4305), 6, 2, 4; (5440), 6, 2, 1; (6342), 6, 2, 1; (6899), 12, 4, 8; (7536), 6, 2, 4; (9776), 7, 2, 2; (12191), 6, 2, 8; (12263), 6, 2, 4; (12293), 6, 2, 1; (12359), 6, 2, 2; (12386), 9, 3, 15; [608, 81, 19*, 1996/11/29–1999/11/21]

352 Konan

M. Hotta, Kibougauka 2-5-3, Konan-cho, Koka-gun, Shiga 5203333, Japan

[mhotta@mx.biwa.or.jp]

0.28-m $f/5.0$ reflector + CCD

GSC

1997 CE₈, 3, 1, 0; 1999 SK₁₀, 2, 1, 0; (12550), 3, 1, 0; [8, 3, 0*, 1999/11/05–1999/11/10]

355 Hadano

A. Asami, 28-1 Nishitawara, Hadano, Kanagawa-Ken, 257 Japan

[asami@st.rim.or.jp]

0.2-m $f/6.0$ reflector + CCD, 0.28-m $f/5.0$ reflector + CCD

GSC

1999 ND₄₃, 3, 1, 0; 1999 RH₂₇, 9, 3, 11; 1999 US₃, 6, 2, 5; 1999 VZ, 6, 2, 21; 1999 XO₃₅, 3, 1, 0; 1999 XS₃₅, 3, 1, 0; [30, 6, 0*, 1999/11/18–1999/12/10]

1999 DEC. 22

M.P.C. 36991

360 Kuma Kogen Astronomical Observatory

A. Nakamura, Shimo-Hatanokawa, Kuma, Kamiukena-Gun, Ehime-Ken, 791-1212
Japan [a-nakamu@mx2.nisiq.net]

0.60-m $f/5.8$ Ritchey-Chrétien + CCD

GSC-ACT, USNO-A2.0

1995 WF, 2, 1, 0; 1997 AW₁₇, 3, 1, 0; 1997 DL, 4, 2, 5; 1997 GR₂₄, 2, 1, 0; 1997 GZ₂₅, 2, 1, 0; 1998 KN, 6, 2, 3; 1998 KB₅, 5, 2, 5; 1998 XS₁₆, 3, 1, 0; 1998 YW₃, 3, 1, 0; 1999 CU₃, 3, 1, 0; 1999 LF₆, 3, 1, 0; 1999 NC₄₃, 3, 1, 0; 1999 ND₄₃, 3, 1, 0; 1999 RV₂, 3, 1, 0; 1999 RG₃₃, 3, 1, 0; 1999 SK₁₀, 3, 1, 0; 1999 VU, 3, 1, 0; 1999 VV, 3, 1, 0; 1999 VN₆, 3, 1, 0; 1999 VS₆, 3, 1, 0; 1999 VO₁₁, 3, 1, 0; 1999 VP₁₁, 3, 1, 0; 1999 VQ₁₁, 3, 1, 0; 1999 VG₂₂, 3, 1, 0; 1999 VA₂₆, 9, 3, 7; 1999 WN, 9, 3, 12; 1999 WO, 9, 3, 7; 1999 WG₄, 2, 1, 0; 1999 XO₃₅, 3, 1, 0; 1999 XS₃₅, 3, 1, 0; 1999 XW₃₇ *, 9, 3, 5; 1999 XX₃₇ *, 6, 2, 4; 1999 XY₃₇ *, 6, 2, 1; (5304), 2, 1, 0; [133, 34, 3*, 1999/11/30-1999/12/12]

365 Kashiwara

F. Uto, 12-1 Shirakashi Cho 7 Chome, Kashiwara, Nara-Ken, 634 Japan

[nag01736@niftyserve.or.jp]

0.28-m $f/6.3$ refractor + CCD

GSC

1990 VD₈, 4, 2, 5; 1999 VY₂₃, 2, 1, 0; 1999 VZ₂₃, 2, 1, 0; 1999 XT₉₈, 4, 2, 2; 1999 XY₉₈, 4, 2, 2; [16, 5, 0*, 1999/12/03-1999/12/10]

372 Geisei

T. Seki, Kamimachi 2-9-35, Kochi-Shi, Kochi-Ken 780, Japan

0.60-m $f/3.5$ reflector

GSC

1993 FV₁₃, 2, 1, 0; [2, 1, 0*, 1999/11/04]

376 Uenohara

N. Kawasato, 3-11-10, Hana-Koganei, Kodaira, Tokyo, 187 Japan

0.30-m reflector + CCD

GSC

1999 VH₄₀, 4, 2, 2; 1999 VJ₄₀, 4, 2, 2; 1999 VK₄₀, 2, 1, 0; 1999 VS₇₂ *, 10, 4, 13; 1999 XD₃₈ *, 5, 2, 4; 1999 XG₃₈ *, 5, 2, 4; 1999 XH₃₈ *, 5, 2, 4; 1999 XJ₃₈ *, 4, 2, 4; 1999 XY₇₉, 6, 2, 2; 1999 XZ₇₉, 5, 2, 2; 1999 XA₈₀, 6, 2, 2; 1999 XC₈₀, 4, 2, 2; 1999 XX₁₂₇ *, 5, 2, 2; [65, 13, 6*, 1999/11/05-1999/12/13]

385 Nihondaira Observatory

T. Urata, 1-8, Dobayashi 1 Chome, Shimizu, Shizuoka-Ken 424-0851, Japan

[urata@sannet.ne.jp]

0.31-m $f/4.0$ reflector + CCD

GSC-1.1, USNO-A2.0

1989 WU, 3, 1, 0; 1990 UK, 3, 1, 0; 1990 UM, 6, 2, 11; 1993 BP₃, 2, 1, 0; 1995 XT₁, 2, 1, 0; 1995 YX₃, 5, 2, 11; 1998 DB₂₄, 3, 1, 0; 1998 QV₂₂, 2, 1, 0; 1999 TF₁₃, 4, 2, 6; 1999 UQ₁, 2, 1, 0; 1999 VR, 3, 1, 0; 1999 VX₂, 2, 1, 0; 1999 VM₆, 4, 2, 7; 1999 VT₂₀, 4, 2, 11; 1999 VV₂₀, 2, 1, 0; 1999 VX₂₃, 5, 2, 9; 1999 VC₃₀, 6, 2, 5; 1999 VR₅₀, 3, 1, 0; 1999 VU₅₀, 7, 3, 2; 1999 WS, 8, 4, 12; 1999 WT, 8, 3, 16; 1999 WV, 6, 2, 9; 1999 WB₄, 2, 1, 0; 1999 WK₈ *, 15, 7, 11; 1999 WL₁₁, 7, 3, 8; 1999 WM₁₁, 6, 3, 8; 1999 WN₁₁, 6, 3, 8; 1999 WO₁₁, 4, 2, 4; 1999 WP₁₁, 7, 3, 8; 1999 WQ₁₁ *, 8, 3, 7; 1999 XM₁₄, 9, 2, 4; 1999 XE₂₄, 3, 1, 0; 1999 XF₂₄, 3, 1, 0; 1999 XZ₁₀₃, 5, 1, 0; 1999 XA₁₀₄, 4, 1, 0; 1999 XB₁₀₄, 1, 1, 0; 1999 XK₁₀₅, 2, 1, 0; 1999 XL₁₀₅, 2, 1, 0; 1999 XM₁₀₅, 2, 1, 0; 1999 XN₁₀₅, 2, 1, 0; 1999 XO₁₀₅, 3, 1, 0; 1999 XP₁₀₅ *, 5, 2, 1; 4041 T-2, 4, 2, 1; [192, 44, 3*, 1999/10/17-1999/12/12]

399 Kushiro

H. Kaneda, Taiyo MS 2-H, 2-15, Kawazoe 8 Jo 2 Chime, Minami-Ku, Sapporo, 005

Japan

Observer S. Ueda

Measurer H. Kaneda

0.25-m $f/3.4$ hyperboloid astrocamera

GSC

1989 WU, 2, 1, 0; [2, 1, 0*, 1992/09/28]

402 Dync Astronomical Observatory

A. Sugie, Dync Astronomical Observatory, Taga 283-1, Taga, Inukami-Gun, Shiga-Ken, 522-0341 Japan [hhf00201@niftyserve.or.jp]

Observers A. Sugie, Y. Ikari

0.60-m $f/5.0$ reflector + CCD

GSC

1996 JO, 2, 1, 0; 1998 KG₃₅, 3, 1, 0; 1998 YF₇, 2, 1, 0; 1999 TD₅, 2, 1, 0; 1999 TD₁₀, 2, 1, 0; 1999 UA₅, 3, 1, 0; 1999 UG₅, 3, 1, 0; 1999 VU, 6, 2, 5; 1999 VV, 3, 1, 0; 1999 VN₆, 6, 2, 5; 1999 VO₁₁, 3, 1, 0; 1999 VQ₁₁, 3, 1, 0; 1999 VC₁₂, 3, 1, 0; 1999 VL₁₂, 3, 1, 0; 1999 VA₂₁, 3, 1, 0; 1999 VG₂₂, 3, 1, 0; 1999 VO₂₂, 3, 1, 0; 1999 VL₄₆, 4, 1, 0; 1999 WY, 3, 1, 0; 1999 WA₂, 3, 1, 0; 1999 WK₁₃, 3, 1, 0; 1999 XM₃₅, 3, 1, 0; 1999 XN₃₅, 4, 1, 0; 1999 XO₃₅, 4, 1, 0; 1999 XP₃₅, 4, 1, 0; 1999 XS₃₅, 4, 1, 0; 1999 XV₃₇ *, 8, 2, 1; [93, 27, 1*, 1999/11/13-1999/12/08]

411 Oizumi

T. Kobayashi, 1717-2 Shimo-Koizumi, Oizumi-machi, Ora-gun, Gunma-ken, 370-

0515 Japan [kobataka@sannet.ne.jp]

0.25-m $f/4.4$ reflector + CCD, 0.41-m $f/4.3$ reflector + CCD

GSC

1984 AU, 4, 2, 1; 1989 WU, 4, 2, 1; 1991 RL₉, 4, 2, 2; 1991 VY₄, 4, 2, 2; 1992 YC, 4, 2, 2; 1994 WC₂, 4, 2, 3; 1995 WT₆, 4, 2, 2; 1997 AT₂, 4, 2, 2; 1997 GL₃₄, 4, 2, 1; 1997 NG₆, 4, 2, 1; 1998 PR, 4, 2, 2; 1998 QN₄₁, 4, 2, 1; 1998 QV₉₆, 4, 2, 2; 1998 RF₇₈, 4, 2, 3; 1999 TB₁₃, 4, 2, 2; 1999 TC₁₃, 2, 1, 0; 1999 TD₁₃, 2, 1, 0; 1999 VJ₂, 5, 2, 2; 1999 VM₂, 2, 1, 0; 1999 VU₅, 2, 1, 0; 1999 VV₅, 2, 1, 0; 1999 VW₅, 2, 1, 0; 1999 VX₅, 2, 1, 0; 1999 VY₅, 2, 1, 0; 1999 VA₆, 2, 1, 0; 1999 VB₆, 2, 1, 0; 1999 VC₆, 5, 2, 7; 1999 VD₆, 2, 1, 0; 1999 VE₆, 2, 1, 0; 1999 VF₆, 2, 1, 0; 1999 VG₆, 2, 1, 0; 1999 VH₆, 2, 1, 0; 1999 VJ₆, 2, 1, 0; 1999 VK₆, 2, 1, 0; 1999 VQ₈, 2, 1, 0; 1999 VF₁₀, 2, 1, 0; 1999 VH₁₀, 2, 1, 0; 1999 VJ₁₀, 2, 1, 0; 1999 VK₁₀, 2, 1, 0; 1999 VL₁₀, 2, 1, 0; 1999 VN₁₀, 2, 1, 0; 1999 VO₁₀, 2, 1, 0; 1999 VP₁₀, 2, 1, 0; 1999 VQ₁₀, 2, 1, 0; 1999 VR₁₀, 2, 1, 0; 1999 VS₁₀, 2, 1, 0; 1999 VT₁₀, 2, 1, 0; 1999 VV₁₀, 2, 1, 0; 1999 VW₁₀, 2, 1, 0; 1999 VS₂₄, 2, 1, 0; 1999 VT₂₄, 2, 1, 0; 1999 VU₂₄, 3, 1, 0; 1999 VV₂₄, 2, 1, 0; 1999 VW₂₄, 2, 1, 0; 1999 VX₂₄, 2, 1, 0; 1999 VY₂₄, 4, 2, 4; 1999 VZ₂₄, 2, 1, 0; 1999 VA₂₅, 2, 1, 0; 1999 VB₂₅, 2, 1, 0; 1999 VC₂₅, 2, 1, 0; 1999 VD₂₅, 2, 1, 0; 1999 VE₂₅, 2, 1, 0; 1999 VF₂₅, 2, 1, 0; 1999 VG₂₅, 2, 1, 0; 1999 VH₂₅, 2, 1, 0; 1999 VJ₂₅, 2, 1, 0; 1999 VK₂₅, 2, 1, 0; 1999 VM₂₅, 2, 1, 0; 1999 VN₂₅, 2, 1, 0; 1999 VW₂₅, 2, 1, 0; 1999 VD₅₃, 3, 2, 2; 1999 VF₅₃, 2, 1, 0; 1999 VK₅₃, 4, 2, 2; 1999 WF, 2, 1, 0; 1999 WG, 4, 2, 18; 1999 WH, 5, 2, 18; 1999 WJ, 2, 1, 0; 1999 WK, 4, 2, 18; 1999 WL, 3, 1, 0; 1999 WM, 4, 2, 18; 1999 WP, 4, 2, 3; 1999 WH₃ *, 11, 4, 19; 1999 WJ₃ *, 5, 3, 9; 1999 WK₃ *, 6, 3, 9; 1999 WL₃ *, 8, 4, 11; 1999 WM₃ *, 6, 3, 9; 1999 WN₃ *, 6, 3, 9; 1999 WO₃ *, 6, 3, 9; 1999 WP₃ *, 6, 3, 11; 1999 WQ₃ *, 8, 4, 12; 1999 WR₃ *, 6, 3, 9; 1999 WS₃ *, 6, 3, 11; 1999 WT₃ *, 6, 3, 9; 1999 WU₃ *, 4, 2, 1; 1999 WV₃ *, 6, 3, 9; 1999 WW₃ *, 6, 3, 11; 1999 WX₃ *, 6, 3, 11; 1999 WY₃ *, 6, 3, 11; 1999 WZ₃ *, 6, 3, 11; 1999 WA₄ *, 6, 3, 9; 1999 WB₄ *, 6, 3, 9; 1999 WC₄ *, 4, 2, 1; 1999 WD₄ *, 6, 3, 9; 1999 WE₄ *, 6, 3, 11; 1999 WF₄ *, 6, 3, 11; 1999 WJ₄ *, 4, 2, 1; 1999 WK₄ *, 6, 3, 11; 1999 WL₄ *, 6, 3, 9; 1999 WM₄ *, 6, 3, 9; 1999 WN₄ *, 6, 3, 9; 1999 WO₄ *, 6, 3, 11; 1999 WP₄ *, 6, 3, 9; 1999 WQ₄ *, 6, 3, 9; 1999 WR₄ *, 6, 3, 9; 1999 WS₄ *, 6, 3, 9; 1999 WT₄ *, 6, 3, 9; 1999 WU₄ *, 6, 3, 9; 1999 WV₄ *, 6, 3, 9; 1999 WW₄ *, 6, 3, 9; 1999 WX₄ *, 6, 3, 9; 1999 WY₄ *, 6, 3, 9; 1999 WZ₄ *, 6, 3, 9; 1999 WA₅ *, 6, 3, 9; 1999 WB₅ *, 6, 3, 9; 1999 WC₅ *, 6, 3, 9; 1999 WD₅ *, 6, 3, 9; 1999 WH₈ *, 8, 4, 9; 1999 WJ₈ *, 8, 4, 11; 1999 WN₉ *, 6, 3, 7; 1999 WQ₉ *, 6, 3, 10; 1999 WR₉ *, 6, 3, 10; 1999 WS₉ *, 6, 3, 10; 1999 WT₉ *, 6, 3, 10; 1999 WU₉ *, 6, 3, 10; 1999 WV₉ *, 6, 3, 10; 1999 WW₉ *, 6, 3, 10; 1999 WX₉ *, 6, 3, 10; 1999 WY₉ *, 8, 4, 10; 1999 WZ₉ *, 6, 3, 10; 1999 WA₁₀ *, 6, 3, 10; 1999 WB₁₀ *, 6, 3, 10; 1999 WC₁₀ *, 6, 3, 10; 1999 WD₁₀ *, 6, 3, 10; 1999 WE₁₀ *, 4, 2, 2; 1999 WY₁₂ *, 4, 2, 3; 1999 XW *, 6, 3, 9; 1999 XX *, 6, 3, 9; 1999 XY *, 6, 3, 9; 1999 XZ *, 6, 3, 9; 1999 XA₁ *, 4, 2, 1; 1999 XB₁ *, 4, 2, 1; 1999 XC₁ *, 4, 2, 1; 1999 XD₁ *, 6, 3, 9; 1999 XE₁ *, 6, 3, 9; 1999 XF₁ *, 6, 3, 9; 1999 XG₁ *, 6, 3, 9; 1999 XH₁ *, 6, 3, 9; 1999 XJ₁ *, 4, 2, 1; 1999 XK₁ *, 4, 2, 1; 1999 XL₁ *, 6, 3, 9; 1999 XC₈ *, 6, 3, 8; 1999 XD₈ *, 6, 3, 8; 1999 XE₈ *, 6, 3, 8; 1999 XF₈ *, 6, 3, 8; 1999 XG₈ *, 6, 3, 8; 1999 XH₈ *, 6, 3, 8; 1999 XJ₈ *, 6, 3, 8; 1999 XK₈ *, 6, 3, 8; 1999 XL₁₂, 4, 2, 1; 1999 XS₁₅, 4, 2, 2; 1999 XT₁₅, 4, 2, 2; 1999 XX₃₅ *, 4, 2, 1; 1999 XY₃₅ *, 4, 2, 1; 1999 XZ₃₅ *, 4, 2, 1; 1999 XB₃₆ *, 4, 2, 1; 1999 XC₃₆ *, 4, 2, 1; 1999 XE₃₆ *, 4, 2, 1; 1999 XF₃₆ *, 4, 2, 1; 1999 XG₃₆ *, 4, 2, 1; 1999 XH₃₆ *, 4, 2, 1; 1999 XJ₈₄, 4, 2, 2; 1999 XR₈₅, 4, 2, 2; 1999 XS₈₅, 4, 2, 2; 1999 XY₈₅, 4, 2, 2; 1999 XA₈₆, 6, 3, 2; 1999 XN₈₆, 4, 2, 1; 1999 XQ₈₆, 4, 2, 1; 1999 XS₉₀, 4, 2, 2; 1999 XT₉₀, 4, 2, 2; 1999 XF₉₅ *, 4, 2, 2; 1999 XG₉₅ *, 4, 2, 2; 1999 XH₉₅ *, 4, 2, 2; 1999 XJ₉₅ *, 4, 2, 2; 1999 XK₉₅ *, 4, 2, 2; 1999 XL₉₅ *, 4, 2, 2; 1999 XM₉₅ *, 4, 2, 2; 1999 XN₉₅ *, 4, 2, 2; 1999 XO₉₅ *, 4, 2, 2; 1999 XP₉₅ *, 4, 2, 2; 1999 XQ₉₅ *, 4, 2, 2; 1999 XR₉₅ *, 4, 2, 2; 1999 XS₉₅ *, 4, 2, 1; 1999 XT₉₅ *, 4, 2, 1; 1999 XU₉₅ *, 4, 2, 1; 1999 XV₉₅ *, 4, 2, 1; 1999 XW₉₅ *, 4, 2, 1; 1999 XX₉₅ *, 4, 2, 1; 1999 XY₉₅ *, 4, 2, 1; 1999 XZ₉₅ *, 4, 2, 1; 1999 XA₉₆ *, 4, 2,

1; 1999 XB₉₆ *, 4, 2, 1; 1999 XC₉₆ *, 4, 2, 1; 1999 XS₁₀₄ *, 4, 2, 1; 1999 XT₁₀₄ *, 4, 2, 1; 1999 XU₁₀₄ *, 4, 2, 1; 1999 XV₁₀₄ *, 4, 2, 1; 1999 XW₁₀₄ *, 4, 2, 1; 1999 XX₁₀₄ *, 4, 2, 1; 1999 XS₁₀₅ *, 4, 2, 1; 1999 XT₁₀₅ *, 4, 2, 1; 1999 XU₁₀₅ *, 4, 2, 1; 1999 XV₁₀₅ *, 4, 2, 1; 1999 XW₁₀₅ *, 4, 2, 1; 1999 XX₁₀₅ *, 4, 2, 1; 1999 XY₁₀₅ *, 4, 2, 1; 1999 XZ₁₀₅ *, 4, 2, 1; 1999 XA₁₀₆ *, 4, 2, 1; 1999 XB₁₀₆ *, 4, 2, 1; 1999 XC₁₀₆ *, 4, 2, 1; 6576 P-L, 4, 2, 1; [984, 230, 136*, 1999/11/18–1999/12/12]

413 Siding Spring

A. Gnädig, c/o Archenghold-Sternwarte, Alt-Treptow 1, D-12435 Berlin, Germany
[doppler@mind.de] (5)

A. Boattini, Istituto di Astrofisica Spaziale, Via Fosso del Cavaliere, I-00133 Rome, Italy [boattini@ias.rm.cnr.it] (6)

Observer K. S. Russell

Measurers A. Boattini, G. Forti, M. Tombelli, L. Tesi, A. Gnädig

1.2-m U.K. Schmidt

USNO-A2.0, GSC-1.2

{5} 1996 DH₁, 2, 1, 0; 1998 VE₃₂, 5, 3, 3014; 1999 NF₅₆, 2, 1, 0; 1999 RS, 2, 1, 0; 1999 RG₁, 1, 1, 0; 1999 RG₂₇, 2, 1, 0; 1999 RU₂₇, 3, 2, 2230; 1999 RE₃₅, 2, 1, 0; 1999 RP₃₉, 2, 1, 0; 1999 RV₃₉, 2, 1, 0; 1999 RF₁₀₂, 4, 2, 2191; 1999 RT₁₃₀, 4, 2, 2260; 1999 RH₁₄₄, 2, 1, 0; 1999 RV₁₆₅, 8, 4, 4317; 1999 TA₄, 7, 4, 4641; 1999 VW, 2, 1, 0; [50, 16, 0*, 1975/08/08–1996/03/25]

{6} 1993 RJ₃, 2, 1, 0; 1996 CL₇, 2, 1, 0; 1996 OJ₂, 2, 1, 0; 1997 NK₁₀, 2, 1, 0; 1998 DX₃₅, 2, 1, 0; 1998 FM₅, 2, 1, 0; 1999 SU₉, 4, 2, 23; [16, 7, 0*, 1977/07/20–1993/05/24]

423 North Ryde

S. G. McAndrew, 2/32 Twin Rd, North Ryde, NSW 2113, Australia

[sgmcandrew@ozemail.com.au]

0.20-m $f/4$ hyperbolic astrograph + CCD

GSC

1994 PN₁, 6, 3, 2; 1999 SZ₅, 5, 2, 1; [11, 2, 0*, 1999/11/29–1999/12/03]

428 Reedy Creek

J. Broughton, 18 Branch Crescent, Reedy Creek, QLD 4228, Australia

[reedycrk@one.net.au]

0.25-m $f/6.3$ Schmidt-Cassegrain + CCD

GSC

1996 PF₃, 2, 1, 0; 1998 EP₈, 2, 1, 0; 1998 MZ₄₁, 6, 2, 2; 1998 NF, 4, 2, 4; 1998 OW₁₁, 2, 1, 0; 1998 OG₁₂, 2, 1, 0; 1998 QE₄, 4, 2, 2; 1998 WJ₈, 6, 2, 2; 1999 LF₆, 2, 1, 0; 1999 PO₄, 2, 1, 0; 1999 PP₄, 5, 2, 7; 1999 RM₂₈, 3, 1, 0; 1999 RV₃₈, 3, 3, 17; 1999 RX₃₈, 2, 1, 0; 1999 RJ₄₅, 2, 1, 0; 1999 SL, 3, 2, 2; 1999 TN₁₂, 2, 1, 0; 1999 US₃, 2, 1, 0; 1999 VO₆, 2, 1, 0; 1999 VM₁₀, 4, 1, 0; 1999 WJ₉, 3, 1, 0; 1999 WK₁₃, 13, 3, 3; 1999 XC₂ *, 4, 2, 2; 1999 XB₈ *, 7, 3, 2; (3362), 3, 1, 0; (4953), 2, 1, 0; (12494), 2, 1, 0; [94, 27, 2*, 1999/10/28–1999/12/06]

468 Astronomical Observatory, Campo Catino

F. Mallia, Via dei Siculi 37, I-04100 Latina, Italy [pa0115@panservice.it]

Observers G. Masi, F. Mallia

0.25-m $f/3$ reflector + CCD

GSC

1999 WJ₉, 2, 1, 0; 1999 XO₃₅, 2, 1, 0; 1999 XS₃₅, 3, 1, 0; 1999 XS₃₈ *, 3, 1, 0; 1999 XT₃₈ *, 2, 1, 0; 1999 XJ₈₅, 2, 1, 0; 1999 XE₁₀₄ *, 2, 1, 0; 1999 XF₁₀₄ *, 2, 1, 0; [18, 8, 4*, 1999/12/01–1999/12/08]

504 Le Creusot

J.-C. Merlin, 18 rue P. Mendès-France, F-71200 Le Creusot, France

[merlin@obsmp.fr]

0.40-m $f/5.1$ reflector + CCD

GSC

1999 WB₁₃, 3, 1, 0; [3, 1, 0*, 1999/12/05]

540 Linz

E. Meyer, F. Marklstrasse 1/62, A-4040 Linz, Austria [erich.meyer@ooonet.at]

Observers E. Meyer, E. Obermaier

0.60-m $f/3.0$ reflector + CCD

USNO-A2.0, GSC-1.1

1996 TO₆₆, 4, 3, 2; 1997 JM₁₅, 4, 1, 0; 1998 SM₁₆₅, 2, 1, 0; 1999 RH₁₀₅, 6, 2, 1; 1999 US₃, 3, 1, 0; 1999 WZ, 4, 1, 0; 1999 WG₂ *, 14, 4, 4; 1999 WH₂ *, 19, 6, 13; 1999 WE₃ *, 15, 4, 12; 1999 XS₃₅, 4, 1, 0; (1876), 3, 1, 0; (3200), 3, 1, 0; (12483), 6, 2, 1; [87, 13, 3*, 1999/10/31–1999/12/11]

544 Wilhelm Foerster Observatory, Berlin

W. Hasse, Wilhelm-Foerster-Sternwarte, Munsterdamm 90, D-12169 Berlin, Germany [cwk1@uni.de]

Observers W. Hasse, S. Klose, C. Linke, K. Toedte

Measurers E. Birsin, M. Dentel, W. Hasse, A. Pikovski, K. Toedte

0.15-m $f/15$ double refractor, 0.75-m $f/7.7$ Ritchey-Chrétien reflector + CCD

Hipparcos, USNO A2.0

(375), 4, 1, 0; (422), 8, 2, 2; (687), 5, 1, 0; (1569), 4, 1, 0; (11854), 3, 1, 0; [24, 5, 0*, 1999/09/04–1999/11/04]

552 San Vittore

E. Colombini, Via S. Vittore 44, I-40136 Bologna, Italy

[ermes.colombini@iol.it]

Observers C. Vacchi, G. Sassi, E. Colombini, R. Di Luca

0.45-m $f/3.3$ reflector + CCD

GSC

1980 RC, 3, 1, 0; 1999 RA₃₇, 2, 1, 0; 1999 RB₃₇, 3, 1, 0; [8, 3, 0*, 1999/10/01–1999/10/03]

557 Ondřejov

P. Pravec, Astronomical Institute, Czech Academy of Sciences, CZ-25165 Ondřejov, Czech Republic [ppravec@asu.cas.cz]

Observers P. Pravec, L. Šarounová, P. Kušnirák

0.65-m $f/3.6$ reflector + CCD

USNO-SA1.0, USNO-SA2.0

1995 EA₈, 3, 1, 0; 1995 SH₁, 4, 2, 5; 1996 WE₃, 5, 2, 3; 1998 KG₃₅, 5, 2, 1; 1998 QE₁₂, 1, 1, 0; 1998 QO₆₀, 2, 1, 0; 1998 SQ, 4, 1, 0; 1998 UL, 2, 1, 0; 1999 FQ₃, 3, 1, 0; 1999 RS, 3, 1, 0; 1999 RG₁, 3, 1, 0; 1999 RH₂₇, 4, 1, 0; 1999 RF₄₂, 1, 1, 0; 1999 RS₂₁₀, 5, 2, 3; 1999 SV₂, 2, 1, 0; 1999 SO₄, 3, 1, 0; 1999 TU₃, 5, 2, 10; 1999 TX₃, 2, 1, 0; 1999 TY₃, 2, 1, 0; 1999 TA₄, 2, 1, 0; 1999 TC₈, 2, 1, 0; 1999 TG₁₅, 3, 2, 3; 1999 TT₁₅, 4, 2, 7; 1999 TS₁₆, 2, 1, 0; 1999 TS₁₇, 4, 2, 2; 1999 TO₃₁, 5, 2, 3; 1999 UA, 2, 1, 0; 1999 UC, 2, 1, 0; 1999 UR₂, 2, 1, 0; 1999 UT₂, 2, 1, 0; 1999 UP₄, 8, 3, 15; 1999 VK, 2, 1, 0; 1999 VU, 5, 2, 1; 1999 VY, 2, 1, 0; 1999 VH₁₂, 2, 1, 0; 1999 VX₁₉, 3, 1, 0; 1999 VQ₂₄, 4, 2, 7; 1999 VR₂₄, 5, 2, 9; 1999 VY₂₄, 2, 1, 0; 1999 VQ₂₅, 8, 3, 17; 1999 VN₃₅, 3, 1, 0; 1999 VM₄₀, 11, 3, 12; 1999 VO₄₀, 1, 1, 0; 1999 VO₄₃, 7, 2, 3; 1999 VR₄₃, 4, 2, 2; 1999 VL₄₆, 3, 1, 0; 1999 VQ₇₂ *, 4, 2, 11; 1999 VR₇₂ *, 7, 3, 17; 1999 WQ, 5, 2, 9; 1999 WX, 5, 2, 7; 1999 WZ, 3, 1, 0; 1999 WG₁, 4, 2, 2; 1999 WA₂, 3, 1, 0; 1999 WB₂, 5, 2, 8; 1999 WC₂, 4, 1, 0; 1999 WE₂ *, 7, 3, 14; 1999 WF₃, 5, 2, 1; 1999 WJ₉, 7, 2, 2; 1999 WJ₁₀, 2, 1, 0; 1999 WZ₁₂ *, 12, 4, 12; 1999 WA₁₃ *, 13, 4, 12; 1999 WK₁₃, 8, 2, 2; 1999 XZ₇, 5, 2, 3; 1999 XA₈ *, 9, 3, 7; 1999 XG₁₅ *, 10, 3, 11; 1999 XH₁₅ *, 10, 3, 11; 1999 XM₃₅, 5, 2, 1; 1999 XN₃₅, 3, 1, 0; 1999 XR₃₅, 4, 1, 0; 1999 XS₃₅, 16, 5, 8; 1999 XQ₅₆, 7, 2, 6; 1999 XV₁₀₀, 4, 2, 1; 1999 XF₁₀₅ *, 5, 2, 7; 1999 XG₁₀₅ *, 6, 2, 3; 1999 XH₁₀₅ *, 5, 2, 3; 1999 XN₁₂₇ *, 4, 2, 7; 1999 XO₁₂₇ *, 5, 2, 7; 1999 XV₁₂₇ *, 4, 2, 1; 1999 XW₁₂₇ *, 6, 2, 1; 1999 XK₁₃₆, 9, 3, 2; 1999 XL₁₃₆, 6, 2, 1; 1999 XN₁₃₆, 4, 1, 0; [380, 82, 15*, 1999/10/31–1999/12/15]

560 Madonna di Dossobuono

L. Lai, Via Mantovana 130e, I-37062 Dossobuono (Verona), Italy

[astrofil@astbo1.bo.cnr.it]

Observers L. Lai, I. Rocchetti, G. Vesentini

0.40-m $f/3.5$ reflector + CCD

GSC

1981 EN₇, 7, 2, 2; 1995 QE₃, 3, 1, 0; 1997 AP, 6, 2, 6; 1998 QN₁₈, 8, 2, 2; 1999 UT₃, 10, 3, 9; 2039 T-2, 2, 1, 0; (12298), 2, 1, 0; (12311), 6, 2, 6; [44, 8, 0*, 1999/11/26–1999/12/07]

566 Haleakala-NEAT/GEODSS

E. F. Helin, MS 183-501, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A.

[efh@ipl.jpl.nasa.gov]

Observers E. F. Helin, S. H. Pravdo, K. J. Lawrence, D. L. Rabinowitz, S. Groom,
C. Clark, R. Bamberg, S. Levin, J. Lorre, S. Shaklan, R. Byrd, A. Esquibel,
C. Cotton, D. Bascon

1-m $f/2.2$ Ritchey-Chrétien + CCD

1998 QE₁₂, 3, 1, 0; [3, 1, 0*, 1996/03/24]

568 Mauna Kea

D. Jewitt, Institute for Astronomy, 2680 Woodlawn Drive, Honolulu, HI 96822,

U.S.A. [jewitt@galileo.ifa.hawaii.edu] (1)

D. J. Tholen, Institute for Astronomy, 2680 Woodlawn Drive, Honolulu, HI 96822,

U.S.A. [tholen@hale.ifa.hawaii.edu] (2)

Observers C. A. Trujillo, D. C. Jewitt, J. X. Luu, S. Sheppard, D. J. Tholen

Measurers C. A. Trujillo, D. J. Tholen

2.24-m reflector + CCD, 3.6-m Canada-France-Hawaii Telescope

USNO-A2.0

{1} 1999 RS₂₁₄ *, 10, 4, 33; 1999 RT₂₁₄ *, 10, 4, 33; 1999 RU₂₁₄ *, 11, 7, 68; [31, 3, 3*, 1999/09/06–1999/11/13]

{2} 1998 DV₉, 3, 1, 0; 1998 FS₆₅, 3, 1, 0; 1999 JD₁₃, 3, 1, 0; 1999 OW₃, 11, 2, 1; 1999 UR, 2, 2, 4; 1999 XD₉₆ *, 11, 2, 1; (11347), 2, 1, 0; [35, 7, 1*, 1999/11/09–1999/12/09]

587 Sormano

P. Sicoli, Via Valli 9, I-23846 Garbagnate Monastero (Lecco), Italy

[sormano@tin.it]

Observers A. Testa, M. Cavagna, F. Manca, G. Ventre, P. Sicoli, V. Giuliani

0.5-m reflector + CCD

GSC

1994 FB, 2, 1, 0; 1995 UE, 4, 2, 1; 1997 CD₇, 6, 3, 14; 1997 OJ, 3, 2, 1; 1998 KG₃₅, 5, 2, 1; 1999 RC₂, 3, 1, 0; 1999 RC₃₁, 2, 1, 0; 1999 TK₁₂, 2, 1, 0; 1999 VU, 2, 1, 0; 1999 VP₆, 3, 1, 0; 1999 VS₆, 2, 1, 0; 1999 VO₁₁, 2, 1, 0; 1999 VP₁₁, 5, 2, 4; 1999 VQ₁₁, 2, 1, 0; 1999 VC₁₂, 3, 1, 0; 1999 VX₁₉, 3, 1, 0; 1999 VG₂₂, 3, 1, 0; 1999 VO₂₂, 2, 1, 0; 1999 VT₂₅, 1, 1, 0; 1999 VM₄₀, 3, 1, 0; 1999 VL₄₆, 3, 1, 0; 1999 WZ, 3, 1, 0; 1999 WC₂, 1, 1, 0; 1999 WF₃, 5, 2, 1; 1999 WJ₉, 3, 1, 0; 1999 WK₁₃, 3, 1, 0; 1999 XU₁, 7, 3, 5; 1999 XB₄, 2, 1, 0; 1999 XM₃₅, 3, 1, 0; 1999 XN₃₅, 3, 1, 0; 1999 XO₃₅, 2, 1, 0; 1999 XP₃₅, 2, 1, 0; 1999 XS₃₅, 3, 1, 0; (1390), 3, 1, 0; [101, 34, 0*, 1999/11/13–1999/12/07]

589 Santa Lucia Stroncone

A. Vagnozzi, Via Santa Lucia 68, I-05039 Stroncone (Terni), Italy

[vagnozzi@freenet.hut.fi]

Observers A. Vagnozzi, G. Bernabei, V. Risoldi, V. Scirri

0.50-m $f/2.8$ Ritchey-Chrétien + CCD

GSC

1993 TJ, 3, 1, 0; 1994 JB, 9, 2, 1; 1994 NA, 3, 1, 0; 1995 KM₁, 4, 1, 0; 1999 TD₆, 10, 3, 11; 1999 VP₇₂ *, 5, 2, 1; 1999 WG₉, 2, 1, 0; [36, 7, 1*, 1999/10/29–1999/12/06]

595 Farra d'Isonzo

L. Bittesini, Via dei Conventi 10, I-34070 Farra D'Isonzo (GO), Italy

[ccaf@tmedia.it]

Observers L. Bittesini, G. Lombardi, E. Pettarin, A. Toso, E. Pettarin, A. Toso,
A. Olivieri

Measurers G. Lombardi, E. Pettarin, E. Pettarin, A. Toso

0.4-m $f/4.5$ reflector + CCD

GSC

1998 KG₃₅, 5, 2, 1; 1999 PJ₁, 4, 1, 0; 1999 UX₈, 3, 1, 0; 1999 VN₆, 3, 1, 0; 1999 VO₆, 5, 1, 0; 1999 VC₂₁, 13, 4, 10; 1999 VY₂₉, 8, 3, 4; 1999 VM₄₀, 3, 1, 0; 1999 VL₄₆, 3, 1, 0; 1999 VX₅₀, 5, 2, 1; 1999 VG₆₈, 12, 3, 8; 1999 WD₂ *, 9, 3, 10; 1999 WL₉ *, 5, 2, 1; 1999 WM₉ *, 5, 2, 1; 1999 WK₁₃, 4, 1, 0; 1999 XB₄, 6, 2, 1; 1999 XO₈ *, 6, 2, 1; 1999 XM₃₅, 6, 2, 1; 1999 XN₃₅, 5, 2, 1; 1999 XO₃₅, 5, 2, 1; 1999 XP₃₅, 3, 1, 0; 1999 XQ₃₅, 2, 1, 0; 1999 XS₃₅, 6, 2, 1; [126, 23, 4*, 1999/11/14–1999/12/08]

596 Colleverde di Guidonia

V. S. Casulli, Via M. Rosa 1, I-00010 Colleverde di Guidonia (RM), Italy

[v.casulli@priminet.it]

0.40-m $f/3.2$ reflector + CCD

GSC

1990 GE, 3, 1, 0; 1990 TD₁₂, 2, 1, 0; 1991 XD, 3, 1, 0; 1992 YK, 3, 1, 0; 1995 QE₃, 3, 1, 0; 1999 VO₃₆, 3, 1, 0; 1999 VO₆₆, 9, 3, 2; 1999 WD₃ *, 15, 4, 9; 1999 XZ₉₅, 3, 1, 0; 1999 XB₁₁₂, 7, 2, 5; 6670 P-L, 3, 1, 0; (4726), 4, 1, 0; (5171), 3, 1, 0; (6746), 3, 1, 0; (11949), 11, 3, 2; (12311), 7, 2, 1; (12328), 3, 1, 0; (12366), 10, 3, 2; [95, 18, 1*, 1999/11/26–1999/12/13]

609 Osservatorio Polino

G. Iatteri, Via Val Serra 45h, Terni, Italy

Observers G. Iatteri, V. Scirri, G. Bernabei

0.40-m $f/2.9$ reflector + CCD

GSC

1999 WG₉ *, 8, 4, 10; [8, 1, 1*, 1999/11/27–1999/12/07]

610 Pianoro

V. Goretti, Via Resistenza 93, I-40065 Pianoro (BO), Italy

[astrofil@astbo1.bo.cnr.it]

0.25-m $f/4$ Schmidt-Cassegrain + CCD

GSC, USNO-A2.0

1991 XD, 5, 1, 0; 1993 TJ₂, 5, 1, 0; 1999 ND₄₃, 10, 2, 6; 1999 RH₂₇, 15, 3, 5; 1999 TD₅, 5, 1, 0; 1999 US₃, 10, 2, 8; 1999 VN₆, 10, 2, 6; 1999 VO₁₁, 5, 1, 0; 1999 VC₁₂, 10, 2, 6; 1999 VZ₂₀, 15, 3, 8; 1999 WZ, 6, 1, 0; 1999 WS₁, 11, 2, 2; 1999 XO₃₅, 5, 1, 0; 1999 XS₃₅, 10, 2, 1; (699), 10, 2, 7; (1792), 5, 1, 0; (3838), 10, 2, 13; (4818), 10, 2, 14; (8176), 5, 1, 0; (8805), 5, 1, 0; (8988), 5, 1, 0; [172, 21, 0*, 1999/11/05–1999/12/13]

611 Starkenburg Sternwarte, Heppenheim

M. Busch, Giessener Strasse 4, D-64646 Heppenheim, Germany [mab@iez.com]

Observers M. Busch, R. Stoss, P. Geffert, S. Kluegl, A. Seib, R. Kresken

Measurers M. Busch, R. Stoss

0.45-m $f/4.4$ reflector + CCD

USNO-SA2.0

1999 RV₄₁, 2, 1, 0; 1999 TT₁₀, 2, 1, 0; 1999 TX₁₆, 2, 1, 0; 1999 UC₄, 1, 1, 0; 1999 VM₄₀, 3, 2, 3; 1999 VB₆₉, 2, 1, 0; 1999 WH₉ *, 8, 3, 5; 1999 XK₁₃₆, 2, 1, 0; 1999 XN₁₃₆, 4, 1, 0; (4337), 2, 1, 0; [28, 10, 1*, 1999/11/15–1999/12/14]

619 Sabadell

F. Casarramona, P.O. Box 50, E-8200 Sabadell (BCN), Spain

[astrosab@redestb.es]

Observers F. Casarramona, E. Vigil

Measurer F. Casarramona

0.51-m $f/3.9$ reflector + CCD

GSC

1998 PH, 4, 2, 1; [4, 1, 0*, 1999/12/06–1999/12/07]

620 Observatorio Astronómico de Mallorca

À. López, Observatori Astronòmic de Mallorca, Camí de l'observatori s/n, E-07144

Costitx, Balears, Spain [astroam@dinky.bitel.es]

Observers S. Sanchez, M. Blasco
0.35-m *f*/6.8 Schmidt-Cassegrain + CCD
GSC

1999 VU₃₅, 4, 1, 0; 1999 XS₃₅, 4, 1, 0; [8, 2, 0*, 1999/12/06–1999/12/11]

627 Blauvac

R. Roy, Le Badassier St Esteve, F-84570 Blauvac, France [Rene.Roy@wanadoo.fr]

0.26-m *f*/4.7 reflector + CCD

USNO-SA1.0

1999 XQ₃₇ *, 5, 2, 1; (525), 6, 2, 1; (2222), 3, 1, 0; (2266), 3, 1, 0; (6444), 3, 1, 0; (9117), 3, 1, 0; [23, 6, 1*, 1999/12/07–1999/12/08]

632 San Polo A Mosciano

L. Ferrini, C/O Villa Mirenda, Via San Polo A Mosciano, Firenze, Italy
[ferrini@dada.it]

Observers M. Mannucci, N. Montigiani, W. Benedetti

Measurers G. Forti, M. Mannucci, N. Montigiani

0.25-m *f*/6.3 Newtonian reflector + CCD

USNO-A2.0

1995 WV₇, 1, 1, 0; 1999 WO₂, 2, 1, 0; (1611), 4, 1, 0; (1910), 1, 1, 0; (2847), 1, 1, 0; (3766), 2, 1, 0; (12293), 2, 1, 0; [13, 7, 0*, 1999/12/06–1999/12/11]

642 Oak Bay, Victoria

C. E. Spratt, 1431 St. Patrick Street, Victoria, BC V8S 4Y5, Canada
[cspratt@islandnet.com]

0.20-m *f*/3.7 Schmidt-Cassegrain + CCD

GSC

1999 RH₂₇, 3, 1, 0; [3, 1, 0*, 1999/12/03]

646 Rancho Cucamonga

R. D. Stephens, 11355 Mount Johnson Court, Rancho Cucamonga, CA 91730,
U.S.A. [robert_stephens@eee.org]

0.28-m *f*/3.3 Schmidt-Cassegrain + CCD

GSC-1.1

1999 WF₂ *, 3, 2, 1; [3, 1, 1*, 1999/11/26–1999/11/27]

649 Powell Observatory, Louisburg

L. Robinson, 14680 W 144 St., Olathe, KS 66062, U.S.A.
[lrobinson@ix.netcom.com]

Observers R. Fredrick, R. Fredrick, R. Alonzi, D. Probert, N. Reuss

Measurers J. Miriani, R. Fredrick, R. Alonzi, D. Probert, N. Reuss

0.30-m Schmidt-Cassegrain + CCD

GSC-1.1

1999 OS₂, 4, 1, 0; 1999 TO₁₇, 2, 1, 0; 1999 VH₂, 3, 1, 0; 1999 VJ₆, 4, 1, 0; 1999 VT₇, 4, 1, 0; 1999 VH₁₀, 4, 1, 0; 1999 VO₁₀, 4, 1, 0; 1999 VS₁₀, 3, 1, 0; 1999 VT₁₀, 4, 1, 0; 1999 VW₁₀, 3, 1, 0; 1999 VY₁₁, 4, 1, 0; 1999 VC₁₂, 4, 1, 0; 1999 VD₁₂, 3, 1, 0; 1999 WW₈, 3, 1, 0; 1999 WD₉, 3, 1, 0; 1999 XV₁, 3, 1, 0; 1999 XX₁, 3, 1, 0; 1999 XB₉₆, 3, 1, 0; 1999 XC₉₆, 3, 1, 0; 1999 XD₉₈, 3, 1, 0; 1999 XT₉₈, 3, 1, 0; 1999 XY₉₈, 3, 1, 0; (9245), 3, 1, 0; [76, 23, 0*, 1999/11/27–1999/12/14]

651 Grasslands Observatory, Tucson

J. E. McGaha, 5100 Sabino Foothills, Tucson, AZ 85750, U.S.A.
[jmcgaha@azstarnet.com]

0.62-m *f*/5.1 Newtonian + CCD

GSC-1.1

1999 WA₂, 3, 1, 0; [3, 1, 0*, 1999/11/17]

652 Sandringham, Calgary

B. Yeung, 139 Sandringham Place NW, Calgary, Alberta T3K 3V8, Canada
[cyber_bill@sprynet.com]

0.35-m *f*/7 Schmidt-Cassegrain + CCD

1981 DN₁, 3, 1, 0; 1991 RA, 2, 1, 0; 1994 UT₁, 3, 1, 0; 1995 FS, 1, 1, 0; 1995 SQ₁, 3, 1, 0; 1995 TX, 6, 1, 0; 1997 EL₁₁, 1, 1, 0; 1999 XO₃₅, 2, 1, 0; 1999 XS₃₅, 19, 3, 7; (13), 1, 1, 0; (150), 1, 1, 0; (432), 3, 1, 0; (522), 1, 1, 0; (555), 1, 1, 0; (624), 1, 1, 0; (647), 1, 1, 0; (662), 1, 1, 0; (770), 1, 1, 0; (941), 1, 1, 0; (952), 1, 1, 0; (1063), 1, 1, 0; (1483), 1, 1, 0; (1687), 1, 1, 0; (1792), 1, 1, 0; (2590), 1, 1, 0; (2641), 2, 1, 0; (2768), 6, 1, 0; (3055), 1, 1, 0; (3277), 1, 1, 0; (3391), 1, 1, 0; (3800), 4, 1, 0; (3804), 2, 1, 0; (3948), 2, 1, 0; (3955), 2, 1, 0; (4164), 1, 1, 0; (4212), 1, 1, 0; (5857), 1, 1, 0; (6742), 1, 1, 0; (6751), 1, 1, 0; (9714), 3, 1, 0; (11650), 2, 1, 0; (12411), 7, 3, 14; [96, 42, 0*, 1999/11/27–1999/12/11]

658 Dominion Astrophysical Observatory, Victoria

D. D. Balam, Dept. of Physics, University of Victoria, P.O. Box 3055, Victoria, BC
V8W 3P6, Canada [universe@uvvm.uvic.ca]

1.82-m Plaskett telescope + CCD

USNO-A2.0

1999 UA₅, 2, 1, 0; 1999 VU, 3, 1, 0; 1999 VV, 3, 1, 0; 1999 VN₆, 3, 1, 0; 1999 VS₆, 6, 2, 5; 1999 VF₂₂, 3, 1, 0; 1999 VG₂₂, 6, 2, 4; 1999 VT₂₅, 3, 1, 0; 1999 VL₄₆, 3, 1, 0; 1999 XZ₇, 6, 2, 2; 1999 XM₃₅, 3, 1, 0; 1999 XN₃₅, 3, 1, 0; 1999 XO₃₅, 3, 1, 0; 1999 XP₃₅, 3, 1, 0; 1999 XQ₃₅, 2, 1, 0; 1999 XS₃₅, 9, 3, 4; [61, 16, 0*, 1999/12/03–1999/12/08]

670 Camarillo

J. E. Rogers, 441 Rowland Avenue, Camarillo, CA 93010, U.S.A.
[johnerogers@csi.com]

0.30-m *f*/6.7 Helin Telescope + CCD

GSC-1.1

1991 BB, 2, 1, 0; 1997 WU₂₂, 2, 1, 0; 1999 RH₂₇, 4, 2, 1; 1999 VM₄₀, 11, 4, 9; 1999 VL₄₆, 3, 1, 0; 1999 WK₁₃, 10, 4, 9; 1999 XB₄, 3, 1, 0; 1999 XO₃₅, 16, 6, 6; 1999 XS₃₈, 2, 1, 0; 1999 XK₁₃₆, 8, 3, 2; 1999 XL₁₃₆, 4, 2, 2; 1999 XM₁₃₆, 2, 1, 0; 1999 XN₁₃₆, 5, 2, 1; (1036), 3, 1, 0; (3838), 1, 1, 0; [76, 15, 0*, 1999/12/05–1999/12/15]

673 Table Mountain Observatory

W. M. Owen, Jr., Jet Propulsion Laboratory 301-150, 4800 Oak Grove Drive,
Pasadena, CA 91109-8099, U.S.A. [wmo@wansor.jpl.nasa.gov]

Observers E. W. Hayne, G. L. Grasdalen, A. U. Tonomous

Measurer W. M. Owen, Jr.

0.61-m *f*/16 reflector + CCD

ACT

(2), 9, 2, 1; (6), 14, 4, 13; (7), 6, 1, 0; (13), 14, 5, 33; (14), 9, 4, 33; (16), 8, 2, 34; (18), 5, 2, 32; (29), 11, 4, 34; (43), 4, 2, 1; (56), 1, 1, 0; (63), 4, 2, 1; (69), 4, 1, 0; (81), 8, 2, 1; (85), 3, 1, 0; (87), 11, 4, 33; (107), 4, 2, 1; (110), 4, 2, 1; (141), 2, 1, 0; (150), 3, 1, 0; (185), 2, 1, 0; (195), 2, 1, 0; (202), 2, 1, 0; (216), 4, 1, 0; (238), 7, 4, 33; (270), 4, 1, 0; (308), 4, 2, 1; (337), 10, 4, 33; (354), 6, 2, 9; (375), 4, 2, 1; (409), 2, 1, 0; (489), 3, 1, 0; (532), 10, 3, 34; (554), 16, 4, 34; (568), 4, 2, 20; (640), 2, 1, 0; (690), 5, 2, 33; (760), 5, 2, 1; (814), 10, 2, 21; (1357), 2, 1, 0; [228, 39, 0*, 1999/11/04–1999/12/08]

675 Palomar

M. D. Hicks, Jet Propulsion Laboratory, MS 183-501, 4800 Oak Grove Drive,
Pasadena, CA 91109, U.S.A. [hicksm@scn1.jpl.nasa.gov] (0)

A. Boattini, Istituto di Astrofisica Spaziale, Via Fosso del Cavaliere, I-00133 Rome,
Italy [boattini@ias.rm.cnr.it] (1)

C. J. van Houten, Sterrewacht Leiden, Postbus 9513, NL-2300 RA Leiden, The
Netherlands [vanhouten@ruhl11.leidenuniv.nl] (4)

A. Gnädig, c/o Archenholt-Sternwarte, Alt-Treptow 1, D-12435 Berlin, Germany
[doppler@mind.de] (5)

B. Gladman, Observatoire de Nice, Department Cassini, BP 229, F-06304 Nice
Cedex 4, France [gladman@obs-nice.fr] (8)

Observers J. A. Burns (8, H), T. Gehrels (4, L), B. Gladman (8, H) M. D. Hicks (0, M), K. J. Lawrence (0, M), P. D. Nicholson (8, H), T. McConnochie (0, M)

Measurers A. Boattini (1), G. Forti (1), R. Gal (1), B. Gladman (8), A. Gnädig (5), K. J. Lawrence (0), C. J. van Houten (4), I. van Houten-Groeneveld (4), A. Wisse (4)

5-m Hale reflector + CCD (H), 1.2-m Oschin Schmidt (L), 1.5-m reflector + CCD (M)

{0} 1994 AW₁, 3, 1, 0; 1997 WU₂₂, 3, 1, 0; 1998 KG₃₅, 5, 1, 0; 1999 TD₅, 3, 1, 0; 1999 UM₃, 2, 1, 0; 1999 XM₃₅, 8, 2, 1; 1999 XN₃₅, 4, 2, 1; 1999 XO₃₅, 5, 2, 1; 1999 XP₃₅, 4, 2, 1; 1999 XQ₃₅, 2, 1, 0; 1999 XR₃₅, 4, 2, 1; 1999 XS₃₅, 3, 1, 0; *[46, 12, 0*, 1999/12/08–1999/12/09]*

{1} 1994 JY, 2, 1, 0; 1996 CL₇, 2, 1, 0; 1996 CN₇, 2, 1, 0; 1996 CU₈, 2, 1, 0; 1996 CG₉, 2, 1, 0; 1996 OJ₂, 2, 1, 0; 1997 NK₁₀, 2, 1, 0; 1998 SL₂, 2, 1, 0; 1999 AF₂₄, 2, 1, 0; 1999 SU₉, 2, 1, 0; 1999 SV₉, 4, 2, 2; *[24, 11, 0*, 1950/06/18–1990/10/14]*

{4} 2090 P-L *, 6, 6, 32; 4273 P-L *, 6, 4, 4; 4772 P-L *, 5, 5, 23; 6587 P-L *, 8, 8, 32; 6640 P-L *, 8, 7, 30; 9569 P-L *, 3, 3, 9; 1178 T-1 *, 6, 5, 9; 2124 T-1 *, 5, 4, 3; 2290 T-1 *, 6, 5, 9; 3069 T-1 *, 4, 3, 2; 3747 T-1 *, 5, 4, 30; 4235 T-1 *, 10, 8, 53; 4326 T-1 *, 5, 4, 9; 4883 T-1 *, 3, 3, 3; 1160 T-2 *, 15, 8, 16; 1181 T-2 *, 15, 8, 16; 1332 T-2 *, 15, 8, 16; 2066 T-2 *, 12, 6, 11; 3035 T-2 *, 15, 8, 16; 3234 T-2 *, 15, 8, 16; 4315 T-2 *, 8, 4, 6; 5153 T-2 *, 10, 5, 10; 5168 T-2 *, 14, 7, 15; 5179 T-2 *, 12, 6, 11; 5480 T-2 *, 8, 4, 6; 1141 T-3 *, 10, 5, 11; 2023 T-3 *, 19, 7, 15; 2152 T-3 *, 11, 6, 14; 2214 T-3 *, 11, 6, 15; 2220 T-3 *, 9, 5, 14; 2603 T-3 *, 11, 6, 15; 4235 T-3 *, 13, 7, 15; 4358 T-3 *, 7, 4, 6; 5018 T-3 *, 10, 5, 10; 5076 T-3 *, 8, 4, 6; 5710 T-3 *, 10, 5, 10; *[338, 36, 36*, 1960/09/24–1977/10/22]*

{5} 1991 VN₁₃, 2, 1, 0; 1993 ME₁, 1, 1, 0; 1994 VP₇, 4, 2, 53; 1995 WL₈, 2, 1, 0; 1996 DH₁, 2, 1, 0; 1998 UO₁, 2, 1, 0; 1998 VE₃₂, 4, 2, 15606; 1998 XQ₁₆, 2, 1, 0; 1999 CW₇, 2, 1, 0; 1999 NB₅₇, 4, 2, 1482; 1999 RS, 2, 1, 0; 1999 RC₂, 2, 1, 0; 1999 RU₂₇, 2, 1, 0; 1999 RE₃₅, 3, 2, 1923; 1999 RK₃₇, 4, 2, 12898; 1999 RF₁₀₂, 2, 1, 0; 1999 RT₁₃₇, 4, 2, 32; 1999 RG₁₆₅, 2, 1, 0; 1999 RV₁₆₅, 1, 1, 0; 1999 RQ₂₀₁, 2, 1, 0; 1999 SS₂, 2, 1, 0; 1999 SN₃, 4, 2, 28; 1999 TA₄, 4, 2, 14964; 1999 VW, 1, 1, 0; 1999 VO₆, 4, 2, 1454; 1999 WF₈, 1, 1, 0; *[65, 26, 0*, 1949/11/21–1997/01/10]*

{8} 1998 SM₁₆₅, 3, 1, 0; 1998 SN₁₆₅, 3, 1, 0; *[6, 2, 0*, 1999/08/10–1999/08/11]*

678 Fountain Hills

C. W. Juels, 16421 N. Cobblestone Ln., Fountain Hills, AZ 85268, U.S.A.

[\[cwjuels@futureone.com\]](mailto:cwjuels@futureone.com)

0.32-m *f*/5.5 reflector + CCD

GSC-1.1, GSC-ACT

1999 RD₂, 2, 1, 0; 1999 RE₂, 2, 1, 0; 1999 RO₁₉₃, 2, 1, 0; 1999 TA₂, 2, 1, 0; 1999 TG₈, 4, 2, 13; 1999 TH₈, 2, 1, 0; 1999 TG₁₁, 2, 1, 0; 1999 TW₁₄, 2, 1, 0; 1999 TX₁₄, 2, 1, 0; 1999 UW₂, 2, 1, 0; 1999 UN₄, 2, 1, 0; 1999 VP, 2, 1, 0; 1999 VH₂, 4, 2, 15; 1999 VL₅, 2, 1, 0; 1999 VM₅, 2, 1, 0; 1999 VN₅, 2, 1, 0; 1999 VO₅, 2, 1, 0; 1999 VP₅, 2, 1, 0; 1999 VW₆, 4, 2, 15; 1999 VX₆, 4, 2, 20; 1999 VY₆, 4, 2, 20; 1999 VZ₆, 6, 2, 14; 1999 VA₇, 4, 2, 15; 1999 VB₇, 2, 1, 0; 1999 VS₈, 4, 2, 14; 1999 VT₈, 5, 2, 14; 1999 VU₈, 2, 1, 0; 1999 VX₈, 2, 1, 0; 1999 VY₈, 5, 2, 14; 1999 VZ₈, 6, 2, 14; 1999 VA₉, 4, 2, 20; 1999 VB₉, 4, 2, 14; 1999 VC₉, 4, 2, 12; 1999 VD₉, 5, 2, 14; 1999 VS₉, 2, 1, 0; 1999 VT₉, 4, 2, 14; 1999 VU₉, 4, 2, 12; 1999 VV₉, 2, 1, 0; 1999 VW₉, 4, 2, 14; 1999 VX₉, 4, 2, 14; 1999 VY₉, 4, 2, 13; 1999 VZ₉, 4, 2, 13; 1999 VA₁₀, 4, 2, 11; 1999 VB₁₀, 4, 2, 11; 1999 VE₁₀, 4, 2, 20; 1999 VW₁₁, 4, 2, 10; 1999 VX₁₁, 4, 2, 10; 1999 VY₁₁, 4, 2, 10; 1999 VZ₁₁, 4, 2, 10; 1999 VA₁₂, 2, 1, 0; 1999 VB₁₂, 2, 1, 0; 1999 VC₁₂, 4, 2, 11; 1999 VD₁₂, 4, 2, 11; 1999 VE₁₂, 4, 2, 11; 1999 VM₁₂, 4, 2, 11; 1999 VN₁₂, 4, 2, 10; 1999 VO₁₂, 4, 2, 10; 1999 VP₁₂, 4, 2, 10; 1999 VQ₁₂, 4, 2, 10; 1999 VR₁₂, 4, 2, 10; 1999 VS₁₂, 4, 2, 10; 1999 VT₁₂, 4, 2, 11; 1999 VU₁₂, 4, 2, 10; 1999 VV₁₂, 4, 2, 10; 1999 VH₂₀, 4, 2, 10; 1999 VJ₂₀, 4, 2, 10; 1999 VK₂₀, 4, 2, 16; 1999 VL₂₀, 4, 2, 10; 1999 VM₂₀, 4, 2, 11; 1999 VN₂₀, 3, 1, 0; 1999 VO₂₀, 4, 2, 11; 1999 VP₂₀, 4, 2, 11; 1999 VQ₂₀, 2, 1, 0; 1999 VK₂₂, 4, 2, 12; 1999 VL₂₂, 4, 2, 12; 1999 VM₂₂, 5, 2, 11; 1999 VN₂₂, 4, 2, 12; 1999 VO₂₂, 4, 2, 12; 1999 VP₂₂, 4, 2, 11; 1999 VQ₂₂, 4, 2, 11; 1999 VT₂₂, 2, 1, 0; 1999 VL₂₃, 2, 1, 0; 1999 VO₂₃, 4, 2, 10; 1999 VP₂₃, 4, 2, 10; 1999 VQ₂₃, 4, 2, 10; 1999 VR₂₃, 4, 2, 10; 1999 VS₂₃, 4, 2, 10; 1999 VT₂₃, 4, 2, 10; 1999 VU₂₃, 4, 2, 10; 1999 VV₂₃, 4, 2, 10; 1999 VW₂₃, 4, 2, 10; 1999 VF₂₄, 2, 1, 0; 1999 VG₂₄, 3, 1, 0; 1999 VH₂₄, 2, 1, 0; 1999 VJ₂₄, 2, 1, 0; 1999 VK₂₄, 2, 1, 0; 1999 VL₂₄, 2, 1, 0; 1999 VM₂₄, 2, 1, 0; 1999 VN₂₄, 2, 1, 0; 1999 WB, 2, 1, 0; 1999 WW₈, 4, 2, 1; 1999 WY₈, 4, 2, 1; 1999 WG₁₁, 4, 2, 1; 1999 XV₁ *, 4, 2, 1; 1999 XW₁ *, 5, 2, 1; 1999 XX₁ *, 4, 2, 1; 1999 XY₁ *, 4, 2, 1; 1999 XZ₁ *, 4, 2, 1; 1999 XA₂ *, 4, 2, 1; 1999 XB₂ *, 4, 2, 1; 1999 XR₂ *, 4, 2, 1; 1999 XS₂ *, 4, 2, 1; 1999 XT₂ *, 4, 2, 1; 1999 XU₂ *,

4, 2, 1; 1999 XV₂ *, 4, 2, 1; 1999 XW₂ *, 4, 2, 1; 1999 XJ₇ *, 4, 2, 1; 1999 XK₇ *, 4, 2, 1; 1999 XL₇ *, 4, 2, 1; 1999 XM₇ *, 4, 2, 1; 1999 XN₇ *, 4, 2, 1; 1999 XO₇ *, 4, 2, 1; 1999 XP₇ *, 4, 2, 1; 1999 XQ₇ *, 4, 2, 1; 1999 XR₇ *, 4, 2, 1; 1999 XS₇ *, 4, 2, 1; 1999 XT₇ *, 4, 2, 1; 1999 XU₇ *, 4, 2, 1; 1999 XS₁₃, 4, 2, 1; 1999 XU₂₈, 4, 2, 1; 1999 XS₃₅, 5, 2, 1; 1999 XM₃₆ *, 4, 2, 1; 1999 XN₃₆ *, 4, 2, 1; 1999 XO₃₆ *, 4, 2, 1; 1999 XP₃₆ *, 4, 2, 1; 1999 XQ₃₆ *, 4, 2, 1; 1999 XR₃₆ *, 4, 2, 1; 1999 XS₃₆ *, 4, 2, 1; 1999 XT₃₆ *, 4, 2, 1; 1999 XU₃₆ *, 4, 2, 1; 1999 XV₃₆ *, 4, 2, 1; 1999 XW₃₆ *, 4, 2, 1; 1999 XX₃₆ *, 4, 2, 1; 1999 XY₃₆ *, 4, 2, 1; 1999 XB₃₇ *, 4, 2, 1; 1999 XC₃₇ *, 4, 2, 1; 1999 XD₃₇ *, 4, 2, 1; 1999 XE₃₇ *, 4, 2, 1; 1999 XF₃₇ *, 4, 2, 1; 1999 XG₃₇ *, 4, 2, 1; 1999 XH₃₇ *, 4, 2, 1; 1999 XJ₃₇ *, 4, 2, 1; 1999 XK₃₇ *, 4, 2, 1; 1999 XL₃₇ *, 4, 2, 1; 1999 XM₃₇ *, 4, 2, 1; 1999 XS₃₇, 4, 2, 4; 1999 XB₃₉, 4, 2, 1; 1999 XR₁₀₄ *, 4, 2, 2; 1999 XY₁₀₄ *, 4, 2, 2; 1999 XZ₁₀₄ *, 4, 2, 2; 1999 XA₁₀₅ *, 4, 2, 2; 1999 XB₁₀₅ *, 4, 2, 2; 1999 XC₁₀₅ *, 4, 2, 2; 1999 XD₁₀₅ *, 4, 2, 2; 1999 XE₁₀₅ *, 4, 2, 2; 1999 XF₁₀₅ *, 4, 2, 2; 1999 XG₁₀₅ *, 4, 2, 2; 1999 XH₁₀₅ *, 4, 2, 2; 1999 XJ₁₀₅ *, 4, 2, 2; 1999 XK₁₀₅ *, 4, 2, 2; 1999 XL₁₀₅ *, 4, 2, 2; 1999 XM₁₀₅ *, 4, 2, 2; 1999 XN₁₀₅ *, 4, 2, 2; 1999 XO₁₀₅ *, 4, 2, 2; 1999 XP₁₀₅ *, 4, 2, 2; 1999 XQ₁₀₅ *, 4, 2, 2; 1999 XR₁₀₅ *, 4, 2, 2; 1999 XS₁₀₅ *, 4, 2, 2; 1999 XT₁₀₅ *, 4, 2, 2; 1999 XU₁₀₅ *, 4, 2, 2; 1999 XV₁₀₅ *, 4, 2, 2; 1999 XW₁₀₅ *, 4, 2, 2; 1999 XX₁₀₅ *, 4, 2, 2; 1999 XY₁₀₅ *, 4, 2, 2; 1999 XZ₁₀₅ *, 4, 2, 2; 1999 XA₁₃₇ *, 4, 2, 1; 1999 XB₁₃₇ *, 4, 2, 1; 1999 XC₁₃₇ *, 4, 2, 1; 1999 XD₁₃₇ *, 4, 2, 1; 1999 XE₁₃₇ *, 4, 2, 1; 1999 XF₁₃₇ *, 4, 2, 1; 1999 XG₁₃₇ *, 4, 2, 1; 1999 XH₁₃₇ *, 4, 2, 1; 1999 XI₁₃₇ *, 4, 2, 1; 1999 XJ₁₃₇ *, 4, 2, 1; 1999 XK₁₃₇ *, 4, 2, 1; 1999 XL₁₃₇ *, 4, 2, 1; 1999 XM₁₃₇ *, 4, 2, 1; 1999 XN₁₃₇ *, 4, 2, 1; 1999 XO₁₃₇ *, 4, 2, 1; 1999 XP₁₃₇ *, 4, 2, 1; 1999 XQ₁₃₇ *, 4, 2, 1; 1999 XR₁₃₇ *, 4, 2, 1; 1999 XS₁₃₇ *, 4, 2, 1; 1999 XT₁₃₇ *, 4, 2, 1; 1999 XU₁₃₇ *, 4, 2, 1; 1999 XV₁₃₇ *, 4, 2, 1; 1999 XW₁₃₇ *, 4, 2, 1; 1999 XX₁₃₇ *, 4, 2, 1; 1999 XY₁₃₇ *, 4, 2, 1; 1999 XZ₁₃₇ *, 4, 2, 1; 1999 XA₁₃₇ *, 4, 2, 1; *[689, 187, 77*, 1999/11/12–1999/12/15]*

681 Calgary

G. W. Billings, 2320 Cherokee Dr NW, Calgary, Alberta T2L 0X7, Canada

[\[gbillings@talisman-energy.com\]](mailto:gbillings@talisman-energy.com)

0.36-m *f*/7 Schmidt-Cassegrain + CCD

USNO-A2.0

1978 RD₂, 2, 1, 0; 1999 TJ₁₉, 5, 2, 3; 1999 VL₄₆, 3, 1, 0; 1999 VC₄₇, 8, 2, 7; 1999 VE₄₉, 8, 3, 4; 1999 XD₂ *, 7, 2, 3; 1999 XB₄, 2, 1, 0; 1999 XN₁₀₇, 5, 2, 1; 1999 XG₁₁₅ *, 5, 2, 1; *[45, 9, 2*, 1999/12/01–1999/12/13]*

683 Gucker-Pigott Observatory, Tucson

R. A. Tucker, 5500 West Nebraska Street, Tucson, AZ 85746, U.S.A.

[\[tucker@noao.edu\]](mailto:tucker@noao.edu)

0.35-m *f*/11 Schmidt-Cassegrain + CCD

GSC

1998 MW₁₅, 6, 2, 3; 1999 VV₂₂, 12, 4, 18; 1999 WC₁ *, 11, 4, 8; 1999 XR₁₂₇ *, 6, 2, 1; 1999 XS₁₂₇ *, 7, 3, 2; (2905), 6, 2, 3; *[48, 6, 3*, 1999/11/19–1999/12/14]*

684 Prescott

P. G. Comba, 1411 Galaxy Lane, Prescott, AZ 86303, U.S.A.

[\[comba@northlink.com\]](mailto:comba@northlink.com)

0.46-m *f*/4.5 reflector + CCD

GSC

1993 GC, 2, 1, 0; 1997 AU₁₂, 4, 2, 1; 1997 BU₅, 3, 2, 1; 1997 HP₂, 4, 2, 2; 1997 KG, 4, 2, 2; 1997 LC, 2, 1, 0; 1997 LE₄, 4, 2, 1; 1998 NH, 6, 2, 1; 1998 OH₂, 4, 2, 1; 1998 OJ₂, 4, 2, 2; 1998 OQ₄, 4, 2, 1; 1998 PQ, 4, 2, 1; 1998 PR, 4, 2, 2; 1998 PS, 4, 2, 1; 1998 QE, 4, 2, 1; 1998 QF, 4, 2, 1; 1998 QH, 7, 3, 2; 1998 QY, 6, 2, 1; 1998 QZ, 5, 2, 1; 1998 QT₅, 4, 2, 1; 1998 QK₈, 5, 2, 1; 1998 RP₁, 4, 2, 1; 1998 SB₂₈, 6, 2, 1; 1999 TK, 4, 2, 1; 1999 TL, 4, 2, 2; 1999 TM₃, 4, 2, 1; 1999 TH₁₀, 4, 2, 1; 1999 TB₁₄, 4, 2, 1; 1999 TD₁₄, 4, 2, 1; 1999 TO₁₇, 4, 2, 1; 1999 TH₁₉, 3, 2, 1; 1999 UY₂, 4, 2, 1; 1999 VD₃₆, 5, 2, 1; 1999 VA₅₃, 5, 2, 2; 1999 XJ *, 6, 3, 2; 1999 XK *, 6, 3, 2; 1999 XS *, 4, 2, 1; 1999 XR₁ *, 7, 3, 2; 1999 XW₇ *, 6, 3, 3; 1999 XE₁₆ *, 6, 3, 4; 1999 XP₃₅, 2, 1, 0; 1999 XS₃₈, 2, 1, 0; 1999 XT₃₈, 2, 1, 0; 1999 XE₉₅ *, 6, 3, 3; 1999 XE₁₀₆ *, 7, 3, 2; 1999 XF₁₀₆ *, 5, 2, 1; 1999 XG₁₀₆ *, 4, 2, 1; 1999 XH₁₀₆ *, 4, 2, 1; 1999 XJ₁₀₆ *, 4, 2, 1; 1999 XD₁₁₅ *, 5, 2, 1; (285), 5, 2, 1; *[224, 51, 13*, 1999/11/27–1999/12/13]*

688 Lowell Observatory, Anderson Mesa Station

G. A. Snyder, Gettysburg College, 300 N. Washington St., Gettysburg, PA 17325,

U.S.A. [\[gsnyder@gettysburg.edu\]](mailto:gsnyder@gettysburg.edu)

Observer E. Anderson

Measurer G. Snyder

0.8-m reflector + CCD

USNO-A2.0

1998 ML₁₆, 4, 1, 0; (331), 2, 1, 0; *[6, 2, 0*, 1999/12/12]*

691 Kitt Peak, Steward Observatory

R. S. McMillan, Space Sciences Building, University of Arizona, Tucson, AZ 85721,
U.S.A. [bob@lpl.arizona.edu]

Observers J. A. Larsen, J. V. Scotti, J. L. Montani, R. S. McMillan, M. Read,
T. Gehrels, A. E. Gleason

0.91-m Spacewatch telescope + CCD

USNO-A1.0

1973 SL₆, 6, 2, 6; 1977 QO₃, 3, 1, 0; 1977 TQ₆, 3, 1, 0; 1978 SS₅, 3, 1, 0; 1981 EP₁₄, 3, 1, 0;
1981 EL₁₈, 3, 1, 0; 1981 EQ₂₀, 3, 1, 0; 1981 UL₂₉, 6, 2, 6; 1982 VG₄, 6, 2, 5; 1983 XE₉, 2, 5;
1988 BF₅, 3, 1, 0; 1988 CO₇, 3, 1, 0; 1988 VC₂, 9, 3, 10; 1988 VA₅, 3, 1, 0; 1990 DD₂, 3, 1, 0;
1990 QB₁₉, 3, 1, 0; 1990 SX₆, 6, 2, 8; 1991 LP₂, 6, 2, 5; 1991 PJ₁₅, 6, 2, 6; 1991 RF₄, 3, 1, 0;
1991 RX₁₇, 3, 1, 0; 1991 XD₃, 3, 1, 0; 1992 AT₂, 6, 2, 7; 1992 HS₄, 3, 1, 0; 1992 SA₁₇, 6, 2, 5;
1992 WR₃, 3, 1, 0; 1992 YR₂, 3, 1, 0; 1993 FV₂₄, 3, 1, 0; 1993 GK₁, 3, 1, 0; 1994 PC₉, 3, 1, 0;
1994 PL₃₄, 3, 1, 0; 1994 UZ₁, 3, 1, 0; 1995 PA₃, 3, 1, 0; 1995 ST₅₃, 3, 1, 0; 1995 TA₁, 3, 1, 0;
1995 UM₃, 3, 1, 0; 1995 UW₂, 3, 1, 0; 1995 UY₈, 3, 1, 0; 1995 WK₁, 3, 1, 0; 1995 WE₃, 6, 2, 9;
1995 WV₇, 3, 1, 0; 1995 WP₂₂, 3, 1, 0; 1995 WL₄₂, 3, 1, 0; 1996 DM₂, 9, 3, 10; 1996 HE₁, 3, 1,
0; 1996 HL₂₀, 3, 1, 0; 1997 AN₅, 3, 1, 0; 1997 AN₇, 3, 1, 0; 1997 AZ₁₇, 3, 1, 0; 1997 BK₃, 3, 1, 0;
1997 CS₂₉, 3, 1, 0; 1997 EM₉, 3, 14; 1997 EK₁₆, 3, 1, 0; 1997 EE₂₉, 3, 1, 0; 1997 ER₃₁, 3, 1, 0;
1997 FC₃, 6, 2, 5; 1997 GT₁, 3, 1, 0; 1997 GD₈, 3, 1, 0; 1997 GX₂₁, 6, 2, 11; 1997 HD₉, 3, 1, 0;
1997 HA₁₀, 3, 1, 0; 1997 JU₃, 3, 1, 0; 1997 JN₁₂, 3, 1, 0; 1997 JT₁₅, 6, 2, 3; 1997 XF₁₁, 2, 1, 0;
1998 FZ₂₉, 3, 1, 0; 1998 FR₆₂, 3, 1, 0; 1998 FA₇₀, 3, 1, 0; 1998 FC₇₁, 3, 1, 0; 1998 FJ₁₀₃, 6, 2, 5;
1998 HT₄, 3, 1, 0; 1998 HE₃₂, 3, 1, 0; 1998 HO₃₈, 3, 1, 0; 1998 HT₅₁, 9, 3, 14; 1998 HG₅₃, 3, 1,
0; 1998 HB₈₈, 3, 1, 0; 1998 HH₈₈, 3, 1, 0; 1998 HA₉₃, 3, 1, 0; 1998 HU₁₄₈, 3, 1, 0; 1998 JT₃, 3, 1,
0; 1998 JK₄, 3, 1, 0; 1998 KB₅, 3, 1, 0; 1998 KK₉, 3, 1, 0; 1998 KJ₃₃, 3, 1, 0; 1998 KW₃₃, 9, 3, 7;
1998 KG₃₅, 3, 1, 0; 1998 KS₃₅, 3, 1, 0; 1998 KE₃₇, 3, 1, 0; 1998 KM₃₉, 3, 1, 0; 1998 KE₄₇, 3, 1,
0; 1998 OQ₃, 3, 1, 0; 1998 OU₇, 3, 1, 0; 1998 OR₈, 18, 6, 10; 1998 ON₁₁, 3, 1, 0; 1998 PQ₆, 6, 2, 7;
1998 PA₁, 3, 1, 0; 1998 QN₁, 3, 1, 0; 1998 QO₁₀, 3, 1, 0; 1998 QR₁₀, 3, 1, 0; 1998 QS₃₃, 3, 1, 0;
1998 QF₅₁, 3, 1, 0; 1998 QO₅₄, 6, 2, 9; 1998 QG₇₃, 3, 1, 0; 1998 QH₇₅, 6, 2, 5; 1998 QJ₈₆, 3, 1, 0;
1998 QN₈₆, 3, 1, 0; 1998 RX₁₂, 3, 1, 0; 1998 RO₄₀, 3, 1, 0; 1998 RO₄₄, 3, 1, 0; 1998 RL₆₅, 3, 1, 0;
1998 RP₇₀, 3, 1, 0; 1998 SC₂₄, 6, 2, 7; 1998 SN₂₇, 3, 1, 0; 1998 SW₄₃, 3, 1, 0; 1998 SK₆₃, 3, 1, 0;
1998 SM₁₁₅, 3, 1, 0; 1998 SV₁₃₄, 3, 1, 0; 1998 SF₁₃₆, 9, 3, 7; 1998 SN₁₆₅, 3, 1, 0; 1998 TX₅, 6, 2,
6; 1998 TP₁₇, 3, 1, 0; 1998 WH₂₄, 6, 2, 11; 1998 RK₃, 2, 1, 0; 1998 RA₃₃, 12, 4, 10; 1998 RS₃₄, 3,
1, 0; 1999 RG₃₈, 6, 2, 6; 1999 RM₄₃, 3, 1, 0; 1999 RQ₄₃, 3, 1, 0; 1999 RZ₁₀₄, 3, 1, 0; 1999 RH₁₀₅,
3, 1, 0; 1999 RH₂₀₉, 6, 2, 3; 1999 RM₂₁₄, 9, 3, 7; 1999 SO₁, 9, 3, 10; 1999 SP₄, 3, 1, 0; 1999 TM,
3, 1, 0; 1999 TO₃, 3, 1, 0; 1999 TU₃, 3, 1, 0; 1999 TE₁, 3, 1, 0; 1999 TH₁, 3, 1, 0; 1999 TJ₂, 6, 2,
6; 1999 TS₃, 3, 1, 0; 1999 TY₃, 3, 1, 0; 1999 TF₆, 9, 3, 6; 1999 TZ₉, 3, 1, 0; 1999 TZ₁₁, 9, 3, 6;
1999 TA₁₂, 6, 2, 6; 1999 TC₁₃, 6, 2, 7; 1999 TP₁₃, 3, 1, 0; 1999 TS₁₄, 3, 1, 0; 1999 TG₁₆, 3, 1,
0; 1999 TP₁₆, 3, 1, 0; 1999 TF₁₇, 3, 1, 0; 1999 TQ₁₇, 3, 1, 0; 1999 TS₁₇, 3, 1, 0; 1999 TF₁₈, 3, 1,
0; 1999 TY₁₈, 3, 1, 0; 1999 TP₂₀, 3, 1, 0; 1999 TQ₂₁, 3, 1, 0; 1999 TR₂₁, 3, 1, 0; 1999 TA₃₁, 9,
3, 9; 1999 TR₃₁, 6, 2, 6; 1999 TS₃₁, 6, 2, 5; 1999 TA₃₂, 9, 3, 8; 1999 TH₃₃, 6, 2, 4; 1999 TN₃₃,
6, 2, 5; 1999 TR₃₃, 6, 2, 4; 1999 TZ₃₃, 3, 1, 0; 1999 TS₃₄, 6, 2, 6; 1999 TR₃₅, 6, 2, 1; 1999 UP₁,
3, 1, 0; 1999 UQ₁, 3, 1, 0; 1999 UE₂, 3, 1, 0; 1999 UY₂, 3, 1, 0; 1999 UC₄, 3, 1, 0; 1999 UO₇, 3,
1, 0; 1999 UY₇, 6, 2, 7; 1999 UW₇, 3, 1, 0; 1999 UY₇, 3, 1, 0; 1999 UZ₇, 6, 2, 7; 1999 UA₈, 3,
1, 0; 1999 UM₈, 3, 1, 0; 1999 UT₈, 3, 1, 0; 1999 UV₈, 6, 2, 7; 1999 UA₉, 6, 2, 4; 1999 UB₉, 3,
1, 0; 1999 UE₉, 6, 2, 7; 1999 UG₉, 6, 2, 6; 1999 UH₉, 9, 3, 7; 1999 UJ₉, 3, 1, 0; 1999 UK₉, 6, 2,
12; 1999 UN₉, 3, 1, 0; 1999 UT₁₁, 3, 1, 0; 1999 UU₁₁, 3, 1, 0; 1999 UV₁₁, 9, 3, 13; 1999 UA₁₂,
3, 1, 0; 1999 UQ₂₅, 3, 1, 0; 1999 VB₆, 6, 2, 12; 1999 VN₃, 3, 1, 0; 1999 VR₃, 3, 1, 0; 1999 VV₂, 2, 1,
0; 1999 VM₁, 3, 1, 0; 1999 VP₁, 6, 2, 6; 1999 VH₄, 6, 2, 5; 1999 VG₅, 3, 1, 0; 1999 VO₅, 3, 1,
0; 1999 VP₅, 3, 1, 0; 1999 VS₅, 3, 1, 0; 1999 VV₆, 3, 1, 0; 1999 VK₇, 9, 3, 13; 1999 VR₇, 3, 1,
0; 1999 VT₇, 3, 1, 0; 1999 VU₇, 3, 1, 0; 1999 VW₇, 6, 2, 9; 1999 VZ₇, 3, 1, 0; 1999 VC₈, 6, 2, 5;
1999 VK₉, 3, 1, 0; 1999 VL₉, 12, 4, 6; 1999 VM₉, 3, 1, 0; 1999 VN₉, 3, 1, 0; 1999 VO₉, 6, 2, 6;
1999 VJ₁₀, 3, 1, 0; 1999 VH₁₁, 6, 2, 5; 1999 VJ₁₁, 3, 1, 0; 1999 VS₁₁, 3, 1, 0; 1999 VD₁₂, 3, 1, 0;
1999 VH₁₂, 3, 1, 0; 1999 VM₁₂, 3, 1, 0; 1999 VN₁₂, 3, 1, 0; 1999 VR₁₂, 6, 2, 11; 1999 VV₁₂, 3, 1,
0; 1999 VD₁₉, 3, 1, 0; 1999 VE₁₉, 3, 1, 0; 1999 VF₁₉, 3, 1, 0; 1999 VJ₁₉, 6, 2, 5; 1999 VR₁₉, 6, 2,
10; 1999 VS₁₉, 3, 1, 0; 1999 VY₁₉, 3, 1, 0; 1999 VA₂₁, 3, 1, 0; 1999 VC₂₁, 3, 1, 0; 1999 VN₂₁, 3,
1, 0; 1999 VZ₂₁, 3, 1, 0; 1999 VB₂₂, 3, 1, 0; 1999 VY₂₃, 3, 1, 0; 1999 VZ₂₄, 3, 1, 0; 1999 VD₂₆, 3,
1, 0; 1999 VF₂₆, 3, 1, 0; 1999 VJ₂₆, 3, 1, 0; 1999 VL₂₆, 3, 1, 0; 1999 VM₂₆, 3, 1, 0; 1999 VP₂₆, 3,
1, 0; 1999 VY₂₆, 3, 1, 0; 1999 VZ₂₆, 3, 1, 0; 1999 VA₂₇, 3, 1, 0; 1999 VB₂₇, 3, 1, 0; 1999 VE₂₇, 3,
1, 0; 1999 VW₂₇, 6, 2, 8; 1999 VX₂₇, 3, 1, 0; 1999 VA₂₈, 3, 1, 0; 1999 VK₂₈, 3, 1, 0; 1999 VV₂₈,
3, 1, 0; 1999 VC₂₉, 3, 1, 0; 1999 VK₂₉, 3, 1, 0; 1999 VQ₂₉, 3, 1, 0; 1999 VT₂₉, 3, 1, 0; 1999 VU₂₉,
3, 1, 0; 1999 VW₂₉, 6, 2, 2; 1999 VX₂₉, 3, 1, 0; 1999 VA₃₀, 3, 1, 0; 1999 VC₃₀, 3, 1, 0; 1999 VD₃₀,
3, 1, 0; 1999 VN₃₀, 3, 1, 0; 1999 VO₃₀, 3, 1, 0; 1999 VQ₃₀, 3, 1, 0; 1999 VA₃₁, 3, 1, 0; 1999 VP₃₁,
3, 1, 0; 1999 VC₃₂, 3, 1, 0; 1999 VJ₃₂, 3, 1, 0; 1999 VL₃₂, 3, 1, 0; 1999 VM₃₂, 3, 1, 0; 1999 VR₃₂,
3, 1, 0; 1999 VT₃₂, 3, 1, 0; 1999 VU₃₂, 3, 1, 0; 1999 VV₃₂, 3, 1, 0; 1999 VZ₃₂,
3, 1, 0; 1999 VA₃₃, 3, 1, 0; 1999 VE₃₃, 3, 1, 0; 1999 VH₃₃, 3, 1, 0; 1999 VK₃₃, 3, 1, 0; 1999 VL₃₃,
3, 1, 0; 1999 VO₃₃, 3, 1, 0; 1999 VP₃₃, 3, 1, 0; 1999 VT₃₃, 3, 1, 0; 1999 VA₃₄, 9, 2, 5; 1999 VB₃₄,

18, 5, 11; 1999 VD₃₆, 3, 1, 0; 1999 VY₃₆, 3, 1, 0; 1999 VK₃₇, 6, 2, 5; 1999 VS₃₈, 3, 1, 0;
1999 VZ₃₈, 3, 1, 0; 1999 VD₃₉, 3, 1, 0; 1999 VP₃₉, 3, 1, 0; 1999 VW₃₉, 9, 3, 7; 1999 VS₄₁, 6, 2, 5;
1999 VX₄₂, 3, 1, 0; 1999 VD₄₃, 3, 1, 0; 1999 VF₄₃, 3, 1, 0; 1999 VH₄₆, 6, 2, 5; 1999 VQ₄₆, 6, 2, 5;
1999 VE₄₇, 9, 2, 4; 1999 VO₅₀, 3, 1, 0; 1999 VU₅₀, 3, 1, 0; 1999 VX₅₀, 3, 1, 0; 1999 VP₅₂, 6, 2, 5;
1999 VV₅₇, 3, 1, 0; 1999 VW₅₇, 3, 1, 0; 1999 VP₅₈, 3, 1, 0; 1999 VU₅₈, 3, 1, 0; 1999 VY₅₈, 3, 1,
0; 1999 VB₅₉, 3, 1, 0; 1999 VH₅₉, 6, 2, 6; 1999 VJ₅₉, 3, 1, 0; 1999 VY₆₁, 3, 1, 0; 1999 VK₆₂, 3, 1,
0; 1999 VQ₆₂, 3, 1, 0; 1999 VU₆₂, 3, 1, 0; 1999 VC₆₃, 9, 2, 4; 1999 VD₆₃, 3, 1, 0; 1999 VG₆₃, 9, 3,
13; 1999 VQ₆₃, 3, 1, 0; 1999 VU₆₃, 6, 2, 7; 1999 VD₆₄, 6, 2, 4; 1999 VE₆₄, 6, 2, 7; 1999 VF₆₄, 6,
2, 2; 1999 VH₆₄, 6, 2, 7; 1999 VJ₆₄, 3, 1, 0; 1999 VL₆₄, 3, 1, 0; 1999 VM₆₄, 6, 2, 7; 1999 VN₆₄, 6,
2, 7; 1999 VO₆₄, 6, 2, 7; 1999 VP₆₄, 3, 1, 0; 1999 VR₆₄, 9, 3, 13; 1999 VS₆₄, 6, 2, 6; 1999 VT₆₄,
3, 1, 0; 1999 VW₆₄, 6, 2, 6; 1999 VX₆₄, 3, 1, 0; 1999 VD₆₅, 9, 3, 12; 1999 VJ₆₅, 9, 3, 12;
1999 VK₆₅, 6, 2, 6; 1999 VP₆₅, 6, 2, 7; 1999 VR₆₅, 3, 1, 0; 1999 VS₆₅, 6, 2, 6; 1999 VX₆₅, 9, 3,
13; 1999 VA₆₆, 9, 3, 13; 1999 VD₆₆, 3, 1, 0; 1999 VH₆₆, 3, 1, 0; 1999 VO₆₆, 3, 1, 0; 1999 VY₆₆, 3,
1, 0; 1999 VC₆₇, 3, 1, 0; 1999 VG₆₇, 3, 1, 0; 1999 VQ₆₇, 3, 1, 0; 1999 VR₆₇, 3, 1, 0; 1999 VS₆₇, 3,
1, 0; 1999 VT₆₇, 3, 1, 0; 1999 VW₆₇, 3, 1, 0; 1999 VY₆₇, 3, 1, 0; 1999 VA₆₈, 3, 1, 0; 1999 VG₆₈, 3,
1, 0; 1999 VH₆₈, 3, 1, 0; 1999 VL₆₈, 3, 1, 0; 1999 VP₆₈, 3, 1, 0; 1999 VR₆₈, 3, 1, 0; 1999 VT₆₈, 3,
1, 0; 1999 VZ₆₈, 6, 2, 1; 1999 VB₇₀, 6, 2, 4; 1999 VC₇₀, 3, 1, 0; 1999 VD₇₀, 3, 1, 0; 1999 VE₇₀, 3,
1, 0; 1999 VG₇₀, 6, 2, 6; 1999 VL₇₀, 6, 2, 1; 1999 VM₇₀, 9, 3, 13; 1999 VP₇₀, 3, 1, 0; 1999 VV₇₀,
6, 2, 9; 1999 VH₇₁, 6, 2, 3; 1999 VN₇₁, 6, 2, 6; 1999 VQ₇₁, 6, 2, 2; 1999 VS₇₁, 3, 1, 0; 1999 VU₇₁,
3, 1, 0; 1999 VR₇₂, 6, 2, 7; 1999 WA₉, 9, 3, 9; 1999 WB₃, 3, 1, 0; 1999 WD₈, 8, 3, 14; 1999 WS₁,
3, 1, 0; 1999 WD₂, 3, 1, 0; 1999 WH₂, 3, 1, 0; 1999 WP₂, 3, 1, 0; 1999 WR₂, 3, 1, 0; 1999 WF₃,
3, 1, 0; 1999 WF₅ *, 6, 2, 1; 1999 WG₅ *, 6, 2, 1; 1999 WH₅ *, 6, 2, 1; 1999 WJ₅ *, 6, 2, 1;
1999 WK₅ *, 9, 3, 8; 1999 WL₅ *, 6, 2, 1; 1999 WM₅ *, 6, 2, 1; 1999 WN₅ *, 6, 2, 1; 1999 WO₅ *,
9, 3, 9; 1999 WP₅ *, 6, 2, 2; 1999 WQ₅ *, 6, 2, 1; 1999 WR₅ *, 9, 3, 6; 1999 WS₅ *, 12, 4, 7;
1999 WT₅ *, 9, 3, 6; 1999 WU₅ *, 6, 2, 1; 1999 WV₅ *, 6, 2, 1; 1999 WK₆, 12, 4, 4; 1999 WB₈,
3, 1, 0; 1999 WD₈, 3, 1, 0; 1999 WH₉, 3, 1, 0; 1999 WF₁₀ *, 6, 2, 4; 1999 WG₁₀ *, 9, 3, 10;
1999 WH₁₀ *, 12, 4, 10; 1999 WJ₁₀ *, 12, 4, 11; 1999 WK₁₀ *, 6, 2, 4; 1999 WL₁₀ *, 6, 2, 4;
1999 WM₁₀ *, 6, 2, 4; 1999 WN₁₀ *, 12, 4, 10; 1999 WO₁₀ *, 9, 3, 10; 1999 WP₁₀ *, 6, 2, 4;
1999 WQ₁₀ *, 21, 7, 14; 1999 WR₁₀ *, 12, 3, 6; 1999 WS₁₀ *, 21, 7, 14; 1999 WT₁₀ *, 21, 7,
14; 1999 WU₁₀ *, 12, 4, 8; 1999 WV₁₀ *, 18, 6, 14; 1999 WW₁₀ *, 6, 2, 3; 1999 WX₁₀ *, 6,
2, 3; 1999 WY₁₀ *, 6, 2, 3; 1999 WZ₁₀ *, 9, 3, 4; 1999 WA₁₁ *, 6, 2, 2; 1999 WB₁₁ *, 27, 8,
12; 1999 WC₁₁ *, 24, 7, 7; 1999 WD₁₁ *, 24, 7, 12; 1999 WE₁₁ *, 21, 6, 12; 1999 WF₁₁ *, 21,
6, 12; 1999 WG₁₁ *, 27, 8, 12; 1999 WH₁₁ *, 24, 8, 12; 1999 WJ₁₁ *, 6, 2, 2; 1999 WK₁₁ *,
18, 6, 13; 1999 WR₁₁ *, 9, 3, 7; 1999 WS₁₁ *, 6, 2, 5; 1999 WT₁₁ *, 9, 3, 7; 1999 WU₁₁ *,
6, 2, 5; 1999 WV₁₁ *, 9, 3, 10; 1999 WW₁₁ *, 6, 2, 5; 1999 WX₁₁ *, 6, 2, 5; 1999 WY₁₁ *,
6, 2, 5; 1999 WZ₁₁ *, 6, 2, 5; 1999 WA₁₂ *, 6, 2, 5; 1999 WB₁₂ *, 6, 2, 5; 1999 WC₁₂ *, 6,
2, 5; 1999 WD₁₂ *, 6, 2, 5; 1999 WE₁₂ *, 6, 2, 5; 1999 WF₁₂ *, 6, 2, 5; 1999 WG₁₂ *, 6,
2, 5; 1999 WH₁₂ *, 6, 2, 5; 1999 WJ₁₂ *, 6, 2, 5; 1999 WK₁₂ *, 6, 2, 5; 1999 WL₁₂ *, 9, 3,
9; 1999 WM₁₂ *, 6, 2, 4; 1999 WN₁₂ *, 6, 2, 4; 1999 WO₁₂ *, 6, 2, 4; 1999 WP₁₂ *, 6, 2,
4; 1999 WQ₁₂ *, 9, 3, 9; 1999 WR₁₂ *, 6, 2, 4; 1999 WS₁₂ *, 9, 3, 6; 1999 WT₁₂ *, 6, 2,
4; 1999 WU₁₂ *, 6, 2, 3; 1999 WV₁₂ *, 9, 3, 9; 1999 WW₁₂ *, 21, 5, 12; 1999 WX₁₂ *, 6,
2, 3; 1999 WY₁₂ *, 6, 2, 6; 1999 WZ₁₂ *, 6, 2, 4; 1999 WA₁₃ *, 9, 3, 7; 1999 WB₁₃ *, 6,
2, 4; 1999 WC₁₃ *, 6, 2, 4; 1999 WD₁₃ *, 6, 2, 4; 1999 WE₁₃ *, 6, 2, 4; 1999 WF₁₃ *, 6,
2, 7; 1999 WG₁₃ *, 6, 2, 4; 1999 WH₁₃ *, 6, 2, 4; 1999 WJ₁₃ *, 6, 2, 4; 1999 WK₁₃ *, 6,
2, 7; 1999 WL₁₃ *, 6, 2, 7; 1999 WM₁₃ *, 6, 2, 7; 1999 WN₁₃ *, 6, 2, 7; 1999 WO₁₃ *, 6,
2, 7; 1999 WP₁₃ *, 6, 2, 7; 1999 WQ₁₃ *, 6, 2, 7; 1999 WR₁₃ *, 6, 2, 7; 1999 WS₁₃ *, 6,
2, 7; 1999 WT₁₃ *, 6, 2, 7; 1999 WU₁₃ *, 6, 2, 7; 1999 WV₁₃ *, 6, 2, 7; 1999 WA₁₄ *, 9, 3, 14; 1999 WB₁₄ *, 6,
2, 7; 1999 WC₁₄ *, 6, 2, 7; 1999 WD₁₄ *, 6, 2, 7; 1999 WE₁₄ *, 6, 2, 7; 1999 WF₁₄ *, 6,
2, 7; 1999 WG₁₄

1999 WU₁₇ *, 6, 2, 6; 1999 WV₁₇ *, 6, 2, 5; 1999 WW₁₇ *, 6, 2, 6; 1999 WX₁₇ *, 6, 2, 6;
 1999 WY₁₇ *, 6, 2, 6; 1999 WZ₁₇ *, 6, 2, 5; 1999 WA₁₈ *, 6, 2, 6; 1999 WB₁₈ *, 9, 3, 12;
 1999 WC₁₈ *, 6, 2, 6; 1999 WD₁₈ *, 9, 3, 12; 1999 WE₁₈ *, 9, 3, 12; 1999 XF₁₈ *, 12, 4, 10;
 1999 XN *, 15, 5, 5; 1999 XO *, 9, 3, 5; 1999 XP *, 12, 4, 10; 1999 XQ *, 6, 2, 1; 1999 XR *, 6, 2,
 1; 1999 XH₂ *, 9, 3, 7; 1999 XJ₂ *, 6, 2, 2; 1999 XK₂ *, 6, 2, 2; 1999 XL₂ *, 6, 2, 1; 1999 XM₂ *,
 6, 2, 1; 1999 XN₂ *, 6, 2, 1; 1999 XO₂ *, 18, 5, 9; 1999 XP₂ *, 18, 5, 9; 1999 XQ₂ *, 6, 2, 1;
 1999 XY₄ *, 3, 1, 0; 1999 XZ₄ *, 3, 1, 0; 1999 XA₅ *, 3, 1, 0; 1999 XE₅ *, 3, 1, 0; 1999 XF₅ *, 3, 1, 0;
 1999 XG₅ *, 3, 1, 0; 1999 XH₅ *, 6, 2, 3; 1999 XN₅ *, 3, 1, 0; 1999 XO₅ *, 3, 1, 0; 1999 XP₅ *, 6, 2, 3;
 1999 XR₅ *, 6, 2, 3; 1999 XS₅ *, 3, 1, 0; 1999 XU₅ *, 3, 1, 0; 1999 XV₅ *, 3, 1, 0; 1999 XW₅ *, 3, 1, 0;
 1999 XX₅ *, 3, 1, 0; 1999 XU₆ *, 3, 1, 0; 1999 XV₆ *, 3, 1, 0; 1999 XW₆ *, 3, 1, 0; 1999 XY₇ *, 3, 1, 0;
 1999 XF₉ *, 6, 2, 3; 1999 XG₉ *, 6, 2, 3; 1999 XH₉ *, 6, 2, 3; 1999 XJ₉ *, 6, 2, 3; 1999 XK₉ *, 6, 2,
 3; 1999 XL₉ *, 6, 2, 3; 1999 XM₉ *, 6, 2, 3; 1999 XN₉ *, 6, 2, 3; 1999 XO₉ *, 6, 2, 3; 1999 XQ₉ *,
 6, 2, 3; 1999 XR₉ *, 6, 2, 2; 1999 XS₉ *, 6, 2, 2; 1999 XT₉ *, 6, 2, 2; 1999 XU₉ *, 6, 2, 1;
 1999 XV₉ *, 9, 3, 8; 1999 XW₉ *, 9, 3, 8; 1999 XX₉ *, 6, 2, 1; 1999 XY₉ *, 6, 2, 1; 1999 XZ₉ *,
 12, 4, 7; 1999 XA₁₀ *, 9, 3, 2; 1999 XB₁₀ *, 9, 3, 2; 1999 XC₁₀ *, 12, 3, 2; 1999 XD₁₀ *, 9, 3, 2;
 1999 XU₁₅ *, 3, 1, 0; 1999 XV₁₅ *, 3, 1, 0; 1999 XW₁₅ *, 3, 1, 0; 1999 XJ₁₈ *, 3, 1, 0; 1999 XK₁₈ *, 3, 1, 0;
 1999 XR₁₈ *, 3, 1, 0; 1999 XN₂₄ *, 3, 1, 0; 1999 XX₂₄ *, 3, 1, 0; 1999 XY₂₄ *, 3, 1, 0; 1999 XW₂₅ *, 6, 2,
 3; 1999 XX₂₅ *, 3, 1, 0; 1999 XZ₂₅ *, 3, 1, 0; 1999 XO₂₆ *, 3, 1, 0; 1999 XR₂₆ *, 3, 1, 0; 1999 XW₂₆ *, 3, 1,
 0; 1999 XX₂₆ *, 3, 1, 0; 1999 XC₂₇ *, 3, 1, 0; 1999 XZ₂₈ *, 3, 1, 0; 1999 XK₂₈ *, 3, 1, 0; 1999 XL₂₈ *, 6, 2,
 3; 1999 XM₂₈ *, 3, 1, 0; 1999 XN₂₈ *, 3, 1, 0; 1999 XO₂₈ *, 3, 1, 0; 1999 XP₂₈ *, 6, 1, 0; 1999 XQ₂₈ *, 3, 1,
 0; 1999 XR₂₈ *, 3, 1, 0; 1999 XS₂₈ *, 6, 2, 3; 1999 XT₂₈ *, 3, 1, 0; 1999 XX₂₈ *, 3, 1, 0; 1999 XZ₂₈ *, 6, 2,
 3; 1999 XA₂₉ *, 3, 1, 0; 1999 XC₂₉ *, 3, 1, 0; 1999 XV₃₀ *, 3, 1, 0; 1999 XW₃₀ *, 3, 1, 0; 1999 XX₃₀ *,
 1, 0; 1999 XD₃₁ *, 3, 1, 0; 1999 XG₃₃ *, 3, 1, 0; 1999 XM₃₃ *, 3, 1, 0; 1999 XN₃₃ *, 3, 1, 0; 1999 XT₃₄ *, 3,
 1, 0; 1999 XM₃₅ *, 3, 1, 0; 1999 XJ₄₀ *, 3, 1, 0; 1999 XK₄₀ *, 3, 1, 0; 1999 XN₄₅ *, 3, 1, 0; 1999 XX₄₅ *,
 1, 0; 1999 XY₄₅ *, 3, 1, 0; 1999 XJ₄₆ *, 3, 1, 0; 1999 XO₄₆ *, 3, 1, 0; 1999 XP₄₆ *, 3, 1, 0; 1999 XQ₄₆ *, 3,
 1, 0; 1999 XR₄₆ *, 3, 1, 0; 1999 XS₄₆ *, 3, 1, 0; 1999 XT₄₆ *, 3, 1, 0; 1999 XT₄₇ *, 3, 1, 0; 1999 XU₄₇ *, 3,
 1, 0; 1999 XV₄₇ *, 3, 1, 0; 1999 XW₄₇ *, 3, 1, 0; 1999 XX₄₇ *, 3, 1, 0; 1999 XY₄₇ *, 3, 1, 0; 1999 XZ₄₇ *,
 3, 1, 0; 1999 XA₄₈ *, 3, 1, 0; 1999 XB₄₈ *, 3, 1, 0; 1999 XC₄₈ *, 3, 1, 0; 1999 XD₄₈ *, 3, 1, 0; 1999 XF₄₈ *,
 3, 1, 0; 1999 XG₄₈ *, 6, 2, 3; 1999 XH₄₈ *, 3, 1, 0; 1999 XJ₄₈ *, 6, 2, 3; 1999 XK₄₈ *, 3, 1, 0; 1999 XL₄₈ *, 3,
 1, 0; 1999 XM₄₈ *, 3, 1, 0; 1999 XQ₄₈ *, 3, 1, 0; 1999 XZ₄₉ *, 3, 1, 0; 1999 XH₅₀ *, 3, 1, 0; 1999 XN₅₀ *, 3,
 1, 0; 1999 XO₅₀ *, 3, 1, 0; 1999 XP₅₀ *, 3, 1, 0; 1999 XR₅₀ *, 3, 1, 0; 1999 XS₅₀ *, 3, 1, 0; 1999 XT₅₀ *, 6,
 2, 3; 1999 XW₅₀ *, 6, 2, 3; 1999 XS₅₃ *, 6, 2, 3; 1999 XT₅₃ *, 3, 1, 0; 1999 XV₅₃ *, 3, 1, 0; 1999 XX₅₃ *, 6,
 2, 3; 1999 XY₅₃ *, 6, 2, 3; 1999 XA₅₄ *, 6, 1, 0; 1999 XB₅₄ *, 6, 2, 3; 1999 XC₅₄ *, 3, 1, 0; 1999 XD₅₄ *, 3,
 1, 0; 1999 XC₆₂ *, 6, 2, 3; 1999 XK₆₃ *, 3, 1, 0; 1999 XL₆₃ *, 3, 1, 0; 1999 XA₈₆ *, 3, 1, 0; 1999 XD₈₆ *, 3,
 1, 0; 1999 XF₈₆ *, 3, 1, 0; 1999 XJ₈₆ *, 3, 1, 0; 1999 XK₈₆ *, 3, 1, 0; 1999 XL₈₆ *, 3, 1, 0; 1999 XM₈₆ *, 3,
 1, 0; 1999 XQ₈₆ *, 3, 1, 0; 1999 XR₈₆ *, 3, 1, 0; 1999 XS₈₆ *, 3, 1, 0; 1999 XW₈₆ *, 3, 1, 0; 1999 XY₈₆ *, 3,
 1, 0; 1999 XZ₈₆ *, 3, 1, 0; 1999 XC₈₇ *, 6, 2, 1; 1999 XD₈₇ *, 3, 1, 0; 1999 XF₈₇ *, 3, 1, 0; 1999 XG₈₇ *, 3,
 1, 0; 1999 XB₉₁ *, 3, 1, 0; 1999 XC₉₁ *, 9, 3, 4; 1999 XF₉₁ *, 3, 1, 0; 1999 XL₉₁ *, 3, 1, 0; 1999 XM₉₁ *, 3,
 1, 0; 1999 XR₉₁ *, 9, 3, 4; 1999 XT₉₁ *, 3, 1, 0; 1999 XK₉₃ *, 3, 1, 0; 1999 XN₉₃ *, 3, 1, 0; 1999 XX₁₀₄ *,
 3, 1, 0; 1999 XW₁₀₅ *, 3, 1, 0; 1999 XC₁₀₆ *, 3, 1, 0; 1999 XB₁₀₈ *, 3, 1, 0; 1999 XP₁₀₈ *, 3, 1, 0; 1999
 XQ₁₀₈ *, 3, 1, 0; 1999 XR₁₀₈ *, 3, 1, 0; 1999 XD₁₁₁ *, 3, 1, 0; 2110 P-L, 3, 1, 0; 4315 P-L, 3, 1, 0;
 4638 P-L, 3, 1, 0; 4647 P-L, 3, 1, 0; 6529 P-L, 3, 1, 0; 2183 T-1, 3, 1, 0; 1102 T-2, 15, 4, 14;
 1247 T-2, 9, 3, 6; 1503 T-2, 3, 1, 0; 2104 T-2, 3, 1, 0; 4262 T-2, 3, 1, 0; 2634 T-3, 4, 1, 0; (248),
 3, 1, 0; (263), 6, 2, 8; (331), 6, 2, 5; (468), 3, 1, 0; (522), 3, 1, 0; (797), 3, 1, 0; (846), 6, 2, 5;
 (942), 3, 1, 0; (981), 3, 1, 0; (993), 3, 1, 0; (1010), 3, 1, 0; (1119), 3, 1, 0; (1198), 6, 2, 1; (1319),
 3, 1, 0; (1423), 3, 1, 0; (1482), 3, 1, 0; (1487), 24, 7, 10; (1611), 3, 1, 0; (1680), 3, 1, 0; (1726),
 3, 1, 0; (1745), 3, 1, 0; (1748), 6, 2, 6; (1792), 6, 1, 0; (1829), 3, 1, 0; (1895), 3, 1, 0; (2153), 3,
 1, 0; (2322), 9, 3, 7; (2355), 6, 2, 4; (2418), 3, 1, 0; (2485), 3, 1, 0; (2505), 3, 1, 0; (2587), 6, 2,
 8; (2686), 3, 1, 0; (2707), 6, 2, 6; (2725), 6, 2, 9; (2729), 6, 2, 8; (2833), 6, 2, 8; (2844), 3, 1, 0;
 (3045), 3, 1, 0; (3050), 6, 2, 3; (3274), 3, 1, 0; (3276), 3, 1, 0; (3437), 3, 1, 0; (3504), 9, 3, 10;
 (3510), 6, 1, 0; (3636), 6, 2, 5; (3699), 3, 1, 0; (3716), 3, 1, 0; (3777), 6, 2, 6; (3889), 6, 2, 7; (3986),
 3, 1, 0; (4005), 18, 5, 12; (4039), 3, 1, 0; (4042), 3, 1, 0; (4079), 6, 2, 7; (4151), 6, 2, 6; (4376),
 3, 1, 0; (4378), 3, 1, 0; (4408), 6, 2, 3; (4441), 3, 1, 0; (4569), 3, 1, 0; (4579), 6, 2, 1; (4802), 6,
 2, 8; (4842), 2, 1, 0; (4921), 3, 1, 0; (4938), 6, 2, 10; (4965), 3, 1, 0; (5031), 3, 1, 0; (5100), 6, 2,
 7; (5258), 3, 1, 0; (5286), 6, 2, 11; (5337), 3, 1, 0; (5365), 6, 1, 0; (5375), 3, 1, 0; (5421), 3, 1, 0;
 (5472), 6, 2, 1; (5501), 3, 1, 0; (5679), 3, 1, 0; (5733), 6, 2, 9; (5741), 6, 2, 7; (5846), 3, 1, 0; (5880),
 6, 2, 6; (6082), 9, 3, 9; (6118), 6, 2, 6; (6210), 6, 2, 11; (6225), 3, 1, 0; (6300), 3, 1, 0; (6301), 3,
 1, 0; (6340), 3, 1, 0; (6414), 3, 1, 0; (6638), 3, 1, 0; (6748), 3, 1, 0; (6779), 3, 1, 0; (6788), 3, 1,
 0; (6791), 3, 1, 0; (6881), 3, 1, 0; (6899), 3, 1, 0; (6973), 3, 1, 0; (6983), 9, 3, 10; (7064), 3, 1, 0;
 (7191), 6, 2, 7; (7208), 3, 1, 0; (7354), 6, 2, 6; (7465), 6, 2, 5; (7470), 3, 1, 0; (7656), 3, 1, 0; (7664),
 3, 1, 0; (7689), 3, 1, 0; (7693), 3, 1, 0; (7696), 3, 1, 0; (7732), 3, 1, 0; (7752), 3, 1, 0; (7834), 6,
 2, 5; (8854), 6, 2, 10; (9005), 3, 1, 0; (9012), 6, 2, 7; (9024), 6, 2, 5; (9130), 3, 1, 0; (9131), 3,
 1, 0; (9155), 3, 1, 0; (9163), 6, 2, 6; (9166), 6, 2, 14; (9182), 6, 2, 5; (9207), 6, 2, 8; (9220), 6,
 2, 6; (9229), 3, 1, 0; (9273), 6, 2, 5; (9303), 3, 1, 0; (9330), 3, 1, 0; (9340), 3, 1, 0; (9371), 6, 2,
 3; (9388), 6, 2, 8; (9544), 3, 1, 0; (9625), 3, 1, 0; (9657), 6, 2, 5; (9660), 3, 1, 0; (9706), 3, 1, 0;
 (9721), 9, 3, 10; (9797), 6, 2, 6; (10612), 6, 2, 10; (11027), 3, 1, 0; (11376), 6, 2, 5; (11390), 3, 1,
 0; (11738), 3, 1, 0; (11878), 3, 1, 0; (11907), 6, 2, 11; (11922), 3, 1, 0; (11936), 6, 2, 7; (11949),
 3, 1, 0; (12152), 9, 3, 6; (12156), 3, 1, 0; (12183), 27, 8, 14; (12191), 3, 1, 0; (12213), 3, 1, 0;

(12221), 3, 1, 0; (12255), 3, 1, 0; (12286), 3, 1, 0; (12292), 3, 1, 0; (12310), 3, 1, 0; (12344), 6, 2, 8;
 (12360), 3, 1, 0; (12366), 3, 1, 0; (12371), 3, 1, 0; (12386), 3, 1, 0; (12394), 3, 1, 0; (12398), 3, 1, 0;
 (12400), 3, 1, 0; (12413), 3, 1, 0; (12414), 3, 1, 0; (12418), 3, 1, 0; (12420), 6, 2, 8; (12426), 6, 2,
 6; (12439), 3, 1, 0; (12472), 3, 1, 0; (12477), 3, 1, 0; (12492), 6, 2, 11; (12497), 9, 3, 7; (12512), 3,
 1, 0; (12517), 3, 1, 0; (12561), 6, 2, 5; (12582), 9, 3, 14; (12616), 3, 1, 0; (12619), 3, 1, 0; (12620),
 6, 2, 6; (12621), 3, 1, 0; (12652), 6, 2, 12; [4883, 982, 235*, 1999/10/09–1999/12/14]

693 University of Arizona, Catalina Station

C. W. Hergenrother, Space Sciences Building, University of Arizona, Tucson, AZ
 85721, U.S.A. [chergen@pir1.lpl.arizona.edu]

Observers C. W. Hergenrother, A. E. Gleason

1.54-m reflector + CCD

GSC-1.1

1999 VM₄₀ *, 2, 1, 0; 1999 WB₂ *, 3, 1, 0; [5, 2, 0*, 1999/11/21]

695 Kitt Peak

L. Robinson, Sunflower Observatory, 14680 W. 144 St., Olathe, KS 66062, U.S.A.
 [lrobinson@ix.netcom.com] (0)

M. W. Buie, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff, AZ 86001,
 U.S.A. [buie@lowell.edu] (1)

B. Gladman, Observatoire de Nice, Department Cassini, BP 229, F-06304 Nice
 Cedex 4, France [gladman@obs-nice.fr] (8)

J. W. Parker, Southwest Research Institute, 1050 Walnut Street, Suite 426,
 Boulder, CO 80302, U.S.A. [joel@boulder.swri.edu] (9)

Observers M. W. Buie (1), S. D. Kern (1), R. M. Wagner (1), M. Bielecki (1),
 L. Wasserman (1), D. Davis (8), B. Gladman (8), C. Neese (8),
 J. W. Parker (9), A. Block (0)

Measurers M. W. Buie (1), L. H. Wasserman (1), S. D. Kern (1), B. Gladman (8),
 J. W. Parker (9), L. Robinson (0)

4-m reflector + CCD, 2.3-m reflector + CCD, 0.9-m reflector + CCD, 0.40-m
 Schmidt-Cassegrain + CCD

GSC-1.1, USNO-A2.0

{0} 1999 XN₇₂ *, 4, 1, 0; 1999 XD₉₅ *, 4, 1, 0; [8, 2, 0*, 1999/12/09]

{1} 1993 FM₂₈ *, 2, 1, 0; 1999 TD₁₀ *, 3, 2, 1; 1999 UL₉ *, 2, 1, 0; 1999 VT₅₂ *, 2, 1, 0; 1999 VK₇₀ *, 2,
 1, 0; 1999 XF₄₇ *, 2, 1, 0; 1999 XG₆₆ *, 2, 1, 0; (11988), 2, 1, 0; [17, 8, 0*, 1999/12/04–1999/12/05]

{8} 1998 SM₁₆₅ *, 3, 1, 0; 1998 SN₁₆₅ *, 2, 1, 0; [5, 2, 0*, 1999/09/13]

{9} 1998 XY₉₅ *, 4, 1, 0; [4, 1, 0*, 1999/11/30]

699 Lowell Observatory–LONEOS

E. Bowell, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff AZ 86001,
 U.S.A. [elgb@lowell.edu]

Observers B. W. Koehn, B. A. Skiff, M. E. Van Ness, W. D. Ferris

Measurer B. W. Koehn

0.59-m LONEOS Schmidt + CCD

USNO-A2.0

1955 RE₁ *, 3, 1, 0; 1971 QO₁ *, 3, 1, 0; 1971 UR, 3, 1, 0; 1973 UK₅ *, 2, 1, 0; 1973 UR₅ *, 3, 1, 0;
 1975 SZ₁ *, 12, 4, 29; 1975 TE, 3, 1, 0; 1976 QK₁ *, 3, 1, 0; 1977 DA₄ *, 3, 1, 0; 1977 PB, 6, 2, 12;
 1978 NF, 3, 1, 0; 1978 QF₁ *, 6, 2, 23; 1978 RD₂ *, 6, 2, 55; 1978 RQ₉ *, 3, 1, 0; 1978 ST₇ *, 3, 1, 0;
 1978 VO₂ *, 3, 1, 0; 1978 VB₃ *, 6, 2, 18; 1978 VX₄ *, 6, 2, 19; 1978 VE₇ *, 6, 2, 30; 1980 RC, 6, 2, 21;
 1980 TZ₅ *, 8, 3, 60; 1981 DN₁ *, 12, 4, 45; 1981 DS₂ *, 3, 1, 0; 1981 DY₂ *, 3, 1, 0; 1981 DN₃ *, 3, 1,
 0; 1981 DR₃ *, 3, 1, 0; 1981 EP₂ *, 3, 1, 0; 1981 EO₄ *, 3, 1, 0; 1981 ER₄ *, 3, 1, 0; 1981 ET₅ *, 3, 1, 0;
 1981 EW₅ *, 3, 1, 0; 1981 EM₆ *, 3, 1, 0; 1981 EY₆ *, 3, 1, 0; 1981 EN₇ *, 6, 2, 51; 1981 EU₉ *, 6, 2, 24;
 1981 EN₁₃ *, 9, 3, 63; 1981 EP₁₄ *, 3, 1, 0; 1981 EF₁₆ *, 6, 2, 27; 1981 EA₁₉ *, 9, 3, 31; 1981 EK₂₇ *, 3,
 1, 0; 1981 EQ₃₀ *, 9, 3, 62; 1981 ES₃₃ *, 3, 1, 0; 1981 EB₃₆ *, 3, 1, 0; 1981 EU₃₈ *, 3, 1, 0; 1981 RR₁ *,
 3, 1, 0; 1981 UB₂₃ *, 3, 1, 0; 1981 UL₂₉ *, 3, 1, 0; 1982 ST₇ *, 3, 1, 0; 1982 UA₆ *, 3, 1, 0; 1982 UH₉ *,
 9, 3, 53; 1982 UE₁₂ *, 3, 1, 0; 1982 VY₃ *, 9, 3, 28; 1983 RL₃ *, 9, 3, 65; 1983 XE, 3, 1, 0; 1983 YK,
 3, 1, 0; 1984 DQ, 3, 1, 0; 1985 PC, 3, 1, 0; 1985 PH, 3, 1, 0; 1985 RP, 6, 2, 21; 1985 TS, 3, 1,

0; 1985 UJ₃, 3, 1, 0; 1985 VE, 9, 3, 57; 1986 PY, 3, 1, 0; 1986 QY₂, 9, 3, 61; 1986 TR, 2, 1, 0; 1986 TG₁, 3, 1, 0; 1986 WZ, 7, 3, 62; 1987 BF, 9, 3, 53; 1987 BX₁, 3, 1, 0; 1987 CH, 1, 1, 0; 1987 SL₃, 3, 1, 0; 1987 XC, 3, 1, 0; 1987 YS₁, 3, 1, 0; 1988 BO₃, 6, 2, 61; 1988 BM₄, 6, 2, 14; 1988 BJ₅, 3, 1, 0; 1988 CO₇, 6, 2, 27; 1988 FD₃, 6, 2, 47; 1988 GF, 3, 1, 0; 1988 PE, 9, 2, 9; 1988 PW₂, 6, 2, 17; 1988 QF, 3, 1, 0; 1988 RY₃, 3, 1, 0; 1988 RP₄, 9, 3, 67; 1988 RZ₅, 3, 1, 0; 1988 RO₆, 6, 2, 65; 1988 RL₉, 3, 1, 0; 1988 RU₉, 3, 1, 0; 1988 RL₁₂, 6, 2, 19; 1988 VA, 3, 1, 0; 1988 VC₂, 9, 3, 57; 1988 VF₂, 3, 1, 0; 1988 VH₂, 6, 2, 18; 1988 VX₂, 9, 3, 55; 1989 AJ₆, 3, 1, 0; 1989 BZ, 3, 1, 0; 1989 EZ, 3, 1, 0; 1989 GN₃, 3, 1, 0; 1989 GJ₄, 9, 3, 62; 1989 SR, 2, 1, 0; 1989 SB₁, 3, 1, 0; 1989 SM₁, 3, 1, 0; 1989 SQ₅, 3, 1, 0; 1989 TN₁₅, 3, 1, 0; 1989 TN₁₆, 9, 3, 27; 1989 UN, 3, 1, 0; 1989 WA₁, 3, 1, 0; 1989 WB₃, 9, 3, 53; 1989 XW₁, 5, 2, 10; 1989 YO₃, 3, 1, 0; 1989 YA₅, 2, 1, 0; 1989 YC₆, 3, 1, 0; 1990 BC₂, 3, 1, 0; 1990 DW, 9, 3, 44; 1990 DU₄, 3, 1, 0; 1990 EV₁, 3, 1, 0; 1990 FD₃, 3, 1, 0; 1990 GE, 3, 1, 0; 1990 HP, 6, 2, 9; 1990 OZ, 2, 1, 0; 1990 OS₄, 3, 1, 0; 1990 QY₅, 6, 2, 8; 1990 QE₇, 3, 1, 0; 1990 QO₈, 3, 1, 0; 1990 RT₂, 9, 3, 65; 1990 RN₈, 3, 1, 0; 1990 SX₃, 3, 1, 0; 1990 SE₄, 3, 1, 0; 1990 SN₈, 3, 1, 0; 1990 SO₈, 3, 1, 0; 1990 SW₈, 3, 1, 0; 1990 SX₈, 9, 3, 55; 1990 SV₁₃, 3, 1, 0; 1990 SU₁₅, 6, 2, 25; 1990 TT, 9, 3, 58; 1990 TE₁, 3, 1, 0; 1990 TZ₁, 6, 2, 19; 1990 TF₆, 3, 1, 0; 1990 TD₁₂, 6, 2, 24; 1990 TJ₁₅, 6, 2, 10; 1990 UK, 3, 1, 0; 1990 UB₄, 3, 1, 0; 1990 UO₄, 6, 2, 39; 1990 UG₅, 3, 1, 0; 1990 VE, 12, 4, 61; 1990 VN₁, 3, 1, 0; 1990 VV₂, 3, 1, 0; 1990 VF₈, 6, 2, 35; 1990 WZ, 9, 3, 57; 1990 WP₁, 3, 1, 0; 1990 YP, 3, 1, 0; 1991 BZ, 12, 4, 53; 1991 CL, 3, 1, 0; 1991 EF, 2, 4, 46; 1991 EX₂, 3, 1, 0; 1991 EO₅, 3, 1, 0; 1991 GW₁, 3, 1, 0; 1991 GR₂, 6, 2, 31; 1991 GT₄, 6, 2, 23; 1991 GU₄, 9, 3, 53; 1991 GR₇, 3, 1, 0; 1991 GD₈, 3, 1, 0; 1991 JC, 9, 3, 12; 1991 JD, 3, 1, 0; 1991 LR, 6, 2, 1; 1991 LF₁, 3, 1, 0; 1991 NB₁, 3, 1, 0; 1991 NU₃, 9, 3, 45; 1991 PG₁, 12, 4, 58; 1991 PY₁, 3, 1, 0; 1991 PG₇, 6, 2, 35; 1991 PW₁₁, 3, 1, 0; 1991 PZ₁₄, 3, 1, 0; 1991 PH₁₈, 9, 3, 30; 1991 PB₂₀, 3, 1, 0; 1991 RA, 3, 1, 0; 1991 RP₁, 6, 2, 15; 1991 RV₂, 3, 1, 0; 1991 RY₂, 3, 1, 0; 1991 RQ₅, 3, 1, 0; 1991 RC₆, 6, 2, 12; 1991 RW₁₂, 6, 2, 9; 1991 RW₂₁, 3, 1, 0; 1991 RN₂₇, 9, 3, 67; 1991 TV₁, 9, 3, 48; 1991 TC₂, 6, 2, 31; 1991 TQ₂, 3, 1, 0; 1991 TF₁₄, 1, 1, 0; 1991 UE₂, 3, 1, 0; 1991 US₃, 3, 1, 0; 1991 VD₁, 6, 2, 32; 1991 VJ₁, 6, 2, 31; 1991 VE₂, 6, 2, 33; 1991 VE₃, 9, 3, 28; 1991 VN₃, 3, 1, 0; 1991 VT₃, 6, 2, 47; 1991 VW₄, 3, 1, 0; 1991 VT₅, 3, 1, 0; 1991 XD, 6, 2, 52; 1991 YC, 3, 1, 0; 1992 AJ₁, 3, 1, 0; 1992 BT₂, 3, 1, 0; 1992 CS₂, 3, 1, 0; 1992 DC₇, 2, 1, 0; 1992 EO, 3, 1, 0; 1992 ES₆, 12, 4, 61; 1992 EZ₇, 3, 1, 0; 1992 EN₁₂, 2, 1, 0; 1992 ET₁₄, 6, 2, 34; 1992 ES₂₈, 3, 1, 0; 1992 EV₃₂, 3, 1, 0; 1992 GM₂, 6, 2, 30; 1992 JU₂, 6, 2, 45; 1992 LQ, 3, 1, 0; 1992 OF₁, 6, 2, 31; 1992 OM₆, 3, 1, 0; 1992 PK₁, 3, 1, 0; 1992 PA₂, 3, 1, 0; 1992 PO₂, 6, 2, 34; 1992 PE₃, 3, 1, 0; 1992 RN, 11, 4, 63; 1992 RW₂, 3, 1, 0; 1992 SO, 3, 1, 0; 1992 SQ, 3, 1, 0; 1992 SY₁₂, 6, 2, 25; 1992 SB₁₃, 3, 1, 0; 1992 SG₁₃, 6, 2, 25; 1992 SY₁₇, 6, 2, 15; 1992 SQ₂₃, 3, 1, 0; 1992 SQ₂₄, 3, 1, 0; 1992 SM₂₆, 3, 1, 0; 1992 UH₁, 3, 1, 0; 1992 US₁, 5, 2, 24; 1992 UT₂, 3, 1, 0; 1992 UT₂, 3, 1, 0; 1992 UV₂, 9, 3, 25; 1992 UU₅, 6, 2, 29; 1992 UA₆, 12, 4, 58; 1992 UE₆, 3, 1, 0; 1992 UK₈, 3, 1, 0; 1992 UR₈, 3, 1, 0; 1992 WD₁, 3, 1, 0; 1992 WY₁, 6, 2, 34; 1992 WC₉, 6, 2, 61; 1992 XK, 6, 2, 37; 1992 YK, 3, 1, 0; 1992 YR₂, 3, 1, 0; 1993 BD, 3, 1, 0; 1993 DM, 6, 2, 29; 1993 DX₂, 3, 1, 0; 1993 EU, 3, 1, 0; 1993 FN, 3, 1, 0; 1993 FR₅, 3, 1, 0; 1993 FO₇, 3, 1, 0; 1993 FV₁₁, 3, 1, 0; 1993 FR₁₂, 3, 1, 0; 1993 FY₁₂, 5, 2, 18; 1993 FV₁₃, 3, 1, 0; 1993 FV₁₉, 3, 1, 0; 1993 FQ₂₀, 9, 3, 68; 1993 FS₂₂, 3, 1, 0; 1993 FS₂₆, 3, 1, 0; 1993 FM₂₈, 3, 1, 0; 1993 FK₂₉, 3, 1, 0; 1993 FP₂₉, 5, 2, 46; 1993 FV₃₃, 9, 3, 39; 1993 FY₄₁, 3, 1, 0; 1993 FZ₄₁, 3, 1, 0; 1993 FU₄₉, 3, 1, 0; 1993 FX₅₀, 3, 1, 0; 1993 GC, 6, 2, 30; 1993 HE, 3, 1, 0; 1993 HY₅, 6, 2, 18; 1993 HZ₅, 9, 3, 54; 1993 KW₁, 3, 1, 0; 1993 LS₁, 3, 1, 0; 1993 LF₂, 3, 1, 0; 1993 NZ₁, 11, 3, 67; 1993 OM₈, 2, 1, 0; 1993 PV₅, 6, 2, 9; 1993 QH₄, 3, 1, 0; 1993 QH₈, 3, 1, 0; 1993 ST₅, 3, 1, 0; 1993 TJ, 6, 2, 43; 1993 TL₁₈, 6, 2, 31; 1993 TV₁₉, 3, 1, 0; 1993 TP₃₈, 3, 1, 0; 1993 UK, 3, 1, 0; 1993 VA₂, 3, 1, 0; 1993 VA₃, 6, 2, 28; 1994 AC, 3, 1, 0; 1994 AN₂, 3, 1, 0; 1994 AV₁₀, 2, 1, 0; 1994 BX, 3, 1, 0; 1994 BC₁, 3, 1, 0; 1994 BD₁, 6, 2, 45; 1994 CU₁₀, 3, 1, 0; 1994 CX₁₂, 3, 1, 0; 1994 EQ₁, 3, 1, 0; 1994 EC₂, 3, 1, 0; 1994 EC₅, 3, 1, 0; 1994 EZ₆, 6, 2, 43; 1994 EC₇, 3, 1, 0; 1994 FF, 3, 1, 0; 1994 FY, 9, 3, 55; 1994 GF, 3, 1, 0; 1994 GU₉, 3, 1, 0; 1994 JU₈, 9, 3, 40; 1994 PS, 3, 1, 0; 1994 PN₅, 3, 1, 0; 1994 PC₉, 3, 1, 0; 1994 PJ₁₀, 3, 1, 0; 1994 PK₂₀, 3, 1, 0; 1994 PC₂₉, 6, 2, 21; 1994 PH₂₉, 3, 1, 0; 1994 PW₂₉, 2, 1, 0; 1994 PO₃₀, 6, 2, 15; 1994 PL₃₄, 3, 1, 0; 1994 PA₃₆, 3, 1, 0; 1994 QQ, 3, 1, 0; 1994 QV, 3, 1, 0; 1994 QX, 6, 1, 0; 1994 RL₇, 3, 1, 0; 1994 SH₆, 6, 2, 29; 1994 TZ, 2, 1, 0; 1994 TH₁, 3, 1, 0; 1994 UT₁, 3, 1, 0; 1994 UZ₁, 3, 1, 0; 1994 VM₁, 9, 3, 56; 1994 VS₁, 5, 2, 25; 1994 VX₁, 3, 1, 0; 1994 VD₇, 3, 1, 0; 1994 WV₁, 3, 1, 0; 1994 WB₃, 6, 2, 27; 1994 XM, 6, 2, 29; 1994 YG, 3, 1, 0; 1995 BD, 3, 1, 0; 1995 CB, 3, 1, 0; 1995 CJ, 3, 1, 0; 1995 CE₁, 3, 1, 0; 1995 DR₂, 3, 1, 0; 1995 ED₉, 3, 1, 0; 1995 FM₁₁, 2, 1, 0; 1995 KM₁, 3, 1, 0; 1995 MB, 3, 1, 0; 1995 OH, 3, 1, 0; 1995 PA, 3, 1, 0; 1995 QS, 9, 3, 27; 1995 QN₂, 3, 1, 0; 1995 QY₃, 3, 1, 0; 1995 SJ₁, 12, 4, 67; 1995 SK₂, 6, 2, 31; 1995 SO₂, 3, 1, 0; 1995 SX₂, 3, 1, 0; 1995 SK₃, 3, 1, 0; 1995 SR₃, 6, 2, 28; 1995 SO₅, 3, 1, 0; 1995 SZ₂₉, 3, 1, 0; 1995 ST₅₃, 6, 2, 55; 1995 SO₅₄, 3, 1, 0; 1995 TB₈, 3, 1, 0; 1995 UK, 6, 2, 14; 1995 UM₃, 3, 1, 0; 1995 UG₆, 9, 3, 58; 1995 UP₇, 3, 1, 0; 1995 UG₈, 3, 1, 0; 1995 UR₈, 3, 1, 0; 1995 UV₈, 6, 2, 33; 1995 UV₁₁, 3, 1, 0; 1995 UB₂₁, 6, 2, 31; 1995 UK₂₈, 9, 3, 55; 1995 UQ₄₄, 6, 2, 28; 1995 UC₄₇, 6, 2, 8; 1995 UQ₅₄, 3, 1, 0; 1995 VJ, 6, 2, 29; 1995 VL, 9, 3, 65; 1995 VC₁, 3, 1, 0; 1995 VE₁, 6, 2, 29; 1995 VA₂, 3, 1, 0; 1995 WQ, 3, 1, 0; 1995 WJ, 3, 1, 0; 1995 WK₁, 3, 1, 0; 1995 WZ₁, 3, 1, 0; 1995 WG₂, 6, 2, 32; 1995 WF₃, 3, 1, 0; 1995 WS₃, 3, 1, 0; 1995 WN₄, 3, 1, 0; 1995 WB₅, 3, 1, 0; 1995 WC₅, 7, 3, 57; 1995 WF₉, 9, 3, 29; 1995 WQ₇, 3, 1, 0; 1995 WT₇, 3, 1, 0; 1995 WB₉, 9, 3, 50; 1995 WP₁₇, 6, 2, 56; 1995 WN₃₃, 3, 1, 0; 1995 XJ, 3, 1, 0; 1995 XK₁, 3, 1, 0; 1995 XU₁, 3, 1, 0; 1995 XC₅, 6, 2, 29; 1995 YB, 6,

2, 3; 1995 YF, 3, 1, 0; 1995 YH, 3, 1, 0; 1995 YJ₁, 6, 2, 28; 1995 YP₁, 6, 2, 13; 1995 YS₂₁, 3, 1, 0; 1996 AN, 3, 1, 0; 1996 AZ, 3, 1, 0; 1996 AX₁, 3, 1, 0; 1996 BE₁, 5, 2, 55; 1996 BO₁, 3, 1, 0; 1996 BH₂, 3, 1, 0; 1996 BJ₂, 3, 1, 0; 1996 BY₂, 3, 1, 0; 1996 BP₃, 3, 1, 0; 1996 CD₂, 3, 1, 0; 1996 CO₂, 1, 1, 0; 1996 CW₃, 3, 1, 0; 1996 DD₁, 3, 1, 0; 1996 DQ₁, 3, 1, 0; 1996 EB, 3, 1, 0; 1996 EG, 3, 1, 0; 1996 GE₆, 3, 1, 0; 1996 HE₁, 3, 1, 0; 1996 JN₆, 3, 1, 0; 1996 KA, 3, 1, 0; 1996 RG₁, 6, 2, 29; 1996 SJ₇, 2, 1, 0; 1996 TF, 3, 1, 0; 1996 TS₅, 3, 1, 0; 1996 TS₁₀, 3, 1, 0; 1996 TL₁₁, 2, 1, 0; 1996 TT₁₄, 6, 2, 54; 1996 TD₁₅, 6, 2, 56; 1996 UZ, 6, 2, 55; 1996 UB₁, 9, 3, 54; 1996 UK₄, 3, 1, 0; 1996 VX₂₉, 6, 2, 68; 1996 VL₃₀, 6, 2, 10; 1996 WE₃, 6, 2, 19; 1996 XK, 3, 1, 0; 1996 XJ₁, 6, 2, 54; 1996 XO₁, 3, 1, 0; 1996 XD₃, 3, 1, 0; 1996 XG₃, 3, 1, 0; 1996 XM₅, 3, 1, 0; 1996 XQ₅, 3, 1, 0; 1996 XC₉, 3, 1, 0; 1996 XC₁₅, 6, 2, 34; 1996 XY₁₇, 6, 2, 13; 1996 XG₁₉, 2, 1, 0; 1996 XT₁₉, 3, 1, 0; 1996 XU₂₆, 3, 1, 0; 1996 XZ₃₀, 6, 2, 58; 1996 XY₃₁, 3, 1, 0; 1996 XH₃₃, 3, 1, 0; 1996 YP, 3, 1, 0; 1996 YR, 9, 3, 56; 1996 YX, 12, 4, 65; 1996 YG₁, 3, 1, 0; 1996 YA₂, 3, 1, 0; 1996 YL₂, 3, 1, 0; 1997 AE, 6, 2, 7; 1997 AG, 12, 4, 65; 1997 AQ, 12, 4, 67; 1997 AS, 3, 1, 0; 1997 AT, 3, 1, 0; 1997 AV, 9, 3, 45; 1997 AW₁, 3, 1, 0; 1997 AA₂, 3, 1, 0; 1997 AJ₂, 3, 1, 0; 1997 AN₂, 3, 1, 0; 1997 AZ₂, 3, 1, 0; 1997 AW₃, 3, 1, 0; 1997 AB₄, 5, 2, 10; 1997 AP₄, 3, 1, 0; 1997 AV₄, 2, 1, 0; 1997 AQ₅, 3, 1, 0; 1997 AX₅, 9, 3, 53; 1997 AZ₅, 3, 1, 0; 1997 AR₆, 3, 1, 0; 1997 AW₆, 2, 1, 0; 1997 AU₁₂, 3, 1, 0; 1997 AC₁₃, 6, 2, 12; 1997 AG₁₃, 3, 1, 0; 1997 AJ₁₃, 2, 1, 0; 1997 AP₁₅, 3, 1, 0; 1997 AR₁₆, 9, 3, 29; 1997 AR₁₇, 3, 1, 0; 1997 AY₁₇, 3, 1, 0; 1997 AZ₁₇, 3, 3, 22; 1997 AB₁₈, 3, 1, 0; 1997 AR₂₂, 6, 2, 10; 1997 BP₁, 9, 3, 57; 1997 BA₃, 3, 1, 0; 1997 BO₃, 6, 2, 29; 1997 BN₉, 1, 1, 0; 1997 CS, 6, 2, 62; 1997 CG₁, 3, 1, 0; 1997 CH₁, 6, 2, 67; 1997 CL₁, 3, 1, 0; 1997 CX₂, 3, 1, 0; 1997 CT₅, 3, 1, 0; 1997 CF₉, 6, 2, 28; 1997 CL₁₃, 3, 1, 0; 1997 CP₁₉, 6, 2, 54; 1997 CA₂₂, 3, 1, 0; 1997 CF₂₂, 3, 1, 0; 1997 CB₂₆, 6, 2, 30; 1997 CG₂₆, 3, 1, 0; 1997 CS₂₈, 3, 1, 0; 1997 CK₂₉, 3, 1, 0; 1997 EF, 3, 1, 0; 1997 EJ, 8, 3, 55; 1997 EK, 3, 1, 0; 1997 EL, 3, 1, 0; 1997 EV, 9, 3, 25; 1997 EQ₂, 3, 1, 0; 1997 ED₇, 3, 1, 0; 1997 EO₇, 3, 1, 0; 1997 EX₇, 3, 1, 0; 1997 EX₁₃, 9, 3, 53; 1997 EK₁₆, 3, 1, 0; 1997 EF₂₃, 3, 1, 0; 1997 ER₂₆, 9, 3, 25; 1997 EL₂₈, 3, 1, 0; 1997 EO₃₀, 3, 1, 0; 1997 EQ₃₀, 3, 1, 0; 1997 ER₃₁, 3, 1, 0; 1997 EM₃₆, 6, 2, 61; 1997 EH₄₆, 3, 1, 0; 1997 EK₅₄, 2, 1, 0; 1997 EL₅₅, 9, 3, 58; 1997 EB₅₇, 6, 2, 83; 1997 FU₂, 6, 2, 12; 1997 FC₃, 6, 2, 15; 1997 FG₃, 6, 2, 45; 1997 FK₃, 6, 2, 33; 1997 FC₄, 3, 1, 0; 1997 FG₄, 3, 1, 0; 1997 FM₄, 3, 1, 0; 1997 FC₅, 3, 1, 0; 1997 GQ₇, 6, 2, 6; 1997 GZ₇, 3, 1, 0; 1997 GK₁₆, 3, 1, 0; 1997 GE₂₀, 3, 1, 0; 1997 GL₂₁, 3, 1, 0; 1997 GC₂₂, 3, 1, 0; 1997 GT₂₂, 3, 1, 0; 1997 GQ₂₂, 6, 2, 10; 1997 GB₂₃, 3, 1, 0; 1997 GH₂₇, 3, 1, 0; 1997 GK₃₃, 6, 2, 63; 1997 GP₃₃, 3, 1, 0; 1997 GW₃₄, 3, 1, 0; 1997 GH₃₆, 3, 1, 0; 1997 GP₃₆, 3, 1, 0; 1997 GM₄₁, 3, 1, 0; 1997 HO₁, 9, 3, 27; 1997 HY₆, 6, 2, 18; 1997 JE₁₀, 9, 3, 67; 1997 JT₁₅, 6, 2, 9; 1997 KH₄, 3, 1, 0; 1997 LE₄, 3, 1, 0; 1997 NQ₂, 3, 1, 0; 1997 QD₂, 3, 1, 0; 1997 XH, 3, 1, 0; 1998 BP₈, 6, 2, 24; 1998 BH₂₆, 3, 1, 0; 1998 BQ₃₃, 9, 3, 54; 1998 CC₃, 6, 2, 5; 1998 CO₃, 3, 1, 0; 1998 DT₇, 2, 1, 0; 1998 DT₉, 3, 1, 0; 1998 DT₃₄, 6, 2, 29; 1998 DC₃₅, 3, 1, 0; 1998 DB₃₆, 3, 1, 0; 1998 ED, 3, 1, 0; 1998 EW₂, 3, 1, 0; 1998 EP₃, 6, 2, 23; 1998 EA₉, 3, 1, 0; 1998 EC₉, 3, 1, 0; 1998 EB₁₀, 6, 2, 29; 1998 EE₁₀, 9, 3, 27; 1998 EZ₁₀, 6, 2, 81; 1998 EK₁₁, 3, 1, 0; 1998 ET₁₁, 3, 1, 0; 1998 EY₁₁, 9, 3, 57; 1998 ED₁₂, 3, 1, 0; 1998 EE₁₂, 6, 2, 24; 1998 EW₁₂, 3, 1, 0; 1998 FE₂, 3, 1, 0; 1998 FB₅, 3, 1, 0; 1998 FQ₅, 3, 1, 0; 1998 FM₈, 6, 2, 24; 1998 FC₉, 6, 2, 10; 1998 FV₁₀, 6, 2, 2; 1998 FU₁₁, 3, 1, 0; 1998 FM₁₂, 6, 2, 26; 1998 FM₁₄, 3, 1, 0; 1998 FV₁₅, 6, 2, 29; 1998 FF₁₆, 3, 1, 0; 1998 FW₂₀, 3, 1, 0; 1998 FZ₂₉, 3, 1, 0; 1998 FR₃₀, 3, 1, 0; 1998 FW₃₀, 9, 3, 29; 1998 FK₃₂, 3, 1, 0; 1998 FO₃₂, 6, 2, 13; 1998 FF₃₄, 3, 1, 0; 1998 FY₃₅, 9, 3, 35; 1998 FY₄₁, 3, 1, 0; 1998 FN₄₃, 6, 2, 25; 1998 FK₄₄, 3, 1, 0; 1998 FK₄₇, 3, 1, 0; 1998 FR₄₈, 3, 1, 0; 1998 FE₄₉, 3, 1, 0; 1998 FL₄₉, 6, 2, 28; 1998 FQ₄₉, 3, 1, 0; 1998 FM₅₄, 9, 3, 58; 1998 FZ₅₅, 3, 1, 0; 1998 FG₅₆, 6, 2, 2; 1998 FT₅₇, 6, 2, 14; 1998 FG₅₈, 3, 1, 0; 1998 FN₅₈, 3, 1, 0; 1998 FD

34; 1998 HH₉₃, 12, 4, 58; 1998 HK₉₄, 3, 1, 0; 1998 HR₉₄, 3, 1, 0; 1998 HC₉₆, 2, 1, 0; 1998 HZ₉₆, 3, 1, 0; 1998 HD₉₇, 3, 1, 0; 1998 HQ₉₇, 3, 1, 0; 1998 HV₉₇, 9, 3, 38; 1998 HA₉₈, 5, 2, 3; 1998 HH₉₉, 9, 3, 43; 1998 HQ₁₀₀, 6, 2, 29; 1998 HV₁₀₁, 3, 1, 0; 1998 HW₁₀₁, 9, 3, 57; 1998 HO₁₀₂, 3, 1, 0; 1998 HT₁₀₇, 3, 1, 0; 1998 HH₁₁₄, 6, 2, 9; 1998 HB₁₁₅, 3, 1, 0; 1998 HO₁₁₇, 3, 1, 0; 1998 HC₁₁₈, 6, 2, 54; 1998 HN₁₁₉, 6, 2, 28; 1998 HF₁₂₁, 3, 1, 0; 1998 HC₁₂₂, 3, 1, 0; 1998 HE₁₂₃, 6, 2, 17; 1998 HH₁₂₃, 3, 1, 0; 1998 HK₁₂₄, 9, 3, 67; 1998 HX₁₂₄, 3, 1, 0; 1998 HG₁₂₅, 6, 2, 32; 1998 HV₁₃₇, 6, 2, 28; 1998 HA₁₄₈, 3, 1, 0; 1998 HV₁₄₈, 6, 2, 29; 1998 HT₁₄₉, 3, 1, 0; 1998 HT₁₅₀, 3, 1, 0; 1998 JK₆, 2, 10; 1998 JQ₆, 2, 53; 1998 JW₃, 3, 1, 0; 1998 JY₁, 6, 2, 29; 1998 JA₂, 6, 2, 17; 1998 JD₂, 4, 2, 23; 1998 JQ₂, 6, 2, 61; 1998 JF₃, 3, 1, 0; 1998 JH₃, 3, 1, 0; 1998 JK₄, 3, 1, 0; 1998 KB₃, 3, 1, 0; 1998 KP₁, 3, 1, 0; 1998 KR₁, 9, 3, 61; 1998 KQ₂, 3, 1, 0; 1998 KC₄, 3, 1, 0; 1998 KJ₄, 3, 1, 0; 1998 KS₄, 9, 3, 50; 1998 KC₅, 3, 1, 0; 1998 KD₅, 3, 1, 0; 1998 KP₆, 3, 1, 0; 1998 KK₈, 6, 2, 29; 1998 KM₈, 6, 2, 17; 1998 KP₈, 3, 1, 0; 1998 KT₈, 3, 1, 0; 1998 KW₉, 3, 1, 0; 1998 KF₁₀, 2, 1, 0; 1998 KJ₁₀, 6, 2, 508; 1998 KZ₂₆, 6, 2, 46; 1998 KE₃₀, 2, 1, 0; 1998 KW₃₃, 6, 2, 12; 1998 KF₃₅, 6, 2, 22; 1998 KL₃₅, 3, 1, 0; 1998 KT₃₆, 9, 3, 29; 1998 KE₃₇, 9, 3, 49; 1998 KL₃₇, 3, 1, 0; 1998 KV₃₇, 3, 1, 0; 1998 KX₃₇, 3, 1, 0; 1998 KG₃₈, 6, 2, 25; 1998 KK₃₈, 6, 2, 67; 1998 KZ₃₈, 3, 1, 0; 1998 KE₄₀, 9, 3, 67; 1998 KM₄₁, 3, 1, 0; 1998 KP₄₁, 3, 1, 0; 1998 KD₄₄, 6, 2, 29; 1998 KH₄₄, 3, 1, 0; 1998 KQ₄₄, 3, 1, 0; 1998 KT₄₄, 3, 1, 0; 1998 KC₄₅, 3, 1, 0; 1998 KM₄₆, 3, 1, 0; 1998 KZ₄₆, 3, 1, 0; 1998 KV₄₇, 6, 2, 29; 1998 KW₄₇, 6, 2, 26; 1998 KX₄₇, 9, 3, 46; 1998 KE₄₈, 3, 1, 0; 1998 KV₅₀, 3, 1, 0; 1998 KB₅₁, 6, 2, 28; 1998 KS₅₁, 3, 1, 0; 1998 KW₅₁, 3, 1, 0; 1998 KP₅₃, 3, 1, 0; 1998 KA₅₄, 9, 3, 28; 1998 KP₅₄, 6, 2, 17; 1998 KR₅₄, 6, 2, 1; 1998 KZ₅₄, 3, 1, 0; 1998 KA₅₅, 3, 1, 0; 1998 KB₅₅, 12, 4, 67; 1998 KK₅₅, 3, 1, 0; 1998 KR₅₅, 3, 1, 0; 1998 KT₅₅, 3, 1, 0; 1998 KU₅₅, 3, 1, 0; 1998 KC₅₆, 9, 3, 67; 1998 KL₆₅, 3, 1, 0; 1998 MC₆, 2, 29; 1998 MG₁, 3, 1, 0; 1998 MW₁₅, 3, 1, 0; 1998 MY₂₉, 9, 3, 17; 1998 MF₃₂, 6, 2, 56; 1998 MR₃₂, 3, 1, 0; 1998 MP₃₃, 3, 1, 0; 1998 MR₃₃, 6, 2, 53; 1998 MF₃₇, 3, 1, 0; 1998 MT₃₇, 3, 1, 0; 1998 MC₄₅, 9, 3, 35; 1998 NH₃, 3, 1, 0; 1998 OW₅, 6, 2, 17; 1998 OH₆, 6, 2, 28; 1998 OL₈, 3, 1, 0; 1998 ON₁₁, 3, 1, 0; 1998 OW₁₁, 3, 1, 0; 1998 OA₁₂, 3, 1, 0; 1998 OG₁₂, 3, 1, 0; 1998 OM₁₂, 6, 2, 54; 1998 ON₁₃, 3, 1, 0; 1998 OH₁₄, 3, 1, 0; 1998 PO₁, 6, 2, 13; 1998 QN₇, 5, 2, 21; 1998 QS₉, 3, 1, 0; 1998 QZ₁₁, 3, 1, 0; 1998 QE₁₄, 3, 1, 0; 1998 QP₁₆, 3, 1, 0; 1998 QV₂₂, 8, 3, 49; 1998 QS₃₁, 3, 1, 0; 1998 QK₃₄, 3, 1, 0; 1998 QM₃₄, 3, 1, 0; 1998 QG₃₅, 3, 1, 0; 1998 QZ₃₅, 3, 1, 0; 1998 QP₄₀, 3, 1, 0; 1998 QR₄₂, 9, 3, 30; 1998 QG₄₃, 6, 2, 25; 1998 QF₄₇, 3, 1, 0; 1998 QW₄₈, 3, 1, 0; 1998 QE₅₂, 3, 1, 0; 1998 QJ₆₉, 3, 1, 0; 1998 QG₈₆, 6, 2, 25; 1998 QB₈₇, 3, 1, 0; 1998 QC₉₅, 3, 1, 0; 1998 QA₉₈, 3, 1, 0; 1998 QP₁₀₀, 3, 1, 0; 1998 QF₁₀₄, 3, 1, 0; 1998 QM₁₀₆, 3, 1, 0; 1998 RM₆, 2, 61; 1998 RJ₁, 3, 1, 0; 1998 RK₆, 3, 1, 0; 1998 RO₄₄, 3, 1, 0; 1998 RR₆₅, 3, 1, 0; 1998 RA₆₈, 3, 1, 0; 1998 RP₇₀, 9, 3, 27; 1998 SG₂₅, 3, 1, 0; 1998 SH₂₅, 3, 1, 0; 1998 SN₂₇, 3, 1, 0; 1998 SK₅₈, 3, 1, 0; 1998 SP₅₉, 3, 1, 0; 1998 SG₆₀, 3, 1, 0; 1998 SK₆₃, 3, 1, 0; 1998 SV₆₅, 3, 1, 0; 1998 SF₁₂₃, 3, 1, 0; 1998 SQ₁₄₅, 3, 1, 0; 1998 SV₁₆₃, 3, 1, 0; 1998 SK₁₆₄, 6, 2, 34; 1998 TL₁₅, 3, 1, 0; 1998 UK₂₀, 3, 1, 0; 1998 UF₂₁, 6, 2, 10; 1998 UA₂₇, 3, 1, 0; 1998 VD₅, 3, 1, 0; 1998 VF₃₅, 3, 1, 0; 1998 WW₁₉, 2, 1, 0; 1999 JN₁₇, 5, 2, 40; 1999 JL₈₁, 3, 1, 0; 1999 JM₈₁, 3, 1, 0; 1999 KG₄, 3, 1, 0; 1999 KQ₄, 3, 1, 0; 1999 KR₄, 6, 2, 64; 1999 KK₆, 3, 1, 0; 1999 KK₁₅, 3, 1, 0; 1999 KM₁₅, 3, 1, 0; 1999 LO₇, 3, 1, 0; 1999 ML₃, 1, 0; 1999 MM₁, 3, 1, 0; 1999 MN₁, 5, 2, 24; 1999 MV₁, 6, 2, 10; 1999 NT₇, 3, 1, 0; 1999 NN₂, 3, 1, 0; 1999 NP₂, 6, 2, 15; 1999 NS₄, 6, 2, 10; 1999 NT₄, 6, 2, 45; 1999 ND₉, 3, 1, 0; 1999 NH₉, 3, 1, 0; 1999 NJ₉, 3, 1, 0; 1999 NS₉, 2, 1, 0; 1999 NA₁₁, 3, 1, 0; 1999 NR₁₁, 6, 2, 37; 1999 NS₁₁, 3, 1, 0; 1999 NV₁₁, 3, 1, 0; 1999 NB₃₈, 3, 1, 0; 1999 NJ₄₁, 6, 2, 23; 1999 NK₄₁, 6, 2, 18; 1999 NV₄₁, 3, 1, 0; 1999 NG₅₃, 3, 1, 0; 1999 NN₅₃, 2, 1, 0; 1999 NK₅₆, 3, 1, 0; 1999 NS₅₆, 3, 1, 0; 1999 NU₅₆, 3, 1, 0; 1999 NV₅₆, 9, 3, 66; 1999 NC₅₇, 3, 1, 0; 1999 ND₅₇, 3, 1, 0; 1999 NF₅₇, 3, 1, 0; 1999 NN₅₉, 3, 1, 0; 1999 NW₆₃, 3, 1, 0; 1999 OB₉, 3, 23; 1999 OC₉, 3, 1, 0; 1999 OW₃, 3, 1, 0; 1999 OV₁, 3, 1, 0; 1999 OX₁, 6, 2, 13; 1999 OD₂, 3, 1, 0; 1999 OE₂, 3, 1, 0; 1999 OG₂, 3, 1, 0; 1999 OJ₂, 6, 2, 39; 1999 OM₂, 3, 1, 0; 1999 OB₃, 9, 3, 45; 1999 OH₃, 6, 2, 53; 1999 OS₃, 3, 1, 0; 1999 PE₃, 3, 1, 0; 1999 PF₃, 3, 1, 0; 1999 PM₃, 3, 1, 0; 1999 PV₃, 3, 1, 0; 1999 PY₃, 3, 1, 0; 1999 PB₁, 3, 1, 0; 1999 PR₁, 3, 2, 25; 1999 PR₃, 3, 1, 0; 1999 PA₄, 3, 1, 0; 1999 PB₄, 3, 1, 0; 1999 PT₄, 3, 1, 0; 1999 PU₄, 3, 1, 0; 1999 PV₄, 3, 1, 0; 1999 PB₅, 6, 2, 15; 1999 PS₉, 3, 32; 1999 PK₆, 3, 1, 0; 1999 QU₁, 3, 1, 0; 1999 QV₁, 6, 2, 33; 1999 QZ₁, 3, 1, 0; 1999 QB₂, 3, 1, 0; 1999 QJ₂, 3, 1, 0; 1999 QK₂, 3, 1, 0; 1999 RA₆, 2, 30; 1999 RB₉, 3, 35; 1999 RC₃, 3, 1, 0; 1999 RF₆, 2, 26; 1999 RM₃, 3, 1, 0; 1999 RS₁, 3, 1, 0; 1999 RT₁, 6, 2, 15; 1999 RU₁, 3, 1, 0; 1999 RW₁, 6, 2, 56; 1999 RX₁, 3, 1, 0; 1999 RZ₁, 3, 1, 0; 1999 RA₂, 6, 2, 56; 1999 RD₂, 3, 1, 0; 1999 RZ₂, 3, 1, 0; 1999 RD₃, 6, 2, 27; 1999 RE₃, 3, 1, 0; 1999 RM₃, 3, 1, 0; 1999 RK₇, 3, 1, 0; 1999 RK₉, 3, 1, 0; 1999 RD₁₀, 3, 1, 0; 1999 RS₁₀, 3, 1, 0; 1999 RF₁₄, 3, 1, 0; 1999 RK₁₄, 6, 2, 10; 1999 RK₁₅, 3, 1, 0; 1999 RU₁₆, 3, 1, 0; 1999 RV₁₆, 1, 1, 0; 1999 RY₁₇, 3, 1, 0; 1999 RJ₁₈, 3, 1, 0; 1999 RN₁₈, 3, 1, 0; 1999 RR₁₈, 3, 1, 0; 1999 RT₁₈, 9, 3, 53; 1999 RU₁₈, 3, 1, 0; 1999 RS₁₈, 6, 2, 11; 1999 RS₁₉, 3, 1, 0; 1999 RN₂₀, 3, 1, 0; 1999 RK₂₁, 3, 1, 0; 1999 RD₂₂, 3, 1, 0; 1999 RT₂₂, 6, 2, 14; 1999 RB₂₃, 6, 2, 67; 1999 RF₂₃, 3, 1, 0; 1999 RZ₂₃, 3, 1, 0; 1999 RB₂₄, 9, 3, 56; 1999 RE₂₅, 3, 1, 0; 1999 RX₂₅, 3, 1, 0; 1999 RE₂₇, 3, 1, 0; 1999 RF₂₇, 4, 2, 9; 1999 RH₂₇, 3, 1, 0; 1999 RK₂₇, 3, 1, 0; 1999 RL₂₇, 3, 1, 0; 1999 RV₂₇, 3, 1, 0; 1999 RW₂₇, 6, 2, 9; 1999 RY₂₇, 9, 3, 45; 1999 RD₂₈, 6, 2, 45; 1999 RO₂₉, 3, 1, 0; 1999 RN₃₀, 3, 1, 0; 1999 RZ₃₀, 3, 1, 0; 1999 RJ₃₁, 9, 3, 25; 1999 RR₃₁, 12, 4, 57; 1999 RS₃₁, 3, 1, 0; 1999 RJ₃₂, 12, 4, 58; 1999 RL₃₂, 3, 1, 0; 1999 RN₃₂, 3, 1, 0; 1999 RO₃₂, 6, 2, 15; 1999 RW₃₂, 3, 1, 0; 1999 RX₃₂, 3, 1, 0; 1999 RA₃₃, 3, 1, 0; 1999 RB₃₃, 6, 2, 10; 1999 RC₃₃, 3, 1, 0; 1999 RS₃₃, 2, 1, 0; 1999 RW₃₃, 3, 1, 0; 1999 RD₃₄, 3, 1, 0; 1999 RF₃₄, 3, 1, 0; 1999 RK₃₄, 6, 2, 29; 1999 RO₃₄, 5, 2, 39; 1999 RP₃₄,

6, 2, 29; 1999 RQ₃₄, 6, 2, 19; 1999 RW₃₄, 6, 2, 57; 1999 RD₃₅, 3, 1, 0; 1999 RH₃₅, 9, 3, 57; 1999 RL₃₅, 3, 1, 0; 1999 RN₃₅, 3, 1, 0; 1999 RO₃₅, 6, 2, 56; 1999 RT₃₅, 3, 1, 0; 1999 RH₃₆, 6, 2, 10; 1999 RN₃₆, 6, 2, 55; 1999 RP₃₆, 6, 2, 22; 1999 RB₃₇, 3, 1, 0; 1999 RC₃₇, 3, 1, 0; 1999 RE₃₇, 2, 1, 0; 1999 RV₃₇, 3, 1, 0; 1999 RY₃₇, 3, 1, 0; 1999 RZ₃₇, 6, 2, 30; 1999 RA₃₈, 3, 1, 0; 1999 RC₃₈, 6, 2, 12; 1999 RH₃₈, 3, 1, 0; 1999 RL₃₈, 6, 2, 28; 1999 RM₃₈, 3, 1, 0; 1999 RN₃₈, 6, 2, 27; 1999 RO₃₈, 9, 3, 57; 1999 RT₃₈, 6, 2, 27; 1999 RY₃₈, 3, 1, 0; 1999 RZ₃₈, 3, 1, 0; 1999 RA₃₉, 3, 1, 0; 1999 RO₃₉, 3, 1, 0; 1999 RP₃₉, 3, 1, 0; 1999 RU₃₉, 3, 1, 0; 1999 RV₃₉, 3, 1, 0; 1999 RC₄₀, 3, 1, 0; 1999 RK₄₀, 6, 2, 26; 1999 RH₄₁, 3, 1, 0; 1999 RW₄₁, 9, 3, 30; 1999 RY₄₁, 3, 1, 0; 1999 RC₄₂, 2, 1, 0; 1999 RJ₄₂, 5, 2, 17; 1999 RK₄₂, 3, 1, 0; 1999 RM₄₂, 3, 1, 0; 1999 RP₄₂, 3, 1, 0; 1999 RR₄₂, 3, 1, 0; 1999 RV₄₂, 3, 1, 0; 1999 RX₄₂, 6, 2, 41; 1999 RQ₄₃, 3, 1, 0; 1999 RS₄₃, 9, 3, 55; 1999 RT₄₃, 3, 1, 0; 1999 RU₄₃, 3, 1, 0; 1999 RZ₄₃, 3, 1, 0; 1999 RH₄₄, 6, 2, 24; 1999 RM₄₄, 9, 3, 28; 1999 RN₄₄, 3, 1, 0; 1999 RS₄₄, 3, 1, 0; 1999 RT₄₄, 3, 1, 0; 1999 RU₄₄, 3, 1, 0; 1999 RY₄₄, 3, 1, 0; 1999 RB₄₅, 3, 1, 0; 1999 RG₄₅, 5, 2, 15; 1999 RQ₄₅, 6, 2, 25; 1999 RW₄₅, 3, 1, 0; 1999 RW₄₆, 5, 2, 5; 1999 RN₅₀, 3, 1, 0; 1999 RC₅₂, 3, 1, 0; 1999 RS₅₂, 5, 2, 58; 1999 RQ₅₇, 8, 3, 64; 1999 RF₆₂, 3, 1, 0; 1999 RO₆₃, 6, 2, 27; 1999 RG₇₁, 3, 1, 0; 1999 RD₇₂, 3, 1, 0; 1999 RL₇₃, 6, 2, 10; 1999 RR₇₅, 3, 1, 0; 1999 RF₈₁, 3, 1, 0; 1999 RU₈₁, 3, 1, 0; 1999 RB₈₄, 3, 1, 0; 1999 RC₈₄, 3, 1, 0; 1999 RN₈₄, 6, 2, 14; 1999 RD₈₆, 3, 1, 0; 1999 RS₈₆, 3, 1, 0; 1999 RT₈₆, 3, 1, 0; 1999 RW₈₆, 3, 1, 0; 1999 RD₈₇, 3, 1, 0; 1999 RJ₈₈, 3, 1, 0; 1999 RP₈₈, 2, 1, 0; 1999 RX₈₈, 3, 1, 0; 1999 RZ₈₈, 3, 1, 0; 1999 RB₈₉, 9, 3, 58; 1999 RS₈₉, 3, 1, 0; 1999 RQ₉₀, 6, 2, 24; 1999 RF₉₁, 3, 1, 0; 1999 RV₉₁, 9, 3, 58; 1999 RC₉₂, 6, 2, 54; 1999 RE₉₂, 3, 1, 0; 1999 RF₉₂, 6, 2, 29; 1999 RK₉₂, 9, 3, 44; 1999 RL₉₂, 3, 1, 0; 1999 RO₉₂, 6, 2, 19; 1999 RP₉₂, 3, 1, 0; 1999 RB₉₃, 6, 2, 27; 1999 RQ₉₃, 6, 2, 29; 1999 RT₉₃, 3, 1, 0; 1999 RD₉₄, 3, 1, 0; 1999 RK₉₄, 4, 2, 57; 1999 RA₉₆, 3, 1, 0; 1999 RM₉₆, 3, 1, 0; 1999 RM₉₈, 3, 1, 0; 1999 RZ₉₈, 6, 2, 25; 1999 RC₉₉, 3, 1, 0; 1999 RS₁₀₀, 3, 1, 0; 1999 RW₁₀₀, 6, 1, 0; 1999 RE₁₀₂, 6, 2, 29; 1999 RF₁₀₂, 3, 1, 0; 1999 RN₁₀₂, 6, 2, 29; 1999 RR₁₀₂, 6, 2, 29; 1999 RT₁₀₂, 3, 1, 0; 1999 RY₁₀₂, 6, 2, 30; 1999 RA₁₀₃, 6, 2, 67; 1999 RG₁₀₃, 3, 1, 0; 1999 RH₁₀₃, 3, 1, 0; 1999 RQ₁₀₃, 6, 2, 29; 1999 RT₁₀₃, 6, 2, 25; 1999 RV₁₀₃, 9, 3, 29; 1999 RZ₁₀₃, 3, 1, 0; 1999 RK₁₀₄, 3, 1, 0; 1999 RJ₁₀₄, 3, 1, 0; 1999 RC₁₀₆, 3, 1, 0; 1999 RP₁₀₆, 3, 1, 0; 1999 RD₁₀₉, 9, 3, 27; 1999 RJ₁₀₉, 6, 2, 54; 1999 RL₁₀₉, 6, 2, 57; 1999 RZ₁₀₉, 3, 1, 0; 1999 RH₁₁₀, 3, 1, 0; 1999 RX₁₁₀, 10, 4, 65; 1999 RJ₁₁₅, 3, 1, 0; 1999 RX₁₁₈, 3, 1, 0; 1999 RL₁₁₉, 3, 1, 0; 1999 RV₁₂₀, 3, 1, 0; 1999 RT₁₂₂, 3, 1, 0; 1999 RU₁₂₂, 3, 1, 0; 1999 RE₁₂₃, 6, 2, 66; 1999 RK₁₂₃, 3, 1, 0; 1999 RN₁₂₃, 2, 1, 0; 1999 RQ₁₂₃, 3, 1, 0; 1999 RA₁₂₄, 3, 1, 0; 1999 RB₁₂₄, 3, 1, 0; 1999 RE₁₂₄, 3, 1, 0; 1999 RL₁₂₄, 3, 1, 0; 1999 RT₁₂₈, 3, 1, 0; 1999 RG₁₃₂, 3, 1, 0; 1999 RP₁₃₂, 6, 2, 68; 1999 RA₁₃₃, 3, 1, 0; 1999 RW₁₃₃, 3, 1, 0; 1999 RK₁₃₄, 3, 1, 0; 1999 RL₁₄₂, 6, 2, 25; 1999 RV₁₄₂, 3, 1, 0; 1999 RW₁₄₂, 6, 2, 14; 1999 RM₁₄₃, 3, 1, 0; 1999 RN₁₄₃, 3, 1, 0; 1999 RT₁₄₃, 3, 1, 0; 1999 RS₁₄₄, 3, 1, 0; 1999 RA₁₄₅, 3, 1, 0; 1999 RB₁₄₅, 3, 1, 0; 1999 RD₁₄₅, 3, 1, 0; 1999 RH₁₄₅, 3, 1, 0; 1999 RP₁₄₅, 3, 1, 0; 1999 RM₁₄₆, 3, 1, 0; 1999 RW₁₄₉, 6, 2, 52; 1999 RX₁₄₉, 3, 1, 0; 1999 RY₁₄₉, 3, 1, 0; 1999 RE₁₅₀, 3, 1, 0; 1999 RV₁₅₁, 3, 1, 0; 1999 RZ₁₅₁, 3, 1, 0; 1999 RX₁₅₂, 2, 1, 0; 1999 RJ₁₅₃, 3, 1, 0; 1999 RK₁₅₅, 3, 1, 0; 1999 RV₁₅₅, 3, 1, 0; 1999 RZ₁₅₅, 3, 1, 0; 1999 RK₁₅₇, 3, 1, 0; 1999 RN₁₅₇, 2, 1, 0; 1999 RB₁₅₈, 10, 3, 55; 1999 RR₁₅₈, 9, 3, 25; 1999 RU₁₅₈, 2, 1, 0; 1999 RF₁₅₉, 3, 1, 0; 1999 RV₁₅₉, 9, 3, 62; 1999 RD₁₆₀, 3, 1, 0; 1999 RF₁₆₀, 6, 2, 31; 1999 RG₁₆₀, 3, 1, 0; 1999 RN₁₆₀, 6, 2, 23; 1999 RO₁₆₀, 9, 3, 32; 1999 RO₁₆₁, 6, 2, 32; 1999 RN₁₆₂, 9, 3, 55; 1999 RO₁₆₂, 3, 1, 0; 1999 RS₁₆₂, 3, 1, 0; 1999 RU₁₆₃, 3,

0: 1999 TV1, 6, 1, 0; 1999 TD2, 6, 2, 53; 1999 TE2, 3, 1, 0; 1999 TG2, 6, 2, 19; 1999 TH2, 3, 1, 0; 1999 TZ2, 3, 1, 0; 1999 TA3, 3, 1, 0; 1999 TO3, 3, 1, 0; 1999 TP3, 3, 1, 0; 1999 TW3, 6, 2, 24; 1999 TA4, 3, 1, 0; 1999 TF4, 3, 1, 0; 1999 TJ4, 3, 1, 0; 1999 TO4, 2, 1, 0; 1999 TJ5, 3, 1, 0; 1999 TK5, 9, 3, 62; 1999 TR5, 3, 1, 0; 1999 TS5, 3, 1, 0; 1999 TT5, 3, 1, 0; 1999 TU5, 3, 1, 0; 1999 TV5, 6, 2, 49; 1999 TD6, 3, 1, 0; 1999 TJ6, 6, 2, 31; 1999 TX6, 3, 1, 0; 1999 TC7, 3, 1, 0; 1999 TH7, 3, 1, 0; 1999 TO7, 3, 1, 0; 1999 TQ7, 3, 1, 0; 1999 TB8, 3, 1, 0; 1999 TD8, 3, 1, 0; 1999 TF8, 3, 1, 0; 1999 TG8, 3, 1, 0; 1999 TH8, 3, 1, 0; 1999 TP8, 2, 1, 0; 1999 TQ8, 3, 1, 0; 1999 TS8, 3, 1, 0; 1999 TU8, 6, 2, 33; 1999 TF9, 3, 1, 0; 1999 TJ9, 3, 1, 0; 1999 TL9, 3, 1, 0; 1999 TQ9, 3, 1, 0; 1999 TR9, 3, 1, 0; 1999 TS9, 3, 1, 0; 1999 TT9, 3, 1, 0; 1999 TW9, 3, 1, 0; 1999 TX9, 3, 1, 0; 1999 TG10, 3, 1, 0; 1999 TR10, 3, 1, 0; 1999 TX10, 3, 1, 0; 1999 TK11, 3, 1, 0; 1999 TL11, 6, 2, 35; 1999 TQ11, 6, 2, 50; 1999 TS11, 5, 2, 21; 1999 TU11, 6, 2, 55; 1999 TW11, 3, 1, 0; 1999 TB12, 9, 3, 53; 1999 TC12, 3, 1, 0; 1999 TD12, 3, 1, 0; 1999 TG12, 3, 1, 0; 1999 TH12, 9, 3, 66; 1999 TP12, 12, 4, 57; 1999 TJ12, 3, 1, 0; 1999 TX12, 9, 3, 29; 1999 TB13, 3, 1, 0; 1999 TC13, 3, 1, 0; 1999 TK13, 4, 1, 0; 1999 TR13, 6, 2, 28; 1999 TL13, 3, 1, 0; 1999 TY13, 3, 1, 0; 1999 TF14, 3, 1, 0; 1999 TG14, 9, 3, 51; 1999 TH14, 3, 1, 0; 1999 TN14, 3, 1, 0; 1999 TZ14, 9, 3, 51; 1999 TD15, 3, 1, 0; 1999 TV15, 3, 1, 0; 1999 TJ15, 3, 1, 0; 1999 TZ16, 3, 1, 0; 1999 TH17, 3, 1, 0; 1999 TM17, 3, 1, 0; 1999 TF18, 3, 1, 0; 1999 TJ18, 3, 1, 0; 1999 TL18, 3, 1, 0; 1999 TQ18, 3, 1, 0; 1999 TR18, 3, 1, 0; 1999 TU18, 6, 2, 19; 1999 TG19, 5, 2, 29; 1999 TG20, 3, 1, 0; 1999 TH20, 3, 1, 0; 1999 TA21, 3, 1, 0; 1999 TN25, 3, 1, 0; 1999 TJ25, 3, 1, 0; 1999 TE26, 3, 1, 0; 1999 TJ26, 3, 1, 0; 1999 TZ26, 3, 1, 0; 1999 TC27, 3, 1, 0; 1999 TL27, 3, 1, 0; 1999 TS27, 3, 1, 0; 1999 TF30, 3, 1, 0; 1999 TA31, 3, 1, 0; 1999 TE31, 3, 1, 0; 1999 TN32, 3, 1, 0; 1999 TD34, 3, 1, 0; 1999 TR35, 3, 1, 0; 1999 UA, 3, 1, 0; 1999 UE, 3, 1, 0; 1999 UF, 3, 1, 0; 1999 UG, 3, 1, 0; 1999 UF1, 3, 1, 0; 1999 UN1, 3, 1, 0; 1999 UQ1, 3, 1, 0; 1999 UR1, 3, 1, 0; 1999 UV1, 3, 1, 0; 1999 UY1, 3, 1, 0; 1999 UF2, 3, 1, 0; 1999 UK2, 3, 1, 0; 1999 UU2, 3, 1, 0; 1999 UX2, 3, 1, 0; 1999 UZ2, 3, 1, 0; 1999 UC3, 3, 1, 0; 1999 UK3, 3, 1, 0; 1999 UO3, 3, 1, 0; 1999 UT3, 3, 1, 0; 1999 UU3, 3, 1, 0; 1999 UE4, 3, 1, 0; 1999 UN4, 3, 1, 0; 1999 UO4, 3, 1, 0; 1999 UP4, 3, 1, 0; 1999 UC5, 3, 1, 0; 1999 UN5, 3, 1, 0; 1999 UQ5, 3, 1, 0; 1999 UR5, 6, 2, 1; 1999 UT5, 3, 1, 0; 1999 UX5, 2, 1, 0; 1999 UD6, 3, 1, 0; 1999 UK6, 3, 1, 0; 1999 UN6, 3, 1, 0; 1999 UO6, 3, 1, 0; 1999 UO7, 3, 1, 0; 1999 UW8, 3, 1, 0; 1999 UC9, 3, 1, 0; 1999 UG11, 3, 1, 0; 1999 UJ11, 3, 1, 0; 1999 UN12, 3, 1, 0; 1999 UI13, 3, 1, 0; 1999 UD15, 3, 1, 0; 1999 UF15, 3, 1, 0; 1999 UM15, 3, 1, 0; 1999 UC16, 3, 1, 0; 1999 UP16, 3, 1, 0; 1999 UQ16, 3, 1, 0; 1999 UP24, 3, 1, 0; 1999 UX25, 3, 1, 0; 1999 VA, 3, 1, 0; 1999 VJ, 3, 1, 0; 1999 VP, 3, 1, 0; 1999 VR, 3, 1, 0; 1999 VW, 3, 1, 0; 1999 VT1, 3, 1, 0; 1999 VF1, 3, 1, 0; 1999 VM1, 3, 1, 0; 1999 VS1, 3, 1, 0; 1999 VT1, 3, 1, 0; 1999 VA2, 3, 1, 0; 1999 VG2, 3, 1, 0; 1999 VJ2, 3, 1, 0; 1999 VM2, 3, 1, 0; 1999 VQ2, 3, 1, 0; 1999 VZ2, 3, 1, 0; 1999 VA4, 3, 1, 0; 1999 VD4, 3, 1, 0; 1999 VL4, 3, 1, 0; 1999 VV4, 3, 1, 0; 1999 VB5, 3, 1, 0; 1999 VC5, 3, 1, 0; 1999 VH5, 3, 1, 0; 1999 VL5, 3, 1, 0; 1999 VV5, 3, 1, 0; 1999 VX5, 3, 1, 0; 1999 VZ5, 3, 1, 0; 1999 VV6, 3, 1, 0; 1999 VD7, 3, 1, 0; 1999 VS7, 3, 1, 0; 1999 VT7, 3, 1, 0; 1999 VW7, 3, 1, 0; 1999 VH8, 3, 1, 0; 1999 VO8, 3, 1, 0; 1999 VS8, 3, 1, 0; 1999 VT8, 3, 1, 0; 1999 VU8, 3, 1, 0; 1999 VV8, 3, 1, 0; 1999 VZ8, 3, 1, 0; 1999 VC9, 3, 1, 0; 1999 VF9, 3, 1, 0; 1999 VH9, 3, 1, 0; 1999 VN9, 3, 1, 0; 1999 VO9, 3, 1, 0; 1999 VT9, 3, 1, 0; 1999 VY9, 3, 1, 0; 1999 VZ9, 6, 2, 2; 1999 VA10, 3, 1, 0; 1999 VB10, 3, 1, 0; 1999 VE10, 3, 1, 0; 1999 VD11, 3, 1, 0; 1999 VH11, 3, 1, 0; 1999 VJ11, 3, 1, 0; 1999 VO11, 3, 1, 0; 1999 VQ11, 3, 1, 0; 1999 VY11, 3, 1, 0; 1999 VZ11, 3, 1, 0; 1999 VC12, 3, 1, 0; 1999 VD12, 3, 1, 0; 1999 VE12, 3, 1, 0; 1999 VJ12, 3, 1, 0; 1999 VP12, 3, 1, 0; 1999 VQ12, 3, 1, 0; 1999 VS12, 3, 1, 0; 1999 VT12, 3, 1, 0; 1999 VU12, 3, 1, 0; 1999 VV12, 3, 1, 0; 1999 VL18, 3, 1, 0; 1999 VA19, 3, 1, 0; 1999 VD19, 3, 1, 0; 1999 VU19, 3, 1, 0; 1999 VX19, 3, 1, 0; 1999 VE20, 3, 1, 0; 1999 VJ20, 3, 1, 0; 1999 VO20, 3, 1, 0; 1999 VP20, 3, 1, 0; 1999 VQ20, 3, 1, 0; 1999 VR20, 3, 1, 0; 1999 VW20, 3

1, 0; 1999 VO₇₂, 3, 1, 0; 1999 WA₃, 3, 1, 0; 1999 WF₃, 3, 1, 0; 1999 WZ₅, 6, 2, 8; 1999 WA₁, 3, 1, 0; 1999 WC₁, 3, 1, 0; 1999 WG₁, 3, 1, 0; 1999 WM₁, 3, 1, 0; 1999 WR₁, 3, 1, 0; 1999 WX₁, 3, 1, 0; 1999 WK₂, 3, 1, 0; 1999 WN₂, 3, 1, 0; 1999 WC₃, 3, 1, 0; 1999 WE₆, 3, 1, 0; 1999 WF₆, 3, 1, 0; 1999 WG₆, 3, 1, 0; 1999 WK₆, 3, 1, 0; 1999 WM₆, 3, 1, 0; 1999 WB₇, 3, 1, 0; 1999 WY₇, 3, 1, 0; 1999 WA₈, 3, 1, 0; 1999 WE₈, 3, 1, 0; 1999 WG₈, 3, 1, 0; 1999 WO₈, 3, 1, 0; 1999 WR₈, 3, 1, 0; 1999 WU₈, 3, 1, 0; 1999 WW₈, 3, 1, 0; 1999 WY₈, 3, 1, 0; 1999 WZ₈, 3, 1, 0; 1999 WD₉, 3, 1, 0; 1999 WJ₉, 3, 1, 0; 1999 WL₉, 3, 1, 0; 1999 WN₉, 3, 1, 0; 1999 WO₉, 3, 1, 0; 1999 WG₁₁, 3, 1, 0; 1999 WS₁₃, 3, 1, 0; 1999 WJ₁₇, 3, 1, 0; 1999 WF₁₈, 3, 1, 0; 1999 WM₁₈, 3, 1, 0; 1999 XN₁, 3, 1, 0; 1999 XP₁, 3, 1, 0; 1999 XC₂, 3, 1, 0; 1999 XH₂, 3, 1, 0; 1999 XR₂, 3, 1, 0; 1999 XS₂, 3, 1, 0; 1999 XT₂, 3, 1, 0; 1999 XU₂, 3, 1, 0; 1999 XV₂, 3, 1, 0; 1999 XW₂, 3, 1, 0; 1999 XB₄, 3, 1, 0; 1999 XC₄, 3, 1, 0; 1999 XC₅, 3, 1, 0; 1999 XX₅, 3, 1, 0; 1999 XZ₅, 3, 1, 0; 1999 XB₆, 3, 1, 0; 1999 XV₆, 3, 1, 0; 1999 XA₇, 3, 1, 0; 1999 XJ₇, 3, 1, 0; 1999 XK₇, 3, 1, 0; 1999 XL₇, 3, 1, 0; 1999 XM₇, 3, 1, 0; 1999 XN₇, 3, 1, 0; 1999 XO₇, 3, 1, 0; 1999 XP₇, 3, 1, 0; 1999 XQ₇, 3, 1, 0; 1999 XY₇, 3, 1, 0; 1999 XZ₇, 3, 1, 0; 1999 XN₈, 3, 1, 0; 1999 XW₈, 3, 1, 0; 1999 XE₉, 3, 1, 0; 1999 XE₁₀, 3, 1, 0; 1999 XF₁₀, 3, 1, 0; 1999 XG₁₀, 3, 1, 0; 1999 XH₁₀, 3, 1, 0; 1999 XM₁₀, 3, 1, 0; 1999 XO₁₀, 3, 1, 0; 1999 XQ₁₀, 3, 1, 0; 1999 XR₁₀, 3, 1, 0; 1999 XX₁₀, 3, 1, 0; 1999 XY₁₀, 3, 1, 0; 1999 XZ₁₀, 3, 1, 0; 1999 XE₁₁, 3, 1, 0; 1999 XG₁₁, 3, 1, 0; 1999 XH₁₁, 3, 1, 0; 1999 XQ₁₁, 3, 1, 0; 1999 XS₁₁, 3, 1, 0; 1999 XT₁₁, 3, 1, 0; 1999 XU₁₁, 3, 1, 0; 1999 XV₁₁, 3, 1, 0; 1999 XW₁₁, 3, 1, 0; 1999 XX₁₁, 3, 1, 0; 1999 XY₁₁, 3, 1, 0; 1999 XB₁₂, 3, 1, 0; 1999 XF₁₃, 3, 1, 0; 1999 XG₁₃, 3, 1, 0; 1999 XK₁₃, 3, 1, 0; 1999 XM₁₃, 3, 1, 0; 1999 XN₁₃, 3, 1, 0; 1999 XR₁₃, 3, 1, 0; 1999 XS₁₃, 3, 1, 0; 1999 XA₁₅, 3, 1, 0; 1999 XU₁₅, 3, 1, 0; 1999 XX₁₅, 3, 1, 0; 1999 XT₁₇, 3, 1, 0; 1999 XZ₁₇, 3, 1, 0; 1999 XA₁₈, 3, 1, 0; 1999 XB₁₈, 3, 1, 0; 1999 XF₁₈, 3, 1, 0; 1999 XG₁₈, 3, 1, 0; 1999 XH₁₈, 3, 1, 0; 1999 XJ₁₈, 3, 1, 0; 1999 XK₁₈, 3, 1, 0; 1999 XL₁₈, 3, 1, 0; 1999 XO₁₈, 3, 1, 0; 1999 XP₁₈, 3, 1, 0; 1999 XV₁₈, 3, 1, 0; 1999 XA₁₉, 3, 1, 0; 1999 XD₁₉, 3, 1, 0; 1999 XE₁₉, 3, 1, 0; 1999 XN₁₉, 3, 1, 0; 1999 XO₁₉, 3, 1, 0; 1999 XR₁₉, 3, 1, 0; 1999 XU₁₉, 3, 1, 0; 1999 XG₂₀, 3, 1, 0; 1999 XH₂₀, 3, 1, 0; 1999 XK₂₀, 3, 1, 0; 1999 XL₂₀, 3, 1, 0; 1999 XM₂₀, 3, 1, 0; 1999 XN₂₀, 3, 1, 0; 1999 XO₂₀, 3, 1, 0; 1999 XP₂₀, 3, 1, 0; 1999 XQ₂₀, 3, 1, 0; 1999 XU₂₀, 3, 1, 0; 1999 XX₂₀, 3, 1, 0; 1999 XY₂₀, 3, 1, 0; 1999 XZ₂₀, 3, 1, 0; 1999 XD₂₁, 3, 1, 0; 1999 XJ₂₁, 3, 1, 0; 1999 XM₂₁, 3, 1, 0; 1999 XO₂₁, 3, 1, 0; 1999 XV₂₂, 3, 1, 0; 1999 XX₂₂, 3, 1, 0; 1999 XY₂₂, 6, 1, 0; 1999 XZ₂₂, 6, 1, 0; 1999 XA₂₃, 3, 1, 0; 1999 XF₂₃, 3, 1, 0; 1999 XG₂₃, 3, 1, 0; 1999 XJ₂₃, 3, 1, 0; 1999 XV₂₃, 3, 1, 0; 1999 XW₂₃, 3, 1, 0; 1999 XX₂₃, 3, 1, 0; 1999 XY₂₃, 3, 1, 0; 1999 XZ₂₃, 3, 1, 0; 1999 XA₂₄, 3, 1, 0; 1999 XB₂₄, 3, 1, 0; 1999 XD₂₆, 3, 1, 0; 1999 XE₂₆, 3, 1, 0; 1999 XG₂₆, 3, 1, 0; 1999 XN₂₆, 3, 1, 0; 1999 XQ₂₇, 3, 1, 0; 1999 XE₂₉, 3, 1, 0; 1999 XG₂₉, 3, 1, 0; 1999 XH₂₉, 3, 1, 0; 1999 XO₂₉, 3, 1, 0; 1999 XQ₂₉, 3, 1, 0; 1999 XR₂₉, 3, 1, 0; 1999 XP₃₁, 3, 1, 0; 1999 XR₃₁, 3, 1, 0; 1999 XF₃₂, 3, 1, 0; 1999 XG₃₂, 3, 1, 0; 1999 XL₃₂, 3, 1, 0; 1999 XM₃₂, 3, 1, 0; 1999 XN₃₂, 3, 1, 0; 1999 XO₃₂, 3, 1, 0; 1999 XR₃₂, 3, 1, 0; 1999 XB₃₃, 3, 1, 0; 1999 XO₃₃, 3, 1, 0; 1999 XR₃₃, 3, 1

0; 3099 T-1, 3, 1, 0; 3243 T-1, 3, 1, 0; 3770 T-1, 3, 1, 0; 4206 T-1, 3, 1, 0; 4273 T-1, 6, 2, 45; 4406 T-1, 3, 1, 0; 4841 T-1, 3, 1, 0; 1059 T-2, 3, 1, 0; 1259 T-2, 3, 1, 0; 1329 T-2, 3, 1, 0; 1474 T-2, 6, 2, 33; 3086 T-2, 3, 1, 0; 3270 T-2, 6, 2, 57; 4091 T-2, 3, 1, 0; 5036 T-2, 6, 2, 38; 5161 T-2, 3, 1, 0; 5485 T-2, 6, 2, 15; 1071 T-3, 3, 1, 0; 1102 T-3, 6, 2, 11; 1158 T-3, 6, 2, 27; 1168 T-3, 3, 1, 0; 1177 T-3, 3, 1, 0; 2416 T-3, 6, 2, 19; 3084 T-3, 3, 1, 0; 3105 T-3, 6, 2, 45; 3482 T-3, 6, 2, 27; 3535 T-3, 5, 2, 10; 4039 T-3, 6, 3, 28; 4072 T-3, 3, 1, 0; 4138 T-3, 3, 1, 0; 4220 T-3, 2, 1, 0; 4432 T-3, 3, 1, 0; 5078 T-3, 3, 1, 0; 5122 T-3, 3, 1, 0; (6), 2, 1, 0; (13), 3, 1, 0; (25), 3, 1, 0; (38), 3, 1, 0; (46), 6, 2, 16; (47), 3, 1, 0; (57), 3, 1, 0; (58), 6, 2, 45; (59), 3, 1, 0; (62), 9, 3, 25; (64), 3, 1, 0; (65), 6, 2, 34; (73), 3, 1, 0; (75), 3, 1, 0; (76), 3, 1, 0; (81), 3, 1, 0; (83), 3, 1, 0; (85), 2, 1, 0; (102), 6, 2, 22; (112), 3, 1, 0; (114), 3, 1, 0; (122), 6, 2, 42; (125), 8, 3, 33; (131), 8, 3, 56; (139), 6, 2, 37; (141), 3, 1, 0; (145), 3, 1, 0; (150), 3, 1, 0; (155), 1, 1, 0; (157), 6, 2, 9; (161), 3, 1, 0; (162), 9, 3, 57; (169), 3, 1, 0; (186), 3, 1, 0; (197), 3, 1, 0; (199), 9, 3, 56; (205), 6, 2, 53; (217), 3, 1, 0; (219), 3, 1, 0; (223), 6, 2, 26; (227), 6, 2, 19; (231), 3, 1, 0; (232), 6, 2, 28; (246), 3, 1, 0; (248), 3, 1, 0; (251), 6, 2, 16; (259), 3, 1, 0; (263), 3, 1, 0; (264), 3, 1, 0; (267), 6, 2, 31; (269), 3, 1, 0; (277), 3, 1, 0; (278), 9, 3, 58; (280), 9, 3, 31; (285), 3, 1, 0; (288), 6, 2, 57; (290), 6, 2, 40; (297), 3, 1, 0; (298), 6, 2, 29; (300), 6, 2, 10; (301), 3, 1, 0; (302), 6, 2, 57; (307), 9, 3, 58; (312), 3, 1, 0; (314), 3, 1, 0; (316), 3, 1, 0; (321), 9, 3, 24; (325), 3, 1, 0; (326), 3, 1, 0; (329), 6, 2, 65; (331), 9, 3, 27; (342), 3, 1, 0; (348), 6, 2, 35; (361), 3, 1, 0; (362), 3, 1, 0; (377), 3, 1, 0; (378), 3, 1, 0; (396), 6, 2, 25; (400), 3, 1, 0; (410), 6, 2, 57; (413), 9, 3, 29; (414), 6, 2, 61; (420), 3, 1, 0; (432), 3, 1, 0; (437), 3, 1, 0; (448), 3, 1, 0; (452), 9, 3, 52; (453), 3, 1, 0; (454), 3, 1, 0; (456), 6, 2, 64; (457), 3, 1, 0; (461), 6, 2, 31; (466), 9, 3, 25; (468), 6, 2, 27; (469), 3, 1, 0; (470), 3, 1, 0; (473), 3, 1, 0; (484), 6, 2, 15; (485), 3, 1, 0; (487), 3, 1, 0; (488), 3, 1, 0; (490), 3, 1, 0; (491), 15, 5, 62; (514), 6, 2, 10; (516), 3, 1, 0; (517), 6, 2, 57; (522), 3, 1, 0; (523), 11, 4, 67; (525), 3, 1, 0; (530), 3, 1, 0; (533), 6, 2, 45; (534), 6, 2, 28; (536), 6, 2, 49; (541), 3, 1, 0; (555), 3, 1, 0; (560), 6, 2, 67; (561), 3, 1, 0; (571), 3, 1, 0; (573), 6, 2, 19; (575), 3, 1, 0; (577), 12, 4, 53; (579), 3, 1, 0; (585), 3, 1, 0; (589), 3, 1, 0; (597), 6, 2, 2; (604), 3, 1, 0; (607), 9, 3, 25; (611), 3, 1, 0; (614), 6, 2, 10; (621), 6, 2, 56; (624), 3, 1, 0; (625), 3, 1, 0; (629), 3, 1, 0; (632), 9, 3, 62; (634), 3, 1, 0; (635), 3, 1, 0; (636), 3, 1, 0; (638), 3, 1, 0; (642), 3, 1, 0; (643), 3, 1, 0; (644), 6, 2, 28; (646), 3, 1, 0; (648), 6, 2, 60; (650), 3, 1, 0; (657), 6, 2, 30; (658), 2, 1, 0; (661), 3, 1, 0; (662), 3, 1, 0; (664), 3, 1, 0; (672), 3, 1, 0; (676), 3, 1, 0; (678), 6, 2, 23; (687), 3, 1, 0; (696), 3, 1, 0; (699), 3, 1, 0; (711), 3, 1, 0; (720), 12, 4, 62; (723), 6, 2, 35; (728), 3, 1, 0; (733), 9, 3, 65; (737), 3, 1, 0; (742), 3, 1, 0; (746), 6, 2, 49; (749), 3, 1, 0; (753), 6, 2, 35; (754), 6, 2, 37; (757), 6, 2, 56; (765), 6, 2, 57; (769), 6, 2, 36; (770), 3, 1, 0; (771), 3, 1, 0; (773), 9, 3, 68; (774), 3, 1, 0; (780), 3, 1, 0; (781), 1, 1, 0; (782), 3, 1, 0; (788), 6, 2, 11; (789), 3, 1, 0; (791), 3, 1, 0; (792), 3, 1, 0; (797), 5, 2, 16; (799), 3, 1, 0; (804), 3, 1, 0; (809), 6, 2, 16; (811), 6, 2, 56; (818), 3, 1, 0; (822), 9, 3, 33; (829), 9, 3, 65; (840), 3, 1, 0; (846), 6, 2, 43; (847), 6, 2, 45; (848), 6, 2, 23; (849), 3, 1, 0; (860), 6, 2, 39; (868), 6, 2, 67; (870), 6, 2, 56; (872), 6, 2, 19; (873), 3, 1, 0; (874), 3, 1, 0; (884), 3, 1, 0; (885), 3, 1, 0; (890), 6, 2, 26; (911), 3, 1, 0; (912), 3, 1, 0; (923), 3, 1, 0; (925), 3, 1, 0; (933), 3, 1, 0; (938), 6, 2, 29; (941), 3, 1, 0; (942), 9, 3, 43; (948), 6, 2, 16; (950), 3, 1, 0; (954), 3, 1, 0; (958), 5, 2, 62; (963), 5, 2, 2; (968), 3, 1, 0; (969), 3, 1, 0; (976), 9, 3, 36; (981), 3, 1, 0; (993), 6, 2, 9; (999), 3, 1, 0; (1002), 3, 1, 0; (1007), 3, 1, 0; (1008), 6, 2, 21; (1010), 3, 1, 0; (1029), 3, 1, 0; (1032), 9, 3, 45; (1052), 9, 3, 26; (1057), 6, 2, 14; (1059), 3, 1, 0; (1063), 3, 1, 0; (1067), 6, 2, 39; (1079), 6, 2, 29; (1080), 3, 1, 0; (1082), 6, 2, 31; (1084), 3, 1, 0; (1089), 3, 1, 0; (1119), 6, 2, 43; (1126), 3, 1, 0; (1127), 3, 1, 0; (1131), 6, 2, 43; (1144), 6, 2, 19; (1147), 6, 2, 25; (1148), 3, 1, 0; (1153), 6, 2, 28; (1154), 9, 3, 68; (1155), 3, 1, 0; (1158), 6, 2, 54; (1159), 6, 2, 30; (1172), 3, 1, 0; (1175), 6, 2, 39; (1178), 12, 4, 55; (1181), 6, 2, 30; (1186), 3, 1, 0; (1190), 6, 2, 2; (1191), 6, 2, 16; (1192), 3, 1, 0; (1198), 5, 2, 31; (1199), 6, 2, 67; (1204), 6, 2, 7; (1207), 6, 2, 34; (1212), 3, 1, 0; (1218), 6, 2, 35; (1223), 9, 3, 62; (1234), 6, 2, 31; (1236), 6, 2, 54; (1237), 3, 1, 0; (1239), 3, 1, 0; (1243), 3, 1, 0; (1247), 6, 2, 57; (1253), 3, 1, 0; (1262), 6, 2, 47; (1266), 6, 2, 29; (1271), 3, 1, 0; (1273), 6, 2, 38; (1274), 6, 2, 29; (1276), 3, 1, 0; (1279), 3, 1, 0; (1281), 6, 2, 24; (1292), 9, 3, 58; (1294), 3, 1, 0; (1304), 9, 3, 20; (1306), 3, 1, 0; (1308), 3, 1, 0; (1311), 9, 3, 62; (1323), 3, 1, 0; (1324), 12, 4, 57; (1325), 6, 2, 30; (1327), 3, 1, 0; (1329), 3, 1, 0; (1331), 6, 2, 29; (1334), 6, 2, 54; (1337), 6, 2, 4; (1338), 9, 3, 35; (1342), 3, 1, 0; (1346), 3, 1, 0; (1352), 2, 1, 0; (1358), 3, 1, 0; (1370), 9, 3, 58; (1371), 9, 3, 67; (1372), 3, 1, 0; (1374), 3, 1, 0; (1376), 3, 1, 0; (1379), 3, 1, 0; (1380), 9, 3, 32; (1382), 3, 1, 0; (1383), 9, 3, 58; (1388), 3, 1, 0; (1390), 9, 3, 35; (1391), 3, 1, 0; (1394), 3, 1, 0; (1398), 3, 1, 0; (1399), 3, 1, 0; (1403), 6, 2, 36; (1404), 3, 1, 0; (1415), 12, 3, 57; (1420), 6, 2, 18; (1423), 9, 3, 57; (1425), 3, 1, 0; (1428), 3, 1, 0; (1430), 3, 1, 0; (1437), 3, 1, 0; (1442), 6, 2, 33; (1444), 6, 2, 23; (1449), 9, 3, 67; (1453), 3, 1, 0; (1457), 6, 2, 67; (1462), 6, 2, 16; (1465), 6, 2, 43; (1469), 9, 3, 64; (1476), 3, 1, 0; (1477), 3, 1, 0; (1478), 3, 1, 0; (1480), 3, 1, 0; (1482), 9, 3, 52; (1484), 3, 1, 0; (1487), 3, 1, 0; (1489), 3, 1, 0; (1491), 6, 2, 14; (1498), 3, 1, 0; (1499), 6, 2, 28; (1501), 3, 1, 0; (1512), 12, 3, 24; (1516), 6, 2, 58; (1519), 6, 2, 31; (1524), 12, 4, 64; (1526), 3, 1, 0; (1528), 3, 1, 0; (1529), 3, 1, 0; (1533), 8, 3, 26; (1537), 6, 2, 16; (1544), 6, 2, 65; (1549), 9, 3, 35; (1552), 6, 2, 28; (1555), 3, 1, 0; (1557), 3, 1, 0; (1558), 6, 2, 57; (1559), 12, 4, 67; (1560), 9, 3, 61; (1563), 6, 2, 56; (1569), 3, 1, 0; (1574), 12, 4, 60; (1575), 3, 1, 0; (1576), 3, 1, 0; (1579), 3, 1, 0; (1589), 6, 2, 35; (1597), 6, 2, 9; (1598), 6, 2, 57; (1602), 6, 2, 23; (1603), 8, 3, 58; (1606), 6, 2, 2; (1607), 9, 3, 54; (1618), 3, 1, 0; (1621), 9, 3, 26; (1624), 12, 4, 57; (1632), 12, 4, 55; (1633), 8, 3, 56; (1634), 3, 1, 0; (1643), 7, 3, 60; (1645), 3, 1, 0; (1646), 3, 1, 0; (1648), 9, 3, 61; (1650), 3, 1, 0; (1654), 9, 3, 47; (1655), 3, 1, 0; (1657), 2, 1, 0; (1658), 6, 2, 23; (1660), 6, 2, 37; (1664),

6, 2, 24; (1666), 3, 1, 0; (1667), 3, 1, 0; (1668), 6, 2, 56; (1674), 6, 2, 31; (1679), 3, 1, 0; (1680), 3, 1, 0; (1686), 3, 1, 0; (1687), 3, 1, 0; (1688), 12, 4, 60; (1689), 3, 1, 0; (1696), 3, 1, 0; (1698), 6, 2, 34; (1700), 3, 1, 0; (1701), 3, 1, 0; (1704), 3, 1, 0; (1706), 3, 1, 0; (1712), 12, 4, 64; (1716), 9, 3, 66; (1721), 3, 1, 0; (1725), 6, 2, 28; (1726), 9, 3, 24; (1731), 9, 3, 30; (1732), 3, 1, 0; (1742), 3, 1, 0; (1743), 9, 3, 45; (1748), 3, 1, 0; (1757), 6, 2, 16; (1760), 3, 1, 0; (1761), 6, 2, 31; (1763), 7, 3, 31; (1767), 2, 1, 0; (1769), 5, 2, 34; (1770), 3, 1, 0; (1771), 9, 2, 15; (1772), 9, 2, 31; (1775), 3, 1, 0; (1778), 9, 3, 29; (1779), 3, 1, 0; (1782), 2, 1, 0; (1783), 3, 1, 0; (1784), 9, 3, 57; (1785), 6, 2, 67; (1789), 6, 2, 27; (1791), 9, 3, 58; (1792), 6, 2, 9; (1793), 6, 2, 29; (1794), 6, 2, 67; (1796), 6, 2, 31; (1797), 12, 4, 54; (1798), 6, 2, 39; (1801), 6, 2, 44; (1802), 3, 1, 0; (1804), 6, 2, 45; (1806), 6, 2, 27; (1811), 9, 3, 56; (1821), 3, 1, 0; (1824), 3, 1, 0; (1831), 3, 1, 0; (1833), 9, 3, 62; (1835), 9, 3, 64; (1836), 6, 2, 38; (1839), 6, 2, 55; (1846), 3, 1, 0; (1851), 6, 2, 4; (1855), 6, 2, 62; (1856), 3, 1, 0; (1858), 6, 2, 45; (1860), 6, 2, 34; (1872), 3, 1, 0; (1877), 3, 1, 0; (1879), 3, 1, 0; (1880), 9, 3, 67; (1881), 3, 1, 0; (1892), 3, 1, 0; (1895), 9, 3, 27; (1899), 3, 1, 0; (1903), 6, 2, 36; (1909), 3, 1, 0; (1923), 3, 1, 0; (1924), 6, 2, 64; (1929), 9, 3, 55; (1933), 6, 2, 35; (1936), 6, 2, 15; (1937), 3, 1, 0; (1943), 6, 2, 44; (1944), 3, 1, 0; (1947), 6, 2, 12; (1949), 8, 3, 29; (1954), 3, 1, 0; (1956), 6, 2, 25; (1967), 3, 1, 0; (1969), 3, 1, 0; (1970), 6, 2, 5; (1977), 6, 2, 28; (1984), 3, 1, 0; (1990), 3, 1, 0; (1995), 9, 3, 46; (1997), 6, 2, 40; (2003), 6, 2, 6; (2016), 9, 3, 40; (2017), 3, 1, 0; (2019), 9, 3, 50; (2022), 3, 1, 0; (2025), 12, 4, 67; (2026), 6, 2, 14; (2030), 6, 2, 22; (2031), 6, 2, 29; (2032), 3, 1, 0; (2038), 6, 2, 65; (2041), 9, 3, 55; (2053), 3, 1, 0; (2057), 6, 2, 19; (2065), 6, 2, 37; (2066), 3, 1, 0; (2071), 6, 2, 29; (2073), 3, 1, 0; (2092), 3, 1, 0; (2093), 6, 2, 22; (2095), 3, 1, 0; (2113), 9, 3, 32; (2117), 6, 2, 33; (2120), 6, 2, 37; (2131), 3, 1, 0; (2132), 3, 1, 0; (2133), 3, 1, 0; (2137), 12, 4, 65; (2149), 3, 1, 0; (2153), 6, 2, 24; (2155), 3, 1, 0; (2159), 6, 2, 35; (2163), 6, 2, 31; (2172), 3, 1, 0; (2174), 12, 4, 50; (2178), 2, 1, 0; (2182), 6, 2, 25; (2186), 6, 2, 62; (2193), 3, 1, 0; (2194), 9, 3, 10; (2197), 6, 2, 34; (2199), 3, 1, 0; (2205), 9, 3, 55; (2206), 6, 2, 29; (2207), 3, 1, 0; (2216), 3, 1, 0; (2217), 12, 4, 52; (2222), 6, 2, 31; (2223), 3, 1, 0; (2224), 6, 2, 25; (2229), 3, 1, 0; (2233), 3, 1, 0; (2238), 6, 2, 12; (2242), 3, 1, 0; (2243), 3, 1, 0; (2244), 3, 1, 0; (2246), 6, 2, 7; (2247), 8, 3, 45; (2251), 9, 3, 45; (2252), 6, 2, 32; (2255), 6, 2, 24; (2259), 3, 1, 0; (2262), 6, 2, 65; (2263), 8, 3, 49; (2266), 3, 1, 0; (2270), 9, 3, 56; (2271), 6, 2, 31; (2276), 6, 2, 62; (2284), 8, 3, 61; (2288), 3, 1, 0; (2289), 6, 2, 31; (2294), 12, 3, 25; (2299), 9, 3, 42; (2301), 3, 1, 0; (2305), 9, 3, 35; (2309), 3, 1, 0; (2313), 6, 2, 25; (2316), 3, 1, 0; (2322), 9, 3, 27; (2324), 9, 3, 57; (2326), 3, 1, 0; (2344), 3, 1, 0; (2355), 6, 2, 24; (2357), 3, 1, 0; (2367), 3, 1, 0; (2372), 3, 1, 0; (2377), 3, 1, 0; (2383), 3, 1, 0; (2384), 6, 2, 54; (2385), 6, 2, 56; (2386), 6, 2, 10; (2387), 9, 3, 53; (2400), 15, 4, 68; (2401), 3, 1, 0; (2402), 9, 3, 67; (2405), 3, 1, 0; (2410), 3, 1, 0; (2415), 3, 1, 0; (2418), 6, 2, 29; (2426), 3, 1, 0; (2427), 3, 1, 0; (2428), 3, 1, 0; (2433), 3, 1, 0; (2436), 5, 2, 55; (2439), 9, 3, 55; (2443), 3, 1, 0; (2458), 6, 2, 60; (2463), 12, 4, 52; (2464), 6, 2, 29; (2466), 3, 1, 0; (2467), 6, 2, 67; (2469), 9, 3, 31; (2476), 6, 2, 21; (2477), 2, 1, 0; (2479), 3, 1, 0; (2490), 3, 1, 0; (2494), 9, 3, 55; (2499), 6, 2, 27; (2501), 6, 2, 16; (2505), 6, 2, 29; (2507), 6, 2, 31; (2512), 3, 1, 0; (2513), 3, 1, 0; (2519), 6, 2, 23; (2525), 3, 1, 0; (2528), 3, 1, 0; (2532), 3, 1, 0; (2534), 3, 1, 0; (2542), 6, 2, 56; (2544), 3, 1, 0; (2546), 9, 3, 25; (2550), 3, 1, 0; (2553), 3, 1, 0; (2557), 5, 2, 27; (2559), 3, 1, 0; (2560), 6, 2, 16; (2561), 6, 2, 10; (2572), 6, 2, 7; (2582), 6, 2, 53; (2583), 6, 2, 16; (2585), 3, 1, 0; (2586), 6, 2, 22; (2587), 3, 1, 0; (2589), 3, 1, 0; (2590), 9, 3, 62; (2595), 3, 1, 0; (2598), 3, 1, 0; (2607), 6, 2, 26; (2609), 6, 2, 6; (2611), 3, 1, 0; (2616), 3, 1, 0; (2626), 8, 3, 57; (2628), 9, 3, 30; (2629), 3, 1, 0; (2631), 3, 1, 0; (2634), 6, 2, 7; (2640), 9, 3, 45; (2641), 4, 2, 10; (2642), 6, 2, 50; (2653), 3, 1, 0; (2658), 3, 1, 0; (2669), 3, 1, 0; (2673), 3, 1, 0; (2677), 6, 2, 27; (2683), 6, 2, 10; (2684), 6, 2, 36; (2686), 9, 3, 24; (2687), 3, 1, 0; (2690), 3, 1, 0; (2704), 3, 1, 0; (2709), 3, 1, 0; (2711), 6, 2, 26; (2714), 3, 1, 0; (2717), 12, 4, 62; (2725), 6, 1, 0; (2729), 9, 3, 27; (2730), 12, 4, 58; (2742), 3, 1, 0; (2743), 3, 1, 0; (2746), 6, 2, 52; (2747), 5, 2, 3; (2751), 12, 4, 60; (2757), 3, 1, 0; (2764), 3, 1, 0; (2767), 3, 1, 0; (2770), 6, 2, 22; (2774), 3, 1, 0; (2775), 3, 1, 0; (2778), 3, 1, 0; (2781), 6, 2, 29; (2783), 3, 1, 0; (2785), 6, 2, 34; (2786), 9, 3, 67; (2787), 12, 4, 57; (2788), 3, 1, 0; (2789), 3, 1, 0; (2792), 6, 2, 60; (2795), 3, 1, 0; (2796), 3, 1, 0; (2808), 6, 2, 13; (2810), 6, 2, 27; (2815), 3, 1, 0; (2822), 6, 2, 23; (2829), 6, 2, 7; (2833), 9, 3, 29; (2843), 3, 1, 0; (2853), 6, 2, 29; (2856), 1, 1, 0; (2858), 3, 1, 0; (2864), 6, 2, 62; (2872), 9, 3, 67; (2874), 9, 3, 23; (2879), 9, 3, 33; (2882), 3, 1, 0; (2883), 6, 2, 58; (2885), 6, 2, 33; (2887), 3, 1, 0; (2888), 3, 1, 0; (2890), 2, 1, 0; (2901), 6, 2, 50; (2912), 12, 4, 67; (2914), 3, 1, 0; (2919), 3, 1, 0; (2922), 3, 1, 0; (2923), 6, 2, 35; (2928), 3, 1, 0; (2931), 6, 2, 23; (2939), 6, 2, 32; (2941), 3, 1, 0; (2943), 3, 1, 0; (2951), 6, 2, 29; (2953), 3, 1, 0; (2955), 3, 1, 0; (2956), 3, 1, 0; (2958), 3, 1, 0; (2959), 3, 1, 0; (2961), 6, 2, 33; (2963), 3, 1, 0; (2970), 6, 2, 26; (2972), 3, 1, 0; (2981), 3, 1, 0; (2987), 5, 2, 55; (2995), 6, 2, 26; (2997), 9, 3, 39; (3001), 15, 5, 60; (3003), 6, 2, 31; (3008), 5, 2, 62; (3009), 6, 2, 30; (3015), 6, 2, 24; (3016), 3, 1, 0; (3021), 3, 1, 0; (3025), 3, 1, 0; (3031), 3, 1, 0; (3033), 3, 1, 0; (3035), 3, 1, 0; (3042), 9, 3, 57; (3045), 3, 1, 0; (3046), 3, 1, 0; (3047), 3, 1, 0; (3049), 6, 2, 31; (3053), 9, 3, 54; (3054), 3, 1, 0; (3057), 3, 1, 0; (3070), 6, 2, 29; (3072), 3, 1, 0; (3073), 12, 4, 58; (3075), 3, 1, 0; (3076), 3, 1, 0; (3077), 3, 1, 0; (3078), 3, 1, 0; (3080), 3, 1, 0; (3082), 3, 1, 0; (3083), 6, 2, 47; (3086), 6, 2, 34; (3095), 6, 2, 26; (3096), 3, 1, 0; (3100), 6, 2, 10; (3105

0; (3241), 6, 2, 29; (3247), 3, 1, 0; (3251), 3, 1, 0; (3256), 12, 4, 60; (3261), 6, 2, 31; (3264), 3, 1, 0; (3274), 9, 3, 27; (3277), 3, 1, 0; (3278), 9, 3, 61; (3282), 6, 2, 28; (3285), 6, 2, 35; (3286), 3, 1, 0; (3292), 3, 1, 0; (3301), 6, 2, 10; (3305), 3, 1, 0; (3310), 3, 1, 0; (3311), 9, 3, 26; (3313), 3, 1, 0; (3314), 3, 1, 0; (3315), 9, 3, 67; (3316), 3, 1, 0; (3318), 3, 1, 0; (3321), 5, 2, 13; (3331), 3, 1, 0; (3332), 3, 1, 0; (3334), 6, 2, 50; (3336), 6, 2, 63; (3337), 3, 1, 0; (3340), 3, 1, 0; (3349), 9, 3, 55; (3355), 6, 2, 6; (3356), 6, 2, 34; (3362), 2, 1, 0; (3363), 8, 3, 62; (3367), 9, 3, 28; (3368), 6, 2, 49; (3372), 6, 2, 58; (3380), 3, 1, 0; (3382), 9, 3, 45; (3385), 6, 2, 55; (3388), 3, 1, 0; (3391), 3, 1, 0; (3395), 3, 1, 0; (3398), 3, 1, 0; (3406), 3, 1, 0; (3408), 3, 1, 0; (3410), 3, 1, 0; (3415), 3, 1, 0; (3417), 4, 2, 50; (3427), 3, 1, 0; (3432), 6, 2, 29; (3437), 6, 2, 27; (3440), 3, 1, 0; (3449), 3, 1, 0; (3451), 3, 1, 0; (3453), 3, 1, 0; (3461), 6, 2, 56; (3464), 3, 1, 0; (3466), 3, 1, 0; (3468), 3, 1, 0; (3469), 3, 1, 0; (3470), 3, 1, 0; (3473), 3, 1, 0; (3478), 3, 1, 0; (3482), 3, 1, 0; (3487), 9, 3, 57; (3490), 9, 3, 65; (3495), 9, 3, 62; (3497), 6, 2, 25; (3502), 3, 1, 0; (3504), 3, 1, 0; (3507), 3, 1, 0; (3509), 6, 2, 23; (3513), 6, 2, 29; (3518), 3, 1, 0; (3519), 1, 1, 0; (3533), 6, 2, 37; (3539), 9, 3, 22; (3540), 3, 1, 0; (3549), 6, 2, 9; (3570), 6, 2, 15; (3575), 3, 1, 0; (3579), 6, 2, 30; (3587), 3, 1, 0; (3588), 3, 1, 0; (3589), 3, 1, 0; (3590), 3, 1, 0; (3595), 6, 2, 23; (3603), 6, 2, 31; (3605), 3, 1, 0; (3606), 3, 1, 0; (3607), 6, 2, 10; (3610), 3, 1, 0; (3611), 6, 2, 24; (3615), 6, 2, 27; (3616), 3, 1, 0; (3622), 6, 2, 15; (3628), 12, 4, 61; (3632), 3, 1, 0; (3633), 6, 2, 38; (3634), 3, 1, 0; (3636), 3, 1, 0; (3638), 3, 1, 0; (3640), 3, 1, 0; (3641), 6, 2, 23; (3642), 6, 2, 1; (3644), 3, 1, 0; (3647), 6, 2, 31; (3648), 6, 2, 58; (3652), 14, 5, 64; (3657), 6, 2, 13; (3661), 3, 1, 0; (3669), 6, 2, 57; (3670), 3, 1, 0; (3675), 6, 2, 67; (3683), 3, 1, 0; (3684), 3, 1, 0; (3690), 3, 1, 0; (3693), 3, 1, 0; (3694), 6, 2, 14; (3699), 3, 1, 0; (3700), 3, 1, 0; (3704), 6, 2, 29; (3705), 3, 1, 0; (3713), 3, 1, 0; (3714), 3, 1, 0; (3715), 3, 1, 0; (3718), 3, 1, 0; (3731), 3, 1, 0; (3733), 6, 2, 58; (3735), 3, 1, 0; (3742), 3, 1, 0; (3748), 9, 3, 58; (3777), 9, 3, 45; (3794), 6, 2, 28; (3796), 6, 2, 47; (3800), 3, 1, 0; (3807), 6, 2, 23; (3809), 3, 1, 0; (3811), 3, 1, 0; (3813), 3, 1, 0; (3816), 3, 1, 0; (3822), 6, 2, 40; (3827), 3, 1, 0; (3831), 3, 1, 0; (3835), 9, 3, 30; (3836), 6, 2, 57; (3838), 3, 1, 0; (3850), 3, 1, 0; (3853), 3, 1, 0; (3858), 3, 1, 0; (3863), 6, 1, 0; (3868), 3, 1, 0; (3872), 3, 1, 0; (3874), 3, 1, 0; (3885), 3, 1, 0; (3889), 3, 1, 0; (3899), 9, 3, 57; (3903), 3, 1, 0; (3909), 3, 1, 0; (3910), 3, 1, 0; (3911), 9, 3, 55; (3912), 9, 3, 62; (3913), 3, 1, 0; (3914), 3, 1, 0; (3917), 6, 2, 27; (3920), 9, 3, 47; (3922), 6, 2, 33; (3923), 3, 1, 0; (3925), 6, 2, 19; (3928), 3, 1, 0; (3929), 5, 2, 4; (3937), 12, 4, 58; (3939), 6, 2, 29; (3940), 3, 1, 0; (3941), 6, 2, 25; (3942), 15, 5, 61; (3945), 6, 2, 33; (3947), 6, 2, 64; (3948), 3, 1, 0; (3950), 3, 1, 0; (3952), 6, 2, 33; (3962), 6, 2, 33; (3966), 3, 1, 0; (3967), 3, 1, 0; (3968), 3, 1, 0; (3973), 6, 2, 56; (3979), 9, 3, 57; (3980), 6, 2, 55; (3981), 3, 1, 0; (3982), 5, 2, 31; (3986), 3, 1, 0; (3992), 3, 1, 0; (3997), 6, 2, 33; (3999), 3, 1, 0; (4003), 9, 3, 29; (4005), 3, 1, 0; (4006), 3, 1, 0; (4021), 6, 2, 60; (4022), 6, 2, 32; (4026), 3, 1, 0; (4027), 3, 1, 0; (4029), 12, 4, 58; (4036), 6, 2, 55; (4037), 6, 2, 47; (4038), 3, 1, 0; (4039), 3, 1, 0; (4042), 6, 2, 14; (4050), 9, 2, 31; (4052), 3, 1, 0; (4054), 9, 3, 35; (4059), 3, 1, 0; (4064), 6, 2, 45; (4073), 3, 1, 0; (4079), 6, 2, 23; (4081), 3, 1, 0; (4085), 6, 2, 65; (4088), 6, 2, 55; (4091), 3, 1, 0; (4092), 9, 3, 24; (4099), 3, 1, 0; (4101), 3, 1, 0; (4102), 3, 1, 0; (4104), 6, 2, 3; (4105), 6, 2, 64; (4108), 3, 1, 0; (4118), 3, 1, 0; (4122), 6, 2, 34; (4126), 3, 1, 0; (4133), 6, 2, 2; (4135), 6, 2, 10; (4141), 12, 4, 64; (4144), 3, 1, 0; (4145), 2, 1, 0; (4147), 9, 3, 66; (4149), 9, 3, 20; (4151), 6, 2, 24; (4152), 3, 1, 0; (4155), 2, 1, 0; (4158), 6, 2, 28; (4160), 3, 1, 0; (4164), 9, 3, 9; (4166), 3, 1, 0; (4167), 6, 2, 54; (4174), 9, 3, 52; (4177), 5, 2, 44; (4180), 3, 1, 0; (4181), 3, 1, 0; (4185), 5, 2, 25; (4201), 3, 1, 0; (4211), 3, 1, 0; (4212), 3, 1, 0; (4213), 6, 2, 31; (4215), 3, 1, 0; (4218), 3, 1, 0; (4226), 3, 1, 0; (4227), 2, 1, 0; (4233), 9, 3, 40; (4234), 3, 1, 0; (4235), 6, 2, 13; (4243), 6, 2, 49; (4245), 3, 1, 0; (4248), 3, 1, 0; (4249), 6, 2, 15; (4252), 6, 2, 25; (4259), 3, 1, 0; (4263), 9, 3, 53; (4269), 3, 1, 0; (4271), 3, 1, 0; (4277), 2, 1, 0; (4278), 6, 2, 39; (4287), 9, 3, 51; (4289), 3, 1, 0; (4291), 9, 3, 65; (4294), 3, 1, 0; (4296), 9, 3, 56; (4298), 3, 1, 0; (4299), 6, 2, 39; (4303), 3, 1, 0; (4305), 6, 2, 6; (4309), 12, 4, 58; (4316), 9, 3, 26; (4320), 3, 1, 0; (4326), 3, 1, 0; (4329), 9, 3, 56; (4330), 9, 3, 34; (4337), 12, 4, 57; (4338), 1, 1, 0; (4347), 3, 1, 0; (4348), 3, 1, 0; (4357), 6, 2, 29; (4361), 6, 2, 25; (4362), 3, 1, 0; (4364), 6, 2, 29; (4367), 3, 1, 0; (4369), 6, 2, 30; (4372), 6, 2, 29; (4373), 6, 2, 22; (4375), 9, 3, 50; (4376), 9, 3, 31; (4377), 11, 4, 55; (4378), 3, 1, 0; (4380), 6, 2, 11; (4381), 3, 1, 0; (4389), 6, 2, 23; (4390), 5, 2, 67; (4391), 6, 2, 7; (4392), 9, 3, 56; (4394), 6, 2, 52; (4395), 3, 1, 0; (4402), 3, 1, 0; (4405), 12, 4, 67; (4408), 9, 3, 23; (4410), 3, 1, 0; (4412), 6, 1, 0; (4414), 3, 1, 0; (4419), 6, 2, 31; (4422), 6, 2, 67; (4427), 3, 1, 0; (4428), 6, 2, 28; (4431), 6, 2, 26; (4436), 1, 1, 0; (4437), 5, 2, 29; (4441), 2, 1, 0; (4443), 3, 1, 0; (4447), 12, 4, 42; (4453), 3, 1, 0; (4454), 9, 3, 58; (4455), 2, 1, 0; (4460), 6, 2, 16; (4462), 3, 1, 0; (4463), 1, 1, 0; (4473), 2, 1, 0; (4475), 9, 3, 53; (4485), 3, 1, 0; (4494), 9, 3, 58; (4497), 9, 3, 56; (4500), 3, 1, 0; (4501), 2, 1, 0; (4502), 3, 1, 0; (4505), 3, 1, 0; (4511), 3, 1, 0; (4515), 3, 1, 0; (4524), 6, 2, 45; (4527), 6, 2, 46; (4533), 3, 1, 0; (4536), 12, 4, 58; (4537), 3, 1, 0; (4541), 3, 1, 0; (4543), 3, 1, 0; (4546), 3, 1, 0; (4553), 6, 2, 26; (4565), 9, 3, 68; (4567), 6, 2, 33; (4568), 6, 2, 37; (4569), 12, 4, 57; (4572), 6, 2, 57; (4575), 12, 4, 67; (4579), 3, 1, 0; (4580), 3, 1, 0; (4582), 3, 1, 0; (4586), 3, 1, 0; (4588), 6, 2, 33; (4595), 6, 2, 33; (4602), 9, 3, 60; (4603), 6, 2, 12; (4610), 6, 2, 16; (4611), 9, 3, 54; (4612), 3, 1, 0; (4613), 3, 1, 0; (4620), 3, 1, 0; (4628), 3, 1, 0; (4629), 6, 2, 36; (4644), 6, 2, 10; (4645), 9, 3, 61; (4653), 6, 2, 29; (4655), 3, 1, 0; (4675), 3, 1, 0; (4694), 6, 2, 38; (4696), 3, 1, 0; (4701), 9, 3, 56; (4704), 12, 4, 52; (4714), 3, 1, 0; (4717), 9, 3, 67; (4724), 3, 1, 0; (4725), 3, 1, 0; (4727), 3, 1, 0; (4733), 6, 2, 25; (4737), 9, 3, 23; (4740), 3, 1, 0; (4747), 3, 1, 0; (4749), 3, 1, 0; (4750), 3, 1, 0; (4751), 6, 2, 62; (4756), 6, 2, 13; (4761), 3, 1, 0; (4763), 3, 1, 0; (4771), 3, 1, 0; (4774), 3, 1, 0; (4777), 3, 1, 0; (4780), 3, 1, 0; (4781), 12, 4, 57; (4782), 9, 3, 29; (4784), 3, 1, 0; (4792), 3, 1, 0; (4800), 3, 1, 0; (4802), 6, 2, 13; (4813), 6, 2, 57; (4818),

3, 1, 0; (4819), 6, 2, 30; (4820), 9, 3, 49; (4830), 3, 1, 0; (4841), 3, 1, 0; (4842), 6, 2, 24; (4852), 3, 1, 0; (4867), 6, 2, 50; (4869), 3, 1, 0; (4871), 6, 2, 3; (4875), 6, 2, 61; (4876), 6, 2, 6; (4877), 3, 1, 0; (4884), 6, 2, 32; (4891), 3, 1, 0; (4892), 3, 1, 0; (4894), 6, 1, 0; (4910), 3, 1, 0; (4921), 9, 3, 49; (4929), 3, 1, 0; (4930), 9, 3, 57; (4939), 3, 1, 0; (4942), 3, 1, 0; (4949), 6, 2, 16; (4963), 3, 1, 0; (4970), 9, 3, 61; (4971), 3, 1, 0; (4973), 6, 2, 37; (4983), 3, 1, 0; (4991), 1, 1, 0; (4993), 9, 3, 26; (5000), 6, 2, 7; (5006), 3, 1, 0; (5008), 12, 4, 61; (5009), 17, 5, 52; (5012), 3, 1, 0; (5022), 3, 1, 0; (5027), 6, 2, 53; (5028), 5, 2, 51; (5031), 15, 5, 57; (5035), 3, 1, 0; (5046), 3, 1, 0; (5047), 6, 2, 32; (5056), 3, 1, 0; (5059), 3, 1, 0; (5060), 6, 2, 19; (5063), 3, 1, 0; (5065), 3, 1, 0; (5069), 3, 1, 0; (5075), 12, 4, 57; (5076), 3, 1, 0; (5093), 3, 1, 0; (5098), 6, 2, 5; (5100), 3, 1, 0; (5104), 3, 1, 0; (5110), 6, 2, 34; (5111), 3, 1, 0; (5119), 3, 1, 0; (5125), 3, 1, 0; (5132), 3, 1, 0; (5134), 3, 1, 0; (5139), 3, 1, 0; (5141), 6, 2, 21; (5144), 6, 2, 44; (5147), 3, 1, 0; (5149), 6, 2, 10; (5150), 6, 2, 19; (5152), 9, 3, 38; (5156), 3, 1, 0; (5161), 6, 2, 7; (5167), 6, 2, 56; (5168), 3, 1, 0; (5173), 6, 2, 67; (5175), 9, 3, 49; (5181), 3, 1, 0; (5183), 3, 1, 0; (5185), 9, 3, 62; (5188), 3, 1, 0; (5197), 6, 2, 60; (5208), 3, 1, 0; (5209), 9, 2, 2; (5210), 3, 1, 0; (5213), 3, 1, 0; (5214), 1, 1, 0; (5215), 9, 3, 57; (5221), 3, 1, 0; (5225), 3, 1, 0; (5239), 3, 1, 0; (5245), 3, 1, 0; (5246), 6, 2, 56; (5255), 3, 1, 0; (5265), 3, 1, 0; (5275), 6, 2, 3; (5278), 6, 2, 55; (5281), 3, 1, 0; (5286), 3, 1, 0; (5290), 3, 1, 0; (5295), 3, 1, 0; (5296), 6, 2, 27; (5301), 6, 2, 27; (5303), 5, 2, 16; (5309), 6, 2, 24; (5313), 6, 2, 53; (5315), 9, 3, 67; (5334), 3, 1, 0; (5336), 3, 1, 0; (5337), 9, 3, 27; (5354), 9, 3, 51; (5355), 6, 2, 33; (5359), 6, 2, 23; (5360), 3, 1, 0; (5363), 9, 3, 57; (5365), 11, 4, 49; (5366), 3, 1, 0; (5367), 3, 1, 0; (5368), 3, 1, 0; (5392), 3, 1, 0; (5393), 3, 1, 0; (5394), 3, 1, 0; (5398), 3, 1, 0; (5404), 6, 2, 57; (5408), 6, 2, 7; (5411), 3, 1, 0; (5421), 6, 2, 13; (5428), 3, 1, 0; (5434), 3, 1, 0; (5439), 12, 4, 53; (5440), 3, 1, 0; (5443), 3, 1, 0; (5444), 3, 1, 0; (5445), 3, 1, 0; (5450), 6, 2, 16; (5471), 6, 2, 30; (5472), 3, 1, 0; (5473), 9, 3, 61; (5480), 9, 3, 68; (5481), 3, 1, 0; (5495), 6, 2, 26; (5499), 1, 1, 0; (5501), 3, 1, 0; (5502), 6, 2, 29; (5503), 6, 2, 62; (5504), 3, 1, 0; (5507), 3, 1, 0; (5511), 9, 3, 55; (5515), 3, 1, 0; (5516), 6, 2, 13; (5517), 3, 1, 0; (5522), 6, 2, 28; (5524), 3, 1, 0; (5526), 3, 1, 0; (5535), 3, 1, 0; (5536), 9, 3, 28; (5541), 3, 1, 0; (5546), 3, 1, 0; (5554), 3, 1, 0; (5557), 6, 2, 33; (5559), 6, 2, 6; (5562), 3, 1, 0; (5574), 3, 1, 0; (5584), 3, 1, 0; (5586), 3, 1, 0; (5589), 3, 1, 0; (5591), 3, 1, 0; (5593), 3, 1, 0; (5594), 3, 1, 0; (5599), 3, 1, 0; (5608), 12, 4, 57; (5617), 3, 1, 0; (5618), 6, 2, 34; (5631), 3, 1, 0; (5636), 15, 5, 57; (5638), 3, 1, 0; (5658), 3, 1, 0; (5662), 9, 3, 35; (5668), 6, 2, 29; (5672), 12, 4, 67; (5680), 3, 1, 0; (5687), 3, 1, 0; (5695), 9, 3, 32; (5697), 3, 1, 0; (5704), 6, 2, 57; (5714), 3, 1, 0; (5715), 12, 4, 57; (5729), 6, 2, 55; (5730), 3, 1, 0; (5733), 9, 3, 27; (5741), 3, 1, 0; (5755), 6, 2, 6; (5769), 6, 2, 31; (5771), 8, 3, 56; (5774), 6, 2, 68; (5780), 6, 2, 26; (5781), 3, 1, 0; (5788), 6, 2, 45; (5802), 6, 2, 25; (5808), 3, 1, 0; (5814), 12, 4, 26; (5816), 3, 1, 0; (5829), 12, 4, 58; (5837), 6, 2, 30; (5843), 6, 2, 1; (5845), 3, 1, 0; (5846), 3, 1, 0; (5857), 3, 1, 0; (5858), 6, 2, 45; (5865), 6, 2, 27; (5872), 6, 2, 54; (5873), 3, 1, 0; (5878), 5, 2, 22; (5880), 3, 1, 0; (5883), 3, 1, 0; (5887), 6, 2, 29; (5892), 9, 3, 32; (5895), 3, 1, 0; (5896), 6, 2, 28; (5901), 3, 1, 0; (5902), 3, 1, 0; (5908), 3, 1, 0; (5909), 3, 1, 0; (5910), 6, 2, 22; (5911), 3, 1, 0; (5915), 6, 2, 54; (5916), 12, 4, 60; (5919), 3, 1, 0; (5924), 3, 1, 0; (5925), 9, 3, 55; (5932), 12, 4, 46; (5937), 12, 4, 61; (5938), 3, 1, 0; (5949), 6, 2, 63; (5951), 3, 1, 0; (5954), 6, 2, 14; (5965), 1, 1, 0; (5969), 6, 2, 25; (5973), 3, 1, 0; (5984), 9, 3, 58; (5985), 3, 1, 0; (5988), 3, 1, 0; (5993), 6, 2, 31; (6003), 3, 1, 0; (6009), 3, 1, 0; (6011), 12, 4, 62; (6012), 3, 1, 0; (6013), 6, 2, 32; (6015), 6, 2, 31; (6023), 6, 2, 21; (6024), 6, 2, 15; (6028), 6, 2, 67; (6034), 3, 1, 0; (6036), 3, 1, 0; (6040), 3, 1, 0; (6043), 3, 1, 0; (6048), 6, 2, 14; (6049), 3, 1, 0; (6060), 3, 1, 0; (6061), 3, 1, 0; (6066), 3, 1, 0; (6071), 6, 2, 23; (6076), 9, 3, 32; (6082), 3, 1, 0; (6088), 6, 2, 24; (6090), 6, 2, 49; (6094), 3, 1, 0; (6104), 3, 1, 0; (6111), 3, 1, 0; (6113), 6, 2, 16; (6116), 3, 1, 0; (6119), 3, 1, 0; (6127), 2, 1, 0; (6128), 3, 1, 0; (6129), 9, 3, 60; (6135), 6, 2, 31; (6136), 3, 1, 0; (6138), 6, 2, 29; (6143), 3, 1, 0; (6150), 3, 1, 0; (6156), 6, 2, 13; (6166), 9, 3, 47; (6187), 3, 1, 0; (6188), 3, 1, 0; (6191), 6, 2, 66; (6206), 6, 2, 62; (6210), 3, 1, 0; (6214), 6, 2, 42; (6218), 3, 1, 0; (6220), 3, 1, 0; (6221), 3, 1, 0; (6222), 3, 1, 0; (6226), 6, 2, 3; (6228), 3, 1, 0; (6229), 9, 3, 57; (6230), 2, 1, 0; (6236), 9, 3, 23; (6240), 9, 3, 32; (6241), 6, 2, 25; (6250), 6, 2, 39; (6252), 3, 1, 0; (6262), 2, 1, 0; (6274), 12, 4, 61; (6275), 3, 1, 0; (6279), 6, 2, 31; (6283), 3, 1, 0; (6284), 3, 1, 0; (6287), 3, 1, 0; (6288), 6, 2, 31; (6289), 3, 1, 0; (6297), 6, 2, 34; (6299), 3, 1, 0; (6300), 6, 2, 10; (6301), 6, 2, 29; (6308), 6, 2, 25; (6310), 6, 2, 29; (6338), 3, 1, 0; (6340), 6, 2, 43; (6352), 3, 1, 0; (6353), 6, 2, 43; (6355), 3, 1, 0; (6366), 3, 1, 0; (6381), 3, 1, 0; (6383), 12, 4, 31; (6414), 6, 2, 12; (6415), 6, 1, 0; (6427), 3, 1, 0; (6434), 3, 1, 0; (6436), 9, 3, 32; (6437), 3, 1, 0; (6438), 3, 1, 0; (6469), 3, 1, 0; (6480), 3, 1, 0; (6486), 9, 3, 55; (6487), 6, 2, 11; (6494), 3, 1, 0; (6495), 3, 1, 0; (6497), 6, 2, 34; (6498), 3, 1, 0; (6507), 6, 2, 25; (6510), 2, 1, 0; (6519), 3, 1, 0; (6520), 3, 1, 0; (6521), 6, 2, 28; (6522), 3, 1, 0; (6531), 3, 1, 0; (6532), 6, 2, 43; (6536), 6, 2, 8; (6547), 3, 1, 0; (6549), 12, 3, 61; (6550), 9, 3, 68; (6551), 9, 3, 54; (6552), 3, 1, 0; (6556), 9, 3, 31; (6558), 6, 2, 3; (6559), 6, 2, 33; (6561), 3, 1, 0; (6566), 6, 2, 43; (6568), 2, 1, 0; (6571), 12, 4, 66; (6572), 3, 1, 0; (6573), 9, 3, 56; (6577), 3, 1, 0; (6583), 3, 1, 0; (6584), 6, 2, 4; (6586), 3, 1, 0; (6596), 9, 3, 32; (6604), 3, 1, 0; (6607), 3, 1, 0; (6612), 9, 2, 29; (6614), 6, 2, 4; (6616), 3, 1, 0; (6620), 1, 1, 0; (6624), 3, 1, 0; (6627), 6, 2, 6; (6631), 12, 4, 54; (6632), 3, 1, 0; (6633), 3, 1, 0; (6636), 2, 1, 0; (6637), 6, 2, 14; (6638), 9, 3, 43; (6640), 3, 1, 0; (6648), 3, 1, 0; (6649), 6, 2, 29; (6650), 2, 1, 0; (6659), 9, 3,

1999 DEC. 22

M.P.C. 37003

1, 0; (6729), 9, 3, 57; (6731), 3, 1, 0; (6734), 3, 1, 0; (6737), 3, 1, 0; (6740), 9, 3, 58; (6744), 3, 1, 0; (6746), 9, 3, 47; (6748), 1, 1, 0; (6750), 3, 1, 0; (6757), 6, 2, 51; (6758), 6, 2, 53; (6759), 3, 1, 0; (6760), 3, 1, 0; (6763), 3, 1, 0; (6767), 3, 1, 0; (6771), 3, 1, 0; (6772), 3, 1, 0; (6776), 3, 1, 0; (6779), 3, 1, 0; (6781), 3, 1, 0; (6783), 6, 2, 32; (6784), 6, 2, 19; (6791), 3, 1, 0; (6792), 3, 1, 0; (6793), 3, 1, 0; (6795), 2, 1, 0; (6796), 6, 2, 27; (6798), 5, 2, 33; (6800), 2, 1, 0; (6810), 12, 4, 65; (6812), 3, 1, 0; (6814), 5, 2, 29; (6820), 6, 2, 29; (6822), 3, 1, 0; (6823), 3, 1, 0; (6824), 12, 4, 55; (6826), 9, 3, 51; (6828), 9, 3, 64; (6829), 3, 1, 0; (6833), 3, 1, 0; (6836), 6, 2, 62; (6838), 6, 2, 9; (6839), 12, 4, 55; (6842), 3, 1, 0; (6848), 5, 2, 14; (6861), 3, 1, 0; (6862), 6, 2, 28; (6863), 3, 1, 0; (6868), 6, 2, 6; (6880), 3, 1, 0; (6881), 6, 2, 23; (6890), 6, 2, 31; (6894), 3, 1, 0; (6902), 3, 1, 0; (6906), 6, 2, 54; (6907), 3, 1, 0; (6910), 6, 2, 38; (6912), 3, 1, 0; (6914), 2, 1, 0; (6916), 3, 1, 0; (6924), 6, 2, 61; (6931), 6, 2, 10; (6936), 3, 1, 0; (6937), 12, 4, 67; (6938), 6, 2, 39; (6941), 9, 3, 60; (6955), 3, 1, 0; (6958), 5, 2, 53; (6971), 6, 2, 52; (6980), 3, 1, 0; (6983), 3, 1, 0; (6986), 6, 2, 22; (6990), 3, 1, 0; (6992), 3, 1, 0; (6996), 3, 1, 0; (7003), 6, 2, 31; (7008), 6, 2, 57; (7051), 3, 1, 0; (7063), 3, 1, 0; (7064), 6, 2, 24; (7077), 6, 2, 24; (7092), 3, 1, 0; (7117), 3, 1, 0; (7140), 6, 2, 29; (7155), 3, 1, 0; (7165), 3, 1, 0; (7177), 6, 2, 19; (7184), 3, 1, 0; (7188), 3, 1, 0; (7192), 6, 2, 33; (7193), 6, 2, 35; (7208), 3, 1, 0; (7216), 3, 1, 0; (7225), 3, 1, 0; (7247), 6, 2, 11; (7263), 6, 2, 22; (7267), 3, 1, 0; (7268), 6, 2, 19; (7283), 6, 2, 22; (7288), 6, 2, 7; (7289), 3, 1, 0; (7293), 3, 1, 0; (7295), 9, 3, 44; (7296), 3, 1, 0; (7306), 6, 2, 40; (7309), 9, 3, 57; (7318), 3, 1, 0; (7332), 9, 3, 62; (7354), 6, 2, 14; (7355), 3, 1, 0; (7363), 3, 1, 0; (7375), 6, 2, 40; (7376), 3, 1, 0; (7381), 6, 2, 9; (7382), 3, 1, 0; (7386), 3, 1, 0; (7387), 3, 1, 0; (7389), 3, 1, 0; (7392), 3, 1, 0; (7395), 3, 1, 0; (7396), 3, 1, 0; (7398), 6, 2, 1; (7405), 3, 1, 0; (7408), 6, 2, 29; (7420), 3, 1, 0; (7423), 5, 2, 34; (7426), 8, 3, 25; (7434), 3, 1, 0; (7435), 8, 3, 27; (7436), 6, 2, 24; (7437), 9, 3, 67; (7441), 3, 1, 0; (7443), 8, 3, 49; (7445), 3, 1, 0; (7447), 6, 2, 67; (7465), 9, 3, 57; (7470), 6, 2, 9; (7473), 9, 3, 56; (7475), 3, 1, 0; (7479), 3, 1, 0; (7483), 6, 2, 36; (7493), 3, 1, 0; (7494), 6, 2, 25; (7497), 6, 2, 33; (7513), 3, 1, 0; (7517), 12, 4, 64; (7518), 9, 3, 57; (7523), 3, 1, 0; (7527), 3, 1, 0; (7530), 3, 1, 0; (7532), 6, 2, 1; (7540), 3, 1, 0; (7541), 6, 2, 28; (7548), 3, 1, 0; (7555), 12, 4, 57; (7556), 6, 2, 22; (7558), 3, 1, 0; (7565), 2, 1, 0; (7566), 9, 3, 62; (7570), 6, 2, 14; (7575), 9, 3, 43; (7578), 3, 1, 0; (7584), 3, 1, 0; (7588), 3, 1, 0; (7589), 9, 3, 47; (7600), 12, 4, 52; (7606), 12, 4, 57; (7609), 9, 3, 57; (7610), 6, 2, 55; (7612), 3, 1, 0; (7622), 3, 1, 0; (7626), 6, 2, 30; (7627), 2, 2, 10; (7628), 3, 1, 0; (7629), 3, 1, 0; (7630), 3, 1, 0; (7632), 6, 2, 25; (7634), 3, 1, 0; (7635), 9, 3, 65; (7636), 3, 1, 0; (7639), 3, 1, 0; (7645), 6, 2, 25; (7646), 3, 1, 0; (7647), 3, 1, 0; (7648), 6, 2, 29; (7651), 6, 2, 57; (7653), 3, 1, 0; (7656), 3, 1, 0; (7657), 3, 1, 0; (7658), 3, 1, 0; (7659), 6, 2, 11; (7664), 9, 3, 29; (7665), 9, 3, 53; (7670), 6, 2, 31; (7674), 3, 1, 0; (7678), 8, 3, 51; (7681), 9, 3, 31; (7683), 3, 1, 0; (7684), 6, 2, 29; (7691), 3, 1, 0; (7693), 3, 1, 0; (7694), 3, 1, 0; (7696), 3, 1, 0; (7697), 9, 3, 53; (7707), 2, 1, 0; (7708), 3, 1, 0; (7710), 3, 1, 0; (7711), 3, 1, 0; (7712), 6, 2, 32; (7713), 3, 1, 0; (7717), 3, 1, 0; (7718), 3, 1, 0; (7719), 3, 1, 0; (7727), 3, 1, 0; (7744), 3, 1, 0; (7745), 6, 2, 35; (7746), 9, 3, 57; (7752), 3, 1, 0; (7754), 6, 2, 34; (7755), 6, 2, 30; (7765), 3, 1, 0; (7770), 12, 4, 55; (7772), 9, 3, 56; (7776), 3, 1, 0; (7790), 6, 2, 53; (7793), 3, 1, 0; (7797), 3, 1, 0; (7803), 2, 1, 0; (7808), 3, 1, 0; (7815), 6, 2, 25; (7821), 6, 2, 31; (7836), 3, 1, 0; (7838), 6, 2, 30; (7841), 3, 1, 0; (7847), 3, 1, 0; (7855), 9, 3, 50; (7905), 3, 1, 0; (7937), 6, 2, 24; (7942), 3, 1, 0; (8004), 6, 2, 24; (8048), 3, 1, 0; (8130), 3, 1, 0; (8257), 3, 1, 0; (8270), 3, 1, 0; (8275), 3, 1, 0; (8289), 6, 2, 57; (8349), 3, 1, 0; (8404), 9, 3, 64; (8407), 6, 2, 9; (8413), 3, 1, 0; (8416), 9, 3, 56; (8417), 3, 1, 0; (8424), 6, 2, 43; (8442), 3, 1, 0; (8447), 3, 1, 0; (8454), 3, 1, 0; (8470), 3, 1, 0; (8474), 9, 3, 67; (8476), 6, 2, 33; (8477), 6, 2, 45; (8479), 3, 1, 0; (8483), 3, 1, 0; (8494), 3, 1, 0; (8509), 3, 1, 0; (8527), 6, 2, 6; (8530), 6, 2, 31; (8543), 3, 1, 0; (8549), 3, 1, 0; (8553), 3, 1, 0; (8557), 3, 1, 0; (8565), 11, 4, 57; (8568), 2, 1, 0; (8569), 3, 1, 0; (8572), 7, 3, 27; (8574), 9, 3, 34; (8579), 14, 4, 30; (8592), 6, 2, 25; (8597), 3, 1, 0; (8602), 6, 2, 25; (8603), 3, 1, 0; (8604), 6, 2, 33; (8611), 9, 3, 45; (8616), 3, 1, 0; (8617), 9, 3, 67; (8630), 3, 1, 0; (8631), 3, 1, 0; (8636), 3, 1, 0; (8639), 9, 3, 67; (8644), 3, 1, 0; (8645), 6, 2, 7; (8649), 6, 2, 57; (8651), 3, 1, 0; (8652), 6, 2, 19; (8659), 3, 1, 0; (8664), 6, 2, 30; (8669), 9, 3, 28; (8670), 3, 1, 0; (8671), 2, 1, 0; (8672), 6, 2, 29; (8686), 6, 2, 22; (8689), 3, 1, 0; (8692), 6, 2, 26; (8704), 3, 1, 0; (8707), 3, 1, 0; (8712), 9, 3, 35; (8714), 6, 2, 49; (8715), 2, 1, 0; (8719), 9, 3, 56; (8725), 3, 1, 0; (8732), 9, 3, 32; (8736), 3, 1, 0; (8738), 6, 2, 29; (8748), 6, 2, 15; (8750), 9, 3, 56; (8757), 3, 1, 0; (8759), 3, 1, 0; (8761), 9, 3, 31; (8769), 6, 2, 18; (8772), 9, 3, 55; (8775), 5, 2, 10; (8779), 3, 1, 0; (8781), 3, 1, 0; (8783), 3, 1, 0; (8789), 3, 1, 0; (8790), 3, 1, 0; (8791), 6, 2, 44; (8796), 3, 1, 0; (8797), 3, 1, 0; (8805), 6, 2, 21; (8807), 6, 2, 18; (8810), 6, 2, 24; (8812), 6, 2, 33; (8816), 12, 4, 62; (8818), 6, 2, 45; (8819), 3, 1, 0; (8820), 6, 2, 54; (8823), 3, 1, 0; (8830), 3, 1, 0; (8831), 6, 2, 10; (8833), 6, 2, 15; (8836), 3, 1, 0; (8837), 3, 1, 0; (8840), 3, 1, 0; (8842), 6, 2, 1; (8843), 6, 2, 59; (8844), 3, 1, 0; (8849), 6, 2, 67; (8852), 8, 3, 56; (8854), 6, 2, 9; (8855), 3, 1, 0; (8856), 9, 3, 46; (8857), 3, 1, 0; (8858), 6, 2, 34; (8859), 5, 2, 37; (8860), 3, 1, 0; (8862), 5, 2, 56; (8864), 9, 3, 67; (8873), 6, 2, 21; (8875), 3, 1, 0; (8876), 6, 2, 14; (8878), 3, 1, 0; (8880), 3, 1, 0; (8883), 3, 1, 0; (8884), 3, 1, 0; (8885), 9, 3, 57; (8892), 3, 1, 0; (8896), 12, 4, 55; (8898), 3, 1, 0; (8900), 3, 1, 0; (8903), 6, 2, 30; (8904), 3, 1, 0; (8905), 6, 2, 9; (8909), 3, 1, 0; (8911), 3, 1, 0; (8918), 2, 1, 0; (8922), 3, 1, 0; (8924), 3, 1, 0; (8925), 9, 3, 62; (8927), 3, 1, 0; (8928), 3, 1, 0; (8929), 3, 1, 0; (8935), 3, 1, 0; (8937), 3, 1, 0; (8942), 2, 1, 0; (8948), 6, 2, 30; (8949), 9, 3, 56; (8952), 3, 1, 0; (8958), 2, 1, 0; (8960), 3, 1, 0; (8964), 6, 2, 10; (8968), 9, 3, 55; (8973), 3, 1, 0; (8974), 6, 2, 29; (8977), 3, 1, 0; (8981), 3, 1, 0; (8984), 6, 2, 45; (8987), 3, 1, 0; (8990), 3, 1, 0; (8991), 9, 3, 55; (8995), 3, 1, 0; (9002), 3, 1, 0; (9003), 9, 3, 54; (9004), 12, 4, 68; (9005), 3, 1, 0; (9008), 3, 1, 0; (9010), 6, 2,

12; (9012), 3, 1, 0; (9013), 3, 1, 0; (9014), 3, 1, 0; (9015), 8, 3, 57; (9019), 3, 1, 0; (9020), 3, 1, 0; (9021), 3, 1, 0; (9028), 7, 3, 55; (9030), 3, 1, 0; (9032), 3, 1, 0; (9034), 9, 3, 31; (9035), 6, 2, 29; (9040), 3, 1, 0; (9041), 7, 3, 31; (9042), 9, 3, 23; (9043), 3, 1, 0; (9045), 3, 1, 0; (9048), 6, 2, 46; (9052), 3, 1, 0; (9053), 6, 2, 67; (9054), 3, 1, 0; (9056), 6, 2, 26; (9059), 6, 3, 26; (9062), 6, 2, 65; (9064), 3, 1, 0; (9065), 3, 1, 0; (9071), 3, 1, 0; (9073), 6, 2, 9; (9074), 3, 1, 0; (9077), 6, 2, 39; (9078), 3, 1, 0; (9082), 3, 1, 0; (9090), 3, 1, 0; (9092), 6, 2, 67; (9093), 3, 1, 0; (9094), 3, 1, 0; (9098), 9, 3, 57; (9100), 6, 2, 29; (9106), 6, 2, 24; (9109), 6, 2, 67; (9110), 6, 2, 55; (9111), 6, 2, 64; (9114), 3, 1, 0; (9117), 6, 2, 67; (9118), 3, 1, 0; (9125), 6, 2, 18; (9131), 6, 2, 13; (9132), 6, 2, 31; (9136), 3, 1, 0; (9137), 6, 2, 31; (9140), 3, 1, 0; (9141), 3, 1, 0; (9143), 2, 1, 0; (9145), 6, 2, 16; (9163), 3, 1, 0; (9166), 3, 1, 0; (9174), 3, 1, 0; (9176), 8, 3, 30; (9180), 6, 2, 26; (9192), 9, 3, 60; (9195), 6, 2, 24; (9203), 6, 2, 31; (9207), 3, 1, 0; (9210), 3, 1, 0; (9212), 3, 1, 0; (9219), 2, 1, 0; (9220), 3, 1, 0; (9226), 3, 1, 0; (9227), 6, 2, 33; (9228), 3, 1, 0; (9229), 3, 1, 0; (9237), 6, 2, 31; (9241), 3, 1, 0; (9257), 6, 2, 29; (9264), 3, 1, 0; (9270), 3, 1, 0; (9284), 3, 1, 0; (9293), 6, 2, 31; (9294), 6, 2, 16; (9305), 9, 3, 43; (9306), 3, 1, 0; (9315), 9, 3, 25; (9316), 6, 2, 50; (9321), 3, 1, 0; (9327), 9, 3, 53; (9338), 3, 1, 0; (9340), 2, 1, 0; (9344), 3, 1, 0; (9345), 3, 1, 0; (9346), 6, 2, 18; (9347), 6, 2, 31; (9352), 6, 2, 55; (9354), 3, 1, 0; (9356), 3, 1, 0; (9359), 3, 1, 0; (9365), 3, 1, 0; (9368), 6, 2, 6; (9369), 3, 1, 0; (9375), 3, 1, 0; (9376), 3, 1, 0; (9377), 3, 1, 0; (9391), 3, 1, 0; (9393), 3, 1, 0; (9394), 9, 3, 36; (9401), 3, 1, 0; (9410), 3, 1, 0; (9433), 3, 1, 0; (9437), 3, 1, 0; (9442), 3, 1, 0; (9446), 6, 2, 31; (9459), 6, 2, 29; (9464), 6, 2, 66; (9481), 3, 1, 0; (9494), 3, 1, 0; (9506), 3, 1, 0; (9510), 3, 1, 0; (9540), 6, 2, 34; (9544), 3, 1, 0; (9579), 3, 1, 0; (9591), 3, 1, 0; (9625), 3, 1, 0; (9629), 3, 1, 0; (9630), 3, 1, 0; (9646), 3, 1, 0; (9659), 3, 1, 0; (9660), 3, 1, 0; (9705), 3, 1, 0; (9721), 3, 1, 0; (9742), 3, 1, 0; (9784), 3, 1, 0; (9785), 1, 1, 0; (9789), 6, 2, 34; (9804), 3, 1, 0; (9829), 3, 1, 0; (9834), 2, 1, 0; (9840), 3, 1, 0; (9906), 2, 1, 0; (9912), 6, 2, 16; (10007), 3, 1, 0; (10239), 3, 1, 0; (10339), 6, 2, 10; (10414), 2, 1, 0; (10415), 3, 1, 0; (10500), 3, 1, 0; (10511), 6, 2, 45; (10514), 3, 1, 0; (10563), 2, 1, 0; (10612), 3, 1, 0; (10705), 3, 1, 0; (10761), 3, 1, 0; (10778), 6, 2, 43; (10999), 6, 2, 56; (11006), 6, 2, 19; (11025), 3, 1, 0; (11027), 3, 1, 0; (11040), 3, 1, 0; (11131), 6, 2, 7; (11169), 3, 1, 0; (11174), 6, 2, 27; (11187), 3, 1, 0; (11254), 3, 1, 0; (11257), 3, 1, 0; (11270), 3, 1, 0; (11278), 5, 2, 9; (11281), 9, 3, 62; (11290), 2, 1, 0; (11312), 6, 2, 25; (11325), 3, 1, 0; (11326), 3, 1, 0; (11338), 3, 1, 0; (11341), 3, 1, 0; (11345), 3, 1, 0; (11347), 3, 1, 0; (11364), 3, 1, 0; (11367), 3, 1, 0; (11368), 3, 1, 0; (11426), 3, 1, 0; (11428), 3, 1, 0; (11434), 12, 4, 68; (11435), 3, 1, 0; (11436), 6, 2, 13; (11438), 6, 2, 56; (11439), 6, 2, 30; (11441), 9, 3, 66; (11442), 6, 2, 26; (11444), 3, 1, 0; (11446), 6, 2, 30; (11449), 6, 2, 45; (11452), 3, 1, 0; (11453), 3, 1, 0; (11458), 6, 2, 53; (11470), 9, 3, 32; (11472), 12, 4, 61; (11473), 9, 3, 65; (11474), 6, 2, 25; (11475), 6, 2, 29; (11476), 3, 1, 0; (11477), 3, 1, 0; (11478), 3, 1, 0; (11479), 6, 2, 37; (11480), 3, 1, 0; (11481), 6, 2, 57; (11482), 6, 2, 19; (11483), 9, 3, 27; (11484), 5, 2, 10; (11486), 6, 2, 10; (11490), 3, 1, 0; (11492), 6, 2, 58; (11495), 3, 1, 0; (11497), 6, 2, 22; (11499), 3, 1, 0; (11501), 5, 2, 15; (11503), 9, 3, 57; (11504), 9, 3, 60; (11506), 3, 1, 0; (11507), 3, 1, 0; (11510), 5, 2, 10; (11511), 9, 3, 45; (11513), 5, 2, 29; (11515), 3, 1, 0; (11520), 6, 2, 10; (11522), 8, 3, 30; (11524), 3, 1, 0; (11525), 3, 1, 0; (11531), 3, 1, 0; (11532), 3, 1, 0; (11533), 3, 1, 0; (11534), 3, 1, 0; (11535), 3, 1, 0; (11539), 3, 1, 0; (11540), 6, 2, 7; (11541), 3, 1, 0; (11543), 3, 1, 0; (11544), 6, 2, 30; (11546), 3, 1, 0; (11547), 6, 2, 44; (11550), 3, 1, 0; (11552), 3, 1, 0; (11554), 3, 1, 0; (11555), 3, 1, 0; (11560), 3, 1, 0; (11563), 3, 1, 0; (11573), 18, 6, 57; (11575), 6, 2, 66; (11576), 9, 3, 65; (11579), 9, 3, 45; (11585), 6, 2, 62; (11586), 6, 2, 29; (11590), 6, 2, 62; (11593), 5, 2, 10; (11594), 6, 2, 54; (11596), 6, 2, 26; (11599), 6, 2, 56; (11603), 9, 3, 57; (11610), 3, 1, 0; (11612), 3, 1, 0; (11616), 3, 1, 0; (11617), 9, 3, 56; (11618), 9, 3, 31; (11623), 3, 1, 0; (11624), 6, 2, 25; (11626), 9, 3, 55; (11628), 6, 2, 61; (11631), 3, 1, 0; (11632), 3, 1, 0; (11634), 3, 1, 0; (11635), 3, 1, 0; (11636), 3, 1, 0; (11639), 6, 2, 30; (11640), 3, 1, 0; (11646), 3, 1, 0; (11649), 3, 1, 0; (11650), 3, 1, 0; (11652), 6, 2, 25; (11657), 3, 1, 0; (11659), 6, 2, 15; (11660), 8, 3, 54; (11661), 3, 1, 0; (11664), 3, 1, 0; (11672), 3, 1, 0; (11677), 6, 2, 22; (11681), 3, 1, 0; (11682), 3, 1, 0; (11687), 3, 1, 0; (11688), 6, 2, 10; (11690), 9, 3, 27; (11696), 2, 1, 0; (11699), 6, 2, 15; (11701), 5, 2, 37; (11707), 6, 2, 65; (11712), 3, 1, 0; (11714), 6, 2, 57; (11715), 6, 2, 62; (11720), 3, 1, 0; (11723), 5, 2, 10; (11724), 6, 2, 22; (11726), 6, 2, 21; (11727), 6, 2, 58; (11728), 3, 1, 0; (11730), 3, 1, 0; (11731), 3, 1, 0; (11733), 3, 1, 0; (11734), 9, 3, 57; (11735), 3, 1, 0; (11748), 3, 1, 0; (11751), 3, 1, 0; (11754), 3, 1, 0; (11764), 3, 1, 0; (11772), 3, 1, 0; (11774), 3, 1, 0; (11780), 6, 2, 30; (11781), 6, 2, 67; (11782), 3, 1, 0; (11784), 3, 1, 0; (11785), 6, 2, 61; (11787), 9, 3, 37; (11788), 3, 1, 0; (11789), 3, 1, 0; (11790), 6, 2, 14; (11792), 3, 1, 0; (11793), 6, 2, 58; (11794), 6, 2, 10; (11795), 6, 2, 34; (11797), 6, 2, 26; (11798), 9, 3, 18; (11799), 6, 2, 62; (11802), 5, 2, 37; (11805), 3, 1, 0; (11808), 9, 3, 55; (11816), 3, 1, 0; (11818), 3, 1, 0; (11822), 6, 2, 27; (11823), 9, 3, 61; (11825), 6, 2, 33; (11826), 6, 2, 24; (11828), 9, 3, 29; (11830), 6, 2, 26; (11832), 9, 3, 46; (11833), 3, 1, 0; (11835), 6, 2, 3; (11839), 6, 2, 30; (11840), 3, 1, 0; (11841), 6, 2, 45; (11842), 9, 3, 39; (11843), 3, 1, 0; (11844), 9, 3, 27; (11846), 3, 1, 0; (11847), 3, 1, 0; (11848), 3, 1, 0; (11850), 6, 2, 30; (11854), 3, 1, 0; (11855), 3, 1, 0; (11856), 3, 1, 0; (11857), 3, 1, 0; (11859), 3, 1, 0; (11860), 6, 2, 27; (11861), 6, 2, 28; (11862), 3, 1, 0; (11863), 3, 1, 0; (11864), 6, 2, 58; (11865), 9, 3, 63; (11866), 3, 1, 0; (11867), 18, 5, 63; (11871), 3, 1, 0; (11872), 6, 2, 7; (11873), 6, 2, 21; (11874), 6, 2, 19; (11875), 3, 1, 0; (11876), 6, 2, 26; (11877), 3, 1, 0; (11878), 6, 2, 45; (1188

(11911), 3, 1, 0; (11912), 1, 1, 0; (11913), 2, 1, 0; (11915), 6, 2, 15; (11917), 6, 2, 35; (11918), 3, 1, 0; (11920), 9, 3, 52; (11922), 6, 2, 27; (11923), 12, 4, 67; (11924), 3, 1, 0; (11925), 3, 1, 0; (11926), 6, 2, 15; (11927), 3, 1, 0; (11930), 6, 2, 23; (11931), 3, 1, 0; (11932), 3, 1, 0; (11933), 5, 2, 63; (11934), 6, 2, 28; (11935), 6, 2, 28; (11937), 5, 2, 10; (11939), 3, 1, 0; (11940), 3, 1, 0; (11943), 3, 1, 0; (11944), 6, 2, 31; (11945), 3, 1, 0; (11946), 3, 1, 0; (11947), 3, 1, 0; (11948), 3, 1, 0; (11949), 6, 2, 10; (11950), 2, 1, 0; (11952), 9, 2, 3; (11954), 6, 2, 25; (11956), 3, 1, 0; (11957), 6, 2, 27; (11958), 3, 1, 0; (11960), 12, 4, 66; (11961), 9, 3, 25; (11967), 6, 2, 28; (11968), 3, 1, 0; (11969), 3, 1, 0; (11971), 12, 4, 61; (11974), 3, 1, 0; (11975), 3, 1, 0; (11977), 9, 3, 49; (11982), 3, 1, 0; (11985), 6, 2, 29; (11987), 9, 3, 58; (11988), 12, 4, 57; (11989), 6, 2, 18; (11991), 9, 3, 31; (11992), 6, 2, 18; (11993), 6, 2, 54; (11994), 9, 3, 51; (11999), 9, 3, 62; (12000), 6, 2, 63; (12001), 3, 1, 0; (12003), 3, 1, 0; (12005), 6, 2, 67; (12011), 3, 1, 0; (12014), 6, 2, 10; (12015), 9, 3, 56; (12016), 3, 1, 0; (12018), 5, 2, 67; (12019), 9, 3, 29; (12020), 3, 1, 0; (12021), 6, 2, 53; (12022), 3, 1, 0; (12023), 3, 1, 0; (12024), 3, 1, 0; (12026), 3, 1, 0; (12028), 3, 1, 0; (12030), 6, 2, 51; (12031), 3, 1, 0; (12032), 6, 2, 29; (12034), 3, 1, 0; (12035), 3, 1, 0; (12036), 6, 2, 25; (12037), 3, 1, 0; (12038), 9, 3, 57; (12039), 6, 2, 31; (12040), 3, 1, 0; (12042), 3, 1, 0; (12043), 9, 3, 58; (12044), 3, 1, 0; (12045), 3, 1, 0; (12046), 6, 2, 31; (12047), 6, 2, 45; (12048), 3, 1, 0; (12049), 12, 3, 62; (12050), 3, 1, 0; (12051), 3, 1, 0; (12056), 6, 2, 15; (12059), 3, 1, 0; (12061), 9, 3, 55; (12062), 9, 3, 29; (12064), 3, 1, 0; (12065), 3, 1, 0; (12069), 9, 3, 51; (12073), 2, 1, 0; (12074), 3, 1, 0; (12078), 3, 1, 0; (12081), 12, 4, 67; (12082), 3, 1, 0; (12083), 6, 2, 28; (12088), 5, 2, 29; (12089), 3, 1, 0; (12090), 6, 2, 29; (12094), 2, 1, 0; (12097), 12, 4, 61; (12099), 2, 1, 0; (12102), 9, 3, 28; (12103), 3, 1, 0; (12105), 12, 4, 68; (12106), 3, 1, 0; (12107), 6, 2, 24; (12108), 3, 1, 0; (12109), 3, 1, 0; (12112), 3, 1, 0; (12113), 6, 2, 45; (12114), 12, 4, 57; (12115), 3, 1, 0; (12123), 12, 4, 62; (12124), 3, 1, 0; (12125), 3, 1, 0; (12126), 6, 2, 16; (12127), 9, 3, 56; (12128), 6, 2, 28; (12133), 6, 2, 57; (12136), 6, 2, 45; (12143), 6, 2, 24; (12149), 3, 1, 0; (12150), 3, 1, 0; (12151), 3, 1, 0; (12155), 9, 3, 53; (12156), 6, 2, 12; (12158), 6, 2, 58; (12160), 3, 1, 0; (12161), 3, 1, 0; (12162), 3, 1, 0; (12164), 3, 1, 0; (12165), 3, 1, 0; (12166), 3, 1, 0; (12168), 3, 1, 0; (12172), 6, 2, 57; (12174), 3, 1, 0; (12175), 6, 2, 29; (12179), 3, 1, 0; (12180), 3, 1, 0; (12182), 9, 3, 53; (12183), 3, 1, 0; (12186), 9, 3, 58; (12187), 3, 1, 0; (12189), 6, 2, 53; (12191), 6, 2, 22; (12193), 3, 1, 0; (12194), 8, 3, 47; (12197), 3, 1, 0; (12199), 6, 2, 33; (12200), 9, 3, 62; (12203), 3, 1, 0; (12211), 6, 2, 32; (12212), 3, 1, 0; (12213), 3, 1, 0; (12214), 6, 2, 49; (12216), 3, 1, 0; (12217), 3, 1, 0; (12218), 6, 2, 31; (12219), 3, 1, 0; (12221), 3, 1, 0; (12223), 2, 1, 0; (12224), 3, 1, 0; (12228), 6, 2, 47; (12230), 3, 1, 0; (12231), 1, 1, 0; (12232), 8, 3, 15; (12235), 6, 2, 22; (12240), 3, 1, 0; (12244), 2, 1, 0; (12245), 3, 1, 0; (12248), 3, 1, 0; (12249), 6, 2, 60; (12252), 6, 2, 14; (12253), 3, 1, 0; (12254), 6, 2, 59; (12255), 3, 1, 0; (12259), 3, 1, 0; (12260), 3, 1, 0; (12261), 9, 3, 22; (12269), 3, 1, 0; (12270), 6, 2, 43; (12271), 6, 2, 27; (12274), 3, 1, 0; (12275), 6, 2, 56; (12280), 6, 2, 43; (12281), 3, 1, 0; (12283), 9, 3, 53; (12286), 3, 1, 0; (12289), 6, 2, 53; (12290), 3, 1, 0; (12292), 3, 1, 0; (12294), 6, 2, 27; (12295), 3, 1, 0; (12296), 3, 1, 0; (12297), 3, 1, 0; (12299), 3, 1, 0; (12303), 3, 1, 0; (12306), 3, 1, 0; (12307), 9, 3, 36; (12308), 3, 1, 0; (12309), 6, 2, 27; (12310), 6, 2, 14; (12312), 9, 3, 61; (12320), 3, 1, 0; (12321), 6, 2, 61; (12322), 3, 1, 0; (12323), 9, 3, 49; (12324), 3, 1, 0; (12325), 3, 1, 0; (12326), 3, 1, 0; (12328), 6, 2, 38; (12333), 6, 2, 31; (12335), 3, 1, 0; (12336), 3, 1, 0; (12337), 3, 1, 0; (12338), 9, 3, 35; (12339), 3, 1, 0; (12340), 9, 3, 50; (12344), 6, 2, 13; (12347), 3, 1, 0; (12353), 3, 1, 0; (12354), 6, 2, 56; (12356), 3, 1, 0; (12357), 3, 1, 0; (12359), 8, 3, 27; (12360), 6, 2, 14; (12361), 3, 1, 0; (12364), 3, 1, 0; (12365), 3, 1, 0; (12366), 6, 2, 26; (12367), 9, 3, 55; (12369), 3, 1, 0; (12370), 3, 1, 0; (12371), 9, 3, 23; (12373), 9, 3, 17; (12376), 3, 1, 0; (12377), 3, 1, 0; (12379), 6, 2, 3; (12380), 9, 3, 51; (12381), 6, 2, 29; (12383), 3, 1, 0; (12384), 9, 3, 27; (12386), 3, 1, 0; (12388), 3, 1, 0; (12389), 12, 4, 64; (12391), 3, 1, 0; (12392), 3, 1, 0; (12394), 3, 1, 0; (12396), 6, 2, 43; (12399), 3, 1, 0; (12400), 9, 3, 49; (12401), 6, 2, 29; (12405), 3, 1, 0; (12407), 6, 2, 36; (12410), 3, 1, 0; (12413), 6, 2, 13; (12418), 3, 1, 0; (12420), 3, 1, 0; (12421), 6, 2, 14; (12423), 6, 2, 33; (12424), 3, 1, 0; (12426), 3, 1, 0; (12430), 12, 4, 52; (12432), 3, 1, 0; (12435), 3, 1, 0; (12439), 9, 3, 9; (12440), 9, 3, 30; (12443), 6, 2, 50; (12446), 3, 1, 0; (12449), 6, 2, 65; (12450), 6, 2, 31; (12451), 9, 3, 61; (12453), 3, 1, 0; (12454), 3, 1, 0; (12456), 6, 2, 17; (12457), 9, 3, 53; (12458), 2, 1, 0; (12459), 3, 1, 0; (12463), 6, 2, 43; (12464), 6, 2, 61; (12465), 6, 2, 45; (12466), 6, 2, 61; (12469), 3, 1, 0; (12473), 3, 1, 0; (12476), 3, 1, 0; (12477), 8, 3, 23; (12478), 6, 2, 9; (12481), 3, 1, 0; (12482), 3, 1, 0; (12487), 5, 2, 13; (12488), 6, 2, 13; (12492), 3, 1, 0; (12495), 6, 2, 55; (12496), 3, 1, 0; (12497), 3, 1, 0; (12498), 1, 1, 0; (12499), 9, 3, 67; (12500), 3, 1, 0; (12501), 6, 2, 33; (12502), 3, 1, 0; (12503), 3, 1, 0; (12504), 3, 1, 0; (12505), 3, 1, 0; (12507), 5, 2, 38; (12508), 3, 1, 0; (12510), 8, 3, 66; (12511), 6, 2, 31; (12512), 3, 1, 0; (12514), 6, 2, 18; (12515), 6, 2, 46; (12516), 3, 1, 0; (12521), 6, 2, 53; (12522), 3, 1, 0; (12523), 6, 2, 7; (12525), 3, 1, 0; (12527), 3, 1, 0; (12528), 3, 1, 0; (12529), 6, 2, 55; (12532), 3, 1, 0; (12536), 6, 2, 10; (12539), 2, 1, 0; (12540), 3, 1, 0; (12542), 6, 2, 16; (12543), 3, 1, 0; (12545), 3, 1, 0; (12548), 6, 2, 34; (12549), 12, 4, 49; (12550), 3, 1, 0; (12554), 6, 2, 44; (12559), 3, 1, 0; (12561), 9, 3, 49; (12563), 3, 1, 0; (12574), 3, 1, 0; (12575), 3, 1, 0; (12580), 3, 1, 0; (12582), 6, 2, 24; (12583), 9, 3, 57; (12586), 3, 1, 0; (12587), 3, 1, 0; (12588), 9, 3, 33; (12590), 6, 2, 27; (12591), 3, 1, 0; (12592), 3, 1, 0; (12594), 3, 1, 0; (12595), 3, 1, 0; (12596), 3, 1, 0; (12600), 3, 1, 0; (12601), 6, 2, 24; (12602), 3, 1, 0; (12603), 3, 1, 0; (12604), 3, 1, 0; (12607), 6, 2, 19; (12608), 12, 4, 64; (12609), 6, 2, 33; (12612), 3, 1, 0; (12613), 6, 2, 34; (12614), 2, 1, 0; (12615), 3, 1, 0; (12616), 3, 1, 0; (12619), 3, 1, 0; (12621), 3, 1, 0; (12623), 6, 2, 23; (12629), 5, 2, 33; (12630), 6, 2, 49; (12633), 3, 1, 0; (12635), 6, 2, 18; (12636), 3, 1, 0; (12639),

6, 2, 9; (12643), 3, 1, 0; (12645), 6, 2, 14; (12648), 3, 1, 0; (12654), 6, 2, 16; [22087, 4882, 5*, 1998/05/01-1999/12/09]

703 Catalina Sky Survey

C. W. Hergenrother, Space Sciences Building, University of Arizona, Tucson, AZ

85721, U.S.A. [chergen@pir1.lpl.arizona.edu]

Observers C. W. Hergenrother, J. W. Brownlee, T. B. Spahr, P. D. Spahr,
F. B. Zoltowski

Measurers C. W. Hergenrother, J. W. Brownlee, T. B. Spahr, F. B. Zoltowski,

S. M. Larson

0.41-m $f/3$ Schmidt + CCD

USNO-SA1.0, USNO-SA2.0, USNO-SA2.1

1971 QO₁, 4, 1, 0; 1971 UR, 8, 2, 8; 1973 UR₅, 4, 1, 0; 1975 TU₃, 8, 2, 8; 1977 QO₃, 8, 2, 7; 1977 TQ₆, 8, 2, 8; 1978 RD₂, 4, 1, 0; 1978 VO₂, 4, 1, 0; 1978 VM₁₁, 4, 1, 0; 1979 DF, 4, 1, 0; 1979 MX₁, 4, 1, 0; 1979 MY₅, 4, 1, 0; 1979 OH₁, 4, 1, 0; 1980 FU, 4, 1, 0; 1980 TZ₅, 4, 1, 0; 1981 DU₁, 4, 1, 0; 1981 DN₃, 4, 1, 0; 1981 EF₂, 4, 1, 0; 1981 EO₂, 8, 2, 8; 1981 EO₄, 4, 1, 0; 1981 EU₄, 4, 1, 0; 1981 EY₆, 4, 1, 0; 1981 EN₇, 4, 1, 0; 1981 EB₈, 4, 1, 0; 1981 EE₁₀, 8, 2, 8; 1981 EE₁₁, 4, 1, 0; 1981 EN₁₃, 4, 1, 0; 1981 EZ₁₉, 4, 1, 0; 1981 EN₂₂, 8, 2, 8; 1981 EP₂₇, 4, 1, 0; 1981 EA₃₂, 4, 1, 0; 1981 ES₃₃, 4, 1, 0; 1981 EB₃₆, 4, 1, 0; 1981 JR₂, 4, 1, 0; 1981 QJ₂, 4, 1, 0; 1981 UQ₂₂, 8, 2, 1; 1982 UH₉, 4, 1, 0; 1982 VU₂, 8, 2, 8; 1983 XE, 8, 2, 1; 1984 UR, 4, 1, 0; 1985 PC, 4, 1, 0; 1985 TS, 4, 1, 0; 1987 BX₁, 12, 3, 60; 1987 CH, 4, 1, 0; 1987 SO₅, 4, 1, 0; 1988 BF₅, 4, 1, 0; 1988 CF, 4, 1, 0; 1988 CK₄, 4, 1, 0; 1988 CO₇, 12, 2, 8; 1988 FM, 4, 1, 0; 1988 FD₃, 8, 2, 8; 1988 PE, 12, 3, 7; 1988 RO₂, 4, 1, 0; 1988 RH₆, 4, 1, 0; 1988 RF₁₃, 4, 1, 0; 1988 VA₅, 4, 1, 0; 1988 XT₁, 4, 1, 0; 1988 XV₁, 4, 1, 0; 1988 XY₄, 4, 1, 0; 1989 AN₅, 4, 1, 0; 1989 AJ₆, 4, 1, 0; 1989 CP₂, 4, 1, 0; 1989 EZ, 8, 2, 8; 1989 GR₃, 4, 1, 0; 1989 SF₁, 4, 1, 0; 1989 TH₁, 4, 1, 0; 1989 TR₂, 8, 2, 8; 1989 TB₅, 4, 1, 0; 1989 UA₁, 4, 1, 0; 1989 US₄, 4, 1, 0; 1989 YO₃, 4, 1, 0; 1989 YE₆, 4, 1, 0; 1990 EN₄, 4, 1, 0; 1990 GE, 4, 1, 0; 1990 GN, 4, 1, 0; 1990 HP, 4, 1, 0; 1990 OB₄, 8, 2, 6; 1990 OS₄, 4, 1, 0; 1990 QE, 4, 1, 0; 1990 QY₅, 4, 1, 0; 1990 RT₂, 4, 1, 0; 1990 RF₁₇, 4, 1, 0; 1990 SY₃, 8, 2, 6; 1990 SR₆, 4, 1, 0; 1990 SQ₈, 4, 1, 0; 1990 ST₁₅, 4, 1, 0; 1990 TD₁₂, 4, 1, 0; 1990 VN₁, 4, 1, 0; 1990 VM₃, 8, 2, 2; 1991 BZ, 8, 2, 6; 1991 GR₂, 8, 2, 8; 1991 GV₃, 8, 2, 8; 1991 GU₄, 4, 1, 0; 1991 NU₃, 4, 1, 0; 1991 NG₅, 8, 2, 8; 1991 PE₂, 8, 2, 8; 1991 PD₁₁, 4, 1, 0; 1991 PZ₁₄, 4, 1, 0; 1991 RL₁, 4, 1, 0; 1991 RY₂, 4, 1, 0; 1991 RQ₅, 4, 1, 0; 1991 RT₅, 4, 1, 0; 1991 RU₈, 4, 1, 0; 1991 RW₁₂, 8, 2, 1; 1991 RA₁₄, 8, 2, 29; 1991 RK₁₅, 4, 1, 0; 1991 RR₁₆, 4, 1, 0; 1991 RW₁₇, 4, 1, 0; 1991 UN₁, 4, 1, 0; 1991 UF₃, 4, 1, 0; 1991 VD₁, 8, 2, 8; 1991 VE₂, 8, 2, 8; 1991 VW₄, 4, 1, 0; 1991 VP₁₂, 8, 2, 8; 1991 XZ, 8, 2, 9; 1992 AL, 4, 1, 0; 1992 AT₂, 4, 1, 0; 1992 BP₂, 4, 1, 0; 1992 EN₁₂, 4, 1, 0; 1992 EO₁₂, 8, 2, 29; 1992 EQ₁₃, 8, 2, 8; 1992 EW₁₇, 4, 1, 0; 1992 LQ, 12, 2, 8; 1992 OV₆, 4, 1, 0; 1992 OY₇, 4, 1, 0; 1992 PF, 8, 2, 8; 1992 PU₁, 8, 2, 1; 1992 PK₂, 4, 1, 0; 1992 PE₃, 8, 1, 0; 1992 SY₁₇, 8, 2, 8; 1992 US₁, 8, 2, 8; 1992 UH₃, 4, 1, 0; 1992 UK₈, 4, 1, 0; 1992 WY₁, 4, 1, 0; 1992 XK₄, 1, 0; 1992 YK, 12, 3, 8; 1992 YR₂, 8, 2, 1; 1993 EU, 4, 1, 0; 1993 FR₁₂, 4, 1, 0; 1993 FR₁₃, 4, 1, 0; 1993 FO₂₇, 4, 1, 0; 1993 FM₂₈, 8, 2, 8; 1993 FS₃₁, 4, 1, 0; 1993 HX, 4, 1, 0; 1993 HZ₅, 4, 1, 0; 1993 JB₁, 4, 1, 0; 1993 NW₁, 4, 1, 0; 1993 PV₅, 12, 3, 7; 1993 QE₁, 4, 1, 0; 1993 QH₄, 8, 2, 28; 1993 RQ₅, 4, 1, 0; 1993 TX₁₄, 8, 2, 1; 1993 TL₁₈, 8, 2, 8; 1993 TK₃₇, 4, 1, 0; 1993 UK, 4, 1, 0; 1993 UE₁, 4, 1, 0; 1993 VD₄, 12, 3, 5; 1994 AS, 4, 1, 0; 1994 AC₃, 4, 1, 0; 1994 AY₁₀, 4, 1, 0; 1994 BC₁, 4, 1, 0; 1994 BD₄, 4, 1, 0; 1994 ER₅, 4, 1, 0; 1994 EJ₆, 12, 3, 8; 1994 EZ₆, 12, 3, 8; 1994 FB, 4, 1, 0; 1994 GK₉, 4, 1, 0; 1994 GU₉, 4, 1, 0; 1994 PC₉, 8, 2, 1; 1994 PJ₁₀, 4, 1, 0; 1994 PO₃₂, 4, 1, 0; 1994 PA₃₆, 8, 2, 8; 1994 RL₁, 4, 1, 0; 1994 RL₇, 8, 2, 8; 1994 TZ, 4, 1, 0; 1994 TB₃, 8, 2, 2; 1994 UZ₁, 8, 2, 8; 1994 VA, 4, 1, 0; 1994 VH₁, 4, 1, 0; 1994 VD₂, 4, 1, 0; 1994 VU₆, 4, 1, 0; 1994 WF₁, 4, 1, 0; 1994 WS₁, 4, 1, 0; 1994 WV₁, 8, 2, 29; 1994 WE₄, 4, 1, 0; 1994 YA₁, 4, 1, 0; 1995 AF, 4, 1, 0; 1995 CE₁, 8, 2, 6; 1995 DZ₁₁, 4, 1, 0; 1995 GV, 4, 1, 0; 1995 HY₂, 4, 1, 0; 1995 OB, 4, 1, 0; 1995 PA, 12, 3, 9; 1995 QS, 8, 2, 8; 1995 QC₃, 4, 1, 0; 1995 ST, 4, 1, 0; 1995 SU, 4, 1, 0; 1995 SX₂, 4, 1, 0; 1995 SG₄, 4, 1, 0; 1995 SB₃₁, 8, 2, 6; 1995 UT₂, 8, 2, 1; 1995 UQ₃, 4, 1, 0; 1995 UG₆, 8, 2, 8; 1995 UL₆, 4, 1, 0; 1995 UP₈, 4, 1, 0; 1995 UY₈, 8, 2, 8; 1995 UK₂₈, 8, 2, 8; 1995 UY₄₄, 4, 1, 0; 1995 UC₄₅, 4, 1, 0; 1995 VY₂, 4, 1, 0; 1995 WF, 4, 1, 0; 1995 WQ, 8, 2, 8; 1995 WG₂, 8, 2, 8; 1995 WE₂, 4, 1, 0; 1995 WM₄, 8, 2, 8; 1995 WB₅, 4, 1, 0; 1995 WB₉, 8, 2, 8; 1995 WP₂₂, 4, 1, 0; 1995 XD, 4, 1, 0; 1995 YF₁, 8, 2, 8; 1995 YP₁, 4, 1, 0; 1995 YO₇, 8, 2, 8; 1996 AJ₂, 4, 1, 0; 1996 AP₃, 4, 1, 0; 1996 AH₉, 4, 1, 0; 1996 BZ, 4, 1, 0; 1996 BY₂, 4, 1, 0; 1996 CE₃, 4, 1, 0; 1996 DY₂, 4, 1, 0; 1996 EB, 4, 1, 0; 1996 GE₆, 8, 2, 8; 1996 GU₈, 4, 1, 0; 1996 HE₁, 8, 2, 8; 1996 HB₁₂, 8, 2, 4; 1996 HX₁₆, 4, 1, 0; 1996 HL₂₀, 8, 2, 1; 1996 HZ₂₁, 4, 1, 0; 1996 JN₆, 4, 1, 0; 1996 KA, 4, 1, 0; 1996 PM₄, 4, 1, 0; 1996 TT₁₄, 4, 1, 0; 1996 XM₂, 4, 1, 0; 1996 XM₅, 4, 1, 0; 1996 XQ₅, 8, 2, 8; 1996 XY₁₄, 4, 1, 0; 1996 XT₁₉, 8, 2, 8; 1996 XE₃₁, 4, 1, 0; 1997 AV, 4, 1, 0; 1997 AD₂, 8, 2, 8; 1997 AN₅, 4, 1, 0; 1997 AX₅, 8, 2, 8; 1997 AO₆, 4, 1, 0; 1997 AB₇, 4, 1, 0; 1997 AM₇,

2, 6; 1997 BK₃, 4, 1, 0; 1997 CT₅, 8, 2, 6; 1997 CZ₁₄, 4, 1, 0; 1997 CB₂₆, 4, 1, 0; 1997 CG₂₆, 8, 2, 8; 1997 DL, 4, 1, 0; 1997 EF, 8, 2, 1; 1997 EJ, 4, 1, 0; 1997 EM, 4, 1, 0; 1997 ED₇, 4, 1, 0; 1997 EO₇, 4, 1, 0; 1997 EX₁₃, 8, 2, 8; 1997 EK₁₆, 4, 1, 0; 1997 EF₂₃, 12, 3, 60; 1997 EP₂₅, 4, 1, 0; 1997 EE₂₉, 4, 1, 0; 1997 EY, 8, 2, 1; 1997 EB₅₇, 8, 2, 29; 1997 FG₁₂, 12, 3, 8; 1997 FM₄, 12, 3, 49; 1997 GT₂₂, 4, 1, 0; 1997 GQ₇, 8, 2, 8; 1997 GL₂₁, 4, 1, 0; 1997 GX₂₁, 8, 2, 1; 1997 GS₂₂, 8, 2, 8; 1997 GT₂₂, 8, 2, 8; 1997 GK₂₃, 8, 2, 8; 1997 GP₂₄, 4, 1, 0; 1997 GA₂₆, 4, 1, 0; 1997 GH₂₇, 4, 1, 0; 1997 GW₃₄, 4, 1, 0; 1997 GH₃₆, 4, 1, 0; 1997 HS₁₂, 4, 1, 0; 1997 JV₇, 4, 1, 0; 1997 JN₁₂, 4, 1, 0; 1997 LE₄, 8, 2, 8; 1997 MR, 4, 1, 0; 1997 ML₂, 4, 1, 0; 1997 MB₉, 4, 1, 0; 1997 OY, 4, 1, 0; 1997 OV₂, 4, 1, 0; 1997 QU₁, 4, 1, 0; 1997 SW₃₀, 4, 1, 0; 1997 SS₃₁, 4, 1, 0; 1997 TS₁₈, 4, 1, 0; 1997 UT₂, 4, 1, 0; 1998 BP₈, 4, 1, 0; 1998 DQ₂₇, 8, 2, 28; 1998 EP₃, 4, 1, 0; 1998 FY₃₅, 4, 1, 0; 1998 FL₄₄, 4, 1, 0; 1998 FZ₅₅, 4, 1, 0; 1998 FK₆₅, 8, 2, 8; 1998 FT₆₅, 8, 2, 8; 1998 FK₆₇, 8, 2, 29; 1998 FA₇₀, 4, 1, 0; 1998 FR₇₂, 4, 1, 0; 1998 FL₇₅, 8, 2, 8; 1998 FM₇₈, 8, 2, 8; 1998 FN₁₂₆, 8, 2, 8; 1998 GF, 4, 1, 0; 1998 HW₂₅, 8, 2, 26; 1998 HQ₂₇, 4, 1, 0; 1998 HE₃₂, 8, 2, 8; 1998 HL₃₄, 4, 1, 0; 1998 HK₃₆, 4, 1, 0; 1998 HE₃₈, 4, 1, 0; 1998 HN₃₈, 4, 1, 0; 1998 HO₃₈, 4, 1, 0; 1998 HT₅₁, 8, 2, 8; 1998 HU₅₁, 8, 2, 8; 1998 HG₅₃, 8, 2, 8; 1998 HR₆₇, 4, 1, 0; 1998 HH₈₀, 4, 1, 0; 1998 HB₈₈, 8, 2, 8; 1998 HH₈₈, 8, 2, 8; 1998 HA₉₃, 8, 2, 8; 1998 HV₉₅, 8, 2, 8; 1998 HW₉₇, 8, 2, 8; 1998 HH₉₉, 8, 2, 8; 1998 HF₁₀₂, 4, 1, 0; 1998 HE₁₀₃, 12, 3, 9; 1998 HY₁₄₇, 8, 2, 8; 1998 HU₁₄₈, 4, 1, 0; 1998 JQ, 4, 1, 0; 1998 JK₄, 4, 1, 0; 1998 KQ₂, 8, 2, 6; 1998 KC₅, 4, 1, 0; 1998 KD₅, 8, 2, 8; 1998 KN₉, 4, 1, 0; 1998 KH₃₂, 8, 2, 8; 1998 KT₃₂, 8, 2, 8; 1998 KV₃₂, 8, 2, 1; 1998 KF₃₅, 8, 2, 8; 1998 KG₃₅, 4, 1, 0; 1998 KQ₃₅, 8, 2, 8; 1998 KE₃₇, 8, 2, 8; 1998 KV₃₇, 4, 1, 0; 1998 KZ₃₈, 4, 1, 0; 1998 KM₃₉, 8, 2, 1; 1998 KP₄₁, 4, 1, 0; 1998 KH₄₅, 8, 2, 8; 1998 KE₄₇, 4, 1, 0; 1998 KE₄₈, 8, 2, 8; 1998 KG₆₄, 8, 2, 8; 1998 KL₆₅, 8, 2, 8; 1998 MN₇, 8, 2, 8; 1998 MA₈, 12, 3, 9; 1998 MR₃₂, 4, 1, 0; 1998 MT₃₂, 4, 1, 0; 1998 MR₃₅, 4, 1, 0; 1998 MK₃₇, 8, 2, 6; 1998 ML₃₇, 4, 1, 0; 1998 MB₃₈, 4, 1, 0; 1998 NA, 4, 1, 0; 1998 OQ, 8, 2, 8; 1998 OS, 4, 1, 0; 1998 OR₈, 8, 2, 1; 1998 ON₁₁, 12, 2, 1; 1998 OG₁₂, 4, 1, 0; 1998 ON₁₃, 4, 1, 0; 1998 PA₁, 4, 1, 0; 1998 PO₁, 4, 1, 0; 1998 QF, 4, 1, 0; 1998 QJ₂, 4, 1, 0; 1998 QR₁₀, 12, 3, 9; 1998 QU₁₀, 4, 1, 0; 1998 QE₁₂, 4, 1, 0; 1998 QU₁₃, 4, 1, 0; 1998 QE₁₄, 4, 1, 0; 1998 QN₁₈, 4, 1, 0; 1998 QT₁₈, 4, 1, 0; 1998 QL₁₉, 4, 1, 0; 1998 QV₂₂, 8, 2, 8; 1998 QW₂₂, 4, 1, 0; 1998 QE₂₃, 4, 1, 0; 1998 QM₂₅, 4, 1, 0; 1998 QL₃₀, 4, 1, 0; 1998 QY₃₀, 4, 1, 0; 1998 QZ₃₅, 4, 1, 0; 1998 QK₃₈, 4, 1, 0; 1998 QT₃₉, 4, 1, 0; 1998 QD₄₀, 4, 1, 0; 1998 QW₄₂, 8, 2, 8; 1998 QB₄₃, 4, 1, 0; 1998 QZ₄₄, 4, 1, 0; 1998 QW₄₈, 4, 1, 0; 1998 QF₄₉, 4, 1, 0; 1998 QM₅₂, 4, 1, 0; 1998 QL₅₇, 4, 1, 0; 1998 QP₆₉, 4, 1, 0; 1998 QC₇₅, 4, 1, 0; 1998 QO₁₀₅, 4, 1, 0; 1998 RY₅, 4, 1, 0; 1998 RP₂₈, 4, 1, 0; 1998 RO₃₁, 4, 1, 0; 1998 RO₄₄, 4, 1, 0; 1998 RB₆₅, 8, 2, 1; 1998 RP₇₀, 8, 2, 8; 1998 RL₇₉, 4, 1, 0; 1998 SH₄, 4, 1, 0; 1998 SH₁₀, 4, 1, 0; 1998 SN₂₂, 4, 1, 0; 1998 SW₂₃, 4, 1, 0; 1998 SN₂₅, 4, 1, 0; 1998 SN₂₇, 4, 1, 0; 1998 SH₄₉, 4, 1, 0; 1998 SS₅₅, 4, 1, 0; 1998 SK₅₈, 4, 1, 0; 1998 SM₅₈, 4, 1, 0; 1998 SF₆₁, 4, 1, 0; 1998 SK₆₁, 4, 1, 0; 1998 SK₇₅, 4, 1, 0; 1998 SH₇₉, 4, 1, 0; 1998 SM₁₁₅, 4, 1, 0; 1998 SA₁₃₀, 4, 1, 0; 1998 SG₁₃₂, 4, 1, 0; 1998 SK₁₃₂, 8, 2, 1; 1998 SJ₁₄₁, 4, 1, 0; 1998 SV₁₆₃, 4, 1, 0; 1998 SK₁₆₄, 4, 1, 0; 1998 TX₅, 4, 1, 0; 1998 UC₄, 4, 1, 0; 1998 UK₂₀, 4, 1, 0; 1998 UM₂₀, 4, 1, 0; 1998 UF₂₁, 4, 1, 0; 1998 UT₂₄, 12, 3, 5; 1998 VO₃₂, 4, 1, 0; 1998 VL₃₇, 4, 1, 0; 1998 WJ₈, 4, 1, 0; 1998 WQ₁₁, 4, 1, 0; 1998 WS₁₆, 4, 1, 0; 1998 WA₁₈, 4, 1, 0; 1998 XC₄, 4, 1, 0; 1998 XD₅₁, 4, 1, 0; 1998 XS₇₃, 4, 1, 0; 1998 XG₈₀, 4, 1, 0; 1999 NT₄, 4, 1, 0; 1999 OR₂, 4, 1, 0; 1999 OS₂, 4, 1, 0; 1999 OV₂, 4, 1, 0; 1999 OB₃, 4, 1, 0; 1999 OG₃, 4, 1, 0; 1999 OH₃, 8, 2, 7; 1999 PY, 8, 2, 8; 1999 RY₁₀, 4, 1, 0; 1999 RK₁₄, 4, 1, 0; 1999 RL₂₇, 8, 2, 8; 1999 RY₂₇, 4, 1, 0; 1999 RV₃₁, 4, 1, 0; 1999 RF₃₂, 4, 1, 0; 1999 RX₃₄, 8, 2, 8; 1999 RZ₃₄, 8, 2, 7; 1999 RC₃₆, 4, 1, 0; 1999 RH₃₆, 8, 2, 8; 1999 RT₃₈, 4, 1, 0; 1999 RG₃₉, 4, 1, 0; 1999 RJ₃₉, 8, 2, 8; 1999 RJ₄₂, 4, 1, 0; 1999 RL₄₂, 8, 2, 8; 1999 RU₄₃, 8, 2, 8; 1999 RU₄₃, 12, 3, 8; 1999 RA₄₄, 8, 2, 8; 1999 RB₄₄, 8, 1, 0; 1999 RC₄₄, 8, 2, 8; 1999 RG₇₁, 4, 1, 0; 1999 RB₁₅₈, 4, 1, 0; 1999 RN₁₆₀, 4, 1, 0; 1999 RZ₁₆₃, 4, 1, 0; 1999 RU₂₀₆, 4, 1, 0; 1999 RQ₂₁₁, 4, 1, 0; 1999 RC₂₁₂, 4, 1, 0; 1999 SN₁, 8, 2, 8; 1999 SH₂, 8, 2, 8; 1999 SV₂, 8, 2, 8; 1999 SR₇, 4, 1, 0; 1999 TY₁, 8, 2, 6; 1999 TA₃, 8, 2, 8; 1999 TA₄, 8, 2, 8; 1999 TM₄, 8, 2, 8; 1999 TV₅, 8, 2, 1; 1999 TO₇, 8, 2, 8; 1999 TP₇, 4, 1, 0; 1999 TB₈, 8, 2, 8; 1999 TH₈, 4, 1, 0; 1999 TC₉, 4, 1, 0; 1999 TR₉, 4, 1, 0; 1999 TT₁₀, 4, 1, 0; 1999 TB₁₂, 8, 2, 8; 1999 TZ₁₂, 4, 1, 0; 1999 TB₁₃, 8, 2, 8; 1999 TC₁₃, 4, 1, 0; 1999 TF₁₃, 8, 2, 8; 1999 TG₁₃, 8, 2, 8; 1999 TL₁₄, 8, 2, 8; 1999 TM₁₄, 4, 1, 0; 1999 TO₁₄, 8, 2, 8; 1999 TW₁₄, 8, 2, 8; 1999 TH₁₆, 4, 1, 0; 1999 TE₁₇, 4, 1, 0; 1999 TF₁₇, 4, 1, 0; 1999 TY₁₇, 8, 2, 8; 1999 TF₁₈, 8, 2, 8; 1999 TJ₁₈, 8, 2, 1; 1999 TY₁₈, 8, 2, 8; 1999 TH₁₉, 8, 2, 8; 1999 TJ₁₉, 4, 1, 0; 1999 TG₂₀, 8, 2, 8; 1999 TP₂₁, 8, 2, 8; 1999 TQ₂₁, 4, 1, 0; 1999 TU₂₁, 4, 1, 0; 1999 TY₂₅, 4, 1, 0; 1999 TE₂₆, 4, 1, 0; 1999 TX₂₆, 4, 1, 0; 1999 TH₂₇, 4, 1, 0; 1999 TK₂₇, 8, 2, 8; 1999 TL₂₇, 4, 1, 0; 1999 TN₂₇, 4, 1, 0; 1999 TP₂₇, 8, 2, 8; 1999 TQ₂₇, 4, 1, 0; 1999 TS₂₇, 8, 2, 8; 1999 TX₂₇, 8, 2, 6; 1999 TD₃₄, 4, 1, 0; 1999 U₅, 8, 2, 8; 1999 UT, 8, 2, 8; 1999 UC₁, 8, 2, 8; 1999 UF₁, 4, 1, 0; 1999 UN₁, 4, 1, 0; 1999 UO₁, 4, 1, 0; 1999 UR₁, 8, 2, 1; 1999 UV₁, 8, 2, 8; 1999 UY₁, 8, 2, 8; 1999 UG₂, 4, 1, 0; 1999 UK₂, 4, 1, 0; 1999 UT₂, 8, 2, 8; 1999 UW₂, 8, 2, 6; 1999 UL₃, 8, 2, 2; 1999 UP₃, 4, 1, 0; 1999 UU₃, 4, 1, 0; 1999 UE₄, 4, 1, 0; 1999 UL₄, 4, 1, 0; 1999 UO₄, 8, 2, 8; 1999 UC₅, 4, 1, 0; 1999 UO₅, 8, 2, 8; 1999 UQ₅, 4, 1, 0; 1999 UR₅, 4, 1, 0; 1999 UT₅, 8, 2, 8; 1999 UX₅, 4, 1, 0; 1999 UY₅, 4, 1, 0; 1999 UD₆, 8, 2, 8; 1999 UK₆, 8, 2, 8; 1999 UN₆, 8, 2, 8; 1999 UO₆, 8, 2, 8; 1999 US₇, 8, 2, 8; 1999 UW₇, 4, 1, 0; 1999 UY₇, 4, 1, 0; 1999 UZ₇, 8, 2, 8; 1999 UH₈, 4, 1, 0; 1999 UJ₈, 4, 1, 0; 1999 UL₈, 4, 1, 0; 1999 UM₈, 4, 1, 0; 1999 UN₈, 4, 1, 0; 1999 UQ₈, 8, 2, 8; 1999 UT₈, 4, 1, 0; 1999 UU₈, 4, 1, 0; 1999 UV₈, 8, 2, 8; 1999 UX₈, 8, 2, 8; 1999 UC₉, 8, 2, 8; 1999 UD₉, 4, 1, 0; 1999 UE₉, 8, 2, 8; 1999 UF₉, 8, 2, 8; 1999 UG₉, 8, 2, 8; 1999 UH₉, 8, 2, 8; 1999 UJ₉, 8, 2, 8; 1999 UK₉, 8, 2, 8; 1999 UN₉, 4, 1, 0; 1999 UJ₁₁, 4, 1, 0; 1999 UM₁₁, 4, 1, 0;

1999 UN₁₂, 4, 1, 0; 1999 UA₁₅, 4, 1, 0; 1999 UF₁₅, 4, 1, 0; 1999 UM₁₅, 4, 1, 0; 1999 UO₁₆, 4, 1, 0; 1999 UR₁₆, 4, 1, 0; 1999 UF₁₇, 4, 1, 0; 1999 UO₂₅, 4, 1, 0; 1999 UQ₂₅, 4, 1, 0; 1999 UR₂₅, 4, 1, 0; 1999 UT₂₅, 8, 2, 8; 1999 VA, 4, 1, 0; 1999 VP, 8, 2, 8; 1999 VQ, 8, 2, 1; 1999 VR, 4, 1, 0; 1999 VV, 4, 1, 0; 1999 VZ, 8, 2, 8; 1999 VF₁, 8, 2, 8; 1999 VM₁, 8, 2, 8; 1999 VN₁, 8, 2, 8; 1999 VO₁, 4, 1, 0; 1999 VS₁, 8, 2, 1; 1999 VC₂, 4, 1, 0; 1999 VD₂, 8, 2, 1; 1999 VH₂, 8, 2, 8; 1999 VJ₂, 8, 2, 8; 1999 VO₂, 4, 1, 0; 1999 VQ₂, 8, 2, 8; 1999 VU₂, 8, 2, 8; 1999 VV₂, 8, 2, 8; 1999 VX₂, 8, 2, 1; 1999 VY₂, 4, 1, 0; 1999 VZ₂, 4, 1, 0; 1999 VB₃, 8, 2, 8; 1999 VG₃, 4, 1, 0; 1999 VM₃, 4, 1, 0; 1999 VV₄, 4, 1, 0; 1999 VW₄, 4, 1, 0; 1999 VX₄, 4, 1, 0; 1999 VZ₄, 4, 1, 0; 1999 VA₅, 8, 2, 8; 1999 VB₅, 8, 2, 8; 1999 VC₅, 4, 1, 0; 1999 VE₅, 4, 1, 0; 1999 VF₅, 8, 2, 8; 1999 VJ₅, 4, 1, 0; 1999 VL₅, 8, 2, 8; 1999 VM₅, 4, 1, 0; 1999 VN₅, 8, 2, 8; 1999 VO₅, 8, 2, 8; 1999 VF₅, 8, 2, 8; 1999 VT₅, 4, 1, 0; 1999 VU₅, 8, 2, 1; 1999 VW₅, 8, 2, 1; 1999 VY₅, 4, 1, 0; 1999 VU₆, 4, 1, 0; 1999 VV₆, 8, 2, 8; 1999 VC₇, 8, 2, 8; 1999 VD₇, 8, 2, 8; 1999 VF₇, 4, 1, 0; 1999 VH₇, 4, 1, 0; 1999 VJ₇, 8, 2, 8; 1999 VN₇, 8, 2, 8; 1999 VQ₇, 4, 1, 0; 1999 VR₇, 8, 2, 1; 1999 VS₇, 4, 1, 0; 1999 VT₇, 4, 1, 0; 1999 VU₇, 8, 2, 8; 1999 VW₇, 8, 2, 1; 1999 VH₈, 4, 1, 0; 1999 VQ₈, 8, 2, 1; 1999 VV₈, 8, 2, 8; 1999 VE₉, 4, 1, 0; 1999 VF₉, 4, 1, 0; 1999 VG₉, 4, 1, 0; 1999 VO₉, 4, 1, 0; 1999 VK₉, 4, 1, 0; 1999 VL₉, 8, 2, 1; 1999 VM₉, 8, 2, 8; 1999 VN₉, 8, 2, 1; 1999 VO₉, 4, 1, 0; 1999 VY₉, 8, 2, 7; 1999 VZ₉, 12, 3, 8; 1999 VA₁₀, 4, 1, 0; 1999 VB₁₀, 8, 2, 1; 1999 VE₁₀, 8, 2, 8; 1999 VQ₁₀, 4, 1, 0; 1999 VY₁₀, 12, 3, 8; 1999 VZ₁₀, 4, 1, 0; 1999 VA₁₁, 4, 1, 0; 1999 VB₁₁, 4, 1, 0; 1999 VD₁₁, 4, 1, 0; 1999 VG₁₁, 8, 2, 8; 1999 VJ₁₁, 8, 2, 8; 1999 VR₁₁, 4, 1, 0; 1999 VS₁₁, 8, 2, 8; 1999 VV₁₁, 8, 2, 8; 1999 VY₁₁, 4, 1, 0; 1999 VZ₁₁, 4, 1, 0; 1999 VA₁₂, 8, 2, 8; 1999 VB₁₂, 4, 1, 0; 1999 VC₁₂, 4, 1, 0; 1999 VD₁₂, 8, 2, 8; 1999 VE₁₂, 8, 2, 8; 1999 VH₁₂, 8, 2, 8; 1999 VJ₁₂, 8, 2, 6; 1999 VM₁₂, 4, 1, 0; 1999 VN₁₂, 4, 1, 0; 1999 VO₁₂, 8, 2, 1; 1999 VS₁₂, 16, 3, 9; 1999 VT₁₂, 12, 3, 9; 1999 VU₁₂, 12, 3, 9; 1999 VW₁₂, 8, 2, 8; 1999 VA₁₉, 8, 2, 1; 1999 VD₁₉, 8, 2, 9; 1999 VE₁₉, 8, 2, 8; 1999 VF₁₉, 8, 2, 1; 1999 VU₁₉, 4, 1, 0; 1999 VX₁₉, 8, 2, 8; 1999 VY₁₉, 4, 1, 0; 1999 VB₂₀, 8, 2, 8; 1999 VE₂₀, 4, 1, 0; 1999 VH₂₀, 4, 1, 0; 1999 VJ₂₀, 4, 1, 0; 1999 VP₂₀, 8, 2, 1; 1999 VR₂₀, 8, 2, 1; 1999 VS₂₀, 4, 1, 0; 1999 VX₂₀, 4, 1, 0; 1999 VZ₂₀, 4, 1, 0; 1999 VA₂₁, 8, 2, 1; 1999 VC₂₁, 8, 2, 1; 1999 VV₂₁, 8, 2, 8; 1999 VP₂₁, 8, 2, 8; 1999 VU₂₁, 4, 1, 0; 1999 VX₂₁, 8, 2, 1; 1999 VZ₂₁, 8, 2, 1; 1999 VK₂₂, 8, 2, 8; 1999 VN₂₂, 8, 2, 8; 1999 VP₂₂, 8, 2, 8; 1999 VQ₂₂, 4, 1, 0; 1999 VS₂₂, 4, 1, 0; 1999 VT₂₂, 4, 1, 0; 1999 VY₂₂, 8, 2, 8; 1999 VZ₂₂, 4, 1, 0; 1999 VA₂₃, 8, 2, 8; 1999 VC₂₃, 4, 1, 0; 1999 VD₂₃, 8, 2, 1; 1999 VG₂₃, 8, 2, 8; 1999 VN₂₃, 4, 1, 0; 1999 VR₂₃, 8, 2, 8; 1999 VY₂₃, 8, 2, 9; 1999 VZ₂₃, 4, 1, 0; 1999 VC₂₄, 8, 2, 8; 1999 VD₂₄, 4, 1, 0; 1999 VE₂₄, 8, 2, 8; 1999 VJ₂₄, 8, 2, 8; 1999 VM₂₄, 12, 3, 7; 1999 VO₂₄, 8, 2, 8; 1999 VS₂₄, 4, 1, 0; 1999 VZ₂₄, 4, 1, 0; 1999 VA₂₅, 4, 1, 0; 1999 VK₂₅, 4, 1, 0; 1999 VM₂₅, 4, 1, 0; 1999 VQ₂₅, 8, 2, 8; 1999 VC₂₆, 8, 2, 8; 1999 VD₂₆, 8, 2, 1; 1999 VJ₂₆, 4, 1, 0; 1999 VN₂₆, 4, 1, 0; 1999 VO₂₆, 8, 2, 8; 1999 VP₂₆, 4, 1, 0; 1999 VR₂₆, 8, 2, 1; 1999 VV₂₆, 12, 3, 9; 1999 VX₂₆, 12, 3, 9; 1999 VY₂₆, 4, 1, 0; 1999 VZ₂₇, 4, 1, 0; 1999 VC₂₇, 4, 1, 0; 1999 VS₂₇, 4, 1, 0; 1999 VW₂₇, 4, 1, 0; 1999 VA₂₈, 4, 1, 0; 1999 VD₂₈, 4, 1, 0; 1999 VF₂₈, 8, 2, 8; 1999 VG₂₈, 8, 2, 8; 1999 VH₂₈, 8, 2, 8; 1999 VK₂₈, 8, 2, 8; 1999 VL₂₈, 8, 2, 8; 1999 VO₂₈, 8, 2, 8; 1999 VP₂₈, 4, 1, 0; 1999 VQ₂₈, 4, 1, 0; 1999 VT₂₈, 4, 1, 0; 1999 VU₂₈, 4, 1, 0; 1999 VV₂₈, 8, 2, 8; 1999 VW₂₈, 4, 1, 0; 1999 VX₂₈, 8, 2, 8; 1999 VY₂₈, 4, 1, 0; 1999 VZ₂₈, 4, 1, 0; 1999 VC₂₉, 4, 1, 0; 1999 VD₂₉, 4, 1, 0; 1999 VE₂₉, 4, 1, 0; 1999 VF₂₉, 4, 1, 0; 1999 VH₂₉, 4, 1, 0; 1999 VJ₂₉, 8, 2, 8; 1

1999 VC₅₈, 4, 1, 0; 1999 VD₅₈, 4, 1, 0; 1999 VG₅₈, 8, 2, 8; 1999 VH₅₈, 8, 2, 8; 1999 VK₅₈, 4, 1, 0;
1999 VL₅₈, 4, 1, 0; 1999 VM₅₈, 4, 1, 0; 1999 VQ₅₈, 8, 2, 8; 1999 VS₅₈, 8, 2, 8; 1999 VT₅₈, 8, 2, 8;
1999 VU₅₈, 8, 2, 8; 1999 VW₅₈, 4, 1, 0; 1999 VY₅₈, 8, 2, 8; 1999 VZ₅₈, 8, 2, 8; 1999 VB₅₉, 4, 1, 0;
1999 VC₅₉, 4, 1, 0; 1999 VG₅₉, 4, 1, 0; 1999 VH₅₉, 4, 1, 0; 1999 VM₅₉, 4, 1, 0; 1999 VJ₆₀, 4, 1, 0;
1999 VQ₆₀, 4, 1, 0; 1999 VS₆₀, 4, 1, 0; 1999 VV₆₀, 4, 1, 0; 1999 VZ₆₀, 4, 1, 0; 1999 VF₆₁, 4, 1, 0;
1999 VK₆₁, 4, 1, 0; 1999 VY₆₁, 4, 1, 0; 1999 VJ₆₂, 8, 2, 8; 1999 VK₆₂, 8, 2, 8; 1999 VR₆₂, 4, 1, 0;
1999 VS₆₂, 4, 1, 0; 1999 VV₆₂, 8, 2, 8; 1999 VX₆₂, 4, 1, 0; 1999 VD₆₃, 4, 1, 0; 1999 VF₆₃, 8, 2, 8;
1999 VO₆₃, 4, 1, 0; 1999 VR₆₃, 8, 2, 8; 1999 VU₆₃, 4, 1, 0; 1999 VX₆₃, 8, 2, 8; 1999 VD₆₄, 4, 1, 0;
1999 VF₆₄, 4, 1, 0; 1999 VN₆₄, 8, 2, 8; 1999 VO₆₄, 8, 2, 8; 1999 VP₆₄, 4, 1, 0; 1999 VR₆₄, 4, 1, 0;
1999 VS₆₄, 4, 1, 0; 1999 VV₆₄, 8, 2, 8; 1999 VB₆₅, 8, 2, 8; 1999 VD₆₅, 4, 1, 0; 1999 VK₆₅, 4, 1, 0;
1999 VN₆₅, 4, 1, 0; 1999 VP₆₅, 8, 2, 8; 1999 VR₆₅, 4, 1, 0; 1999 VT₆₅, 4, 1, 0; 1999 VX₆₅, 4, 1, 0;
1999 VY₆₅, 8, 2, 8; 1999 VZ₆₅, 8, 2, 8; 1999 VD₆₆, 8, 2, 8; 1999 VF₆₆, 4, 1, 0; 1999 VG₆₆, 4, 1, 0;
1999 VH₆₆, 4, 1, 0; 1999 VJ₆₆, 4, 1, 0; 1999 VL₆₆, 4, 1, 0; 1999 VO₆₆, 4, 1, 0; 1999 VT₆₆, 4, 1, 0;
1999 VV₆₆, 8, 2, 8; 1999 VC₆₇, 4, 1, 0; 1999 VE₆₇, 4, 1, 0; 1999 VG₆₇, 8, 2, 8; 1999 VL₆₇, 8, 2, 8;
1999 VM₆₇, 8, 2, 8; 1999 VN₆₇, 4, 1, 0; 1999 VQ₆₇, 4, 1, 0; 1999 VR₆₇, 4, 1, 0; 1999 VT₆₇, 8, 2, 8;
1999 VU₆₇, 4, 1, 0; 1999 VV₆₇, 4, 1, 0; 1999 VW₆₇, 4, 1, 0; 1999 VX₆₇, 4, 1, 0; 1999 VY₆₇, 8, 2,
8; 1999 VB₆₈, 12, 3, 8; 1999 VC₆₈, 4, 1, 0; 1999 VD₆₈, 8, 2, 1; 1999 VG₆₈, 4, 1, 0; 1999 VH₆₈, 4,
1, 0; 1999 VL₆₈, 12, 2, 1; 1999 VM₆₈, 4, 1, 0; 1999 VN₆₈, 8, 2, 8; 1999 VO₆₈, 12, 3, 9; 1999 VR₆₈,
4, 1, 0; 1999 VU₆₈, 4, 1, 0; 1999 VR₆₉, 4, 1, 0; 1999 VE₇₀, 8, 2, 8; 1999 VL₇₀, 8, 2, 8; 1999 VP₇₀,
4, 1, 0; 1999 VT₇₀, 4, 1, 0; 1999 VA₇₁, 8, 2, 8; 1999 VH₇₁, 8, 2, 1; 1999 VL₇₂, 4, 1, 0; 1999 VO₇₂,
4, 1, 0; 1999 VP₇₂, 8, 2, 9; 1999 VR₇₂, 8, 2, 8; 1999 VS₇₂, 4, 1, 0; 1999 VT₇₂, 4, 1, 0; 1999 WA,
4, 1, 0; 1999 WB₄, 1, 0; 1999 WC₄, 1, 0; 1999 WD₄, 1, 0; 1999 WF₄, 1, 0; 1999 WQ₄, 4, 1,
0; 1999 WS₄, 4, 1, 0; 1999 WT₄, 4, 1, 0; 1999 WZ₄, 4, 1, 0; 1999 WH₁, 4, 1, 0; 1999 WJ₁, 4, 1, 0;
1999 WM₁, 4, 1, 0; 1999 WR₁, 8, 2, 8; 1999 WS₁, 8, 2, 8; 1999 WU₁, 8, 2, 8; 1999 WX₁, 4, 1, 0;
1999 XZ₁, 8, 2, 1; 1999 WB₂ *, 4, 1, 0; 1999 WE₂, 4, 1, 0; 1999 WJ₂, 12, 2, 8; 1999 WK₂, 8, 2,
8; 1999 WL₂, 4, 1, 0; 1999 WR₂, 8, 2, 8; 1999 WS₂, 8, 2, 8; 1999 WG₃, 4, 10; 1999 WG₄, 8, 2,
8; 1999 WH₄, 4, 1, 0; 1999 WR₄, 4, 1, 0; 1999 WL₅, 4, 1, 0; 1999 WB₆, 8, 2, 8; 1999 WC₆, 4, 1,
0; 1999 WD₆, 4, 1, 0; 1999 WE₆, 4, 1, 0; 1999 WF₆, 8, 2, 1; 1999 WG₆, 8, 2, 1; 1999 WH₆, 4, 1,
0; 1999 WJ₆, 4, 1, 0; 1999 WK₆, 8, 2, 1; 1999 WX₇, 4, 1, 0; 1999 WAS₈, 2, 6; 1999 WB₈, 8, 2, 1;
1999 WC₈, 4, 1, 0; 1999 WE₈, 4, 1, 0; 1999 WK₈, 8, 2, 8; 1999 WM₈, 4, 1, 0; 1999 WO₈, 4, 1, 0;
1999 WC₉, 8, 2, 8; 1999 WH₉, 4, 1, 0; 1999 WL₉, 4, 1, 0; 1999 WM₉, 4, 1, 0; 1999 WB₁₁, 8, 2, 1;
1999 WC₁₁, 8, 2, 1; 1999 WG₁₁, 8, 2, 1; 1999 WH₁₁, 8, 2, 1; 1999 WL₁₁, 4, 1, 0; 1999 WM₁₁, 4,
1, 0; 1999 WQ₁₁, 4, 1, 0; 1999 WK₁₃, 4, 1, 0; 1999 WA₁₄, 4, 1, 0; 1999 WT₁₄, 4, 1, 0; 1999 WL₁₆,
4, 1, 0; 1999 XL₄, 4, 1, 0; 1999 XP₄, 4, 1, 0; 1999 XU₄, 4, 1, 0; 1999 XV₁, 8, 2, 7; 1999 XW₁, 4,
1, 0; 1999 XX₁, 4, 1, 0; 1999 XS₂, 4, 1, 0; 1999 XU₂, 4, 1, 0; 1999 XV₂, 4, 1, 0; 1999 XW₂,
4, 1, 0; 1999 XX₂ *, 8, 2, 1; 1999 XY₂ *, 8, 2, 1; 1999 XZ₂ *, 8, 2, 1; 1999 X

3, 8, 2; 1999 XQ₁₁ *, 12, 3, 7; 1999 XR₁₁ *, 8, 2, 1; 1999 XS₁₁ *, 8, 2, 1; 1999 XT₁₁ *, 12, 3, 7; 1999 XU₁₁ *, 12, 3, 7; 1999 XV₁₁ *, 11, 3, 7; 1999 XW₁₁ *, 12, 3, 7; 1999 XY₁₁ *, 12, 3, 7; 1999 XZ₁₁ *, 12, 3, 7; 1999 XA₁₂ *, 8, 2, 1; 1999 XD₁₂ *, 8, 2, 1; 1999 XA₁₆ *, 8, 2, 1; 1999 XB₁₆ *, 12, 3, 5; 1999 XC₁₆ *, 12, 3, 5; 1999 XD₁₆ *, 8, 2, 1; 1999 XG₁₆, 8, 2, 9; 1999 XL₂₂, 4, 1, 0; 1999 XP₂₂, 4, 1, 0; 1999 XS₂₂, 4, 1, 0; 1999 XU₂₂, 4, 1, 0; 1999 XV₂₂, 4, 1, 0; 1999 XX₂₂, 4, 1, 0; 1999 XB₂₃, 4, 1, 0; 1999 XC₂₃, 4, 1, 0; 1999 XE₂₃, 4, 1, 0; 1999 XM₂₃, 4, 1, 0; 1999 XQ₂₃, 4, 1, 0; 1999 XT₂₃, 4, 1, 0; 1999 XU₂₃, 4, 1, 0; 1999 XZ₂₃, 4, 1, 0; 1999 XA₂₄, 4, 1, 0; 1999 XB₂₄, 4, 1, 0; 1999 XC₂₄, 4, 1, 0; 1999 XD₂₄, 4, 1, 0; 1999 XE₂₄, 4, 1, 0; 1999 XL₂₄, 4, 1, 0; 1999 XM₂₄, 4, 1, 0; 1999 XP₂₄, 4, 1, 0; 1999 XQ₂₄, 4, 1, 0; 1999 XS₂₄, 4, 1, 0; 1999 XU₂₄, 4, 1, 0; 1999 XW₂₄, 4, 1, 0; 1999 XZ₂₄, 4, 1, 0; 1999 XY₂₄, 4, 1, 0; 1999 XZ₂₄, 4, 1, 0; 1999 XA₂₅, 4, 1, 0; 1999 XB₂₅, 4, 1, 0; 1999 XC₂₅, 4, 1, 0; 1999 XD₂₅, 4, 1, 0; 1999 XF₂₅, 4, 1, 0; 1999 XG₂₅, 4, 1, 0; 1999 XH₂₅, 4, 1, 0; 1999 XJ₂₅, 4, 1, 0; 1999 XK₂₅, 4, 1, 0; 1999 XM₂₅, 4, 1, 0; 1999 XN₂₅, 4, 1, 0; 1999 XO₂₅, 4, 1, 0; 1999 XQ₂₅, 4, 1, 0; 1999 XR₂₅, 4, 1, 0; 1999 XD₂₆, 4, 1, 0; 1999 XE₂₆, 4, 1, 0; 1999 XG₂₆, 4, 1, 0; 1999 XL₂₆, 4, 1, 0; 1999 XN₂₆, 4, 1, 0; 1999 XS₂₆, 4, 1, 0; 1999 XT₂₆, 4, 1, 0; 1999 XU₂₆, 4, 1, 0; 1999 XW₂₆, 4, 1, 0; 1999 XZ₂₆, 4, 1, 0; 1999 XA₂₇, 4, 1, 0; 1999 XC₂₇, 4, 1, 0; 1999 XE₂₇, 4, 1, 0; 1999 XH₂₇, 4, 1, 0; 1999 XJ₂₇, 4, 1, 0; 1999 XM₂₇, 4, 1, 0; 1999 XN₂₇, 4, 1, 0; 1999 XO₂₇, 4, 1, 0; 1999 XP₂₇, 4, 1, 0; 1999 XT₂₇, 4, 1, 0; 1999 XU₂₇, 4, 1, 0; 1999 XZ₂₇, 4, 1, 0; 1999 XM₃₅ *, 4, 1, 0; 1999 XN₃₅, 2, 1, 0; 1999 XP₃₅, 4, 1, 0; 1999 XQ₃₅ *, 8, 2, 6; 1999 XM₃₆, 4, 1, 0; 1999 XQ₃₆, 4, 1, 0; 1999 XS₃₆, 4, 1, 0; 1999 XT₃₆, 4, 1, 0; 1999 XF₃₇, 4, 1, 0; 1999 XM₃₇, 4, 1, 0; 1999 XS₃₇, 4, 1, 0; 1999 XO₃₈, 4, 1, 0; 1999 XG₄₀, 4, 1, 0; 1999 XJ₄₀, 4, 1, 0; 1999 XL₄₀, 4, 1, 0; 1999 XN₄₀, 4, 1, 0; 1999 XO₄₀, 4, 1, 0; 1999 XR₄₀, 4, 1, 0; 1999 XU₄₀, 4, 1, 0; 1999 XV₄₀, 4, 1, 0; 1999 XW₄₀, 4, 1, 0; 1999 XX₄₀, 4, 1, 0; 1999 XY₄₀, 4, 1, 0; 1999 XZ₄₀, 4, 1, 0; 1999 XA₄₁, 4, 1, 0; 1999 XG₄₁, 4, 1, 0; 1999 XJ₄₁, 4, 1, 0; 1999 XT₄₁, 4, 1, 0; 1999 XU₄₁, 4, 1, 0; 1999 XV₄₁, 4, 1, 0; 1999 XW₄₁, 4, 1, 0; 1999 XX₄₁, 4, 1, 0; 1999 XZ₄₁, 4, 1, 0; 1999 XA₄₂, 4, 1, 0; 1999 XC₄₂, 4, 1, 0; 1999 XD₄₂, 4, 1, 0; 1999 XF₄₂, 4, 1, 0; 1999 XG₄₂, 4, 1, 0; 1999 XH₄₂, 4, 1, 0; 1999 XJ₄₂, 4, 1, 0; 1999 XL₄₂, 4, 1, 0; 1999 XO₄₂, 4, 1, 0; 1999 XQ₄₂, 4, 1, 0; 1999 XR₄₂, 4, 1, 0; 1999 XZ₄₂, 4, 1, 0; 1999 XY₄₂, 4, 1, 0; 1999 XZ₄₂, 4, 1, 0; 1999 XB₄₃, 4, 1, 0; 1999 XD₄₃, 4, 1, 0; 1999 XF₄₃, 4, 1, 0; 1999 XG₄₃, 4, 1, 0; 1999 XH₄₃, 4, 1, 0; 1999 XL₄₃, 4, 1, 0; 1999 XO₄₃, 4, 1, 0; 1999 XP₄₃, 4, 1, 0; 1999 XQ₄₃, 4, 1, 0; 1999 XR₄₃, 4, 1, 0; 1999 XS₄₃, 4, 1, 0; 1999 XU₄₃, 4, 1, 0; 1999 XV₄₃, 4, 1, 0; 1999 XW₄₃, 4, 1, 0; 1999 XX₄₃, 4, 1, 0; 1999 XA₄₄, 4, 1, 0; 1999 XB₄₄, 4, 1, 0; 1999 XC₄₄, 4, 1, 0; 1999 XD₄₄, 4, 1, 0; 1999 XE₄₄, 4, 1, 0; 1999 XF₄₄, 4, 1, 0; 1999 XL₄₄, 4, 1, 0; 1999 XM₄₄, 4, 1, 0; 1999 XN₄₄, 4, 1, 0; 1999 XO₄₄, 4, 1, 0; 1999 XQ₄₄, 4, 1, 0; 1999 XR₄₄, 4, 1, 0; 1999 XT₄₄, 4, 1, 0; 1999 XU₄₄, 4, 1, 0; 1999 XW₄₄, 4, 1, 0; 1999 XZ₄₄, 4, 1, 0; 1999 XA₄₅, 4, 1, 0; 1999 XD₄₅, 4, 1, 0; 1999 XF₄₅, 4, 1, 0; 1999 XG₄₅, 4, 1, 0; 1999 XJ₄₅, 4, 1, 0; 1999 XL₄₅, 4, 1, 0; 1999 XN₄₅, 4, 1, 0; 1999 XP₄₅, 4, 1, 0; 1999 XS₄₅, 4, 1, 0; 1999 XT₄₅, 4, 1, 0; 1999 XY₄₅, 4, 1, 0; 1999 XZ₄₅, 4, 1, 0; 1999 XA₄₆, 4, 1, 0; 1999 XD₄₆, 4, 1, 0; 1999 XF₄₆

8: 1999 XX ₁₀₉ *	8, 2, 2, 3;	1999 XY ₁₀₉ *	8, 2, 2, 8;	1999 XZ ₁₀₉ *	8, 2, 2, 8;	1999 XA ₁₁₀ *	8, 2, 2, 8;
8: 1999 XB ₁₁₀ *	8, 2, 2, 8;	1999 XC ₁₁₀ *	8, 2, 2, 8;	1999 XD ₁₁₀ *	8, 2, 2, 8;	1999 XE ₁₁₀ *	8, 2, 2, 8;
8: 1999 XF ₁₁₀ *	8, 2, 2, 8;	1999 XG ₁₁₀ *	8, 2, 2, 8;	1999 XH ₁₁₀ *	8, 2, 2, 8;	1999 XJ ₁₁₀ *	8, 2, 2, 8;
8: 1999 XK ₁₁₀ *	8, 2, 2, 8;	1999 XL ₁₁₀ *	8, 2, 2, 8;	1999 XM ₁₁₀ *	8, 2, 2, 8;	1999 XN ₁₁₀ *	8, 2, 2, 8;
7: 1999 XO ₁₁₀ *	8, 2, 2, 7;	1999 XP ₁₁₀ *	8, 2, 2, 7;	1999 XQ ₁₁₀ *	8, 2, 2, 7;	1999 XR ₁₁₀ *	8, 2, 2, 7;
7: 1999 XS ₁₁₀ *	8, 2, 2, 7;	1999 XT ₁₁₀ *	8, 2, 2, 7;	1999 XU ₁₁₀ *	8, 2, 2, 7;	1999 XV ₁₁₀ *	8, 2, 2, 7;
7: 1999 XW ₁₁₀ *	8, 2, 2, 7;	1999 XX ₁₁₀ *	8, 2, 2, 7;	1999 XY ₁₁₀ *	8, 2, 2, 7;	1999 XZ ₁₁₀ *	8, 2, 2, 7;
7: 1999 XA ₁₁₁ *	8, 2, 2, 7;	1999 XB ₁₁₁ *	8, 2, 2, 7;	1999 XC ₁₁₁ *	8, 2, 2, 7;	1999 XD ₁₁₁ *	8, 2, 2, 7;
7: 1999 XE ₁₁₁ *	8, 2, 2, 7;	1999 XF ₁₁₁ *	8, 2, 2, 5;	1999 XG ₁₁₁ *	8, 2, 2, 5;	1999 XH ₁₁₁ *	8, 2, 2, 5;
5: 1999 XJ ₁₁₁ *	8, 2, 5;	1999 XK ₁₁₁ *	7, 2, 4;	1999 XL ₁₁₁ *	8, 2, 4;	1999 XM ₁₁₁ *	8, 2, 4;
4: 1999 XN ₁₁₁ *	8, 2, 4;	1999 XO ₁₁₁ *	8, 2, 4;	1999 XH ₁₁₅ *	8, 2, 2, 9;	1999 XJ ₁₁₅ *	8, 2, 2, 9;
9: 1999 XK ₁₁₅ *	8, 2, 2, 9;	1999 XL ₁₁₅ *	8, 2, 2, 9;	1999 XM ₁₁₅ *	8, 2, 2, 9;	1999 XN ₁₁₅ *	8, 2, 2, 9;
9: 1999 XO ₁₁₅ *	8, 2, 2, 9;	1999 XP ₁₁₅ *	8, 2, 2, 8;	1999 XQ ₁₁₅ *	8, 2, 2, 8;	1999 XR ₁₁₅ *	8, 2, 2, 8;
8: 1999 XS ₁₁₅ *	8, 2, 2, 8;	1999 XT ₁₁₅ *	8, 2, 2, 8;	1999 XU ₁₁₅ *	8, 2, 2, 8;	1999 XV ₁₁₅ *	8, 2, 2, 8;
8: 1999 XW ₁₁₅ *	8, 2, 2, 8;	1999 XX ₁₁₅ *	8, 2, 2, 8;	1999 XY ₁₁₅ *	8, 2, 2, 8;	1999 XZ ₁₁₅ *	8, 2, 2, 8;
8: 1999 XA ₁₁₆ *	8, 2, 2, 8;	1999 XB ₁₁₆ *	8, 2, 2, 8;	1999 XC ₁₁₆ *	8, 2, 2, 8;	1999 XD ₁₁₆ *	8, 2, 2, 8;
8: 1999 XE ₁₁₆ *	12, 2, 2, 8;	1999 XF ₁₁₆ *	8, 2, 2, 8;	1999 XG ₁₁₆ *	8, 2, 2, 8;	1999 XH ₁₁₆ *	8, 2, 2, 8;
8: 1999 XJ ₁₁₆ *	8, 2, 2, 8;	1999 XK ₁₁₆ *	8, 2, 2, 8;	1999 XL ₁₁₆ *	8, 2, 2, 8;	1999 XM ₁₁₆ *	8, 2, 2, 8;
8: 1999 XN ₁₁₆ *	8, 2, 2, 8;	1999 XO ₁₁₆ *	8, 2, 2, 8;	1999 XP ₁₁₆ *	8, 2, 2, 8;	1999 XQ ₁₁₆ *	8, 2, 2, 8;
8: 1999 XR ₁₁₆ *	8, 2, 2, 8;	1999 XS ₁₁₆ *	8, 2, 2, 8;	1999 XT ₁₁₆ *	8, 2, 2, 8;	1999 XV ₁₁₆ *	8, 2, 2, 8;
8: 1999 XV ₁₁₆ *	8, 2, 2, 8;	1999 XW ₁₁₆ *	8, 2, 2, 8;	1999 XA ₁₁₆ *	8, 2, 2, 8;	1999 XY ₁₁₆ *	8, 2, 2, 8;
8: 1999 XZ ₁₁₆ *	8, 2, 2, 8;	1999 XA ₁₁₇ *	8, 2, 2, 8;	1999 XB ₁₁₇ *	8, 2, 2, 8;	1999 XC ₁₁₇ *	8, 2, 2, 8;
8: 1999 XD ₁₁₇ *	8, 2, 2, 8;	1999 XE ₁₁₇ *	8, 2, 2, 8;	1999 XF ₁₁₇ *	12, 2, 2, 8;	1999 XG ₁₁₇ *	8, 2, 2, 8;
8: 1999 XH ₁₁₇ *	8, 2, 2, 8;	1999 XJ ₁₁₇ *	8, 2, 2, 8;	1999 XK ₁₁₇ *	8, 2, 2, 8;	1999 XL ₁₁₇ *	8, 2, 2, 8;
8: 1999 XM ₁₁₇ *	8, 2, 2, 8;	1999 XN ₁₁₇ *	8, 2, 2, 8;	1999 XO ₁₁₇ *	8, 2, 2, 8;	1999 XP ₁₁₇ *	8, 2, 2, 8;
8: 1999 XQ ₁₁₇ *	8, 2, 2, 8;	1999 XR ₁₁₇ *	8, 2, 2, 8;	1999 XS ₁₁₇ *	8, 2, 2, 8;	1999 XT ₁₁₇ *	8, 2, 2, 8;
8: 1999 XU ₁₁₇ *	8, 2, 2, 8;	1999 XV ₁₁₇ *	8, 2, 2, 8;	1999 XW ₁₁₇ *	8, 2, 2, 8;	1999 XX ₁₁₇ *	8, 2, 2, 8;
8: 1999 XY ₁₁₇ *	8, 2, 2, 8;	1999 XZ ₁₁₇ *	8, 2, 2, 8;	1999 XA ₁₁₈ *	8, 2, 2, 8;	1999 XB ₁₁₈ *	8, 2, 2, 8;
8: 1999 XC ₁₁₈ *	8, 2, 2, 8;	1999 XD ₁₁₈ *	8, 2				

6; 1999 XN₁₂₄ *, 8, 2, 6; 1999 XO₁₂₄ *, 8, 2, 6; 1999 XP₁₂₄ *, 8, 2, 6; 1999 XQ₁₂₄ *, 8, 2, 6;
6; 1999 XR₁₂₄ *, 8, 2, 6; 1999 XS₁₂₄ *, 8, 2, 6; 1999 XT₁₂₄ *, 8, 2, 6; 1999 XU₁₂₄ *, 8, 2, 6;
6; 1999 XV₁₂₄ *, 8, 2, 6; 1999 XW₁₂₄ *, 8, 2, 6; 1999 XX₁₂₄ *, 8, 2, 6; 1999 XY₁₂₄ *, 8, 2, 6;
6; 1999 XZ₁₂₄ *, 8, 2, 6; 1999 XA₁₂₅ *, 8, 2, 6; 1999 XB₁₂₅ *, 8, 2, 6; 1999 XC₁₂₅ *, 8, 2, 6;
6; 1999 XD₁₂₅ *, 8, 2, 6; 1999 XE₁₂₅ *, 8, 2, 6; 1999 XF₁₂₅ *, 8, 2, 6; 1999 XG₁₂₅ *, 8, 2, 6;
6; 1999 XH₁₂₅ *, 8, 2, 6; 1999 XJ₁₂₅ *, 8, 2, 6; 1999 XK₁₂₅ *, 8, 2, 6; 1999 XL₁₂₅ *, 8, 2, 6;
6; 1999 XM₁₂₅ *, 8, 2, 6; 1999 XN₁₂₅ *, 8, 2, 6; 1999 XO₁₂₅ *, 8, 2, 6; 1999 XP₁₂₅ *, 8, 2, 6;
6; 1999 XQ₁₂₅ *, 8, 2, 6; 1999 XR₁₂₅ *, 8, 2, 6; 1999 XS₁₂₅ *, 8, 2, 6; 1999 XT₁₂₅ *, 8, 2, 6;
6; 1999 XU₁₂₅ *, 8, 2, 6; 1999 XV₁₂₅ *, 8, 2, 6; 1999 XW₁₂₅ *, 8, 2, 6; 1999 XX₁₂₅ *, 8, 2, 6;
6; 1999 XY₁₂₅ *, 8, 2, 6; 1999 XZ₁₂₅ *, 8, 2, 6; 1999 XA₁₂₆ *, 8, 2, 6; 1999 XB₁₂₆ *, 8, 2, 6;
6; 1999 XC₁₂₆ *, 8, 2, 6; 1999 XD₁₂₆ *, 8, 2, 6; 1999 XE₁₂₆ *, 8, 2, 6; 1999 XF₁₂₆ *, 8, 2, 6;
6; 1999 XG₁₂₆ *, 8, 2, 6; 1999 XH₁₂₆ *, 8, 2, 6; 1999 XI₁₂₆ *, 8, 2, 6; 1999 XJ₁₂₆ *, 8, 2, 6;
6; 1999 XK₁₂₆ *, 8, 2, 6; 1999 XL₁₂₆ *, 8, 2, 6; 1999 XM₁₂₆ *, 8, 2, 6; 1999 XN₁₂₆ *, 8, 2, 6;
6; 1999 XP₁₂₆ *, 8, 2, 6; 1999 XQ₁₂₆ *, 8, 2, 6; 1999 XR₁₂₆ *, 8, 2, 6; 1999 XS₁₂₆ *, 8, 2, 6;
6; 1999 XT₁₂₆ *, 8, 2, 6; 1999 XU₁₂₆ *, 8, 2, 6; 1999 XV₁₂₆ *, 8, 2, 6; 1999 XW₁₂₆ *, 8, 2, 6;
6; 1999 XX₁₂₆ *, 8, 2, 6; 1999 XY₁₂₆ *, 8, 2, 6; 1999 XZ₁₂₆ *, 8, 2, 6; 1999 XA₁₂₇ *, 8, 2, 6;
6; 1999 XB₁₂₇ *, 8, 2, 6; 1999 XC₁₂₇ *, 8, 2, 6; 1999 XD₁₂₇ *, 8, 2, 6; 1999 XE₁₂₇ *, 8, 2, 6;
2731 P-L, 4, 1, 0; 3503 P-L, 4, 1, 0; 3541 P-L, 4, 1, 0; 4032 P-L, 4, 1, 0; 4161 P-L, 4, 1, 0; 4647 P-L,
4, 1, 0; 6513 P-L, 4, 1, 0; 6529 P-L, 4, 1, 0; 6735 P-L, 4, 1, 0; 2183 T-1, 8, 2, 8; 2312 T-1, 4, 1, 0;
3041 T-1, 12, 3, 8; 3099 T-1, 8, 2, 6; 3109 T-1, 8, 2, 1; 1102 T-2, 8, 2, 1; 2085 T-2, 12, 2, 8;
2162 T-2, 4, 1, 0; 2276 T-2, 4, 1, 0; 2638 T-2, 8, 2, 1; 4041 T-2, 8, 2, 8; 4072 T-2, 4, 1, 0; 5036 T-2,
8, 2, 8; 5104 T-2, 8, 2, 9; 5485 T-2, 12, 3, 8; 1078 T-3, 4, 1, 0; 1102 T-3, 8, 2, 8; 1158 T-3, 8, 2, 8;
3191 T-3, 8, 2, 8; 3261 T-3, 4, 1, 0; 3378 T-3, 4, 1, 0; 4054 T-3, 8, 2, 8; 4079 T-3, 8, 2, 5; (13), 7,
2, 8; (32), 4, 1, 0; (34), 4, 1, 0; (35), 4, 1, 0; (45), 4, 1, 0; (58), 4, 1, 0; (64), 4, 1, 0; (65), 4, 1, 0;
(73), 8, 2, 8; (91), 4, 1, 0; (106), 4, 1, 0; (108), 8, 2, 8; (119), 4, 1, 0; (150), 4, 1, 0; (161), 4, 1, 0;
(169), 4, 1, 0; (175), 2, 1, 0; (181), 4, 1, 0; (193), 4, 1, 0; (201), 4, 1, 0; (212), 4, 1, 0; (219), 4, 1, 0;
(248), 8, 2, 8; (263), 8, 2, 1; (269), 4, 1, 0; (277), 4, 1, 0; (282), 4, 1, 0; (288), 4, 1, 0; (302), 4,
1, 0; (307), 4, 1, 0; (308), 4, 1, 0; (321), 4, 1, 0; (326), 8, 2, 7; (329), 4, 1, 0; (333), 4, 1, 0; (342),
4, 1, 0; (354), 4, 1, 0; (371), 4, 1, 0; (379), 4, 1, 0; (383), 4, 1, 0; (396), 4, 1, 0; (400), 4, 1, 0;
(410), 4, 1, 0; (413), 3, 1, 0; (423), 4, 1, 0; (452), 4, 1, 0; (453), 4, 1, 0; (456), 8, 2, 8; (457), 4, 1,
0; (473), 4, 1, 0; (477), 4, 1, 0; (482), 4, 1, 0;
(491), 4, 1, 0; (517), 4, 1, 0; (531), 4, 1, 0; (552), 8, 2, 8; (555), 4, 1, 0; (557), 4, 1, 0; (561), 4, 1,
0; (564), 4, 1, 0; (573), 4, 1, 0; (577), 8, 2, 8; (597), 4, 1, 0; (614), 8, 2, 8; (632), 4, 1, 0; (633),
4, 1, 0; (636), 4, 1, 0; (640), 4, 1, 0; (657), 4, 1, 0; (658), 2, 1, 0; (662), 12, 3, 8; (669), 4, 1, 0;
(678), 4, 1, 0; (687), 4, 1, 0; (720), 4, 1, 0; (728), 4, 1, 0; (733), 4, 1, 0; (737), 4, 1, 0; (754), 4, 1,
0; (759), 4, 1, 0; (762), 4, 1, 0; (765), 4, 1, 0; (769), 8, 2, 8; (785), 4, 1, 0; (797), 8, 2, 8; (822), 4,
1, 0; (824), 4, 1, 0; (832), 8, 2, 1; (846), 12, 3, 8; (849), 8, 2, 8; (901), 4, 1, 0; (902), 4, 1, 0; (942),
4, 1, 0; (951), 4, 1, 0; (954), 4, 1, 0; (956), 4, 1, 0; (958), 4, 1, 0; (963), 4, 1, 0; (969), 4, 1, 0;
(976), 4, 1, 0; (993), 4, 1, 0; (997), 4, 1, 0; (1007), 8, 2, 8; (1016), 4, 1, 0; (1052), 4, 1, 0; (1060),
8, 2, 8; (1081), 4, 1, 0; (1084), 4, 1, 0; (1097), 4, 1, 0; (1106), 4, 1, 0; (1119), 8, 2, 8; (1131), 8,
2, 7; (1135), 8, 2, 6; (1159), 4, 1, 0; (1190), 4, 1, 0; (1207), 10, 3, 8; (1218), 4, 1, 0; (1234), 4,
1, 0; (1237), 4, 1, 0; (1253), 8, 2, 1; (1260),

4, 1, 0; (2918), 4, 1, 0; (2923), 4, 1, 0; (2931), 4, 1, 0; (2939), 4, 1, 0; (2958), 4, 1, 0; (2982), 4, 1, 0; (2987), 4, 1, 0; (2995), 4, 1, 0; (3001), 4, 1, 0; (3003), 4, 1, 0; (3005), 4, 1, 0; (3009), 4, 1, 0; (3015), 12, 3, 8; (3016), 4, 1, 0; (3031), 8, 2, 8; (3035), 4, 1, 0; (3041), 4, 1, 0; (3045), 8, 2, 8; (3047), 4, 1, 0; (3053), 4, 1, 0; (3071), 4, 1, 0; (3077), 4, 1, 0; (3083), 12, 3, 8; (3094), 4, 1, 0; (3100), 8, 2, 8; (3107), 4, 1, 0; (3109), 4, 1, 0; (3131), 4, 1, 0; (3155), 4, 1, 0; (3160), 8, 2, 8; (3181), 8, 2, 8; (3191), 4, 1, 0; (3207), 4, 1, 0; (3228), 4, 1, 0; (3247), 8, 2, 8; (3251), 4, 1, 0; (3274), 12, 3, 8; (3277), 8, 2, 1; (3285), 8, 2, 7; (3301), 4, 1, 0; (3305), 4, 1, 0; (3314), 4, 1, 0; (3318), 4, 1, 0; (3327), 4, 1, 0; (3356), 4, 1, 0; (3364), 4, 1, 0; (3372), 4, 1, 0; (3373), 4, 1, 0; (3375), 4, 1, 0; (3378), 4, 1, 0; (3390), 4, 1, 0; (3412), 4, 1, 0; (3430), 4, 1, 0; (3446), 8, 2, 6; (3466), 4, 1, 0; (3477), 4, 1, 0; (3478), 4, 1, 0; (3482), 4, 1, 0; (3485), 4, 1, 0; (3503), 4, 1, 0; (3504), 4, 1, 0; (3507), 8, 2, 8; (3519), 4, 1, 0; (3549), 16, 3, 8; (3588), 4, 1, 0; (3604), 4, 1, 0; (3607), 8, 2, 8; (3610), 4, 1, 0; (3621), 4, 1, 0; (3640), 4, 1, 0; (3646), 4, 1, 0; (3652), 4, 1, 0; (3668), 4, 1, 0; (3696), 4, 1, 0; (3713), 4, 1, 0; (3716), 8, 2, 1; (3719), 4, 1, 0; (3733), 4, 1, 0; (3735), 4, 1, 0; (3748), 8, 2, 8; (3796), 4, 1, 0; (3800), 4, 1, 0; (3804), 8, 2, 1; (3813), 4, 1, 0; (3822), 4, 1, 0; (3832), 4, 1, 0; (3834), 4, 1, 0; (3848), 8, 2, 8; (3898), 4, 1, 0; (3901), 12, 3, 5; (3907), 4, 1, 0; (3914), 4, 1, 0; (3916), 4, 1, 0; (3922), 4, 1, 0; (3927), 4, 1, 0; (3929), 4, 1, 0; (3940), 4, 1, 0; (3942), 4, 1, 0; (3944), 8, 2, 8; (3945), 4, 1, 0; (3951), 4, 1, 0; (3952), 4, 1, 0; (3962), 8, 2, 8; (4005), 8, 2, 1; (4021), 4, 1, 0; (4022), 8, 2, 8; (4037), 12, 3, 8; (4038), 4, 1, 0; (4042), 4, 1, 0; (4053), 8, 2, 6; (4064), 8, 2, 6; (4073), 4, 1, 0; (4086), 4, 1, 0; (4088), 8, 2, 8; (4091), 4, 1, 0; (4092), 4, 1, 0; (4104), 8, 2, 8; (4112), 4, 1, 0; (4118), 4, 1, 0; (4122), 4, 1, 0; (4137), 4, 1, 0; (4145), 4, 1, 0; (4151), 4, 1, 0; (4158), 4, 1, 0; (4211), 8, 2, 8; (4246), 4, 1, 0; (4285), 4, 1, 0; (4303), 4, 1, 0; (4305), 8, 2, 7; (4316), 8, 2, 8; (4323), 4, 1, 0; (4336), 4, 1, 0; (4338), 8, 2, 8; (4340), 4, 1, 0; (4358), 4, 1, 0; (4362), 7, 2, 8; (4367), 4, 1, 0; (4378), 4, 1, 0; (4389), 4, 1, 0; (4394), 4, 1, 0; (4403), 4, 1, 0; (4408), 4, 1, 0; (4419), 8, 2, 8; (4441), 4, 1, 0; (4462), 4, 1, 0; (4469), 4, 1, 0; (4474), 4, 1, 0; (4475), 8, 2, 8; (4493), 4, 1, 0; (4494), 8, 2, 8; (4521), 7, 2, 4; (4536), 4, 1, 0; (4538), 4, 1, 0; (4541), 4, 1, 0; (4548), 4, 1, 0; (4579), 4, 1, 0; (4590), 4, 1, 0; (4602), 4, 1, 0; (4628), 4, 1, 0; (4629), 4, 1, 0; (4643), 4, 1, 0; (4644), 8, 2, 8; (4694), 12, 3, 8; (4704), 4, 1, 0; (4727), 8, 2, 8; (4777), 4, 1, 0; (4798), 4, 1, 0; (4802), 8, 2, 1; (4842), 8, 2, 8; (4849), 4, 1, 0; (4850), 4, 1, 0; (4894), 4, 1, 0; (4912), 4, 1, 0; (4921), 8, 2, 8; (4930), 4, 1, 0; (4938), 8, 2, 1; (4942), 4, 1, 0; (4970), 4, 1, 0; (4973), 4, 1, 0; (4984), 4, 1, 0; (4990), 4, 1, 0; (4993), 8, 2, 8; (4996), 4, 1, 0; (5000), 4, 1, 0; (5009), 4, 1, 0; (5051), 4, 1, 0; (5064), 4, 1, 0; (5079), 12, 3, 8; (5110), 4, 1, 0; (5125), 4, 1, 0; (5141), 8, 2, 8; (5147), 4, 1, 0; (5152), 4, 1, 0; (5161), 4, 1, 0; (5174), 4, 1, 0; (5177), 4, 1, 0; (5183), 8, 2, 6; (5210), 8, 2, 8; (5215), 4, 1, 0; (5285), 4, 1, 0; (5301), 8, 2, 8; (5309), 4, 1, 0; (5337), 8, 2, 1; (5340), 4, 1, 0; (5359), 4, 1, 0; (5365), 8, 2, 8; (5377), 8, 2, 8; (5394), 4, 1, 0; (5400), 4, 1, 0; (5411), 4, 1, 0; (5421), 8, 2, 8; (5439), 8, 2, 8; (5455), 4, 1, 0; (5462), 4, 1, 0; (5474), 8, 2, 8; (5481), 8, 2, 6; (5487), 4, 1, 0; (5493), 4, 1, 0; (5495), 4, 1, 0; (5501), 8, 2, 8; (5509), 4, 1, 0; (5511), 4, 1, 0; (5512), 4, 1, 0; (5535), 4, 1, 0; (5543), 8, 1, 0; (5554), 4, 1, 0; (5557), 12, 2, 8; (5559), 4, 1, 0; (5564), 12, 3, 8; (5597), 4, 1, 0; (5599), 4, 1, 0; (5618), 4, 1, 0; (5641), 4, 1, 0; (5655), 4, 1, 0; (5679), 4, 1, 0; (5685), 4, 1, 0; (5694), 4, 1, 0; (5700), 4, 1, 0; (5733), 8, 2, 1; (5741), 4, 1, 0; (5755), 4, 1, 0; (5788), 4, 1, 0; (5791), 4, 1, 0; (5807), 4, 1, 0; (5816), 4, 1, 0; (5846), 12, 3, 8; (5861), 8, 2, 9; (5878), 4, 1, 0; (5880), 4, 1, 0; (5883), 8, 2, 8; (5895), 4, 1, 0; (5900), 4, 1, 0; (5910), 4, 1, 0; (5916), 8, 2, 8; (5937), 4, 1, 0; (5985), 4, 1, 0; (5993), 4, 1, 0; (6008), 4, 1, 0; (6011), 4, 1, 0; (6012), 4, 1, 0; (6013), 4, 1, 0; (6065), 4, 1, 0; (6069), 4, 1, 0; (6073), 4, 1, 0; (6077), 12, 3, 9; (6078), 8, 2, 8; (6082), 4, 1, 0; (6088), 4, 1, 0; (6102), 3, 1, 0; (6104), 8, 2, 8; (6116), 4, 1, 0; (6118), 4, 1, 0; (6129), 8, 2, 8; (6139), 8, 2, 6; (6146), 4, 1, 0; (6147), 4, 1, 0; (6157), 4, 1, 0; (6161), 8, 2, 6; (6166), 8, 2, 8; (6190), 4, 1, 0; (6211), 4, 1, 0; (6236), 4, 1, 0; (6274), 4, 1, 0; (6284), 4, 1, 0; (6287), 8, 2, 8; (6289), 4, 1, 0; (6300), 8, 2, 8; (6338), 4, 1, 0; (6340), 8, 2, 8; (6341), 4, 1, 0; (6353), 4, 1, 0; (6392), 3, 1, 0; (6430), 8, 1, 0; (6515), 4, 1, 0; (6532), 8, 2, 1; (6555), 4, 1, 0; (6558), 4, 1, 0; (6566), 8, 2, 1; (6572), 8, 2, 1; (6577), 4, 1, 0; (6596), 4, 1, 0; (6600), 4, 1, 0; (6620), 4, 1, 0; (6627), 4, 1, 0; (6632), 4, 1, 0; (6637), 4, 1, 0; (6638), 4, 1, 0; (6659), 8, 2, 8; (6669), 4, 1, 0; (6673), 4, 1, 0; (6681), 4, 1, 0; (6682), 4, 1, 0; (6698), 4, 1, 0; (6699), 8, 2, 8; (6704), 4, 1, 0; (6706), 4, 1, 0; (6726), 4, 1, 0; (6744), 4, 1, 0; (6746), 16, 3, 8; (6748), 4, 1, 0; (6752), 4, 1, 0; (6758), 8, 2, 8; (6763), 8, 2, 8; (6771), 4, 1, 0; (6781), 8, 2, 8; (6787), 3, 1, 0; (6789), 8, 1, 0; (6798), 4, 1, 0; (6810), 4, 1, 0; (6821), 8, 1, 0; (6823), 4, 1, 0; (6824), 4, 1, 0; (6829), 8, 2, 1; (6836), 4, 1, 0; (6850), 8, 2, 8; (6861), 4, 1, 0; (6880), 8, 2, 6; (6881), 4, 1, 0; (6888), 4, 1, 0; (6903), 8, 2, 1; (6908), 8, 2, 8; (6910), 12, 3, 7; (6930), 4, 1, 0; (6933), 4, 1, 0; (6936), 4, 1, 0; (6941), 4, 1, 0; (6945), 4, 1, 0; (6950), 4, 1, 0; (6971), 4, 1, 0; (6978), 4, 1, 0; (6983), 4, 1, 0; (6986), 8, 2, 8; (6995), 4, 1, 0; (7064), 8, 2, 8; (7077), 8, 2, 8; (7082), 4, 1, 0; (7177), 4, 1, 0; (7191), 8, 2, 8; (7193), 4, 1, 0; (7208), 4, 1, 0; (7214), 4, 1, 0; (7217), 4, 1, 0; (7283), 4, 1, 0; (7289), 8, 2, 8; (7295), 4, 1, 0; (7354), 8, 2, 1; (7381), 4, 1, 0; (7382), 4, 1, 0; (7398), 8, 2, 8; (7436), 8, 2, 8; (7449), 4, 1, 0; (7492), 4, 1, 0; (7497), 4, 1, 0; (7556), 4, 1, 0; (7570), 4, 1, 0; (7571), 4, 1, 0; (7575), 8, 2, 8; (7580), 4, 1, 0; (7589), 12, 3, 8; (7600), 12, 3, 8; (7601), 4, 1, 0; (7608), 4, 1, 0; (7619), 8, 2, 1; (7627), 4, 1, 0; (7629), 4, 1, 0; (7634), 8, 2, 8; (7636), 4, 1, 0; (7656), 8, 2, 8; (7657), 4, 1, 0; (7658), 4, 1, 0; (7677), 4, 1, 0; (7678), 4, 1, 0; (7691), 4, 1, 0; (7693), 8, 2, 8; (7700), 8, 2, 1; (7701), 8, 2, 9; (7702), 4, 1, 0; (7706), 4, 1, 0; (7710), 4, 1, 0; (7741), 4, 1, 0; (7747), 4, 1, 0; (7749), 4, 1, 0; (7770), 4, 1, 0; (7776), 4, 1, 0; (7780), 4, 1, 0; (7805), 4, 1, 0; (7821), 8, 2, 8; (7851), 4, 1, 0; (7873), 4, 1, 0; (7901), 4, 1, 0; (7902), 4, 1, 0; (7905), 4, 1, 0; (7913), 4, 1, 0; (7937), 8, 2, 8; (7941), 4, 1, 0; (7942), 4, 1, 0; (7953), 4, 1, 0; (7965), 4, 1, 0; (7991), 4, 1, 0; (8048), 4, 1, 0; (8424), 8, 2, 1;

(8527), 8, 2, 8; (8530), 4, 1, 0; (8565), 4, 1, 0; (8602), 4, 1, 0; (8670), 4, 1, 0; (8714), 8, 2, 8; (8715), 8, 2, 8; (8732), 4, 1, 0; (8782), 8, 2, 8; (8805), 12, 3, 8; (8812), 4, 1, 0; (8817), 8, 2, 8; (8820), 4, 1, 0; (8822), 4, 1, 0; (8844), 4, 1, 0; (8857), 4, 1, 0; (8858), 8, 2, 8; (8875), 8, 2, 8; (8927), 4, 1, 0; (8984), 8, 2, 6; (9005), 12, 3, 9; (9008), 4, 1, 0; (9042), 4, 1, 0; (9043), 4, 1, 0; (9059), 8, 2, 8; (9093), 8, 2, 8; (9095), 4, 1, 0; (9114), 8, 2, 1; (9115), 8, 2, 8; (9118), 4, 1, 0; (9131), 4, 1, 0; (9135), 4, 1, 0; (9136), 4, 1, 0; (9145), 4, 1, 0; (9146), 4, 1, 0; (9149), 4, 1, 0; (9150), 4, 1, 0; (9155), 8, 2, 8; (9157), 4, 1, 0; (9163), 4, 1, 0; (9165), 4, 1, 0; (9166), 8, 2, 1; (9173), 4, 1, 0; (9178), 4, 1, 0; (9182), 4, 1, 0; (9192), 8, 2, 8; (9193), 4, 1, 0; (9195), 8, 2, 8; (9199), 4, 1, 0; (9207), 8, 2, 1; (9210), 8, 2, 6; (9216), 4, 1, 0; (9228), 8, 2, 8; (9229), 8, 2, 9; (9231), 4, 1, 0; (9232), 4, 1, 0; (9254), 4, 1, 0; (9259), 8, 2, 1; (9270), 8, 2, 8; (9283), 4, 1, 0; (9294), 8, 2, 8; (9305), 8, 2, 1; (9330), 4, 1, 0; (9333), 4, 1, 0; (9350), 4, 1, 0; (9358), 4, 1, 0; (9369), 4, 1, 0; (9371), 4, 1, 0; (9373), 4, 1, 0; (9377), 4, 1, 0; (9384), 8, 2, 8; (9386), 4, 1, 0; (9392), 4, 1, 0; (9395), 4, 1, 0; (9410), 8, 2, 8; (9417), 4, 1, 0; (9420), 4, 1, 0; (9422), 4, 1, 0; (9441), 4, 1, 0; (9447), 4, 1, 0; (9462), 4, 1, 0; (9474), 4, 1, 0; (9490), 8, 2, 8; (9504), 4, 1, 0; (9519), 4, 1, 0; (9523), 3, 1, 0; (9537), 4, 1, 0; (9540), 4, 1, 0; (9544), 7, 2, 8; (9568), 4, 1, 0; (9578), 8, 1, 0; (9589), 4, 1, 0; (9591), 8, 2, 8; (9592), 4, 1, 0; (9596), 4, 1, 0; (9615), 4, 1, 0; (9625), 8, 2, 1; (9631), 4, 1, 0; (9646), 4, 1, 0; (9648), 4, 1, 0; (9652), 4, 1, 0; (9660), 4, 1, 0; (9661), 4, 1, 0; (9666), 8, 2, 1; (9685), 4, 1, 0; (9699), 4, 1, 0; (9708), 4, 1, 0; (9709), 4, 1, 0; (9721), 4, 1, 0; (9742), 4, 1, 0; (9745), 4, 1, 0; (9755), 4, 1, 0; (9756), 4, 1, 0; (9789), 4, 1, 0; (9798), 4, 1, 0; (9854), 4, 1, 0; (9964), 4, 1, 0; (10001), 4, 1, 0; (10063), 4, 1, 0; (10100), 4, 1, 0; (10112), 4, 1, 0; (10147), 3, 1, 0; (10152), 4, 1, 0; (10169), 4, 1, 0; (10179), 4, 1, 0; (10235), 8, 2, 1; (10240), 4, 1, 0; (10417), 3, 1, 0; (10705), 4, 1, 0; (10778), 8, 2, 8; (11027), 8, 2, 8; (11259), 4, 1, 0; (11315), 3, 1, 0; (11380), 4, 1, 0; (11383), 4, 1, 0; (11446), 4, 1, 0; (11472), 4, 1, 0; (11474), 4, 1, 0; (11475), 4, 1, 0; (11480), 4, 1, 0; (11482), 4, 1, 0; (11486), 4, 1, 0; (11497), 4, 1, 0; (11504), 4, 1, 0; (11507), 8, 2, 8; (11541), 8, 2, 8; (11628), 4, 1, 0; (11639), 4, 1, 0; (11650), 8, 2, 6; (11660), 4, 1, 0; (11736), 4, 1, 0; (11739), 4, 1, 0; (11779), 4, 1, 0; (11782), 8, 2, 8; (11790), 8, 2, 7; (11823), 4, 1, 0; (11826), 8, 2, 8; (11845), 8, 2, 8; (11853), 8, 2, 8; (11862), 4, 1, 0; (11867), 8, 2, 8; (11872), 4, 1, 0; (11877), 4, 1, 0; (11902), 8, 2, 2; (11920), 8, 2, 8; (11922), 8, 2, 8; (11936), 4, 1, 0; (11942), 8, 2, 8; (11949), 8, 2, 8; (11974), 8, 2, 8; (11977), 8, 2, 8; (12003), 4, 1, 0; (12009), 4, 1, 0; (12025), 4, 1, 0; (12045), 4, 1, 0; (12061), 8, 2, 8; (12107), 8, 2, 8; (12114), 4, 1, 0; (12141), 4, 1, 0; (12170), 8, 2, 8; (12182), 8, 2, 8; (12183), 8, 2, 1; (12185), 4, 1, 0; (12188), 4, 1, 0; (12191), 8, 2, 8; (12194), 8, 2, 8; (12198), 4, 1, 0; (12202), 4, 1, 0; (12204), 3, 1, 0; (12211), 8, 2, 8; (12213), 4, 1, 0; (12214), 8, 2, 8; (12219), 3, 1, 0; (12221), 8, 2, 1; (12226), 8, 2, 6; (12228), 4, 1, 0; (12232), 12, 3, 8; (12243), 4, 1, 0; (12247), 4, 1, 0; (12254), 4, 1, 0; (12258), 8, 2, 8; (12260), 4, 1, 0; (12268), 4, 1, 0; (12270), 8, 2, 1; (12280), 8, 2, 1; (12283), 4, 1, 0; (12286), 4, 1, 0; (12288), 4, 1, 0; (12292), 4, 1, 0; (12294), 8, 2, 8; (12295), 8, 2, 8; (12297), 4, 1, 0; (12309), 4, 1, 0; (12310), 4, 1, 0; (12314), 4, 1, 0; (12320), 8, 2, 8; (12322), 4, 1, 0; (12323), 8, 2, 8; (12326), 8, 2, 6; (12328), 12, 3, 8; (12329), 4, 1, 0; (12333), 8, 2, 8; (12337), 4, 1, 0; (12338), 4, 1, 0; (12349), 4, 1, 0; (12350), 11, 3, 9; (12356), 4, 1, 0; (12359), 8, 2, 1; (12360), 8, 2, 1; (12366), 8, 2, 8; (12370), 8, 2, 8; (12371), 8, 2, 1; (12382), 4, 1, 0; (12386), 12, 3, 8; (12388), 8, 2, 8; (12389), 8, 2, 8; (12390), 8, 2, 1; (12393), 4, 1, 0; (12394), 8, 2, 8; (12396), 4, 1, 0; (12397), 4, 1, 0; (12400), 4, 1, 0; (12403), 8, 2, 8; (12404), 4, 1, 0; (12405), 3, 1, 0; (12413), 8, 2, 8; (12414), 4, 1, 0; (12417), 4, 1, 0; (12420), 8, 2, 8; (12421), 4, 1, 0; (12422), 4, 1, 0; (12425), 4, 1, 0; (12426), 4, 1, 0; (12428), 4, 1, 0; (12430), 4, 1, 0; (12434), 4, 1, 0; (12437), 3, 1, 0; (12439), 8, 2, 8; (12450), 8, 2, 8; (12453), 8, 2, 8; (12454), 4, 1, 0; (12455), 4, 1, 0; (12458), 4, 1, 0; (12461), 4, 1, 0; (12463), 4, 1, 0; (12469), 8, 2, 6; (12471), 8, 2, 8; (12478), 7, 2, 1; (12480), 4, 1, 0; (12484), 8, 2, 8; (12489), 4, 1, 0; (12495), 8, 2, 8; (12500), 4, 1, 0; (12501), 4, 1, 0; (12509), 8, 2, 8; (12512), 4, 1, 0; (12513), 4, 1, 0; (12529), 8, 2, 8; (12539), 4, 1, 0; (12540), 4, 1, 0; (12542), 8, 2, 7; (12546), 4, 1, 0; (12548), 4, 1, 0; (12549), 8, 2, 8; (12553), 4, 1, 0; (12559), 4, 1, 0; (12560), 4, 1, 0; (12561), 8, 2, 8; (12564), 4, 1, 0; (12582), 8, 2, 8; (12584), 8, 2, 8; (12595), 4, 1, 0; (12613), 4, 1, 0; (12616), 4, 1, 0; (12617), 8, 2, 6; (12620), 8, 2, 8; (12621), 8, 2, 1; (12625), 8, 2, 8; (12628), 4, 1, 0; (12630), 4, 1, 0; (12633), 12, 3, 9; (12643), 8, 2, 1; (12645), 4, 1, 0; [17680, 2957, 597*, 1999/09/05-1999/12/13]

704 Lincoln Laboratory Experimental Test System, New Mexico

G. Stokes, MIT Lincoln Laboratory, 244 Wood Street, Lexington, MA 02420,

U.S.A. [stokes@ll.mit.edu]

Observers M. Blythe, F. Shelly, M. Bezpalko, M. Elowitz, R. Huber

Measurers J. Stuart, H. Viggh, R. Sayer, J. B. Evans

1.0-m $f/2.15$ reflector + CCD

USNO-SA1.0

1934 JP, 10, 2, 1; 1955 RE₁, 10, 2, 1; 1971 QO₁, 5, 1, 0; 1971 UR, 5, 1, 0; 1973 QO₁, 5, 1, 0; 1973 SL, 4, 1, 0; 1973 SX, 3, 1, 0; 1973 SF₁, 5, 1, 0; 1973 SS₁, 4, 1, 0; 1973 SB₂, 5, 1, 0; 1975 NC, 10, 2, 5; 1975 TU₃, 10, 2, 1; 1975 VW₅, 5, 1, 0; 1976 DA₁, 5, 1, 0; 1976 QK₁, 10, 2, 4; 1977 DG₃, 5, 1, 0; 1977 DA₄, 7, 2, 5; 1977 QN₁, 4, 1, 0; 1977 QO₃, 10, 2, 1; 1977 TQ₆, 9, 2, 1; 1978 CK, 5, 1, 0; 1978 NC, 5, 1, 0; 1978 RL₇, 9, 2, 1; 1978 SF₅, 5, 1, 0; 1978 SS₅, 4, 1, 0; 1978 SD₇, 3, 1, 0; 1978 SJ₇, 5, 1, 0; 1978 ST₇, 4, 1, 0; 1978 VO₂, 4, 1, 0; 1978 VX₄, 5, 1, 0; 1978 VH₅, 10, 2, 1; 1978 VP₉, 4, 1, 0; 1978 VQ₉, 10, 2, 1; 1978 VM

0; 1979 MP₁, 9, 2, 1; 1979 MX₁, 5, 1, 0; 1979 MO₂, 5, 1, 0; 1979 MM₃, 5, 1, 0; 1979 MU₄, 4, 1, 0; 1979 MD₈, 9, 2, 1; 1979 OH₁, 5, 1, 0; 1979 QF₂, 10, 2, 1; 1979 SG₂, 5, 1, 0; 1980 FU₁, 5, 1, 0; 1980 FY₂, 4, 1, 0; 1980 FH₃, 4, 1, 0; 1980 RL₂, 14, 3, 6; 1980 TA₄, 5, 1, 0; 1980 UW₁, 4, 1, 0; 1981 DF₁, 8, 2, 1; 1981 DU₁, 5, 1, 0; 1981 DM₂, 5, 1, 0; 1981 DN₃, 10, 2, 1; 1981 EO₂, 9, 2, 1; 1981 EP₂, 8, 2, 2; 1981 EN₃, 3, 1, 0; 1981 ER₄, 9, 2, 2; 1981 EC₅, 3, 1, 0; 1981 EN₅, 8, 2, 1; 1981 EW₅, 3, 1, 0; 1981 EM₆, 3, 1, 0; 1981 EY₆, 4, 1, 0; 1981 EE₁₀, 4, 1, 0; 1981 EP₁₄, 9, 2, 1; 1981 EF₁₆, 15, 2, 4; 1981 EZ₁₉, 3, 1, 0; 1981 EQ₂₀, 5, 1, 0; 1981 EN₂₁, 9, 2, 1; 1981 EK₂₂, 4, 1, 0; 1981 ET₂₃, 5, 1, 0; 1981 ER₂₄, 9, 2, 1; 1981 EP₂₅, 3, 1, 0; 1981 EK₂₇, 4, 1, 0; 1981 ET₂₇, 10, 2, 1; 1981 EY₂₇, 5, 1, 0; 1981 EV₃₅, 4, 1, 0; 1981 EB₃₆, 4, 1, 0; 1981 EP₃₆, 9, 2, 1; 1981 EB₄₃, 5, 1, 0; 1981 ER₄₇, 4, 1, 0; 1981 JR₂, 4, 1, 0; 1981 QJ₂, 4, 1, 0; 1981 QK₃, 5, 1, 0; 1981 QD₄, 5, 1, 0; 1981 SE₇, 4, 1, 0; 1981 UB₂₃, 5, 1, 0; 1981 UZ₂₄, 18, 2, 1; 1981 UL₂₉, 14, 3, 5; 1982 RR₄, 4, 1, 0; 1982 SQ₇, 5, 1, 0; 1982 UA₆, 4, 1, 0; 1982 UE₁₂, 5, 1, 0; 1982 VU₂, 10, 2, 1; 1982 VC₃, 3, 1, 0; 1982 VY₃, 5, 1, 0; 1983 AA₅, 5, 1, 0; 1983 RL₅, 5, 1, 0; 1983 RL₃, 10, 2, 4; 1983 RP₃, 10, 2, 1; 1983 XE₁₀, 2, 1; 1984 AU₅, 1, 0; 1984 CE₁₀, 2, 9; 1984 DQ₄, 1, 0; 1984 EQ₅, 1, 0; 1984 SZ₅, 14, 2, 1; 1984 UR₄, 4, 1, 0; 1985 CD₂, 10, 2, 1; 1985 PC₅, 5, 1, 0; 1985 PH₁₀, 2, 1; 1985 PB₂, 5, 1, 0; 1985 RP₃, 3, 1, 0; 1985 RF₃, 4, 1, 0; 1985 TS₄, 4, 1, 0; 1985 UJ₃, 10, 2, 4; 1986 PL₁, 5, 1, 0; 1986 TR₉, 9, 2, 1; 1986 TG₁, 5, 1, 0; 1986 TT₁₁, 5, 1, 0; 1987 BX₁, 15, 3, 412; 1987 CH₃, 3, 1, 0; 1987 QS₅, 5, 1, 0; 1987 RR₃, 3, 1, 0; 1987 RG₁, 4, 1, 0; 1987 SJ₂, 9, 2, 1; 1987 SL₃, 5, 1, 0; 1987 VG₃, 3, 1, 0; 1988 BG₅, 5, 1, 0; 1988 BO₃, 5, 1, 0; 1988 BY₃, 5, 1, 0; 1988 BM₄, 3, 1, 0; 1988 BF₅, 10, 2, 1; 1988 BG₅, 5, 1, 0; 1988 BH₅, 10, 2, 1; 1988 CK₄, 5, 1, 0; 1988 CO₇, 10, 2, 1; 1988 DE₅, 5, 1, 0; 1988 FM₅, 5, 1, 0; 1988 FD₃, 5, 1, 0; 1988 GQ₅, 5, 1, 0; 1988 PV₁, 9, 2, 3; 1988 QZ₇, 2, 1; 1988 RO₂, 5, 1, 0; 1988 RT₃, 9, 2, 4; 1988 RF₄, 5, 1, 0; 1988 RP₄, 3, 1, 0; 1988 RZ₅, 5, 1, 0; 1988 RO₆, 10, 2, 4; 1988 RL₉, 5, 1, 0; 1988 TR₂, 5, 1, 0; 1988 UF₁₅, 2, 1; 1988 VV₅, 5, 1, 0; 1988 VG₁, 5, 1, 0; 1988 VC₂, 5, 1, 0; 1988 VF₂, 15, 2, 1; 1988 VL₂, 5, 1, 0; 1988 VA₅, 9, 2, 1; 1988 XV₁, 5, 1, 0; 1989 AN₅, 4, 1, 0; 1989 BV₁, 5, 1, 0; 1989 CP₂, 4, 1, 0; 1989 DB₄, 4, 1, 0; 1989 EZ₃, 5, 1, 0; 1989 EJ₆, 10, 2, 1; 1989 GM₁, 5, 1, 0; 1989 GR₃, 9, 2, 1; 1989 RX₅, 1, 0; 1989 SR₅, 5, 1, 0; 1989 SB₁, 4, 1, 0; 1989 SK₃, 4, 1, 0; 1989 SZ₄, 4, 1, 0; 1989 TR₂, 10, 2, 1; 1989 TU₃, 5, 1, 0; 1989 TB₅, 5, 1, 0; 1989 TN₁₅, 4, 1, 0; 1989 US₄, 3, 1, 0; 1989 WU₁₅, 3, 6; 1989 WA₁, 4, 1, 0; 1989 WB₃, 4, 1, 0; 1989 YO₃, 5, 1, 0; 1989 YC₆, 5, 1, 0; 1989 YE₆, 9, 2, 1; 1990 BO₅, 5, 1, 0; 1990 BA₂, 5, 1, 0; 1990 CE₅, 5, 1, 0; 1990 DW₁₀, 2, 3; 1990 DZ₉, 2, 1; 1990 DD₂, 10, 2, 1; 1990 EJ₅, 5, 1, 0; 1990 EV₁, 5, 1, 0; 1990 EN₃, 3, 1, 0; 1990 FH₄, 4, 1, 0; 1990 FD₃, 5, 1, 0; 1990 GD₅, 5, 1, 0; 1990 GN₁₀, 2, 1; 1990 HE₅, 5, 1, 0; 1990 HP₁, 9, 2, 1; 1990 OG₄, 10, 2, 1; 1990 OB₅, 5, 1, 0; 1990 QY₅, 3, 1, 0; 1990 QO₈, 3, 1, 0; 1990 QP₈, 5, 1, 0; 1990 QW₉, 5, 1, 0; 1990 RT₂, 5, 1, 0; 1990 RO₇, 5, 1, 0; 1990 RN₈, 4, 1, 0; 1990 SY₅, 5, 1, 0; 1990 SE₁, 5, 1, 0; 1990 SS₃, 5, 1, 0; 1990 SE₅, 5, 1, 0; 1990 SN₈, 5, 1, 0; 1990 SQ₈, 3, 1, 0; 1990 SL₂₈, 5, 1, 0; 1990 TJ₃, 1, 0; 1990 TT₁₀, 2, 4; 1990 TE₁, 5, 1, 0; 1990 TG₂, 5, 1, 0; 1990 TF₆, 8, 2, 1; 1990 TD₁₂, 9, 2, 1; 1990 TW₁₂, 5, 1, 0; 1990 TJ₁₅, 5, 1, 0; 1990 UK₅, 5, 1, 0; 1990 UA₁, 10, 2, 1; 1990 UB₄, 4, 1, 0; 1990 UG₅, 3, 1, 0; 1990 UK₅, 4, 1, 0; 1990 VE₄, 4, 1, 0; 1990 VM₂, 10, 2, 1; 1990 VV₂, 10, 2, 2; 1990 VN₄, 5, 1, 0; 1990 VQ₅, 4, 1, 0; 1990 VD₈, 4, 1, 0; 1990 VU₈, 4, 1, 0; 1990 WS₁, 5, 1, 0; 1990 WU₁, 8, 2, 5; 1990 YP₅, 5, 1, 0; 1991 BB₅, 5, 1, 0; 1991 BZ₅, 5, 1, 0; 1991 EF₂, 5, 1, 0; 1991 EY₃, 5, 1, 0; 1991 EK₄, 5, 1, 0; 1991 FY₃, 5, 1, 0; 1991 GW₁, 4, 1, 0; 1991 GX₁, 5, 1, 0; 1991 GR₂, 10, 2, 1; 1991 GP₃, 8, 2, 1; 1991 GT₄, 15, 3, 2; 1991 GU₄, 5, 1, 0; 1991 GS₉, 9, 2, 4; 1991 GR₇, 5, 1, 0; 1991 GD₈, 3, 1, 0; 1991 HK₅, 5, 1, 0; 1991 LB₃, 3, 1, 0; 1991 LR₃, 3, 1, 0; 1991 LF₁, 9, 2, 1; 1991 LP₂, 10, 2, 1; 1991 NB₁, 5, 1, 0; 1991 NU₃, 5, 1, 0; 1991 NG₅, 3, 1, 0; 1991 PB₈, 8, 2, 1; 1991 PG₁, 4, 1, 0; 1991 PT₁, 3, 1, 0; 1991 PE₂, 10, 2, 1; 1991 PX₅, 4, 1, 0; 1991 PX₆, 9, 2, 1; 1991 PT₉, 5, 1, 0; 1991 PD₁₀, 5, 1, 0; 1991 PD₁₁, 4, 1, 0; 1991 PW₁₁, 4, 1, 0; 1991 PJ₁₅, 8, 2, 1; 1991 PP₁₆, 5, 1, 0; 1991 PQ₁₆, 5, 1, 0; 1991 PH₁₈, 4, 1, 0; 1991 PB₂₀, 5, 1, 0; 1991 RP₁, 9, 2, 1; 1991 RC₂, 5, 1, 0; 1991 RF₄, 8, 2, 1; 1991 RL₄, 3, 1, 0; 1991 RQ₄, 3, 1, 0; 1991 RG₇, 10, 2, 1; 1991 RL₇, 4, 1, 0; 1991 RU₈, 4, 1, 0; 1991 RR₉, 8, 2, 1; 1991 RQ₉, 5, 1, 0; 1991 RW₁₂, 5, 1, 0; 1991 RA₁₄, 19, 4, 104; 1991 RH₁₄, 5, 1, 0; 1991 RQ₁₉, 3, 1, 0; 1991 RJ₂₀, 9, 2, 1; 1991 RW₂₁, 5, 1, 0; 1991 RN₂₇, 4, 1, 0; 1991 RM₂₉, 5, 1, 0; 1991 SB₉, 9, 2, 1; 1991 TK₁₀, 2, 1; 1991 TN₁₀, 2, 1; 1991 TS₅, 1, 0; 1991 TX₁₀, 2, 1; 1991 TV₁, 4, 1, 0; 1991 TC₂, 5, 1, 0; 1991 TQ₂, 10, 2, 1; 1991 TG₈, 3, 1, 0; 1991 UN₁, 5, 1, 0; 1991 UE₂, 5, 1, 0; 1991 UD₃, 10, 2, 4; 1991 VY₅, 5, 1, 0; 1991 VD₁, 5, 1, 0; 1991 VV₁, 5, 1, 0; 1991 VE₂, 10, 2, 1; 1991 VA₃, 5, 1, 0; 1991 VE₃, 5, 1, 0; 1991 VT₃, 5, 1, 0; 1991 VY₄, 10, 2, 1; 1991 VM₅, 3, 1, 0; 1991 VH₆, 5, 1, 0; 1991 VP₁₂, 8, 2, 1; 1991 XD₁₄, 3, 8; 1991 YC₅, 5, 1, 0; 1991 YT₅, 5, 1, 0; 1992 AT₂, 8, 2, 1; 1992 BD₁₀, 2, 3; 1992 BQ₂, 4, 1, 0; 1992 CH₅, 5, 1, 0; 1992 DZ₅, 5, 1, 0; 1992 DZ₆, 4, 1, 0; 1992 DC₇, 5, 1, 0; 1992 DU₇, 5, 1, 0; 1992 DY₇, 10, 2, 1; 1992 EO₈, 8, 2, 4; 1992 EX₅, 5, 1, 0; 1992 EB₄, 5, 1, 0; 1992 ES₆, 4, 1, 0; 1992 EZ₇, 5, 1, 0; 1992 EX₈, 4, 1, 0; 1992 EY₁₀, 4, 1, 0; 1992 EZ₁₁, 3, 1, 0; 1992 EN₁₂, 3, 1, 0; 1992 EW₁₆, 3, 1, 0; 1992 EA₂₆, 5, 1, 0; 1992 EU₃₀, 10, 2, 1; 1992 EE₃₂, 3, 1, 0; 1992 GM₂, 14, 3, 5; 1992 HA₄, 5, 1, 0; 1992 HS₄, 3, 1, 0; 1992 JU₂, 8, 2, 2; 1992 LQ₅, 5, 1, 0; 1992 OB₄, 1, 0; 1992 OF₁, 38, 3, 2; 1992 OJ₁, 10, 2, 1; 1992 OL₃, 7, 2, 1; 1992 PF₁₀, 2, 1; 1992 PB₁, 3, 1, 0; 1992 PA₂, 4, 1, 0; 1992 PB₂, 4, 1, 0; 1992 PK₂, 9, 2, 1; 1992 PL₂, 5, 1, 0; 1992 PM₂, 4, 1, 0; 1992 PC₃, 5, 1, 0; 1992 PE₃, 8, 2, 1; 1992 SO₃, 3, 1, 0; 1992 SY₁₂, 5, 1, 0; 1992 SB₁₃, 10, 2, 2; 1992 SG₁₃, 10, 2, 4; 1992 SW₁₄, 9, 2, 1; 1992 SY₁₇, 5, 1, 0; 1992 SQ₂₃, 5, 1, 0; 1992 SM₂₆, 10, 2, 2; 1992 US₁, 10, 2, 1; 1992 UL₂, 10, 2, 1; 1992 UT₂, 5, 1, 0; 1992 UW₂, 10, 2, 1; 1992 UH₃, 5, 1, 0; 1992 UU₅, 10, 2, 2; 1992 UK₈, 8, 2, 1; 1992 VN₉, 9, 2, 1; 1992 WR₁₀, 2, 1; 1992 WC₁, 10, 2, 1; 1992 WY₁, 5,

1, 0; 1992 YC₁₉, 4, 8; 1992 YN₂, 5, 1, 0; 1992 YR₂, 10, 2, 1; 1993 BD₄, 4, 1, 0; 1993 BJ₂, 5, 1, 0; 1993 BU₇, 3, 1, 0; 1993 BT₁₄, 8, 2, 1; 1993 CB₁₀, 2, 1; 1993 DE₁, 4, 1, 0; 1993 DJ₁, 4, 1, 0; 1993 DX₂, 4, 1, 0; 1993 EU₅, 1, 0; 1993 FR₅, 5, 1, 0; 1993 FO₇, 4, 1, 0; 1993 FE₁₂, 10, 2, 1; 1993 FR₁₂, 10, 2, 1; 1993 FS₁₂, 8, 2, 1; 1993 FL₁₄, 5, 1, 0; 1993 FA₁₅, 3, 1, 0; 1993 FX₂₁, 10, 2, 1; 1993 FJ₂₆, 4, 1, 0; 1993 FM₂₈, 15, 2, 1; 1993 FP₂₉, 4, 1, 0; 1993 FJ₃₃, 5, 1, 0; 1993 FV₃₃, 14, 3, 79; 1993 FR₃₅, 3, 1, 0; 1993 FD₃₇, 10, 2, 2; 1993 FP₄₀, 4, 1, 0; 1993 FN₄₉, 8, 2, 1; 1993 FX₅₀, 3, 1, 0; 1993 FN₆₂, 9, 2, 4; 1993 FD₈₂, 5, 1, 0; 1993 GB₁₀, 2, 1; 1993 GK₁, 4, 1, 0; 1993 HE₄, 1, 0; 1993 HX₅, 5, 1, 0; 1993 HZ₅, 5, 1, 0; 1993 KW₁, 5, 1, 0; 1993 LO₁, 5, 1, 0; 1993 LF₂, 5, 1, 0; 1993 MK₄, 1, 0; 1993 MZ₅, 1, 0; 1993 NS₁, 4, 1, 0; 1993 NW₁, 3, 1, 0; 1993 NZ₁, 5, 1, 0; 1993 OM₈, 5, 1, 0; 1993 OY₉, 5, 1, 0; 1993 OS₁₀, 5, 1, 0; 1993 QN₃, 4, 1, 0; 1993 QP₃, 5, 1, 0; 1993 QH₄, 5, 1, 0; 1993 QO₄, 10, 2, 1; 1993 QV₄, 5, 1, 0; 1993 QS₉, 3, 1, 0; 1993 RA₈, 5, 1, 0; 1993 RY₁₁, 9, 2, 1; 1993 SM₃, 9, 2, 1; 1993 SU₄, 5, 1, 0; 1993 SA₆, 10, 2, 1; 1993 SU₆, 4, 1, 0; 1993 TJ₅, 1, 0; 1993 TJ₂, 8, 2, 3; 1993 TX₁₄, 9, 2, 1; 1993 TU₁₅, 10, 2, 1; 1993 TL₁₈, 8, 2, 1; 1993 TN₁₈, 5, 1, 0; 1993 TV₁₉, 5, 1, 0; 1993 TO₂₀, 8, 2, 2; 1993 TG₂₆, 10, 2, 1; 1993 TX₂₆, 5, 1, 0; 1993 TD₂₈, 5, 1, 0; 1993 TJ₃₁, 5, 1, 0; 1993 TD₃₇, 4, 1, 0; 1993 TP₃₈, 5, 1, 0; 1993 TX₃₈, 5, 1, 0; 1993 UK₉, 9, 2, 1; 1993 UQ₂, 4, 1, 0; 1993 UW₆, 8, 2, 1; 1993 UZ₇, 5, 1, 0; 1993 VA₂, 5, 1, 0; 1993 VA₃, 10, 2, 1; 1993 VD₄, 5, 1, 0; 1993 VV₄, 4, 1, 0; 1994 AC₄, 10, 2, 4; 1994 AA₂, 4, 1, 0; 1994 AC₃, 4, 1, 0; 1994 AY₁₀, 8, 2, 1; 1994 BD₁, 5, 1, 0; 1994 BD₄, 5, 1, 0; 1994 CY₁, 5, 1, 0; 1994 CG₁₂, 5, 1, 0; 1994 CD₁₈, 5, 1, 0; 1994 ET₃, 3, 1, 0; 1994 EL₁, 10, 2, 1; 1994 ER₅, 5, 1, 0; 1994 EJ₆, 9, 2, 1; 1994 EZ₆, 4, 1, 0; 1994 EC₇, 5, 1, 0; 1994 FB₉, 2, 1; 1994 FF₅, 5, 1, 0; 1994 FY₅, 5, 1, 0; 1994 GN₄, 4, 1, 0; 1994 GA₁, 9, 2, 1; 1994 GM₁, 10, 2, 1; 1994 GK₉, 9, 2, 1; 1994 JU₈, 5, 1, 0; 1994 KA₅, 5, 1, 0; 1994 PC₉, 10, 2, 1; 1994 PJ₁₀, 10, 2, 1; 1994 PC₁₃, 4, 1, 0; 1994 PK₁₄, 4, 1, 0; 1994 PT₁₆, 3, 1, 0; 1994 PK₂₀, 4, 1, 0; 1994 PL₂₀, 3, 1, 0; 1994 PH₂₂, 5, 1, 0; 1994 PX₂₂, 5, 1, 0; 1994 PL₂₃, 5, 1, 0; 1994 PN₂₅, 4, 1, 0; 1994 PY₂₅, 5, 1, 0; 1994 PU₂₆, 8, 2, 1; 1994 PS₂₈, 5, 1, 0; 1994 PC₃₀, 5, 1, 0; 1994 PT₃₁, 10, 2, 1; 1994 PW₃₁, 5, 1, 0; 1994 PL₃₂, 4, 1, 0; 1994 PL₃₄, 9, 2, 1; 1994 PA₃₆, 5, 1, 0; 1994 PV₃₇, 3, 1, 0; 1994 QQ₃, 1, 0; 1994 QV₁₀, 1, 0; 1994 QX₄, 9, 2, 1; 1994 QA₁, 4, 1, 0; 1994 RL₇, 10, 2, 1; 1994 RR₁₁, 10, 2, 1; 1994 SH₉, 4, 1, 0; 1994 TH₁, 5, 1, 0; 1994 TO₂, 5, 1, 0; 1994 TK₁₁, 4, 1, 0; 1994 TO₁₅, 8, 1, 0; 1994 UQ₅, 5, 1, 0; 1994 UJ₁, 4, 1, 0; 1994 UT₁, 10, 1, 0; 1994 UZ₁, 10, 2, 1; 1994 UA₃, 3, 1, 0; 1994 VR₉, 9, 2, 1; 1994 VH₁, 5, 1, 0; 1994 VJ₁, 5, 1, 0; 1994 VM₁, 10, 2, 4; 1994 VS₁, 10, 2, 4; 1994 VD₇, 5, 1, 0; 1994 WO₁₀, 2, 1; 1994 WF₁, 5, 1, 0; 1994 WC₂, 9, 2, 1; 1994 WB₃, 8, 2, 5; 1994 WE₄, 10, 2, 1; 1994 YG₄, 1, 0; 1994 YU₄, 4, 1, 0; 1995 AF₃, 1, 0; 1995 BD₅, 5, 1, 0; 1995 BL₅, 5, 1, 0; 1995 BX₄, 1, 0; 1995 BQ₂, 4, 1, 0; 1995 CB₁₀, 2, 1; 1995 DX₂, 13, 3, 9; 1995 DA₃, 4, 1, 0; 1995 DZ₁₁, 5, 1, 0; 1995 EF₅, 5, 1, 0; 1995 EF₈, 5, 1, 0; 1995 GW₂, 3, 1, 0; 1995 OB₅, 5, 1, 0; 1995 OH₈, 8, 2, 2; 1995 OR₄, 4, 1, 0; 1995 PA₁₀, 2, 1; 1995 QK₉, 2, 1; 1995 QS₁₀, 2, 1; 1995 QN₂, 4, 1, 0; 1995 QE₃, 5, 1, 0; 1995 QY₃, 4, 1, 0; 1995 RC₅, 5, 1, 0; 1995 SR₃, 3, 1, 0; 1995 ST₃, 3, 1, 0; 1995 SB₁, 3, 1, 0; 1995 SJ₁, 3, 1, 0; 1995 SO₂, 3, 1, 0; 1995 SX₂, 7, 2, 1; 1995 SU₃, 4, 1, 0; 1995 SZ₃, 5, 1, 0; 1995 SG₄, 5, 1, 0; 1995 SM₂₁, 5, 1, 0; 1995 SH₂₆, 6, 2, 5; 1995 SZ₂₉, 13, 3, 87; 1995 SV₅₀, 9, 2, 3; 1995 ST₅₃, 10, 2, 2; 1995 TB₅, 5, 1, 0; 1995 TR₅, 5, 1, 0; 1995 TZ₄, 4, 1, 0; 1995 TA₁, 7, 2, 1; 1995 TQ₆, 5, 1, 0; 1995 TN₇, 9, 2, 1; 1995 TE₈, 5, 1, 0; 1995 UK₄, 4, 1, 0; 1995 UM₄, 4, 1, 0; 1995 UT₂, 4, 1, 0; 1995 UW₂, 10, 2, 1; 1995 UQ₃, 5, 1, 0; 1995 UX₃, 5, 1, 0;

1996 TS₄₉, 5, 1, 0; 1996 UB₁, 9, 2, 5; 1996 VO₄, 5, 1, 0; 1996 VN₆, 9, 2, 1; 1996 VG₉, 4, 1, 0; 1996 VX₂₉, 4, 1, 0; 1996 VL₃₀, 5, 1, 0; 1996 WE₃, 4, 1, 0; 1996 XD₁, 9, 2, 1; 1996 XL₁, 4, 1, 0; 1996 XM₂, 10, 2, 1; 1996 XD₃, 9, 2, 1; 1996 XG₃, 18, 4, 568; 1996 XM₅, 5, 1, 0; 1996 XQ₅, 10, 2, 1; 1996 XF₁₄, 10, 2, 1; 1996 XY₁₇, 3, 1, 0; 1996 XD₁₉, 3, 1, 0; 1996 XT₁₉, 10, 2, 1; 1996 XE₃₁, 5, 1, 0; 1996 XZ₃₁, 3, 1, 0; 1996 XH₃₃, 5, 1, 0; 1996 YP, 4, 1, 0; 1996 YR, 5, 1, 0; 1996 YX, 5, 1, 0; 1996 YA₂, 9, 2, 41; 1997 AP, 5, 1, 0; 1997 AQ, 5, 1, 0; 1997 AS, 5, 1, 0; 1997 AW₁, 8, 2, 4; 1997 AD₂, 5, 1, 0; 1997 AJ₂, 5, 1, 0; 1997 AN₂, 4, 1, 0; 1997 AT₂, 4, 1, 0; 1997 AZ₂, 9, 2, 1; 1997 AW₃, 5, 1, 0; 1997 AB₄, 9, 2, 4; 1997 AJ₄, 4, 1, 0; 1997 AN₄, 4, 1, 0; 1997 AP₄, 5, 1, 0; 1997 AE₅, 14, 2, 1; 1997 AH₅, 5, 1, 0; 1997 AN₅, 10, 2, 1; 1997 AX₅, 4, 1, 0; 1997 AO₆, 5, 1, 0; 1997 AR₆, 5, 1, 0; 1997 AW₆, 9, 2, 4; 1997 AJ₇, 8, 2, 1; 1997 AN₇, 5, 1, 0; 1997 AO₇, 5, 1, 0; 1997 AS₇, 5, 1, 0; 1997 AG₈, 4, 1, 0; 1997 AU₉, 5, 1, 0; 1997 AP₁₀, 4, 1, 0; 1997 AM₁₁, 3, 1, 0; 1997 AB₁₃, 15, 3, 5; 1997 AD₁₃, 4, 1, 0; 1997 AF₁₃, 5, 1, 0; 1997 AJ₁₃, 5, 1, 0; 1997 AM₁₃, 4, 1, 0; 1997 AQ₁₅, 10, 2, 1; 1997 AR₁₆, 10, 2, 4; 1997 AA₁₇, 8, 2, 1; 1997 AR₁₇, 9, 2, 1; 1997 AY₁₇, 5, 1, 0; 1997 AZ₁₇, 10, 2, 1; 1997 AR₂₂, 5, 1, 0; 1997 BG, 3, 1, 0; 1997 BZ, 5, 1, 0; 1997 BP₁, 9, 2, 2; 1997 BJ₂, 4, 1, 0; 1997 BA₃, 5, 1, 0; 1997 BK₃, 5, 1, 0; 1997 BO₃, 5, 1, 0; 1997 BP₃, 5, 1, 0; 1997 BV₃, 11, 2, 1; 1997 BS₆, 3, 1, 0; 1997 CA₁, 5, 1, 0; 1997 CE₁, 7, 2, 1; 1997 CL₁, 5, 1, 0; 1997 CV₁, 9, 2, 1; 1997 CW₁, 4, 1, 0; 1997 CX₂, 3, 1, 0; 1997 CM₄, 5, 1, 0; 1997 CV₄, 3, 1, 0; 1997 CE₈, 5, 1, 0; 1997 CF₉, 5, 1, 0; 1997 CB₁₃, 10, 2, 1; 1997 CN₁₃, 5, 1, 0; 1997 CZ₁₄, 5, 1, 0; 1997 CV₁₉, 3, 1, 0; 1997 CF₂₂, 7, 2, 5; 1997 CG₂₆, 10, 2, 1; 1997 CK₂₆, 9, 2, 6; 1997 DC, 9, 2, 1; 1997 DT, 4, 1, 0; 1997 EF, 10, 2, 1; 1997 EM, 8, 2, 1; 1997 EV, 5, 1, 0; 1997 EB₁, 3, 1, 0; 1997 EY₂, 10, 2, 1; 1997 EN₄, 5, 1, 0; 1997 EX₇, 10, 2, 2; 1997 EL₁₁, 10, 2, 1; 1997 EX₁₃, 5, 1, 0; 1997 EK₁₆, 10, 2, 1; 1997 EO₁₇, 5, 1, 0; 1997 ES₁₇, 4, 1, 0; 1997 EE₂₃, 10, 2, 1; 1997 EF₂₃, 10, 2, 31; 1997 EE₂₉, 9, 2, 1; 1997 EO₃₀, 5, 1, 0; 1997 EQ₃₀, 4, 1, 0; 1997 EN₃₂, 3, 1, 0; 1997 EK₃₅, 4, 1, 0; 1997 EK₄₁, 4, 1, 0; 1997 EY₄₅, 10, 2, 1; 1997 EH₄₆, 8, 1, 0; 1997 EU₄₆, 4, 1, 0; 1997 EK₅₄, 4, 1, 0; 1997 EL₅₅, 10, 2, 4; 1997 EB₅₇, 5, 1, 0; 1997 FC₁, 3, 1, 0; 1997 FN₁, 5, 1, 0; 1997 FT₁, 4, 1, 0; 1997 FY₁, 3, 1, 0; 1997 FB₂, 9, 2, 1; 1997 FC₃, 8, 2, 1; 1997 FD₃, 3, 1, 0; 1997 FG₄, 9, 2, 1; 1997 FP₄, 5, 1, 0; 1997 FC₅, 5, 1, 0; 1997 GB, 5, 1, 0; 1997 GH₁, 5, 1, 0; 1997 GT₁, 5, 1, 0; 1997 GR₅, 5, 1, 0; 1997 GW₆, 3, 1, 0; 1997 GZ₇, 5, 1, 0; 1997 GP₁₃, 5, 1, 0; 1997 GX₁₄, 4, 1, 0; 1997 GK₁₆, 10, 2, 1; 1997 GS₁₆, 5, 1, 0; 1997 GD₁₇, 3, 1, 0; 1997 GF₁₇, 4, 1, 0; 1997 GK₁₇, 3, 1, 0; 1997 GL₁₇, 5, 1, 0; 1997 GB₁₉, 5, 1, 0; 1997 GE₂₀, 4, 1, 0; 1997 GL₂₁, 3, 1, 0; 1997 GS₂₁, 4, 1, 0; 1997 GX₂₁, 10, 2, 1; 1997 GC₂₂, 10, 2, 1; 1997 GL₂₂, 4, 1, 0; 1997 GQ₂₂, 10, 2, 1; 1997 GS₂₂, 10, 2, 1; 1997 GT₂₂, 5, 1, 0; 1997 GJ₂₃, 3, 1, 0; 1997 GP₂₃, 3, 1, 0; 1997 GQ₂₃, 5, 1, 0; 1997 GP₂₄, 8, 2, 1; 1997 GA₂₆, 3, 1, 0; 1997 GH₂₇, 5, 1, 0; 1997 GL₃₄, 9, 2, 3; 1997 GW₃₄, 30, 7, 64; 1997 GH₃₆, 5, 1, 0; 1997 GP₃₆, 10, 2, 2; 1997 GT₃₇, 9, 2, 1; 1997 GM₄₁, 3, 1, 0; 1997 GD₄₂, 7, 2, 1; 1997 HQ₅, 1, 0; 1997 HP₈, 5, 1, 0; 1997 HS₁₀, 5, 1, 0; 1997 HK₁₆, 10, 2, 4; 1997 JH₆, 8, 2, 1; 1997 JE₁₀, 5, 1, 0; 1997 JN₁₂, 10, 2, 1; 1997 JH₁₃, 4, 1, 0; 1997 JL₁₃, 3, 1, 0; 1997 JB₁₅, 3, 1, 0; 1997 JM₁₅, 10, 2, 1; 1997 JT₁₅, 10, 2, 1; 1997 JJ₁₆, 10, 2, 1; 1997 JT₁₆, 10, 2, 2; 1997 KC, 9, 2, 1; 1997 KG, 8, 2, 1; 1997 KU₂, 5, 1, 0; 1997 KH₄, 5, 1, 0; 1997 LC, 3, 1, 0; 1997 LU₁, 5, 1, 0; 1997 LE₄, 5, 1, 0; 1997 MR, 4, 1, 0; 1997 MG₁, 5, 1, 0; 1997 ML₂, 5, 1, 0; 1997 MB₉, 9, 2, 1; 1997 NQ₂, 10, 2, 1; 1997 NC₆, 5, 1, 0; 1997 NU₆, 4, 1, 0; 1997 OJ, 3, 1, 0; 1997 PE₂, 3, 1, 0; 1997 QU₁, 4, 1, 0; 1997 QD₂, 10, 2, 2; 1997 UT₂, 5, 1, 0; 1997 UC₂₂, 5, 1, 0; 1997 VG₁, 4, 1, 0; 1997 WU₂₂, 20, 3, 7; 1998 AV₉, 5, 1, 0; 1998 CO₃, 10, 2, 4; 1998 DT₉, 5, 1, 0; 1998 DO₂₃, 5, 1, 0; 1998 DQ₂₇, 24, 3, 623; 1998 DT₃₄, 10, 2, 4; 1998 DB₃₆, 5, 1, 0; 1998 EW₂, 3, 1, 0; 1998 EA₉, 4, 1, 0; 1998 EE₁₀, 9, 2, 2; 1998 EQ₁₀, 8, 2, 1; 1998 EZ₁₀, 15, 3, 550; 1998 ET₁₁, 9, 2, 4; 1998 EY₁₁, 9, 2, 4; 1998 EE₁₂, 4, 1, 0; 1998 FM₈, 8, 2, 5; 1998 FV₁₀, 4, 1, 0; 1998 FB₁₂, 10, 2, 2; 1998 FC₁₂, 4, 1, 0; 1998 FL₁₂, 10, 2, 1; 1998 FM₁₂, 5, 1, 0; 1998 FD₁₅, 5, 1, 0; 1998 FG₁₅, 3, 1, 0; 1998 FV₁₅, 9, 2, 4; 1998 FW₂₀, 3, 1, 0; 1998 FU₂₂, 5, 1, 0; 1998 FR₃₀, 12, 3, 5; 1998 FW₃₀, 3, 1, 0; 1998 FO₃₂, 5, 1, 0; 1998 FF₃₄, 3, 1, 0; 1998 FY₄₁, 3, 1, 0; 1998 FN₄₃, 3, 1, 0; 1998 FK₄₇, 3, 1, 0; 1998 FX₄₇, 9, 2, 4; 1998 FR₄₈, 5, 1, 0; 1998 FM₄₉, 3, 1, 0; 1998 FQ₄₉, 5, 1, 0; 1998 FM₅₄, 9, 2, 4; 1998 FZ₅₅, 5, 1, 0; 1998 FL₅₇, 4, 1, 0; 1998 FT₅₇, 8, 2, 4; 1998 FC₅₈, 5, 1, 0; 1998 FG₅₈, 8, 2, 4; 1998 FS₆₃, 9, 2, 5; 1998 FQ₆₄, 10, 2, 4; 1998 FK₆₅, 5, 1, 0; 1998 FT₆₅, 5, 1, 0; 1998 FC₆₆, 4, 1, 0; 1998 FK₆₇, 8, 2, 25; 1998 FA₆₉, 5, 1, 0; 1998 FA₇₀, 10, 2, 1; 1998 FN₇₀, 8, 2, 4; 1998 FQ₇₂, 3, 1, 0; 1998 FR₇₂, 3, 1, 0; 1998 FF₇₃, 5, 1, 0; 1998 FL₇₄, 3, 1, 0; 1998 FH₇₅, 9, 2, 5; 1998 FL₇₅, 9, 2, 1; 1998 FM₇₈, 10, 2, 1; 1998 FZ₉₇, 5, 1, 0; 1998 FW₁₀₂, 4, 1, 0; 1998 FJ₁₀₃, 13, 3, 5; 1998 FK₁₀₆, 3, 1, 0; 1998 FP₁₀₉, 3, 1, 0; 1998 FT₁₁₀, 4, 1, 0; 1998 FR₁₁₃, 4, 1, 0; 1998 FE₁₁₅, 3, 1, 0; 1998 FK₁₁₅, 5, 1, 0; 1998 FB₁₁₆, 4, 1, 0; 1998 FC₁₁₇, 8, 2, 2; 1998 FC₁₁₈, 3, 1, 0; 1998 FQ₁₂₂, 9, 2, 2; 1998 FN₁₂₆, 5, 1, 0; 1998 FC₁₄₄, 5, 1, 0; 1998 FZ₁₄₄ *, 9, 2, 1; 1998 GF, 5, 1, 0; 1998 GK, 5, 1, 0; 1998 GG, 5, 1, 0; 1998 GO₁₀, 5, 1, 0; 1998 HX, 4, 1, 0; 1998 HX₂, 5, 1, 0; 1998 HH₄, 3, 1, 0; 1998 HT₄, 9, 2, 2; 1998 HE₈, 9, 2, 4; 1998 HN₈, 3, 1, 0; 1998 HB₁₁, 10, 2, 2; 1998 HM₁₁, 3, 1, 0; 1998 HA₁₃, 8, 2, 1; 1998 HW₁₃, 4, 1, 0; 1998 HG₂₃, 4, 1, 0; 1998 HQ₂₃, 3, 1, 0; 1998 HS₂₃, 8, 2, 4; 1998 HW₂₅, 13, 3, 550; 1998 HO₂₇, 4, 1, 0; 1998 HQ₂₇, 9, 2, 1; 1998 HR₂₇, 5, 1, 0; 1998 HO₃₀, 14, 3, 3; 1998 HD₃₂, 10, 2, 2; 1998 HE₃₂, 8, 2, 1; 1998 HN₃₂, 5, 1, 0; 1998 HS₃₂, 5, 1, 0; 1998 HK₃₃, 7, 2, 1; 1998 HO₃₃, 4, 1, 0; 1998 HL₃₄, 5, 1, 0; 1998 HC₃₆, 5, 1, 0; 1998 HK₃₆, 5, 1, 0; 1998 HE₃₈, 5, 1, 0; 1998 HN₃₈, 10, 2, 1; 1998 HO₃₈, 5, 1, 0; 1998 HT₄₂, 5, 1, 0; 1998 HO₄₅, 8, 2, 4; 1998 HN₄₉, 4, 1, 0; 1998 HE₅₁, 3, 1, 0; 1998 HJ₅₁, 4, 1, 0; 1998 HT₅₁, 10, 2, 1; 1998 HU₅₁, 10, 2, 1; 1998 HH₅₂, 9, 2, 3; 1998 HP₅₂, 4, 1, 0; 1998 HG₅₃, 5, 1, 0; 1998 HR₆₇, 5, 1, 0; 1998 HQ₆₈, 5, 1, 0; 1998 HH₈₇, 5, 1, 0; 1998 HB₈₈, 5, 1, 0; 1998 HH₈₈, 5, 1, 0; 1998 HA₉₃, 10, 2, 1; 1998 HH₉₃, 10, 2, 4; 1998 HL₉₃, 10, 2, 1; 1998 HR₉₄, 4, 1, 0; 1998 HV₉₅, 5, 1, 0;

1998 HF₉₆, 5, 1, 0; 1998 HV₉₇, 5, 1, 0; 1998 HC₉₈, 8, 2, 3; 1998 HC₉₉, 4, 1, 0; 1998 HH₉₉, 9, 2, 1; 1998 HY₁₀₀, 4, 1, 0; 1998 HJ₁₀₁, 5, 1, 0; 1998 HW₁₀₁, 3, 1, 0; 1998 HF₁₀₂, 10, 2, 1; 1998 HO₁₀₂, 7, 2, 2; 1998 HS₁₀₂, 5, 1, 0; 1998 HO₁₁₇, 4, 1, 0; 1998 HF₁₂₁, 4, 1, 0; 1998 HK₁₂₄, 5, 1, 0; 1998 HX₁₂₄, 4, 1, 0; 1998 HV₁₄₃, 5, 1, 0; 1998 HY₁₄₇, 9, 2, 1; 1998 HA₁₄₈, 8, 2, 2; 1998 HD₁₄₈, 4, 1, 0; 1998 HO₁₄₈, 5, 1, 0; 1998 HU₁₄₈, 4, 1, 0; 1998 HT₁₄₉, 5, 1, 0; 1998 HX₁₅₁ *, 10, 2, 1; 1998 JE, 4, 1, 0; 1998 JQ, 5, 1, 0; 1998 JT, 15, 2, 1; 1998 JX, 4, 1, 0; 1998 JJ₁, 5, 1, 0; 1998 JQ₁, 3, 1, 0; 1998 JY₁, 4, 1, 0; 1998 JD₂, 5, 1, 0; 1998 JK₄, 10, 2, 1; 1998 KN, 8, 2, 1; 1998 KK₁, 4, 1, 0; 1998 KP₁, 5, 1, 0; 1998 KR₁, 9, 2, 2; 1998 KS₁, 10, 2, 1; 1998 KP₃, 10, 2, 1; 1998 KS₄, 5, 1, 0; 1998 KU₄, 8, 2, 1; 1998 KB₅, 9, 2, 1; 1998 KD₅, 10, 2, 1; 1998 KE₅, 5, 1, 0; 1998 KZ₅, 9, 2, 1; 1998 KP₆, 5, 1, 0; 1998 KX₆, 3, 1, 0; 1998 KC₈, 8, 2, 3; 1998 KP₈, 8, 2, 1; 1998 KZ₈, 4, 1, 0; 1998 KK₉, 8, 2, 1; 1998 KN₉, 8, 2, 1; 1998 KW₉, 7, 2, 1; 1998 KJ₁₀, 12, 3, 526; 1998 KZ₂₆, 3, 1, 0; 1998 KH₃₀, 5, 1, 0; 1998 KH₃₂, 10, 2, 1; 1998 KT₃₂, 10, 2, 1; 1998 KV₃₂, 5, 1, 0; 1998 KJ₃₃, 9, 2, 1; 1998 KW₃₃, 5, 1, 0; 1998 KF₃₅, 10, 2, 1; 1998 KG₃₅, 7, 2, 1; 1998 KL₃₅, 4, 1, 0; 1998 KQ₃₅, 5, 1, 0; 1998 KF₃₆, 8, 2, 4; 1998 KE₃₇, 10, 2, 1; 1998 KL₃₇, 10, 2, 4; 1998 KV₃₇, 5, 1, 0; 1998 KG₃₈, 9, 2, 5; 1998 KZ₃₈, 5, 1, 0; 1998 KM₃₉, 10, 2, 1; 1998 KE₄₀, 4, 1, 0; 1998 KF₄₀, 4, 1, 0; 1998 KP₄₁, 5, 1, 0; 1998 KH₄₄, 4, 1, 0; 1998 KR₄₄, 5, 1, 0; 1998 KT₄₄, 4, 1, 0; 1998 KH₄₅, 7, 2, 1; 1998 KQ₄₅, 9, 2, 2; 1998 KS₄₆, 3, 1, 0; 1998 KW₄₆, 9, 2, 1; 1998 KZ₄₆, 5, 1, 0; 1998 KD₄₇, 10, 2, 1; 1998 KE₄₇, 7, 2, 1; 1998 KR₄₇, 3, 1, 0; 1998 KV₄₇, 10, 2, 4; 1998 KZ₄₇, 5, 1, 0; 1998 KE₄₈, 10, 2, 1; 1998 KL₄₈, 9, 2, 2; 1998 KG₅₁, 9, 2, 1; 1998 KS₅₁, 5, 1, 0; 1998 KA₅₄, 4, 1, 0; 1998 KR₅₄, 3, 1, 0; 1998 KZ₅₄, 7, 2, 5; 1998 KK₅₅, 5, 1, 0; 1998 KL₅₅, 3, 1, 0; 1998 KT₅₅, 5, 1, 0; 1998 KU₅₅, 3, 1, 0; 1998 KJ₅₈, 9, 2, 2; 1998 KF₆₄, 3, 1, 0; 1998 KG₆₄, 9, 2, 1; 1998 KL₆₅, 10, 2, 1; 1998 LK₂, 5, 1, 0; 1998 LN₂, 3, 1, 0; 1998 MC, 5, 1, 0; 1998 MH₃, 4, 1, 0; 1998 MN₇, 10, 2, 1; 1998 MT₇, 5, 1, 0; 1998 MN₁₆, 5, 1, 0; 1998 MZ₂₃, 10, 2, 1; 1998 MS₂₄, 3, 1, 0; 1998 MY₂₉, 3, 1, 0; 1998 MC₃₂, 10, 2, 1; 1998 MF₃₂, 5, 1, 0; 1998 MP₃₂, 4, 1, 0; 1998 MR₃₂, 9, 2, 1; 1998 MT₃₂, 10, 2, 1; 1998 MP₃₃, 5, 1, 0; 1998 MR₃₃, 5, 1, 0; 1998 MW₃₄, 5, 1, 0; 1998 MR₃₅, 10, 2, 1; 1998 MF₃₇, 4, 1, 0; 1998 ML₃₇, 5, 1, 0; 1998 MR₃₇, 4, 1, 0; 1998 MT₃₇, 5, 1, 0; 1998 MV₃₇, 8, 2, 1; 1998 MZ₃₇, 3, 1, 0; 1998 MB₃₈, 4, 1, 0; 1998 MT₄₀, 10, 2, 1; 1998 MV₄₂, 5, 1, 0; 1998 MC₄₅, 5, 1, 0; 1998 NA, 5, 1, 0; 1998 NF, 9, 2, 2; 1998 NH, 5, 1, 0; 1998 OM, 10, 2, 1; 1998 OP, 3, 1, 0; 1998 OQ, 8, 2, 1; 1998 OR, 4, 1, 0; 1998 ON₁, 5, 1, 0; 1998 OH₂, 4, 1, 0; 1998 OZ₄, 5, 1, 0; 1998 OW₅, 4, 1, 0; 1998 OZ₅, 5, 1, 0; 1998 OT₆, 4, 1, 0; 1998 OE₇, 3, 1, 0; 1998 OL₈, 5, 1, 0; 1998 OR₈, 9, 2, 1; 1998 OZ₈, 5, 1, 0; 1998 OG₉, 10, 2, 1; 1998 ON₁₁, 8, 2, 1; 1998 OW₁₁, 4, 1, 0; 1998 OA₁₂, 5, 1, 0; 1998 OV₁₂, 3, 1, 0; 1998 OM₁₃, 5, 1, 0; 1998 OY₁₃, 5, 1, 0; 1998 OB₁₄, 5, 1, 0; 1998 OH₁₄, 5, 1, 0; 1998 OZ₁₄, 4, 1, 0; 1998 PH, 5, 1, 0; 1998 PL, 4, 1, 0; 1998 PQ, 4, 1, 0; 1998 PA₁, 9, 2, 1; 1998 PO₁, 5, 1, 0; 1998 QR, 4, 1, 0; 1998 QW, 4, 1, 0; 1998 QZ, 10, 2, 1; 1998 QN₁, 10, 2, 1; 1998 QR₁, 9, 2, 1; 1998 QA₂, 5, 1, 0; 1998 QN₂, 10, 2, 1; 1998 QE₄, 5, 1, 0; 1998 QO₄, 5, 1, 0; 1998 QK₅, 9, 2, 1; 1998 QT₅, 5, 1, 0; 1998 QV₇, 3, 1, 0; 1998 QK₈, 4, 1, 0; 1998 QQ₈, 5, 1, 0; 1998 QT₈, 4, 1, 0; 1998 QM₉, 9, 2, 1; 1998 QS₉, 5, 1, 0; 1998 QV₉, 5, 1, 0; 1998 QR₁₀, 10, 2, 1; 1998 QE₁₁, 5, 1, 0; 1998 QF₁₁, 5, 1, 0; 1998 QH₁₁, 8, 2, 1; 1998 QS₁₁, 4, 1, 0; 1998 QZ₁₁, 10, 2, 1; 1998 QE₁₂, 5, 1, 0; 1998 QT₁₂, 4, 1, 0; 1998 QV₁₂, 5, 1, 0; 1998 QJ₁₃, 4, 1, 0; 1998 QU₁₃, 5, 1, 0; 1998 QY₁₃, 3, 1, 0; 1998 QE₁₄, 12, 3, 45; 1998 QW₁₅, 3, 1, 0; 1998 QK₁₆, 5, 1, 0; 1998 QM₁₆, 3, 1, 0; 1998 QC₁₇, 5, 1, 0; 1998 QF₁₇, 5, 1, 0; 1998 QT₁₈, 4, 1, 0; 1998 QK₁₉, 5, 1, 0; 1998 QY₁₉, 4, 1, 0; 1998 QV₁₉, 5, 1, 0; 1998 QM₂₀, 5, 1, 0; 1998 QS₂₂, 8, 2, 3; 1998 QV₂₂, 10, 2, 1; 1998 QW₂₂, 5, 1, 0; 1998 QD₂₃, 8, 2,

1999 DEC. 22

M.P.C. 37011

4, 1, 0; 1998 RN₃₅, 4, 1, 0; 1998 RO₄₀, 10, 2, 1; 1998 RQ₄₂, 10, 1, 0; 1998 RO₄₄, 10, 2, 1; 1998 RP₄₇, 5, 1, 0; 1998 RS₄₈, 7, 2, 1; 1998 RF₅₀, 5, 1, 0; 1998 RT₅₀, 5, 1, 0; 1998 RW₅₀, 9, 2, 3; 1998 RD₅₁, 5, 1, 0; 1998 RW₅₂, 5, 1, 0; 1998 RZ₅₂, 4, 1, 0; 1998 RF₅₃, 9, 2, 1; 1998 RL₅₃, 10, 2, 1; 1998 RD₅₄, 4, 1, 0; 1998 RU₅₆, 10, 2, 1; 1998 RK₅₇, 8, 2, 1; 1998 RP₅₈, 3, 1, 0; 1998 RE₅₉, 4, 1, 0; 1998 RU₅₉, 5, 1, 0; 1998 RA₆₀, 4, 1, 0; 1998 RB₆₂, 5, 1, 0; 1998 RN₆₂, 8, 2, 1; 1998 RX₆₃, 7, 2, 1; 1998 RS₆₄, 5, 1, 0; 1998 RB₆₅, 10, 2, 1; 1998 RV₆₆, 3, 1, 0; 1998 RA₆₈, 5, 1, 0; 1998 RK₆₈, 5, 1, 0; 1998 RP₇₀, 10, 2, 1; 1998 RV₇₂, 10, 2, 1; 1998 RS₇₂, 13, 1, 0; 1998 RA₇₃, 9, 2, 1; 1998 RH₇₄, 9, 2, 1; 1998 RJ₇₅, 3, 1, 0; 1998 RW₇₅, 4, 1, 0; 1998 RH₇₆, 3, 1, 0; 1998 RC₇₇, 8, 2, 1; 1998 RV₇₇, 5, 1, 0; 1998 RF₇₈, 8, 2, 1; 1998 RV₇₉, 9, 2, 1; 1998 RB₈₀, 7, 2, 1; 1998 SQ₁₀, 2, 1; 1998 SK₁, 5, 1, 0; 1998 SW₁, 15, 2, 1; 1998 SK₂, 5, 1, 0; 1998 SS₂, 3, 1, 0; 1998 SH₄, 8, 2, 1; 1998 SX₄, 5, 1, 0; 1998 SQ₆, 8, 2, 1; 1998 SP₇, 7, 2, 1; 1998 SG₁₀, 5, 1, 0; 1998 SH₁₀, 3, 1, 0; 1998 SL₁₂, 5, 1, 0; 1998 SF₁₃, 8, 2, 1; 1998 SV₁₄, 3, 1, 0; 1998 SH₂₃, 4, 1, 0; 1998 SC₂₄, 10, 2, 1; 1998 SJ₂₄, 4, 1, 0; 1998 SP₂₄, 14, 3, 3; 1998 SG₂₅, 5, 1, 0; 1998 SN₂₅, 9, 2, 1; 1998 SN₂₇, 10, 2, 1; 1998 SB₂₈, 5, 1, 0; 1998 SB₃₂, 6, 2, 2; 1998 SG₄₃, 5, 1, 0; 1998 SW₄₃, 10, 2, 1; 1998 SM₄₆, 9, 2, 1; 1998 SQ₅₃, 4, 1, 0; 1998 SA₅₅, 3, 1, 0; 1998 SS₅₅, 4, 1, 0; 1998 SD₅₈, 5, 1, 0; 1998 SE₅₈, 4, 1, 0; 1998 SK₅₈, 5, 1, 0; 1998 SM₅₈, 5, 1, 0; 1998 SP₅₉, 8, 2, 1; 1998 SQ₅₉, 9, 2, 1; 1998 SR₆₀, 9, 2, 1; 1998 SX₆₀, 5, 1, 0; 1998 SO₆₁, 9, 2, 1; 1998 SK₆₃, 10, 2, 1; 1998 SM₆₃, 4, 1, 0; 1998 SR₆₃, 3, 1, 0; 1998 SR₇₀, 5, 1, 0; 1998 SZ₇₂, 4, 1, 0; 1998 SM₇₃, 3, 1, 0; 1998 SK₇₅, 5, 1, 0; 1998 SZ₁₀₆, 5, 1, 0; 1998 SN₁₀₈, 4, 1, 0; 1998 SM₁₁₅, 9, 2, 1; 1998 SP₁₁₅, 5, 1, 0; 1998 SY₁₁₅, 5, 1, 0; 1998 SK₁₁₉, 5, 1, 0; 1998 SK₁₂₁, 5, 1, 0; 1998 SZ₁₂₂, 3, 1, 0; 1998 SF₁₂₃, 4, 1, 0; 1998 SF₁₂₇, 5, 1, 0; 1998 SU₁₂₉, 8, 2, 1; 1998 SD₁₃₀, 5, 1, 0; 1998 SN₁₃₀, 7, 2, 1; 1998 SR₁₃₀, 5, 1, 0; 1998 SE₁₃₂, 5, 1, 0; 1998 SG₁₃₂, 4, 1, 0; 1998 SK₁₃₂, 5, 1, 0; 1998 SW₁₃₂, 4, 1, 0; 1998 SP₁₃₃, 9, 2, 1; 1998 SV₁₃₄, 9, 2, 1; 1998 SF₁₃₈, 4, 1, 0; 1998 SE₁₄₇, 5, 1, 0; 1998 SK₁₅₇, 8, 2, 1; 1998 SL₁₆₁, 10, 2, 1; 1998 SR₁₆₂, 4, 1, 0; 1998 SK₁₆₄, 10, 2, 1; 1998 TX₅, 10, 2, 1; 1998 TH₆, 5, 1, 0; 1998 TU₁₂, 5, 1, 0; 1998 TL₁₅, 5, 1, 0; 1998 TG₁₆, 5, 1, 0; 1998 TP₁₇, 15, 3, 2; 1998 TY₁₇, 4, 1, 0; 1998 TD₁₈, 3, 1, 0; 1998 TX₂₈, 3, 1, 0; 1998 TH₂₉, 3, 1, 0; 1998 TW₃₀, 4, 1, 0; 1998 TW₃₄, 5, 1, 0; 1998 UO₂, 4, 1, 0; 1998 UM₈, 5, 1, 0; 1998 UQ₁₅, 5, 1, 0; 1998 UQ₁₆, 3, 1, 0; 1998 UR₁₆, 10, 2, 1; 1998 UK₂₀, 5, 1, 0; 1998 UL₂₀, 4, 1, 0; 1998 UN₂₃, 5, 1, 0; 1998 US₂₄, 8, 2, 1; 1998 UV₂₄, 4, 1, 0; 1998 UF₃₇, 4, 1, 0; 1998 VG₅, 1, 0; 1998 VD₅, 12, 2, 1; 1998 VJ₅, 4, 1, 0; 1998 VB₆, 5, 1, 0; 1998 VU₆, 10, 2, 1; 1998 VN₁₁, 3, 1, 0; 1998 VM₁₅, 5, 1, 0; 1998 VP₂₀, 5, 1, 0; 1998 VL₂₇, 3, 1, 0; 1998 VY₂₉, 5, 1, 0; 1998 VD₃₀, 4, 1, 0; 1998 WX₄, 5, 1, 0; 1998 WZ₅, 3, 1, 0; 1998 WJ₈, 5, 1, 0; 1998 WU₁₀, 5, 1, 0; 1998 WA₁₅, 4, 1, 0; 1998 WJ₁₇, 3, 1, 0; 1998 WA₁₈, 3, 1, 0; 1998 WR₂₁, 5, 1, 0; 1998 XS₁₆, 4, 1, 0; 1998 XS₃₁, 3, 1, 0; 1998 XA₃₃, 4, 1, 0; 1998 XO₇₉, 3, 1, 0; 1998 YW₃, 4, 1, 0; 1998 YW₆, 5, 1, 0; 1998 GK₄, 4, 1, 0; 1998 JL₈₁, 5, 1, 0; 1998 JM₈₁, 4, 1, 0; 1998 KQ₄, 3, 1, 0; 1998 KK₆, 5, 1, 0; 1998 LF₆, 4, 1, 0; 1998 ML₁, 14, 3, 3; 1998 MV₁, 5, 1, 0; 1998 NW₁, 3, 1, 0; 1998 NN₂, 5, 1, 0; 1998 NS₄, 4, 1, 0; 1998 NV₁₁, 4, 1, 0; 1998 NC₅₅, 3, 1, 0; 1998 NF₅₅, 5, 1, 0; 1998 ND₅₆, 3, 1, 0; 1998 NF₅₆, 3, 1, 0; 1998 NM₅₆, 5, 1, 0; 1998 NM₅₆, 8, 2, 3; 1998 NS₅₆, 11, 2, 1; 1998 NW₅₆, 3, 1, 0; 1998 NZ₅₆, 9, 2, 4; 1998 NB₅₇, 5, 1, 0; 1998 NC₅₇, 4, 1, 0; 1998 ND₅₇, 5, 1, 0; 1998 OV₁, 5, 1, 0; 1998 OX₁, 3, 1, 0; 1998 OZ₁, 5, 1, 0; 1998 OD₂, 5, 1, 0; 1998 OE₂, 4, 1, 0; 1998 OJ₂, 4, 1, 0; 1998 OL₂, 5, 1, 0; 1998 OR₂, 5, 1, 0; 1998 OS₂, 5, 1, 0; 1998 OV₂, 5, 1, 0; 1998 OW₂, 5, 1, 0; 1998 OY₂, 9, 2, 2; 1998 OB₃, 4, 1, 0; 1998 OC₃, 9, 2, 1; 1998 OG₃, 5, 1, 0; 1998 OH₃, 5, 1, 0; 1998 OJ₃, 10, 2, 2; 1998 OO₃, 5, 1, 0; 1998 PY₉, 2, 1; 1998 PC₁, 5, 1, 0; 1998 PR₃, 4, 1, 0; 1998 PD₄, 4, 1, 0; 1998 PO₄, 5, 1, 0; 1998 PP₄, 5, 1, 0; 1998 PT₄, 5, 1, 0; 1998 PS₅, 12, 2, 1; 1998 QT₁, 9, 2, 1; 1998 QU₁, 10, 2, 1; 1998 QV₁, 4, 1, 0; 1998 QB₂, 5, 1, 0; 1998 QP₂, 5, 1, 0; 1998 QQ₂, 5, 1, 0; 1998 RC₅, 1, 0; 1998 RN₅, 5, 1, 0; 1998 RS₅, 5, 1, 0; 1998 RT₁, 5, 1, 0; 1998 RW₁, 6, 2, 4; 1998 RX₁, 5, 1, 0; 1998 RZ₁, 18, 4, 9; 1998 RA₂, 5, 1, 0; 1998 RC₂, 5, 1, 0; 1998 RD₂, 5, 1, 0; 1998 RR₂, 5, 1, 0; 1998 RV₂, 5, 1, 0; 1998 RZ₂, 3, 1, 0; 1998 RA₃, 10, 2, 4; 1998 RB₃, 5, 1, 0; 1998 RD₃, 9, 2, 4; 1998 RK₃, 4, 1, 0; 1998 RL₃, 4, 1, 0; 1998 RE₃, 3, 1, 0; 1998 RK₇, 23, 5, 9; 1998 RK₉, 5, 1, 0; 1998 RV₁₁, 9, 2, 1; 1998 RF₁₄, 5, 1, 0; 1998 RN₁₄, 4, 1, 0; 1998 RU₁₅, 4, 1, 0; 1998 RK₁₆, 5, 1, 0; 1998 RV₁₆, 4, 1, 0; 1998 RE₁₇, 3, 1, 0; 1998 RY₁₇, 10, 2, 4; 1998 RN₁₈, 5, 1, 0; 1998 RR₁₈, 8, 2, 5; 1998 RT₁₈, 5, 1, 0; 1998 RU₁₈, 8, 2, 4; 1998 RW₁₈, 10, 2, 4; 1998 RO₁₉, 5, 1, 0; 1998 RT₁₉, 3, 1, 0; 1998 RU₁₉, 4, 1, 0; 1998 RC₂₀, 4, 1, 0; 1998 RD₂₀, 3, 1, 0; 1998 RN₂₀, 3, 1, 0; 1998 RK₂₁, 4, 1, 0; 1998 RL₂₁, 5, 1, 0; 1998 RE₂₂, 14, 3, 5; 1998 RD₂₂, 6, 2, 5; 1998 RT₂₂, 4, 1, 0; 1998 RB₂₃, 6, 2, 1; 1998 RF₂₃, 5, 1, 0; 1998 RH₂₃, 10, 2, 4; 1998 RO₂₃, 3, 1, 0; 1998 RW₂₃, 5, 1, 0; 1998 RW₂₃, 4, 1, 0; 1998 RB₂₄, 10, 2, 4; 1998 RE₂₄, 3, 1, 0; 1998 RR₂₄, 3, 1, 0; 1998 RZ₂₄, 5, 1, 0; 1998 RE₂₅, 5, 1, 0; 1998 RK₂₅, 7, 2, 1; 1998 RL₂₅, 5, 1, 0; 1998 RU₂₅, 4, 1, 0; 1998 RV₂₅, 5, 1, 0; 1998 RX₂₅, 10, 2, 4; 1998 RE₂₆, 5, 1, 0; 1998 RG₂₆, 7, 2, 2; 1998 RN₂₆, 5, 1, 0; 1998 RP₂₆, 3, 1, 0; 1998 RE₂₇, 5, 1, 0; 1998 RG₂₇, 9, 1, 0; 1998 RH₂₇, 5, 1, 0; 1998 RK₂₇, 3, 1, 0; 1998 RL₂₇, 5, 1, 0; 1998 RP₂₇, 7, 2, 5; 1998 RR₂₇, 3, 1, 0; 1998 RV₂₇, 5, 1, 0; 1998 RW₂₇, 9, 2, 1; 1998 RE₂₈, 8, 2, 1; 1998 RQ₂₈, 12, 3, 12; 1998 RW₂₉, 4, 1, 0; 1998 RS₃₀, 4, 1, 0; 1998 RZ₃₀, 3, 1, 0; 1998 RK₃₁, 5, 1, 0; 1998 RL₃₁, 4, 1, 0; 1998 RL₃₁, 5, 1, 0; 1998 RR₃₁, 10, 2, 2; 1998 RS₃₁, 4, 1, 0; 1998 RJ₃₂, 5, 1, 0; 1998 RO₃₂, 4, 1, 0; 1998 RQ₃₂, 4, 1, 0; 1998 RW₃₂, 5, 1, 0; 1998 RA₃₃, 10, 2, 4; 1998 RP₃₃, 5, 1, 0; 1998 RP₃₃, 5, 1, 0; 1998 RC₃₄, 3, 1, 0; 1998 RD₃₄, 8, 2, 4; 1998 RK₃₄, 5, 1, 0; 1998 RM₃₄, 3, 1, 0; 1998 RP₃₄, 5, 1, 0; 1998 RR₃₄, 4, 1, 0; 1998 RW₃₄, 4, 1, 0; 1998 RX₃₄, 5, 1, 0; 1998 RH₃₅, 5, 1, 0; 1998 RL₃₅, 3, 1, 0; 1998 RM₃₅, 5, 1, 0; 1998 RN₃₅, 3, 1, 0; 1998 RO₃₅, 9, 2, 4; 1998 RP₃₅, 4, 1, 0; 1998 RS₃₅, 5, 1, 0; 1998 RC₃₆, 5, 1, 0; 1998 RN₃₆, 5, 1, 0; 1998 RP₃₆, 8, 2, 1; 1998 RR₃₆, 5, 1, 0; 1998 RS₃₆, 7, 2, 4; 1998 RT₃₆, 5, 1, 0; 1998 RB₃₇, 4, 1, 0; 1998 RE₃₇, 3, 1, 0; 1998 RT₃₇, 7, 1, 0; 1998 RY₃₇, 5, 1,

0; 1999 RZ₃₇, 5, 1, 0; 1999 RA₃₈, 10, 2, 4; 1999 RH₃₈, 9, 2, 2; 1999 RN₃₈, 10, 2, 4; 1999 RO₃₈, 5, 1, 0; 1999 RP₃₈, 8, 2, 2; 1999 RT₃₈, 10, 2, 1; 1999 RX₃₈, 3, 1, 0; 1999 RA₃₉, 3, 1, 0; 1999 RL₃₉, 5, 1, 0; 1999 RO₃₉, 8, 2, 4; 1999 RP₃₉, 9, 2, 5; 1999 RU₃₉, 3, 1, 0; 1999 RF₄₁, 3, 1, 0; 1999 RH₄₁, 5, 1, 0; 1999 RV₄₁, 5, 1, 0; 1999 RX₄₁, 5, 1, 0; 1999 RY₄₁, 9, 2, 4; 1999 RZ₄₁, 5, 1, 0; 1999 RC₄₂, 5, 1, 0; 1999 RH₄₂, 5, 1, 0; 1999 RJ₄₂, 10, 2, 1; 1999 RL₄₂, 9, 2, 1; 1999 RM₄₂, 5, 1, 0; 1999 RO₄₂, 3, 1, 0; 1999 RV₄₂, 5, 1, 0; 1999 RX₄₂, 3, 1, 0; 1999 RA₄₃, 4, 1, 0; 1999 RS₄₃, 5, 1, 0; 1999 RT₄₃, 5, 1, 0; 1999 RA₄₄, 10, 2, 1; 1999 RC₄₄, 5, 1, 0; 1999 RH₄₄, 8, 2, 5; 1999 RL₄₄, 3, 1, 0; 1999 RM₄₄, 7, 2, 5; 1999 RS₄₄, 4, 1, 0; 1999 RT₄₄, 5, 1, 0; 1999 RB₄₅, 10, 2, 2; 1999 RJ₄₅, 5, 1, 0; 1999 RU₄₅, 5, 1, 0; 1999 RV₄₅, 3, 1, 0; 1999 RF₄₇, 5, 1, 0; 1999 RL₄₇, 10, 2, 1; 1999 RR₄₇, 3, 1, 0; 1999 RV₄₇, 4, 1, 0; 1999 RT₈₁, 4, 1, 0; 1999 RV₈₁, 8, 2, 4; 1999 RA₈₃, 5, 1, 0; 1999 RJ₈₃, 4, 1, 0; 1999 RB₈₄, 3, 1, 0; 1999 RN₈₄, 10, 2, 4; 1999 RM₈₅, 5, 1, 0; 1999 RA₈₆, 4, 1, 0; 1999 RS₈₆, 5, 1, 0; 1999 RT₈₆, 3, 1, 0; 1999 RV₈₆, 6, 2, 5; 1999 RW₈₆, 9, 2, 5; 1999 RA₈₇, 8, 2, 5; 1999 RD₈₇, 3, 1, 0; 1999 RJ₈₈, 9, 2, 5; 1999 RK₈₈, 5, 1, 0; 1999 RR₈₈, 4, 1, 0; 1999 RT₈₈, 7, 2, 4; 1999 RW₈₈, 3, 1, 0; 1999 RX₈₈, 9, 2, 4; 1999 RJ₈₉, 4, 1, 0; 1999 RK₈₉, 4, 1, 0; 1999 RP₈₉, 8, 2, 5; 1999 RS₈₉, 8, 2, 1; 1999 RG₉₀, 3, 1, 0; 1999 RR₉₀, 5, 1, 0; 1999 RO₉₁, 10, 2, 4; 1999 RP₉₁, 9, 2, 4; 1999 RT₉₁, 4, 1, 0; 1999 RZ₉₁, 9, 2, 4; 1999 RC₉₂, 5, 1, 0; 1999 RE₉₂, 9, 2, 4; 1999 RF₉₂, 8, 2, 1; 1999 RH₉₂, 5, 1, 0; 1999 RK₉₂, 10, 2, 4; 1999 RO₉₂, 9, 2, 5; 1999 RP₉₂, 15, 2, 4; 1999 RX₉₂, 3, 1, 0; 1999 RB₉₃, 10, 2, 4; 1999 RN₉₃, 5, 1, 0; 1999 RQ₉₃, 4, 1, 0; 1999 RT₉₃, 5, 1, 0; 1999 RC₉₄, 4, 1, 0; 1999 RD₉₄, 4, 1, 0; 1999 RK₉₄, 10, 2, 4; 1999 RO₉₄, 5, 1, 0; 1999 RE₉₅, 4, 1, 0; 1999 RF₉₅, 4, 1, 0; 1999 RG₉₅, 5, 1, 0; 1999 RR₉₅, 9, 2, 4; 1999 RS₉₅, 7, 2, 1; 1999 RX₉₅, 3, 1, 0; 1999 RY₉₅, 4, 1, 0; 1999 RZ₉₅, 4, 1, 0; 1999 RL₉₆, 4, 1, 0; 1999 RM₉₆, 4, 1, 0; 1999 RR₉₇, 3, 1, 0; 1999 RH₉₈, 5, 1, 0; 1999 RM₉₈, 4, 1, 0; 1999 RY₉₈, 4, 1, 0; 1999 RZ₉₈, 4, 1, 0; 1999 RC₉₉, 4, 1, 0; 1999 RT₁₀₀, 5, 1, 0; 1999 RW₁₀₀, 19, 3, 3; 1999 RD₁₀₂, 4, 1, 0; 1999 RN₁₀₂, 3, 1, 0; 1999 RQ₁₀₂, 3, 1, 0; 1999 RT₁₀₂, 5, 1, 0; 1999 RZ₁₀₂, 3, 1, 0; 1999 RA₁₀₃, 5, 1, 0; 1999 RB₁₀₃, 4, 1, 0; 1999 RE₁₀₃, 4, 1, 0; 1999 RG₁₀₃, 4, 1, 0; 1999 RV₁₀₃, 4, 1, 0; 1999 RZ₁₀₃, 5, 1, 0; 1999 RJ₁₀₄, 7, 2, 2; 1999 RK₁₀₄, 15, 3, 2; 1999 RZ₁₀₄, 5, 1, 0; 1999 RE₁₀₅, 4, 1, 0; 1999 RH₁₀₅, 5, 1, 0; 1999 RT₁₀₅, 5, 1, 0; 1999 RU₁₀₅, 5, 1, 0; 1999 RE₁₀₆, 4, 1, 0; 1999 RX₁₀₈, 5, 1, 0; 1999 RD₁₀₉, 3, 1, 0; 1999 RJ₁₀₉, 5, 1, 0; 1999 RR₁₀₉, 9, 1, 0; 1999 RI₁₁₃, 20, 3, 2; 1999 RT₁₁₇, 5, 1, 0; 1999 RP₁₂₀, 3, 1, 0; 1999 RE₁₂₃, 4, 1, 0; 1999 RN₁₂₃, 4, 1, 0; 1999 RQ₁₂₃, 5, 1, 0; 1999 RB₁₂₄, 4, 1, 0; 1999 RG₁₂₄, 5, 1, 0; 1999 RL₁₂₄, 5, 1, 0; 1999 RZ₁₂₅, 3, 1, 0; 1999 RF₁₂₆, 5, 1, 0; 1999 RG₁₃₂, 5, 1, 0; 1999 RP₁₃₂, 5, 1, 0; 1999 RA₁₃₃, 5, 1, 0; 1999 RL₁₄₂, 9, 2, 5; 1999 RV₁₄₂, 8, 2, 1; 1999 RW₁₄₂, 8, 2, 4; 1999 RM₁₄₃, 9, 2, 4; 1999 RN₁₄₃, 4, 1, 0; 1999 RT₁₄₃, 7, 2, 5; 1999 RW₁₄₃, 3, 1, 0; 1999 RB₁₄₅, 5, 1, 0; 1999 RP₁₄₅, 4, 1, 0; 1999 RG₁₄₇, 3, 1, 0; 1999 RY₁₄₇, 5, 1, 0; 1999 RA₁₄₈, 5, 1, 0; 1999 RM₁₄₉, 4, 1, 0; 1999 RB₁₅₂, 3, 1, 0; 1999 RR₁₅₂, 4, 1, 0; 1999 RY₁₅₂, 4, 1, 0; 1999 RE₁₅₄, 3, 1, 0; 1999 RK₁₅₅, 4, 1, 0; 1999 RO₁₅₅, 5, 1, 0; 1999 RZ₁₅₅, 3, 1, 0; 1999 RL₁₅₆, 3, 1, 0; 1999 RN₁₆₂, 17, 4, 9; 1999 RO₁₆₂, 10, 2, 4; 1999 RD₁₆₃, 3, 1, 0; 1999 RP₁₆₃, 3, 1, 0; 1999 RH₁₆₇, 4, 1, 0; 1999 RJ₁₆₇, 5, 1, 0; 1999 RA₁₆₈, 10, 2, 4; 1999 RK₁₆₈, 5, 1, 0; 1999 RU₁₆₈, 4, 1, 0; 1999 RZ₁₆₈, 7, 2, 4; 1999 RD₁₆₉, 5, 1, 0; 1999 RG₁₆₉, 4, 1, 0; 1999 RX₁₇₁, 5, 1, 0; 1999 RM₁₇₂, 8, 2, 1; 1999 RL₁₇₃, 3, 1, 0; 1999 RV₁₇₅, 5, 1, 0; 1999 RZ₁₇₅, 3, 1, 0; 1999 RG₁₇₆, 4, 1, 0; 1999 RG₁₇₇, 5, 1, 0; 1999 RT₁₇₇, 4, 1, 0; 1999 RN₁₇₈, 3, 1, 0; 1999 RC₁₇₉, 5, 1, 0; 1999 RY₁₈₀, 4, 1, 0; 1999 RK₁₈₁, 5, 1, 0; 1999 RG₁₈₂, 9, 2, 5; 1999 RS₁₈₂, 3, 1, 0; 1999 RX₁₈₂

1999 TO, 4, 1, 0; 1999 TP, 5, 1, 0; 1999 TT, 9, 2, 2; 1999 TV, 10, 2, 2; 1999 TW, 8, 2, 2; 1999 TA₁, 3, 1, 0; 1999 TB₁, 10, 2, 2; 1999 TO₁, 5, 1, 0; 1999 TP₁, 5, 1, 0; 1999 TV₁, 9, 2, 2; 1999 TZ₁, 4, 1, 0; 1999 TA₂, 10, 1, 0; 1999 TD₂, 18, 4, 9; 1999 TF₂, 10, 2, 2; 1999 TJ₂, 5, 1, 0; 1999 TQ₂, 4, 1, 0; 1999 TR₂, 4, 1, 0; 1999 TZ₂, 5, 1, 0; 1999 TN₃, 4, 1, 0; 1999 TA₄, 9, 2, 1; 1999 TM₄, 9, 2, 1; 1999 TW₄, 4, 1, 0; 1999 TD₅, 5, 1, 0; 1999 TK₅, 8, 2, 2; 1999 TO₅, 3, 1, 0; 1999 TQ₅, 5, 1, 0; 1999 TS₅, 5, 1, 0; 1999 TV₅, 12, 3, 2; 1999 TV₅, 5, 1, 0; 1999 TF₆, 4, 1, 0; 1999 TJ₆, 5, 1, 0; 1999 TK₆, 7, 2, 2; 1999 TP₆, 7, 2, 2; 1999 TV₆, 3, 1, 0; 1999 TK₇, 3, 1, 0; 1999 TO₇, 10, 2, 1; 1999 TP₇, 5, 1, 0; 1999 TS₇, 3, 1, 0; 1999 TV₇, 10, 2, 4; 1999 TB₈, 5, 1, 0; 1999 TD₈, 5, 1, 0; 1999 TF₈, 5, 1, 0; 1999 TL₈, 3, 1, 0; 1999 TX₈, 3, 1, 0; 1999 TM₉, 5, 1, 0; 1999 TT₉, 5, 1, 0; 1999 TZ₉, 5, 1, 0; 1999 TT₁₀, 9, 2, 1; 1999 TW₁₀, 8, 2, 1; 1999 TX₁₀, 3, 1, 0; 1999 TF₁₁, 10, 2, 2; 1999 TH₁₁, 8, 2, 2; 1999 TL₁₁, 5, 1, 0; 1999 TN₁₁, 8, 2, 1; 1999 TP₁₁, 10, 2, 2; 1999 TQ₁₁, 5, 1, 0; 1999 TU₁₁, 5, 1, 0; 1999 TW₁₁, 5, 1, 0; 1999 TA₁₂, 3, 1, 0; 1999 TB₁₂, 9, 2, 1; 1999 TC₁₂, 3, 1, 0; 1999 TH₁₂, 3, 1, 0; 1999 TP₁₂, 10, 2, 2; 1999 TT₁₂, 5, 1, 0; 1999 TW₁₂, 10, 2, 2; 1999 TZ₁₂, 10, 2, 1; 1999 TB₁₃, 3, 1, 0; 1999 TC₁₃, 10, 2, 1; 1999 TF₁₃, 5, 1, 0; 1999 TG₁₃, 10, 2, 1; 1999 TH₁₃, 5, 1, 0; 1999 TL₁₃, 4, 1, 0; 1999 TP₁₃, 5, 1, 0; 1999 TQ₁₃, 5, 1, 0; 1999 TY₁₃, 5, 1, 0; 1999 TF₁₄, 10, 2, 2; 1999 TG₁₄, 10, 2, 2; 1999 TK₁₄, 5, 1, 0; 1999 TM₁₄, 9, 2, 1; 1999 TO₁₄, 15, 3, 2; 1999 TW₁₄, 10, 2, 1; 1999 TX₁₄, 8, 2, 1; 1999 TY₁₄, 4, 1, 0; 1999 TD₁₅, 10, 2, 4; 1999 TG₁₅, 5, 1, 0; 1999 TE₁₅, 5, 1, 0; 1999 TV₁₅, 5, 1, 0; 1999 TY₁₅, 5, 1, 0; 1999 TC₁₆, 5, 1, 0; 1999 TD₁₆, 5, 1, 0; 1999 TE₁₆, 5, 1, 0; 1999 TH₁₆, 8, 2, 1; 1999 TJ₁₆, 9, 2, 2; 1999 TS₁₆, 4, 1, 0; 1999 TD₁₆, 5, 1, 0; 1999 TE₁₇, 10, 2, 1; 1999 TF₁₇, 8, 2, 1; 1999 TG₁₇, 10, 2, 3; 1999 TM₁₇, 4, 1, 0; 1999 TO₁₇, 9, 2, 1; 1999 TS₁₇, 5, 1, 0; 1999 TU₁₇, 4, 1, 0; 1999 TV₁₇, 5, 1, 0; 1999 TY₁₇, 9, 2, 1; 1999 TF₁₈, 10, 2, 1; 1999 TJ₁₈, 5, 1, 0; 1999 TL₁₈, 10, 2, 2; 1999 TU₁₈, 5, 1, 0; 1999 TY₁₈, 10, 2, 1; 1999 TH₁₉, 4, 1, 0; 1999 TJ₁₉, 5, 1, 0; 1999 TG₂₀, 8, 2, 1; 1999 TH₂₀, 5, 1, 0; 1999 TP₂₁, 5, 1, 0; 1999 TQ₂₁, 4, 1, 0; 1999 TR₂₁, 4, 1, 0; 1999 TH₂₄, 4, 1, 0; 1999 TL₂₆, 5, 1, 0; 1999 TP₂₆, 3, 1, 0; 1999 TU₂₆, 10, 2, 2; 1999 TX₂₆, 4, 1, 0; 1999 TC₂₇, 9, 2, 1; 1999 TK₂₇, 10, 2, 1; 1999 TL₂₇, 5, 1, 0; 1999 TM₂₇, 7, 2, 1; 1999 TN₂₇, 5, 1, 0; 1999 TP₂₇, 8, 2, 1; 1999 TQ₂₇, 10, 2, 1; 1999 TS₂₇, 5, 1, 0; 1999 TW₂₇, 10, 2, 1; 1999 TV₂₈, 5, 1, 0; 1999 TW₂₈, 8, 2, 4; 1999 TX₂₈, 3, 1, 0; 1999 TD₂₉, 10, 2, 4; 1999 TF₂₉, 10, 2, 4; 1999 TG₂₉, 9, 2, 4; 1999 TP₂₉, 4, 1, 0; 1999 TF₃₀, 10, 2, 4; 1999 TL₃₀, 3, 1, 0; 1999 TR₃₀, 4, 1, 0; 1999 TX₃₀, 4, 1, 0; 1999 TA₃₁, 13, 3, 5; 1999 TE₃₁, 5, 1, 0; 1999 TM₃₂, 9, 2, 2; 1999 TQ₃₄, 5, 1, 0; 1999 TS₃₄, 4, 1, 0; 1999 TB₃₅, 4, 1, 0; 1999 TH₃₅, 4, 1, 0; 1999 TR₃₅, 5, 1, 0; 1999 TY₃₅, 3, 1, 0; 1999 UA₃, 3, 1, 0; 1999 UE₅, 5, 1, 0; 1999 UG₉, 9, 2, 2; 1999 UK₅, 5, 1, 0; 1999 US₁₅, 15, 3, 2; 1999 UT₁₂, 12, 3, 2; 1999 UV₄, 4, 1, 0; 1999 UA₁, 3, 1, 0; 1999 UC₁, 3, 1, 0; 1999 UD₁, 3, 1, 0; 1999 UF₁, 4, 1, 0; 1999 UQ₁, 10, 2, 1; 1999 UR₁, 10, 2, 1; 1999 UV₁, 5, 1, 0; 1999 UW₁, 5, 1, 0; 1999 UY₁, 10, 2, 1; 1999 UE₂, 10, 2, 1; 1999 UG₂, 10, 2, 1; 1999 UK₂, 5, 1, 0; 1999 UP₂, 5, 1, 0; 1999 UT₂, 4, 1, 0; 1999 UU₂, 5, 1, 0; 1999 UW₂, 5, 1, 0; 1999 UX₂, 8, 2, 2; 1999 UZ₂, 10, 2, 2; 1999 UK₃, 8, 2, 2; 1999 UN₃, 5, 1, 0; 1999 UO₃, 4, 1, 0; 1999 UP₃, 10, 2, 1; 1999 UR₃, 5, 1, 0; 1999 US₃, 4, 1, 0; 1999 UT₃, 10, 2, 2; 1999 UU₃, 5, 1, 0; 1999 UA₄, 5, 1, 0; 1999 UE₄, 4, 1, 0; 1999 UG₄, 8, 2, 2; 1999 UL₄, 5, 1, 0; 1999 UN₄, 5, 1, 0; 1999 UP₄, 5, 1, 0; 1999 UD₅, 8, 2, 1; 1999 UN₅, 5, 1, 0; 1999 UR₅, 10, 2, 1; 1999 UT₅, 5, 1, 0; 1999 UY₅, 5, 1, 0; 1999 UD₆, 9, 2, 1; 1999 UK₆, 10, 2, 1; 1999 UN₆, 5, 1, 0; 1999 UO₆, 8, 2, 1; 1999 UZ₆, 5, 1, 0; 1999 UO₇, 5, 1, 0; 1999 UR₇, 5, 1, 0; 1999 US₇, 10, 2, 1; 1999 UE₇, 3, 1, 0; 1999 UW₇, 10, 2, 1; 1999 UY₇, 5, 1, 0; 1999 UZ₇, 5, 1, 0; 1999 UD₈, 7, 2, 1; 1999 UE₈, 5, 1, 0; 1999 UG₈, 8, 2, 1; 1999 UH₈, 4, 1, 0; 1999 UJ₈, 10, 2, 1; 1999 UL₈, 5, 1, 0; 1999 UM₈, 10, 2, 1; 1999 UN₈, 5, 1, 0; 1999 UQ₈, 10, 2, 1; 1999 UJ₈, 9, 2, 1; 1999 UV₈, 5, 1, 0; 1999 UW₈, 5, 1, 0; 1999 UX₈, 5, 1, 0; 1999 UB₉, 8, 2, 1; 1999 UC₉, 10, 2, 1; 1999 UD₉, 10, 2, 1; 1999 UE₉, 10, 2, 1; 1999 UF₉, 9, 2, 1; 1999 UG₉, 5, 1, 0; 1999 UH₉, 10, 2, 1; 1999 UJ₉, 10, 2, 1; 1999 UK₉, 9, 2, 1; 1999 UL₉, 10, 2, 1; 1999 UN₉, 10, 2, 1; 1999 UO₉, 8, 2, 1; 1999 UX₉, 14, 3, 2; 1999 UG₁₁, 5, 1, 0; 1999 UM₁₁, 5, 1, 0; 1999 UN₁₁, 9, 2, 2; 1999 UO₁₂, 4, 1, 0; 1999 UB₁₃, 9, 2, 4; 1999 UF₁₃, 9, 2, 4; 1999 UY₁₃, 5, 1, 0; 1999 UJ₁₃, 4, 1, 0; 1999 UL₁₃, 10, 2, 4; 1999 UN₁₃, 9, 2, 5; 1999 UA₁₅, 5, 1, 0; 1999 UC₁₅, 5, 1, 0; 1999 UD₁₅, 7, 2, 2; 1999 UF₁₅, 4, 1, 0; 1999 UK₁₅, 8, 2, 2; 1999 UM₁₅, 5, 1, 0; 1999 UV₁₅, 10, 2, 2; 1999 UC₁₆, 5, 1, 0; 1999 UL₁₆, 4, 1, 0; 1999 UQ₁₆, 10, 2, 2; 1999 US₁₆, 5, 1, 0; 1999 UF₁₇, 9, 2, 1; 1999 UH₁₈, 7, 2, 4; 1999 US₂₃, 10, 2, 4; 1999 UN₂₅, 10, 2, 1; 1999 UO₂₅, 10, 2, 1; 1999 UQ₂₅, 10, 2, 1; 1999 UR₂₅, 5, 1, 0; 1999 UT₂₅, 5, 1, 0; 1999 VA₉, 9, 2, 1; 1999 VB₉, 9, 2, 1; 1999 VJ₅, 1, 0; 1999 VK₉, 9, 2, 3; 1999 VN₅, 5, 1, 0; 1999 VP₅, 5, 1, 0; 1999 VQ₁₀, 10, 2, 1; 1999 VR₁₀, 10, 2, 1; 1999 VV₂₁, 4, 9; 1999 VW₅, 5, 1, 0; 1999 VZ₉, 9, 2, 5; 1999 VB₁, 4, 1, 0; 1999 VF₁, 10, 2, 1; 1999 VK₁, 5, 1, 0; 1999 VM₁, 10, 2, 1; 1999 VN₁, 5, 1, 0; 1999 VS₁, 10, 2, 1; 1999 VT₁, 5, 1, 0; 1999 VV₁, 5, 1, 0; 1999 VW₁, 5, 1, 0; 1999 VZ₁, 8, 2, 1; 1999 VA₂, 9, 2, 1; 1999 VC₂, 9, 2, 1; 1999 VD₂, 10, 2, 1; 1999 VG₂, 3, 1, 0; 1999 VH₂, 5, 1, 0; 1999 VJ₂, 3, 1, 0; 1999 VM₂, 10, 2, 8; 1999 VO₂, 9, 2, 1; 1999 VQ₂, 8, 2, 1; 1999 VU₂, 5, 1, 0; 1999 VV₂, 4, 1, 0; 1999 VX₂, 10, 2, 3; 1999 VG₃, 9, 2, 1; 1999 VT₃, 5, 1, 0; 1999 VA₄, 9, 2, 4; 1999 VD₄, 10, 2, 2; 1999 VH₄, 5, 1, 0; 1999 VL₄, 9, 2, 4; 1999 VR₄, 5, 1, 0; 1999 VW₄, 5, 1, 0; 1999 VX₄, 8, 2, 1; 1999 VY₄, 4, 1, 0; 1999 VZ₄, 3, 1, 0; 1999 VA₅, 10, 2, 1; 1999 VB₅, 8, 2, 1; 1999 VC₅, 5, 1, 0; 1999 VD₅, 8, 2, 1; 1999 VF₅, 9, 2, 1; 1999 VH₅, 5, 1, 0; 1999 VK₅, 4, 1, 0; 1999 VL₅, 10, 2, 1; 1999 VN₅, 15, 3, 2; 1999 VO₅, 10, 2, 1; 1999 VP₅, 5, 1, 0; 1999 VU₅, 10, 2, 1; 1999 VV₅, 9, 2, 1; 1999 VW₅, 10, 2, 1; 1999 VX₅, 10, 2, 1; 1999 VY₅, 10, 2, 1; 1999 VZ₅, 10, 2, 1; 1999 VA₆, 5, 1, 0; 1999 VB₆, 10, 2, 1; 1999 VC₆, 9, 2, 1; 1999 VD₆, 10, 2, 1; 1999 VE₆, 10, 2, 1; 1999 VF₆, 9, 2, 1; 1999 VG₆, 10, 2, 1; 1999 VH₆, 4, 1, 0; 1999 VJ₆, 14, 3, 3; 1999 VK₆, 5, 1, 0; 1999 VM₆, 12, 3, 2; 1999 VU₆, 4, 1, 0; 1999 VV₆, 9, 2, 1; 1999 VW₆, 4, 1, 0; 1999 VY₆, 3, 1, 0; 1999 VA₇, 4, 1, 0; 1999 VB₇, 4, 1, 0;

0; 1999 VC₇, 5, 1, 0; 1999 VD₇, 5, 1, 0; 1999 VF₇, 4, 1, 0; 1999 VH₇, 10, 2, 1; 1999 VJ₇, 9, 2, 1; 1999 VK₇, 5, 1, 0; 1999 VL₇, 4, 1, 0; 1999 VN₇, 5, 1, 0; 1999 VO₇, 10, 2, 1; 1999 VP₇, 5, 1, 0; 1999 VQ₇, 8, 2, 1; 1999 VR₇, 10, 2, 1; 1999 VS₇, 5, 1, 0; 1999 VT₇, 10, 2, 1; 1999 VU₇, 8, 2, 1; 1999 VV₇, 9, 2, 1; 1999 VY₇, 4, 1, 0; 1999 VZ₇, 10, 2, 1; 1999 VB₈, 5, 1, 0; 1999 VC₈, 10, 2, 1; 1999 VD₈, 10, 2, 1; 1999 VF₈, 10, 2, 3; 1999 VG₈, 10, 2, 1; 1999 VH₈, 10, 2, 1; 1999 VJ₈, 8, 2, 1; 1999 VK₈, 5, 1, 0; 1999 VM₈, 4, 1, 0; 1999 VO₈, 5, 1, 0; 1999 VP₈, 4, 1, 0; 1999 VQ₈, 10, 2, 1; 1999 VR₈, 10, 2, 1; 1999 VS₈, 4, 1, 0; 1999 VT₈, 5, 1, 0; 1999 VU₈, 5, 1, 0; 1999 VV₈, 10, 2, 1; 1999 VY₈, 4, 1, 0; 1999 VZ₈, 4, 1, 0; 1999 VB₉, 3, 1, 0; 1999 VC₉, 5, 1, 0; 1999 VD₉, 3, 1, 0; 1999 VE₉, 10, 2, 1; 1999 VF₉, 5, 1, 0; 1999 VG₉, 5, 1, 0; 1999 VH₉, 5, 1, 0; 1999 VJ₉, 10, 2, 1; 1999 VL₉, 5, 1, 0; 1999 VM₉, 10, 2, 1; 1999 VN₉, 10, 2, 1; 1999 VO₉, 10, 2, 1; 1999 VQ₉, 5, 1, 0; 1999 VR₉, 10, 2, 1; 1999 VT₉, 4, 1, 0; 1999 VU₉, 4, 1, 0; 1999 VW₉, 4, 1, 0; 1999 VX₉, 4, 1, 0; 1999 VY₉, 5, 1, 0; 1999 VZ₉, 5, 1, 0; 1999 VA₁₀, 8, 2, 1; 1999 VB₁₀, 5, 1, 0; 1999 VE₁₀, 5, 1, 0; 1999 VF₁₀, 5, 1, 0; 1999 VH₁₀, 10, 2, 1; 1999 VJ₁₀, 9, 2, 1; 1999 VK₁₀, 4, 1, 0; 1999 VL₁₀, 4, 1, 0; 1999 VM₁₀, 10, 2, 1; 1999 VN₁₀, 5, 1, 0; 1999 VO₁₀, 10, 2, 3; 1999 VP₁₀, 15, 3, 2; 1999 VQ₁₀, 5, 1, 0; 1999 VR₁₀, 10, 2, 1; 1999 VS₁₀, 5, 1, 0; 1999 VT₁₀, 10, 2, 1; 1999 VV₁₀, 10, 2, 5; 1999 VW₁₀, 5, 1, 0; 1999 VY₁₀, 4, 1, 0; 1999 VZ₁₀, 3, 1, 0; 1999 VD₁₁, 10, 2, 1; 1999 VF₁₁, 5, 1, 0; 1999 VG₁₁, 7, 2, 1; 1999 VH₁₁, 10, 2, 1; 1999 VJ₁₁, 10, 2, 1; 1999 VK₁₁, 8, 2, 1; 1999 VO₁₁, 5, 1, 0; 1999 VQ₁₁, 9, 1, 0; 1999 VR₁₁, 4, 1, 0; 1999 VS₁₁, 8, 2, 1; 1999 VV₁₁, 9, 2, 1; 1999 VW₁₁, 5, 1, 0; 1999 VX₁₁, 5, 1, 0; 1999 VY₁₁, 5, 1, 0; 1999 VZ₁₁, 5, 1, 0; 1999 VA₁₂, 5, 1, 0; 1999 VB₁₂, 5, 1, 0; 1999 VC₁₂, 5, 1, 0; 1999 VD₁₂, 5, 1, 0; 1999 VE₁₂, 5, 1, 0; 1999 VH₁₂, 8, 2, 1; 1999 VM₁₂, 9, 2, 1; 1999 VN₁₂, 10, 2, 1; 1999 VO₁₂, 10, 2, 1; 1999 VP₁₂, 9, 1, 0; 1999 VQ₁₂, 5, 1, 0; 1999 VR₁₂, 10, 2, 1; 1999 VS₁₂, 10, 2, 1; 1999 VT₁₂, 10, 2, 1; 1999 VU₁₂, 10, 2, 1; 1999 VV₁₂, 5, 1, 0; 1999 VW₁₂, 3, 1, 0; 1999 VX₁₂, 8, 2, 1; 1999 VE₁₄, 17, 4, 8; 1999 VK₁₄, 10, 2, 1; 1999 VL₁₄, 10, 2, 1; 1999 VL₁₈, 7, 2, 1; 1999 VA₁₉, 9, 2, 1; 1999 VB₁₉, 9, 2, 1; 1999 VC₁₉, 5, 1, 0; 1999 VD₁₉, 8, 2, 1; 1999 VE₁₉, 10, 2, 1; 1999 VF₁₉, 10, 2, 1; 1999 VG₁₉, 7, 2, 1; 1999 VH₁₉, 3, 1, 0; 1999 VJ₁₉, 10, 2, 1; 1999 VK₁₉, 10, 2, 2; 1999 VM₁₉, 5, 1, 0; 1999 VP₁₉, 8, 2, 1; 1999 VR₁₉, 10, 2, 1; 1999 VS₁₉, 4, 1, 0; 1999 VU₁₉, 5, 1, 0; 1999 VV₁₉, 4, 1, 0; 1999 VX₁₉, 10, 2, 1; 1999 VY₁₉, 9, 2, 1; 1999 VB₂₀, 5, 1, 0; 1999 VE₂₀, 4, 1, 0; 1999 VH₂₀, 5, 1, 0; 1999 VK₂₀, 5, 1, 0; 1999 VL₂₀, 5, 1, 0; 1999 VM₂₀, 5, 1, 0; 1999 VN₂₀, 10, 2, 1; 1999 VO₂₀, 5, 1, 0; 1999 VP₂₀, 5, 1, 0; 1999 VQ₂₀, 5, 1, 0; 1999 VS₂₀, 5, 1, 0; 1999 VT₂₀, 5, 1, 0; 1999 VU₂₀, 5, 1, 0; 1999 VV₂₀, 4, 1, 0; 1999 VX₂₀, 4, 1, 0; 1999 VZ₂₀, 10, 2, 1; 1999 VA₂₁, 5, 1, 0; 1999 VB₂₁, 10, 2, 1; 1999 VC₂₁, 10, 2, 1; 1999 VD₂₁, 5, 1, 0; 1999 VE₂₁, 10, 2, 1; 1999 VF₂₁, 9, 2, 1; 1999 VG₂₁, 3, 1, 0; 1999 VH₂₁, 5, 1, 0; 1999 VJ₂₁, 10, 2, 1; 1999 VK₂₁, 8, 2, 1; 1999 VL₂₁, 3, 1, 0; 1999 VM₂₁, 5, 1, 0; 1999 VN₂₁, 10, 2, 1; 1999 VO₂₁, 5, 1, 0; 1999 VP₂₁, 9, 2, 1; 1999 VQ₂₁, 3, 1, 0; 1999 VR₂₁, 5, 1, 0; 1999 VS₂₁, 10, 2, 1; 1999 VU₂₁, 8, 2, 1; 1999 VX₂₁, 3, 1, 0; 1999 VZ₂₁, 5, 1, 0; 1999 VB₂₂, 5, 1, 0; 1999 VC₂₂, 5, 1, 0; 1999 VE₂₂, 5, 1, 0; 1999 VK₂₂, 9, 2, 1; 1999 VL₂₂, 5, 1, 0; 1999 VN₂₂, 5, 1, 0; 1999 VP₂₂, 4, 1, 0; 1999 VQ₂₂, 4, 1, 0; 1999 VR₂₂, 10, 2, 1; 1999 VT₂₂, 5, 1, 0; 1999 VY₂₂, 9, 2, 1; 1999 VZ₂₂, 5, 1, 0; 1999 VA₂₃, 10, 2, 1; 1999 VC₂₃, 10, 2, 1; 1999 VE₂₃, 10, 2, 2; 1999 VG₂₃, 4, 1, 0; 1999 VH₂₃, 15, 3, 3; 1999 VJ₂₃, 5, 1, 0; 1999 VM₂₃, 4, 1, 0; 1999 VN₂₃, 4, 1, 0; 1999 VO₂₃, 4, 1, 0; 1999 VP₂₃, 5, 1, 0; 1999 VQ₂₃, 5, 1, 0; 1999 VR₂₃, 10, 2, 1; 1999 VS₂₃, 5, 1, 0; 1999 VT₂₃, 5, 1, 0; 19

1999 DEC. 22

M.P.C. 37013

4, 1, 0; 1999 VD₃₂, 8, 2, 1; 1999 VF₃₂, 9, 2, 1; 1999 VG₃₂, 9, 2, 1; 1999 VJ₃₂, 9, 2, 1; 1999 VL₃₂, 8, 2, 1; 1999 VM₃₂, 10, 2, 1; 1999 VP₃₂, 6, 2, 1; 1999 VR₃₂, 10, 2, 1; 1999 VS₃₂, 10, 2, 1; 1999 VU₃₂, 3, 1, 0; 1999 VV₃₂, 7, 2, 1; 1999 VW₃₂, 8, 2, 1; 1999 VX₃₂, 4, 1, 0; 1999 VZ₃₂, 9, 2, 1; 1999 VA₃₃, 10, 2, 1; 1999 VC₃₃, 10, 2, 1; 1999 VD₃₃, 4, 1, 0; 1999 VE₃₃, 9, 2, 1; 1999 VF₃₃, 9, 2, 1; 1999 VG₃₃, 9, 2, 1; 1999 VJ₃₃, 10, 2, 1; 1999 VK₃₃, 9, 2, 1; 1999 VL₃₃, 9, 2, 1; 1999 VM₃₃, 4, 1, 0; 1999 VN₃₃, 4, 1, 0; 1999 VO₃₃, 10, 2, 1; 1999 VP₃₃, 9, 2, 1; 1999 VQ₃₃, 8, 2, 1; 1999 VS₃₃, 10, 2, 1; 1999 VT₃₃, 9, 2, 1; 1999 VU₃₃, 10, 2, 1; 1999 VV₃₃, 9, 2, 1; 1999 VW₃₃, 10, 2, 1; 1999 VX₃₃, 8, 2, 1; 1999 VZ₃₃, 7, 2, 1; 1999 VA₃₄, 8, 2, 1; 1999 VB₃₄, 3, 1, 0; 1999 VD₃₄, 10, 2, 1; 1999 VE₃₄, 10, 2, 1; 1999 VF₃₄, 9, 2, 1; 1999 VH₃₄, 10, 2, 1; 1999 VJ₃₄, 10, 2, 1; 1999 VJ₃₄, 10, 2, 1; 1999 VK₃₄, 10, 2, 1; 1999 VL₃₄, 9, 2, 3; 1999 VM₃₄, 15, 3, 3; 1999 VN₃₄, 10, 2, 1; 1999 VO₃₄, 9, 2, 1; 1999 VP₃₄, 10, 2, 1; 1999 VR₃₄, 8, 2, 1; 1999 VS₃₄, 10, 2, 1; 1999 VT₃₄, 10, 2, 1; 1999 VW₃₄, 15, 3, 5; 1999 VX₃₄, 10, 2, 1; 1999 VZ₃₄, 10, 2, 1; 1999 VA₃₅, 8, 2, 3; 1999 VB₃₅, 9, 2, 1; 1999 VC₃₅, 10, 2, 1; 1999 VD₃₅, 10, 2, 1; 1999 VE₃₅, 10, 2, 1; 1999 VF₃₅, 9, 2, 1; 1999 VG₃₅, 10, 2, 1; 1999 VJ₃₅, 8, 2, 1; 1999 VK₃₅, 10, 2, 1; 1999 VL₃₅, 10, 2, 1; 1999 VM₃₅, 10, 2, 1; 1999 VN₃₅, 8, 2, 1; 1999 VO₃₅, 10, 2, 1; 1999 VP₃₅, 10, 2, 1; 1999 VQ₃₅, 10, 2, 3; 1999 VS₃₅, 10, 2, 1; 1999 VT₃₅, 8, 2, 2; 1999 VU₃₅, 15, 3, 3; 1999 VV₃₅, 10, 2, 1; 1999 VW₃₅, 10, 2, 1; 1999 VY₃₅, 10, 2, 1; 1999 VZ₃₅, 10, 2, 3; 1999 VA₃₆, 18, 4, 6; 1999 VB₃₆, 9, 2, 1; 1999 VC₃₆, 9, 2, 1; 1999 VD₃₆, 9, 2, 1; 1999 VE₃₆, 10, 2, 1; 1999 VF₃₆, 10, 2, 1; 1999 VG₃₆, 10, 2, 1; 1999 VJ₃₆, 10, 2, 1; 1999 VK₃₆, 10, 2, 1; 1999 VL₃₆, 9, 2, 1; 1999 VM₃₆, 10, 2, 1; 1999 VN₃₆, 5, 1, 0; 1999 VO₃₆, 10, 2, 3; 1999 VP₃₆, 10, 2, 1; 1999 VQ₃₆, 5, 1, 0; 1999 VR₃₆, 10, 2, 1; 1999 VS₃₆, 10, 2, 1; 1999 VT₃₆, 10, 2, 1; 1999 VU₃₆, 10, 2, 1; 1999 VV₃₆, 10, 2, 1; 1999 VW₃₆, 9, 2, 3; 1999 VX₃₆, 8, 2, 1; 1999 VY₃₆, 10, 2, 1; 1999 VZ₃₆, 8, 2, 1; 1999 VA₃₇, 15, 3, 6; 1999 VB₃₇, 9, 2, 1; 1999 VC₃₇, 7, 2, 3; 1999 VD₃₇, 5, 1, 0; 1999 VE₃₇, 5, 1, 0; 1999 VF₃₇, 9, 2, 1; 1999 VG₃₇, 9, 2, 1; 1999 VH₃₇, 9, 2, 1; 1999 VJ₃₇, 10, 2, 1; 1999 VK₃₇, 10, 2, 1; 1999 VL₃₇, 10, 2, 1; 1999 VM₃₇, 10, 2, 1; 1999 VO₃₇, 9, 2, 6; 1999 VP₃₇, 9, 2, 1; 1999 VQ₃₇, 9, 2, 3; 1999 VS₃₇, 4, 1, 0; 1999 VU₃₇, 9, 2, 3; 1999 VW₃₇, 10, 2, 1; 1999 VY₃₇, 9, 2, 1; 1999 VZ₃₇, 9, 2, 1; 1999 VA₃₈, 5, 1, 0; 1999 VC₃₈, 10, 2, 1; 1999 VN₃₈, 10, 2, 1; 1999 VO₃₈, 10, 2, 1; 1999 VP₃₈, 10, 2, 1; 1999 VR₃₈, 9, 2, 1; 1999 VS₃₈, 8, 2, 1; 1999 VT₃₈, 8, 2, 1; 1999 VV₃₈, 10, 2, 1; 1999 VX₃₈, 10, 2, 1; 1999 VZ₃₈, 10, 2, 1; 1999 VB₃₉, 10, 2, 1; 1999 VC₃₉, 9, 2, 1; 1999 VD₃₉, 9, 2, 1; 1999 VE₃₉, 6, 2, 1; 1999 VF₃₉, 4, 1, 0; 1999 VG₃₉, 10, 2, 1; 1999 VH₃₉, 9, 2, 1; 1999 VJ₃₉, 8, 2, 1; 1999 VK₃₉, 4, 1, 0; 1999 VM₃₉, 9, 2, 1; 1999 VP₃₉, 9, 2, 1; 1999 VQ₃₉, 9, 2, 1; 1999 VH₄₀, 10, 2, 1; 1999 VJ₄₀, 5, 1, 0; 1999 VK₄₀, 9, 2, 1; 1999 VF₄₁, 4, 1, 0; 1999 VG₄₁, 8, 2, 1; 1999 VD₄₃, 8, 2, 1; 1999 VW₄₃, 8, 2, 2; 1999 VX₄₃, 8, 2, 2; 1999 VY₄₄, 9, 2, 1; 1999 VQ₄₆, 5, 1, 0; 1999 VU₄₆, 9, 2, 2; 1999 VX₄₆, 10, 2, 1; 1999 VY₄₆, 9, 2, 1; 1999 VF₄₇, 10, 2, 1; 1999 VG₄₇, 10, 2, 1; 1999 VU₄₈, 5, 1, 0; 1999 VX₄₈, 5, 1, 0; 1999 VY₄₈, 5, 1, 0; 1999 VC₄₉, 5, 1, 0; 1999 VF₄₉, 10, 2, 1; 1999 VG₄₉, 5, 1, 0; 1999 VK₄₉, 5, 1, 0; 1999 VS₄₉, 9, 1, 0; 1999 VT₄₉, 9, 2, 1; 1999 VW₄₉, 10, 2, 1; 1999 VY₄₉, 10, 2, 1; 1999 VY₄₉, 5, 1, 0; 1999 VZ₄₉, 5, 1, 0; 1999 VD₅₀, 5, 1, 0; 1999 VE₅₀, 5, 1, 0; 1999 VG₅₀, 10, 2, 1; 1999 VJ₅₀, 5, 1, 0; 1999 VO₅₀, 10, 2, 1; 1999 VP₅₀, 9, 2, 1; 1999 VR₅₀, 10, 2, 1; 1999 VS₅₀, 5, 1, 0; 1999 VT₅₀, 8, 2, 1; 1999 VU₅₀, 9, 2, 1; 1999 VU₅₀, 10, 2, 1; 1999 VX₅₀, 10, 2, 1; 1999 VG₅₁, 5, 1, 0; 1999 VM₅₁, 4, 1, 0; 1999 VQ₅₁, 5, 1, 0; 1999 VX₅₁, 8, 2, 1; 1999 VA₅₂, 9, 2, 1; 1999 VG₅₂, 8, 2, 1; 1999 VO₅₂, 9, 2, 3; 1999 VP₅₂, 9, 2, 1; 1999 VR₅₂, 22, 5, 10; 1999 VT₅₂, 10, 2, 1; 1999 VW₅₂, 7, 2, 3; 1999 VX₅₂, 8, 2, 1; 1999 VY₅₂, 10, 2, 8; 1999 VA₅₃, 10, 2, 1; 1999 VB₅₃, 24, 5, 9; 1999 VD₅₃, 5, 1, 0; 1999 VE₅₃, 8, 2, 3; 1999 VF₅₃, 5, 1, 0; 1999 VH₅₃, 9, 2, 1; 1999 VK₅₃, 9, 2, 3; 1999 VL₅₃, 7, 2, 3; 1999 VN₅₄, 5, 1, 0; 1999 VV₅₅, 10, 2, 1; 1999 VB₅₆, 3, 1, 0; 1999 VE₅₆, 9, 2, 1; 1999 VF₅₆, 9, 2, 1; 1999 VG₅₆, 9, 2, 1; 1999 VU₅₇, 8, 2, 1; 1999 VV₅₇, 4, 1, 0; 1999 VW₅₇, 5, 1, 0; 1999 VY₅₇, 10, 2, 1; 1999 VZ₅₇, 10, 2, 1; 1999 VA₅₈, 10, 2, 1; 1999 VC₅₈, 8, 2, 2; 1999 VD₅₈, 10, 2, 1; 1999 VF₅₈, 10, 2, 1; 1999 VG₅₈, 10, 2, 1; 1999 VJ₅₈, 10, 2, 1; 1999 VK₅₈, 8, 2, 1; 1999 VL₅₈, 10, 2, 1; 1999 VM₅₈, 9, 2, 1; 1999 VO₅₈, 10, 2, 1; 1999 VQ₅₈, 10, 2, 1; 1999 VR₅₈, 10, 2, 1; 1999 VS₅₈, 5, 1, 0; 1999 VU₅₈, 5, 1, 0; 1999 VW₅₈, 10, 2, 1; 1999 VY₅₈, 9, 2, 1; 1999 VB₅₉, 8, 2, 1; 1999 VC₅₉, 10, 2, 1; 1999 VG₅₉, 7, 2, 1; 1999 VH₅₉, 4, 1, 0; 1999 VJ₅₉, 4, 1, 0; 1999 VN₅₉, 9, 2, 1; 1999 VR₅₉, 4, 1, 0; 1999 VO₆₀, 5, 1, 0; 1999 VQ₆₀, 10, 2, 1; 1999 VS₆₀, 9, 2, 1; 1999 VU₆₀, 7, 2, 1; 1999 VW₆₀, 9, 2, 1; 1999 VZ₆₀, 9, 2, 1; 1999 VE₆₁, 8, 2, 1; 1999 VF₆₁, 5, 1, 0; 1999 VK₆₁, 10, 2, 1; 1999 VN₆₁, 3, 1, 0; 1999 VY₆₁, 5, 1, 0; 1999 VH₆₂, 9, 2, 1; 1999 VJ₆₂, 9, 2, 1; 1999 VK₆₂, 9, 2, 1; 1999 VQ₆₂, 4, 1, 0; 1999 VR₆₂, 9, 2, 1; 1999 VS₆₂, 10, 2, 1; 1999 VU₆₂, 3, 1, 0; 1999 VV₆₂, 9, 2, 1; 1999 VX₆₂, 9, 2, 1; 1999 VY₆₂, 7, 2, 1; 1999 VC₆₃, 3, 1, 0; 1999 VD₆₃, 5, 1, 0; 1999 VF₆₃, 5, 1, 0; 1999 VG₆₃, 4, 1, 0; 1999 VH₆₃, 10, 2, 1; 1999 VO₆₃, 8, 2, 1; 1999 VR₆₃, 9, 2, 1; 1999 VD₆₄, 10, 2, 1; 1999 VH₆₄, 5, 1, 0; 1999 VL₆₄, 3, 1, 0; 1999 VN₆₄, 5, 1, 0; 1999 VO₆₄, 5, 1, 0; 1999 VP₆₄, 5, 1, 0; 1999 VR₆₄, 5, 1, 0; 1999 VS₆₄, 5, 1, 0; 1999 VT₆₄, 8, 2, 1; 1999 VD₆₅, 4, 1, 0; 1999 VF₆₅, 8, 2, 1; 1999 VK₆₅, 9, 2, 1; 1999 VM₆₅, 9, 2, 1; 1999 VN₆₅, 9, 2, 1; 1999 VP₆₅, 10, 2, 1; 1999 VR₆₅, 5, 1, 0; 1999 VV₆₅, 9, 2, 1; 1999 VX₆₅, 3, 1, 0; 1999 VZ₆₅, 10, 2, 1; 1999 VA₆₆, 5, 1, 0; 1999 VD₆₆, 5, 1, 0; 1999 VF₆₆, 10, 2, 1; 1999 VG₆₆, 9, 2, 1; 1999 VH₆₆, 10, 2, 1; 1999 VJ₆₆, 10, 2, 1; 1999 VL₆₆, 7, 2, 1; 1999 VO₆₆, 14, 2, 1; 1999 VP₆₆, 9, 2, 1; 1999 VR₆₆, 3, 1, 0; 1999 VT₆₆, 9, 2, 1; 1999 VV₆₆, 10, 2, 1; 1999 VZ₆₆, 8, 2, 1; 1999 VB₆₇, 9, 2, 1; 1999 VE₆₇, 10, 2, 1; 1999 VG₆₇, 8, 2, 1; 1999 VL₆₇, 4, 1, 0; 1999 VN₆₇, 4, 1, 0; 1999 VP₆₇, 6, 2, 1; 1999 VQ₆₇, 10, 2, 1; 1999 VT₆₇, 10, 2, 1; 1999 VU₆₇, 10, 2, 1; 1999 VV₆₇, 10, 2, 1; 1999 VW₆₇, 5, 1, 0; 1999 VX₆₇, 8, 2, 1; 1999 VY₆₇, 3, 1, 0; 1999 VZ₆₇, 8, 2, 1; 1999 VB₆₈, 10, 2, 1; 1999 VC₆₈, 9, 2, 1; 1999 VD₆₈, 5, 1, 0; 1999 VG₆₈, 10, 2, 1; 1999 VH₆₈, 9, 2, 1; 1999 VL₆₈, 5, 1, 0; 1999 VM₆₈, 9, 2, 1; 1999 VN₆₈, 9, 2, 1; 1999 VO₆₈, 10, 2, 1; 1999 VP₆₈, 3, 1, 0; 1999 VR₆₈, 8, 2, 1; 1999 VS₆₈, 9, 2, 1; 1999 VT₆₈, 3, 1, 0; 1999 VU₆₈, 9, 2, 1; 1999 VB₆₉, 4, 1, 0; 1999 VQ₆₉, 4, 1, 0; 1999 VR₆₉, 9, 2, 1; 1999 VE₇₀, 5, 1, 0; 1999 VL₇₀, 5,

1, 0; 1999 VP₇₀, 4, 1, 0; 1999 VT₇₀, 8, 2, 1; 1999 VU₇₀, 7, 2, 1; 1999 VY₇₀, 6, 2, 1; 1999 VA₇₁, 10, 2, 1; 1999 VH₇₁, 9, 2, 1; 1999 VS₇₁, 3, 1, 0; 1999 VU₇₁, 6, 2, 1; 1999 VV₇₁, 3, 1, 0; 1999 VW₇₁, 5, 1, 0; 1999 VB₇₂, 8, 2, 1; 1999 VD₇₂, 10, 2, 1; 1999 VE₇₂, 9, 2, 1; 1999 VG₇₂, 8, 2, 1; 1999 VH₇₂, 8, 2, 1; 1999 VJ₇₂, 15, 2, 1; 1999 VK₇₂, 10, 2, 1; 1999 VL₇₂, 10, 2, 1; 1999 VN₇₂, 4, 1, 0; 1999 VO₇₂, 5, 1, 0; 1999 VR₇₂, 9, 2, 1; 1999 VS₇₂, 8, 2, 1; 1999 VT₇₂, 7, 2, 1; 1999 VA₇₃, 10, 2, 1; 1999 WB₇₃, 10, 2, 1; 1999 WC₇₃, 8, 2, 1; 1999 WD₇₃, 9, 2, 1; 1999 WE₇₃, 14, 3, 9; 1999 WF₇₃, 10, 2, 1; 1999 WH₇₃, 5, 1, 0; 1999 WJ₇₃, 8, 2, 3; 1999 WK₇₃, 5, 1, 0; 1999 WL₇₃, 9, 2, 1; 1999 WM₇₃, 5, 1, 0; 1999 WO₇₃, 4, 1, 0; 1999 WP₇₃, 10, 2, 1; 1999 WQ₇₃, 5, 1, 0; 1999 WR₇₃, 5, 1, 0; 1999 WS₇₃, 10, 2, 1; 1999 WT₇₃, 3, 1, 0; 1999 WV₇₃, 9, 2, 3; 1999 WX₇₃, 9, 2, 3; 1999 WY₇₃, 9, 2, 1; 1999 WA₇₄, 5, 1, 0; 1999 WD₇₄, 10, 2, 3; 1999 WE₇₄, 10, 2, 1; 1999 WH₇₄, 5, 1, 0; 1999 WK₇₄, 4, 1, 0; 1999 WL₇₄, 8, 2, 1; 1999 WM₇₄, 10, 2, 1; 1999 WN₇₄, 7, 2, 1; 1999 WO₇₄, 4, 1, 0; 1999 WP₇₄, 8, 2, 1; 1999 WQ₇₄, 8, 2, 1; 1999 WR₇₄, 10, 2, 1; 1999 WS₇₄, 10, 2, 1; 1999 WT₇₄, 10, 2, 1; 1999 WU₇₄, 10, 2, 1; 1999 WX₇₄, 9, 2, 1; 1999 WY₇₄, 9, 2, 1; 1999 WZ₇₄, 10, 2, 1; 1999 WA₇₅, 8, 2, 21; 1999 WC₇₅, 4, 1, 0; 1999 WD₇₅, 8, 2, 1; 1999 WE₇₅, 5, 1, 0; 1999 WF₇₅, 3, 1, 0; 1999 WJ₇₅, 9, 2, 1; 1999 WK₇₅, 5, 1, 0; 1999 WL₇₅, 10, 2, 1; 1999 WM₇₅, 10, 2, 1; 1999 WN₇₅, 7, 2, 1; 1999 WO₇₅, 4, 1, 0; 1999 WP₇₅, 8, 2, 1; 1999 WQ₇₅, 8, 2, 1; 1999 WR₇₅, 10, 2, 1; 1999 WS₇₅, 10, 2, 1; 1999 WT₇₅, 10, 2, 1; 1999 WU₇₅, 10, 2, 1; 1999 WX₇₅, 9, 2, 1; 1999 WY₇₅, 9, 2, 1; 1999 WZ₇₅, 10, 2, 1; 1999 WA₇₆, 5, 1, 0; 1999 WB₇₆, 5, 1, 0; 1999 WC₇₆, 3, 1, 0; 1999 WD₇₆, 8, 2, 1; 1999 WE₇₆, 3, 1, 0; 1999 WF₇₆, 9, 2, 1; 1999 WG₇₆, 3, 1, 0; 1999 WH₇₆, 8, 2, 1; 1999 WJ₇₆, 8, 2, 1; 1999 WK₇₆, 10, 2, 1; 1999 WL₇₆, 9, 2, 1; 1999 WM₇₆, 10, 2, 1; 1999 WN₇₆, 10, 2, 1; 1999 WO₇₆, 12, 2, 1; 1999 WP₇₆, 5, 1, 0; 1999 WQ₇₆, 10, 2, 1; 1999 WR₇₆, 8, 2, 1; 1999 WS₇₆, 10, 2, 1; 1999 WT₇₆, 5, 1, 0; 1999 WU₇₆, 13, 3, 3; 1999 WV₇₆, 10, 2, 1; 1999 WX₇₆, 10, 2, 1; 1999 WY₇₆, 10, 2, 1; 1999 WZ₇₆, 10, 2, 1; 1999 WA₇₇, 10, 2, 1; 1999 WB₇₇, 10, 2, 1; 1999 WC₇₇, 5, 1, 0; 1999 WD₇₇, 4, 1, 0; 1999 WE₇₇, 9, 2, 3; 1999 WF₇₇, 5, 1, 0; 1999 WG₇₇, 9, 2, 1; 1999 WH₇₇, 9, 2, 1; 1999 WJ₇₇, 5, 1, 0; 1999 WK₇₇, 9, 2, 1; 1999 WL₇₇, 10, 2, 1; 1999 WM₇₇, 8, 2, 1; 1999 WN₇₇, 5, 1, 0; 1999 WO₇₇, 9, 2, 1; 1999 WP₇₇, 10, 2, 1; 1999 WQ₇₇, 10, 2, 1; 1999 WR₇₇, 10, 2, 1; 1999 WS₇₇, 10, 2, 1; 1999 WT₇₇, 9, 2, 1; 1999 WU₇₇, 5, 1, 0; 1999 WV₇₇, 20, 4, 10; 1999 WW₇₇, 8, 2, 1; 1999 WX₇₇, 10, 2, 1; 1999 WY₇₇, 10, 2, 1; 1999 WZ₇₇, 11, 2, 1; 1999 WB₇₈, 10, 2, 1; 1999 WD₇₈, 8, 2, 1; 1999 WE₇₈, 9, 2, 1; 1999 WF₇₈, 9, 2, 1; 1999 WG₇₈, 10, 2, 1; 1999 WJ₇₈, 9, 2, 2; 1999 WK₇₈, 9, 2, 1; 1999 WM₇₈, 4, 1, 0; 1999 WO₇₈, 5, 1, 0; 1999 WR₇₈, 3, 1, 0; 1999 WS₇₈, 4, 1, 0; 1999 WT₇₈, 5, 1, 0; 1999 WU₇₈, 5, 1, 0; 1999 WV₇₈, 5, 1, 0; 1999 WX₇₈, 5, 1, 0; 1999 WY₇₈, 5, 1, 0; 1999 WZ₇₈, 3, 1, 0; 1999 WB₇₉, 5, 1, 0; 1999 WC₇₉, 10, 2, 1; 1999 WD₇₉, 5, 1, 0; 1999 WE₇₉, 5, 1, 0; 1999 WF₇₉, 5, 1, 0; 1999 WG₇₉, 4, 1, 0; 1999 WH₇₉, 5, 1, 0; 1999 WJ₇₉, 3, 1, 0; 1999 WK₇₉, 3, 1, 0; 1999 WL₇₉, 3, 1, 0; 1999 WM₇₉, 9, 2, 1; 1999 WO₇₉, 5, 1, 0; 1999 WQ₇₉, 5, 1, 0; 1999 WS₇₉, 10, 2, 3; 1999 WT₇₉, 8, 2, 3; 1999 WU₇₉, 9, 2, 3; 1999 WV₇₉, 7, 2, 1; 1999 WX₇₉, 9, 2, 1; 1999 WY₇₉, 10, 2, 5; 1999 WZ₇₉, 9, 2, 1; 1999 WA₈₀, 9, 2, 1; 1999 WB₈₀, 5, 1, 0; 1999 WD₈₀, 8, 2, 3; 1999 WE₈₀, 5, 1, 0; 1999 WF₈₀, 9, 2, 1; 1999 WG₈₀, 10, 2, 1; 1999 WJ₈₀, 5, 1, 0; 1999 WK₈₀, 5, 1, 0; 1999 WL₈₀, 4, 1, 0; 1999 WM₈₀, 5, 1, 0; 1999 WN₈₀, 5, 1, 0; 1999 WO₈₀, 5, 1, 0; 1999 WP₈₀, 5, 1, 0; 1999 WQ₈₀, 5, 1, 0; 1999 WR₈₀, 5, 1, 0; 1999 WS₈₀, 5, 1, 0; 1999 WT₈₀, 5, 1, 0; 1999 WU₈₀, 5, 1, 0; 1999 WV₈₀, 5, 1, 0; 1999 WX₈₀, 5, 1, 0; 199

1, 0; 1999 XF₃, 5, 1, 0; 1999 XG₃, 4, 1, 0; 1999 XH₃, 5, 1, 0; 1999 XO₃, 5, 1, 0; 1999 XQ₃, 4, 1, 0; 1999 XR₃, 5, 1, 0; 1999 XS₃, 5, 1, 0; 1999 XY₃, 4, 1, 0; 1999 XB₄, 5, 1, 0; 1999 XE₄, 5, 1, 0; 1999 XF₄, 5, 1, 0; 1999 XG₄, 4, 1, 0; 1999 XH₄, 4, 1, 0; 1999 XJ₄, 4, 1, 0; 1999 XK₄, 8, 2, 1; 1999 XL₄, 10, 2, 1; 1999 XM₄, 5, 1, 0; 1999 XN₄, 5, 1, 0; 1999 XO₄, 6, 2, 1; 1999 XP₄, 7, 2, 1; 1999 XR₄, 5, 1, 0; 1999 XS₄, 7, 2, 1; 1999 XT₄, 5, 1, 0; 1999 XV₄, 4, 1, 0; 1999 XW₄, 5, 1, 0; 1999 XY₄, 8, 2, 1; 1999 XZ₄, 5, 1, 0; 1999 XA₅, 4, 1, 0; 1999 XB₅, 10, 2, 1; 1999 XC₅, 5, 1, 0; 1999 XD₅, 10, 2, 1; 1999 XE₅, 10, 2, 1; 1999 XF₅, 9, 2, 1; 1999 XG₅, 5, 1, 0; 1999 XH₅, 5, 1, 0; 1999 XJ₅, 4, 1, 0; 1999 XK₅, 7, 2, 1; 1999 XL₅, 10, 2, 1; 1999 XM₅, 8, 2, 1; 1999 XN₅, 10, 2, 1; 1999 XO₅, 10, 2, 1; 1999 XP₅, 10, 2, 1; 1999 XQ₅, 4, 1, 0; 1999 XR₅, 4, 1, 0; 1999 XS₅, 10, 2, 1; 1999 XU₅, 10, 2, 1; 1999 XV₅, 8, 2, 1; 1999 XW₅, 10, 2, 1; 1999 XX₅, 9, 2, 1; 1999 XY₅, 5, 1, 0; 1999 XZ₅, 10, 2, 1; 1999 XA₆, 13, 2, 1; 1999 XB₆, 10, 2, 1; 1999 XC₆, 9, 2, 1; 1999 XD₆, 10, 2, 1; 1999 XE₆, 9, 2, 1; 1999 XF₆, 7, 2, 1; 1999 XG₆, 10, 2, 1; 1999 XH₆, 10, 2, 1; 1999 XJ₆, 5, 1, 0; 1999 XK₆, 10, 2, 1; 1999 XR₆, 10, 2, 1; 1999 XT₆, 4, 1, 0; 1999 XU₆, 10, 2, 1; 1999 XV₆, 8, 2, 1; 1999 XW₆, 9, 2, 1; 1999 XX₆, 4, 1, 0; 1999 XY₆, 4, 1, 0; 1999 XZ₆, 5, 1, 0; 1999 XA₇, 10, 2, 1; 1999 XB₇, 5, 1, 0; 1999 XC₇, 5, 1, 0; 1999 XD₇, 5, 1, 0; 1999 XE₇, 5, 1, 0; 1999 XF₇, 5, 1, 0; 1999 XG₇, 5, 1, 0; 1999 XH₇, 10, 2, 1; 1999 XJ₇, 10, 2, 1; 1999 XK₇, 5, 1, 0; 1999 XR₇, 5, 1, 0; 1999 XS₇, 5, 1, 0; 1999 XT₇, 5, 1, 0; 1999 XU₇, 5, 1, 0; 1999 XV₇, 10, 2, 1; 1999 XW₇, 3, 1, 0; 1999 XY₇, 14, 3, 2; 1999 XZ₇, 13, 3, 4; 1999 XA₈, 4, 1, 0; 1999 XB₈, 4, 1, 0; 1999 XC₈, 8, 2, 1; 1999 XD₈, 3, 1, 0; 1999 XE₈, 9, 2, 1; 1999 XF₈, 9, 2, 1; 1999 XG₈, 8, 2, 1; 1999 XH₈, 9, 2, 1; 1999 XJ₈, 4, 1, 0; 1999 XK₈, 8, 2, 3; 1999 XL₈, 10, 2, 1; 1999 XM₈, 8, 2, 1; 1999 XN₈, 9, 2, 1; 1999 XO₈, 5, 1, 0; 1999 XP₈, 11, 3, 2; 1999 XQ₈, 10, 2, 1; 1999 XR₈, 8, 2, 1; 1999 XS₈, 6, 2, 1; 1999 XT₈, 13, 3, 2; 1999 XU₈, 25, 4, 10; 1999 XV₈, 15, 2, 1; 1999 XW₈, 10, 2, 1; 1999 XX₈, 10, 2, 1; 1999 XY₈, 8, 2, 1; 1999 XZ₈, 24, 5, 10; 1999 XA₉, 10, 3, 2; 1999 XB₉, 19, 4, 3; 1999 XC₉, 10, 2, 1; 1999 XD₉, 7, 2, 1; 1999 XE₉, 14, 3, 2; 1999 XF₉, 3, 1, 0; 1999 XG₉, 9, 2, 1; 1999 XH₉, 10, 2, 1; 1999 XJ₉, 9, 2, 1; 1999 XK₉, 8, 2, 1; 1999 XO₉, 4, 1, 0; 1999 XP₉, 19, 4, 9; 1999 XT₉, 8, 2, 1; 1999 XY₉, 4, 1, 0; 1999 XZ₉, 10, 2, 1; 1999 XA₁₀, 4, 1, 0; 1999 XB₁₀, 3, 1, 0; 1999 XC₁₀, 5, 1, 0; 1999 XD₁₀, 3, 1, 0; 1999 XE₁₀, 5, 1, 0; 1999 XF₁₀, 5, 1, 0; 1999 XG₁₀, 5, 1, 0; 1999 XH₁₀, 4, 1, 0; 1999 XJ₁₀, 5, 1, 0; 1999 XK₁₀, 5, 1, 0; 1999 XR₁₀, 4, 1, 0; 1999 XS₁₀, 5, 1, 0; 1999 XT₁₀, 5, 1, 0; 1999 XU₁₀, 5, 1, 0; 1999 XV₁₀, 5, 1, 0; 1999 XW₁₀, 5, 1, 0; 1999 XY₁₀, 4, 1, 0; 1999 XZ₁₀, 3, 1, 0; 1999 XA₁₁, 4, 1, 0; 1999 XB₁₁, 4, 1, 0; 1999 XC₁₁, 4, 1, 0; 1999 XD₁₁, 5, 1, 0; 1999 XE₁₁, 5, 1, 0; 1999 XF₁₁, 5, 1, 0; 1999 XG₁₁, 5, 1, 0; 1999 XH₁₁, 5, 1, 0; 1999 XJ₁₁, 5, 1, 0; 1999 XK₁₁, 5, 1, 0; 1999 XR₁₁, 4, 1, 0; 1999 XS₁₁, 5, 1, 0; 1999 XT₁₁, 9, 2, 5; 1999 XZ₁₁, 5, 1, 0; 1999 XA₁₂, 4, 1, 0; 1999 XB₁₂, 4, 1, 0; 1999 XC₁₂, 5, 1, 0; 1999 XD₁₂, 4, 1, 0; 1999 XE₁₂, 9, 2, 3; 1999 XF₁₂, 7, 2, 1; 1999 XG₁₂, 7, 2, 1; 1999 XH₁₂, 10, 2, 1; 1999 XJ₁₂, 14, 2, 1; 1999 XK₁₂, 15, 2, 1; 1999 XL₁₂, 14, 2, 1; 1999 XM₁₂, 15, 2, 1; 1999 XN₁₂, 10, 2, 1; 1999 XO₁₂, 11, 2, 1; 1999 XP₁₂, 13, 2, 1; 1999 XQ₁₂, 10, 2, 1; 1999 XR₁₂, 13, 2, 1; 1999 XS₁₂, 9, 2, 1; 1999 XT₁₂, 8, 2, 1; 1999 XU₁₂, 10, 2, 1; 1999 XV₁₂, 14, 3, 2; 1999 XW₁₂, 12, 3, 2; 1999 XY₁₂, 17, 3, 2; 1999 XZ₁₂, 17, 3, 2; 1999 XA₁₃, 10, 2, 1; 1999 XB₁₃, 9, 2, 1; 1999 XC₁₃, 10, 2, 1; 1999 XD₁₃, 8, 2, 1; 1999 XE₁₃, 10, 2, 1; 1999 XF₁₃, 14, 3, 2; 1999 XG₁₃, 8, 2, 1; 1999 XH₁₃, 11, 3, 2; 1999 XJ₁₃, 10, 2, 1; 1999 XK₁₃, 9, 2, 1; 1999 XL₁₃, 12, 3, 2; 1999 XM₁₃, 10, 3, 2; 1999 XN₁₃, 10, 2, 1; 1999 XO₁₃, 11, 2, 1; 1999 XP₁₃, 11, 3, 2; 1999 XQ₁₃, 8, 2, 1; 1999 XR₁₃, 9, 2, 1; 1999 XS₁₃, 8, 2, 1; 1999 XT₁₃, 13, 2, 1; 1999 XU₁₃, 13, 3, 2; 1999 XV₁₃, 19, 4, 3; 1999 XW₁₃, 9, 2, 1; 1999 XY₁₃, 10, 2, 1; 1999 XZ₁₃, 10, 2, 1; 1999 XA₁₄, 8, 2, 1; 1999 XB₁₄, 9, 2, 1; 1999 XC₁₄, 10, 2, 1; 1999 XD₁₄, 14, 2, 1; 1999 XE₁₄, 7, 2, 1; 1999 XF₁₄, 7, 2, 1; 1999 XG₁₄, 8, 2, 1; 1999 XH₁₄, 8, 2, 1; 1999 XJ₁₄, 7, 2, 1; 1999 XK₁₄, 13, 2, 1; 1999 XL₁₄, 12, 2, 1; 1999 XM₁₄, 5, 1, 0; 1999 XN₁₄, 10, 2, 4; 1999 XO₁₄, 8, 2, 4; 1999 XP₁₄, 9, 2, 4; 1999 XQ₁₄, 10, 2, 1; 1999 XR₁₄, 9, 2, 1; 1999 XS₁₄, 11, 3, 2; 1999 XT₁₄, 15, 3, 2; 1999 XU₁₄, 20, 4, 8; 1999 XV₁₄, 15, 3, 2; 1999 XW₁₄, 24, 5, 9; 1999 XZ₁₄, 15, 3, 2; 1999 XA₁₅, 14, 3, 2; 1999 XB₁₅, 14, 3, 2; 1999 XC₁₅, 26, 5, 9; 1999 XD₁₅, 13, 3, 2; 1999 XE₁₅, 17, 3, 2; 1999 XF₁₅, 14, 3, 2; 1999 XG₁₅, 5, 1, 0; 1999 XH₁₅, 5, 1, 0; 1999 XJ₁₅, 4, 1, 0; 1999 XK₁₅, 5, 1, 0; 1999 XL₁₅, 5, 1, 0; 1999 XM₁₅, 5, 1, 0; 1999 XN₁₅, 4, 1, 0; 1999 XO₁₅, 5, 1, 0; 1999 XP₁₅, 4, 1, 0; 1999 XQ₁₅, 5, 1, 0; 1999 XR₁₅, 8, 2, 6; 1999 XS₁₅, 5, 1, 0; 1999 XT₁₅, 5, 1, 0; 1999 XU₁₅, 4, 1, 0; 1999 XV₁₅, 5, 1, 0; 1999 XW₁₅, 5, 1, 0; 1999 XY₁₅, 9, 2, 1; 1999 XZ₁₅, 10, 2, 1; 1999 XA₁₆, 9, 2, 1; 1999 XB₁₆, 9, 2, 1; 1999 XC₁₆, 5, 1, 0; 1999 XD₁₆, 4, 1, 0; 1999 XE₁₆, 15, 3, 8; 1999 XF₁₆, 15, 3, 8; 1999 XG₁₆, 10, 2, 1; 1999 XH₁₆, 9, 2, 1; 1999 XJ₁₆, 10, 2, 1; 1999 XK₁₆, 10, 2, 1; 1999 XL₁₆, 10, 2, 1; 1999 XM₁₆, 7, 2, 1; 1999 XN₁₆, 7, 2, 1; 1999 XO₁₆, 8, 2, 1; 1999 XP₁₆, 7, 2, 1; 1999 XQ₁₆, 10, 2, 1; 1999 XR₁₆, 10, 2, 1; 1999 XS₁₆, 8, 2, 1; 1999 XT₁₆, 10, 2, 1; 1999 XU₁₆, 10, 2, 1; 1999 XV₁₆, 10, 2, 1; 1999 XW₁₆, 13, 3, 7; 1999 XZ₁₆, 8, 2, 1; 1999 XA₁₇, 9, 2, 1; 1999 XB₁₇, 9, 2, 1; 1999 XC₁₇, 8, 2, 1; 1999 XD₁₇, 10, 2, 1; 1999 XE₁₇, 8, 2, 1; 1999 XF₁₇, 9, 2, 1; 1999 XG₁₇, 15, 2, 1; 1999 XH₁₇, 23, 5, 8; 1999 XJ₁₇, 10, 2, 1; 1999 XK₁₇, 9, 2, 1; 1999 XL₁₇, 9, 2, 5; 1999 XM₁₇, 8, 2, 5; 1999 XN₁₇, 9, 2, 5; 1999 XO₁₇, 8, 2, 5; 1999 XP₁₇, 7, 2, 5; 1999 XQ₁₇, 8, 2, 5; 1999 XZ₁₇, 7, 2, 5; 1999 XA₁₈, 8, 2, 5; 1999 XB₁₈, 10, 2, 4; 1999 XC₁₈, 10, 2, 4; 1999 XD₁₈, 10, 2, 4; 1999 XE₁₈, 10, 2, 4; 1999 XF₁₈, 15, 3, 9; 1999 XG₁₈, 10, 2, 4; 1999 XH₁₈, 10, 2, 4; 1999 XJ₁₈, 8, 2, 4; 1999 XK₁₈, 9, 2, 4; 1999 XL₁₈, 10, 2, 4; 1999 XM₁₈, 10,

2, 4; 1999 XN₁₈, 10, 2, 4; 1999 XO₁₈, 10, 2, 4; 1999 XP₁₈, 10, 2, 4; 1999 XQ₁₈, 10, 2, 4; 1999 XR₁₈, 10, 2, 4; 1999 XS₁₈, 10, 2, 4; 1999 XT₁₈, 10, 2, 4; 1999 XU₁₈, 9, 2, 4; 1999 XV₁₈, 10, 2, 4; 1999 XW₁₈, 8, 2, 4; 1999 XY₁₈, 7, 2, 4; 1999 XZ₁₈, 8, 2, 4; 1999 XA₁₉, 7, 2, 4; 1999 XB₁₉, 8, 2, 4; 1999 XC₁₉, 8, 2, 4; 1999 XD₁₉, 9, 2, 4; 1999 XE₁₉, 9, 2, 4; 1999 XF₁₉, 9, 2, 4; 1999 XG₁₉, 9, 2, 4; 1999 XH₁₉, 8, 2, 4; 1999 XJ₁₉, 8, 2, 4; 1999 XK₁₉, 8, 2, 4; 1999 XL₁₉, 9, 2, 4; 1999 XM₁₉, 8, 2, 4; 1999 XN₁₉, 10, 2, 2; 1999 XO₁₉, 10, 2, 2; 1999 XP₁₉, 10, 2, 2; 1999 XQ₁₉, 7, 2, 2; 1999 XR₁₉, 9, 2, 2; 1999 XS₁₉, 10, 2, 2; 1999 XT₁₉, 10, 2, 2; 1999 XU₁₉, 10, 2, 2; 1999 XV₁₉, 9, 2, 2; 1999 XW₁₉, 9, 2, 2; 1999 XX₁₉, 9, 2, 2; 1999 XY₁₉, 9, 2, 2; 1999 XZ₁₉, 8, 2, 2; 1999 XA₂₀, 9, 2, 2; 1999 XB₂₀, 10, 2, 2; 1999 XC₂₀, 10, 2, 2; 1999 XD₂₀, 7, 2, 2; 1999 XE₂₀, 9, 2, 2; 1999 XF₂₀, 8, 2, 2; 1999 XG₂₀, 9, 2, 2; 1999 XH₂₀, 8, 2, 2; 1999 XJ₂₀, 9, 2, 2; 1999 XK₂₀, 10, 2, 2; 1999 XL₂₀, 9, 2, 2; 1999 XM₂₀, 10, 2, 2; 1999 XN₂₀, 7, 2, 2; 1999 XO₂₀, 8, 2, 2; 1999 XP₂₀, 10, 2, 2; 1999 XQ₂₀, 10, 2, 2; 1999 XR₂₀, 7, 2, 2; 1999 XS₂₀, 9, 2, 2; 1999 XT₂₀, 9, 2, 2; 1999 XU₂₀, 10, 2, 2; 1999 XV₂₀, 8, 2, 2; 1999 XW₂₀, 8, 2, 2; 1999 XX₂₀, 9, 2, 2; 1999 XY₂₀, 9, 2, 2; 1999 XZ₂₀, 9, 2, 2; 1999 XA₂₁, 9, 2, 2; 1999 XB₂₁, 9, 2, 2; 1999 XC₂₁, 8, 2, 2; 1999 XD₂₁, 10, 2, 2; 1999 XE₂₁, 7, 2, 2; 1999 XF₂₁, 9, 2, 2; 1999 XG₂₁, 9, 2, 2; 1999 XH₂₁, 8, 2, 2; 1999 XJ₂₁, 9, 2, 2; 1999 XK₂₁, 9, 2, 2; 1999 XL₂₁, 9, 2, 2; 1999 XM₂₁, 9, 2, 2; 1999 XN₂₁, 6, 2, 2; 1999 XO₂₁, 9, 2, 2; 1999 XP₂₁, 9, 2, 2; 1999 XQ₂₁, 9, 2, 2; 1999 XR₂₁, 8, 2, 2; 1999 XS₂₁, 9, 2, 2; 1999 XT₂₁, 6, 2, 2; 1999 XU₂₁, 7, 2, 2; 1999 XV₂₁, 10, 2, 2; 1999 XW₂₁, 9, 2, 2; 1999 XX₂₁, 9, 2, 2; 1999 XY₂₁, 8, 2, 2; 1999 XZ₂₁, 10, 2, 2; 1999 XA₂₂, 9, 2, 2; 1999 XB₂₂, 9, 2, 2; 1999 XC₂₂, 10, 2, 2; 1999 XD₂₂, 8, 2, 2; 1999 XE₂₂, 10, 2, 2; 1999 XF₂₂, 8, 2, 2; 1999 XG₂₂, 9, 2, 2; 1999 XH₂₂, 10, 2, 1; 1999 XJ₂₂, 8, 2, 1; 1999 XK₂₂, 10, 2, 1; 1999 XL₂₂, 9, 2, 1; 1999 XM₂₂, 9, 2, 1; 1999 XN₂₂, 7, 2, 1; 1999 XO₂₂, 9, 2, 1; 1999 XP₂₂, 10, 2, 1; 1999 XQ₂₂, 8, 2, 1; 1999 XR₂₂, 7, 2, 1; 1999 XS₂₂, 8, 2, 1; 1999 XT₂₂, 8, 2, 1; 1999 XU₂₂, 10, 2, 1; 1999 XV₂₂, 10, 2, 1; 1999 XW₂₂, 10, 2, 1; 1999 XX₂₂, 10, 2, 1; 1999 XY₂₂, 9, 2, 1; 1999 XZ₂₂, 10, 2, 1; 1999 XA₂₃, 9, 2, 1; 1999 XB₂₃, 8, 2, 1; 1999 XC₂₃, 10, 2, 1; 1999 XD₂₃, 8, 2, 1; 1999 XE₂₃, 9, 2, 1; 1999 XF₂₃, 9, 2, 1; 1999 XG₂₃, 9, 2, 1; 1999 XH₂₃, 10, 2, 1; 1999 XJ₂₃, 10, 2, 1; 1999 XK₂₃, 6, 2, 1; 1999 XL₂₃, 8, 2, 1; 1999 XM₂₃, 7, 2, 1; 1999 XN₂₃, 9, 2, 1; 1999 XO₂₃, 6, 2, 1; 1999 XP₂₃, 9, 2, 1; 1999 XQ₂₃, 8, 2, 1; 1999 XR₂₃, 8, 2, 1; 1999 XS₂₃, 8, 2, 1; 1999 XT₂₃, 10, 2, 1; 1999 XU₂₃, 9, 2, 1; 1999 XV₂₃, 8, 2, 1; 1999 XW₂₃, 10, 2, 1; 1999 XX₂₃, 10, 2, 1; 1999 XY₂₃, 9, 2, 1; 1999 XZ₂₃, 10, 2, 1; 1999 XA₂₄, 10, 2, 1; 1999 XB₂₄, 7, 2, 1; 1999 XC₂₄, 10, 2, 1; 1999 XD₂₄, 10, 2, 1; 1999 XE₂₄, 10, 2, 1; 1999 XF₂₄, 10, 2, 1; 1999 XG₂₄, 10, 2, 1; 1999 XH₂₄, 8, 2, 1; 1999 XJ₂₄, 10, 2, 1; 1999 XK₂₄, 7, 2, 1; 1999 XL₂₄, 10, 2, 1; 1999 XM₂₄, 10, 2, 1; 1999 XN₂₄, 10, 2, 1; 1999 XO₂₄, 8, 2, 1; 1999 XP₂₄, 9, 2, 1; 1999 XQ₂₄, 9, 2, 1; 1999 XR₂₄, 9, 2, 1; 1999 XS₂₄, 10, 2, 1; 1999 XT₂₄, 10, 2, 1; 1999 XV₂₄, 9, 2, 1; 1999 XW₂₄, 9, 2, 1; 1999 XX₂₄, 9, 2, 1; 1999 XY₂₄, 10, 2, 1; 1999 XZ₂₄, 10, 2, 1; 1999 XA₂₅, 9, 2, 1; 1999 XB₂₅, 10, 2, 1; 1999 XC₂₅, 10, 2, 1; 1999 XD₂₅, 10, 2, 1; 1999 XE₂₅, 10, 2, 1; 1999 XF₂₅, 10, 2, 1; 1999 XG₂₅, 10, 2, 1; 1999 XH₂₅, 10, 2, 1; 1999 XJ₂₅, 10, 2, 1; 1999 XK₂₅, 10, 2, 1; 1999 XL₂₅, 10, 2, 1; 1999 XM₂₅, 10, 2, 1; 1999 XN₂₅, 10, 2, 1; 1999 XO₂₅, 9, 2, 1; 1999 XP₂₅, 9, 2, 1; 1999 XQ₂₅, 10, 2, 1; 1999 XR₂₅, 10, 2, 1; 1999 XS₂₅, 10, 2, 1; 1999 XT₂₅, 10, 2, 1; 1999 XU₂₅, 10, 2, 1; 1999 XV₂₅, 9, 2, 1; 1999 XW₂₅, 7, 2, 1; 1999 XX₂₅, 8, 2, 1; 1999 XY₂₅, 9, 2, 1; 1999 XZ₂₅, 10, 2, 1; 1999 XA₂₆, 8, 2, 1; 1999 XB₂₆, 10, 2, 1; 1999 XC₂₆, 8, 2, 1; 1999 XD₂₆, 9, 2, 1; 1999 XE₂₆, 8, 2, 1; 1999 XF₂₆, 8, 2, 1; 1999 XG₂₆, 8, 2, 1; 1999 XH₂₆, 7, 2, 1; 1999 XJ₂₆, 9, 2, 1; 1999 XK₂₆, 8, 2, 1; 1999 XL₂₆, 8, 2, 1; 1999 XM₂₆, 8, 2, 1; 1999 XN₂₆, 9, 2, 1; 1999 XO₂₆, 8, 2, 1; 1999 XP₂₆, 8, 2, 1; 1999 XQ₂₆, 8, 2, 1; 1999 XR₂₆, 9, 2, 1; 1999 XS₂₆, 9, 2, 1; 1999 XT₂₆, 9, 2, 1; 1999 XU₂₆, 9, 2, 1; 1999 XV₂₆, 8, 2, 1; 1999 XW₂₆, 7, 2, 1; 1999 XX₂₆, 6, 2, 1; 1999 XY₂₆, 7, 2, 1; 1999 XZ₂₆, 9, 2, 1; 1999 XA₂₇, 8, 2, 1; 1999 XB₂₇, 6, 2, 1; 1999 XC₂₇, 7, 2, 1; 1999 XD₂₇, 7

9, 2, 1; 1999 XD₃₀ *, 8, 2, 1; 1999 XE₃₀ *, 10, 2, 1; 1999 XF₃₀ *, 10, 2, 1; 1999 XG₃₀ *, 10, 2, 1; 1999 XH₃₀ *, 10, 2, 1; 1999 XJ₃₀ *, 10, 2, 1; 1999 XK₃₀ *, 9, 2, 1; 1999 XL₃₀ *, 9, 2, 1; 1999 XM₃₀ *, 10, 2, 1; 1999 XN₃₀ *, 10, 2, 1; 1999 XO₃₀ *, 10, 2, 1; 1999 XP₃₀ *, 10, 2, 1; 1999 XQ₃₀ *, 9, 2, 1; 1999 XR₃₀ *, 10, 2, 1; 1999 XS₃₀ *, 10, 2, 1; 1999 XT₃₀ *, 8, 2, 1; 1999 XU₃₀ *, 14, 3, 9; 1999 XV₃₀ *, 9, 2, 1; 1999 XW₃₀ *, 8, 2, 1; 1999 XX₃₀ *, 7, 2, 1; 1999 XY₃₀ *, 8, 2, 1; 1999 XZ₃₀ *, 7, 2, 1; 1999 XA₃₁ *, 8, 2, 1; 1999 XB₃₁ *, 9, 2, 1; 1999 XC₃₁ *, 9, 2, 1; 1999 XD₃₁ *, 6, 2, 1; 1999 XE₃₁ *, 7, 2, 1; 1999 XF₃₁ *, 8, 2, 1; 1999 XG₃₁ *, 9, 2, 1; 1999 XH₃₁ *, 7, 2, 1; 1999 XJ₃₁ *, 8, 2, 1; 1999 XK₃₁ *, 9, 2, 1; 1999 XL₃₁ *, 9, 2, 1; 1999 XM₃₁ *, 8, 2, 1; 1999 XN₃₁ *, 8, 2, 1; 1999 XO₃₁ *, 8, 2, 1; 1999 XP₃₁ *, 10, 2, 1; 1999 XQ₃₁ *, 8, 2, 1; 1999 XR₃₁ *, 10, 2, 1; 1999 XS₃₁ *, 10, 2, 1; 1999 XT₃₁ *, 10, 2, 1; 1999 XU₃₁ *, 10, 2, 1; 1999 XV₃₁ *, 10, 2, 1; 1999 XW₃₁ *, 10, 2, 1; 1999 XX₃₁ *, 10, 2, 1; 1999 XY₃₁ *, 10, 2, 1; 1999 XZ₃₁ *, 10, 2, 1; 1999 XA₃₂ *, 10, 2, 1; 1999 XB₃₂ *, 7, 2, 1; 1999 XC₃₂ *, 8, 2, 1; 1999 XD₃₂ *, 10, 2, 1; 1999 XE₃₂ *, 10, 2, 1; 1999 XF₃₂ *, 10, 2, 1; 1999 XG₃₂ *, 10, 2, 1; 1999 XH₃₂ *, 9, 2, 1; 1999 XJ₃₂ *, 14, 2, 1; 1999 XK₃₂ *, 9, 2, 1; 1999 XL₃₂ *, 8, 2, 1; 1999 XM₃₂ *, 9, 2, 1; 1999 XN₃₂ *, 10, 2, 1; 1999 XO₃₂ *, 10, 2, 1; 1999 XP₃₂ *, 8, 2, 1; 1999 XQ₃₂ *, 10, 2, 1; 1999 XR₃₂ *, 9, 2, 1; 1999 XS₃₂ *, 9, 2, 1; 1999 XT₃₂ *, 9, 2, 1; 1999 XU₃₂ *, 10, 2, 1; 1999 XV₃₂ *, 10, 2, 1; 1999 XW₃₂ *, 10, 2, 1; 1999 XX₃₂ *, 10, 2, 1; 1999 XY₃₂ *, 10, 2, 1; 1999 XZ₃₂ *, 8, 2, 1; 1999 XA₃₃ *, 9, 2, 1; 1999 XB₃₃ *, 10, 2, 1; 1999 XC₃₃ *, 10, 2, 1; 1999 XD₃₃ *, 9, 2, 1; 1999 XE₃₃ *, 10, 2, 1; 1999 XF₃₃ *, 9, 2, 1; 1999 XG₃₃ *, 10, 2, 1; 1999 XH₃₃ *, 10, 2, 1; 1999 XJ₃₃ *, 10, 2, 1; 1999 XK₃₃ *, 8, 2, 1; 1999 XL₃₃ *, 8, 2, 1; 1999 XM₃₃ *, 9, 2, 1; 1999 XN₃₃ *, 10, 2, 1; 1999 XO₃₃ *, 10, 2, 1; 1999 XP₃₃ *, 10, 2, 1; 1999 XQ₃₃ *, 14, 3, 9; 1999 XR₃₃ *, 9, 2, 1; 1999 XS₃₃ *, 10, 2, 1; 1999 XT₃₃ *, 9, 2, 1; 1999 XU₃₃ *, 10, 2, 1; 1999 XV₃₃ *, 10, 2, 1; 1999 XW₃₃ *, 9, 2, 1; 1999 XX₃₃ *, 9, 2, 1; 1999 XY₃₃ *, 9, 2, 1; 1999 XZ₃₃ *, 10, 2, 1; 1999 XA₃₄ *, 7, 2, 1; 1999 XB₃₄ *, 10, 2, 1; 1999 XC₃₄ *, 9, 2, 1; 1999 XD₃₄ *, 10, 2, 1; 1999 XE₃₄ *, 10, 2, 1; 1999 XF₃₄ *, 10, 2, 1; 1999 XG₃₄ *, 10, 2, 1; 1999 XH₃₄ *, 10, 2, 1; 1999 XJ₃₄ *, 9, 2, 1; 1999 XK₃₄ *, 8, 2, 1; 1999 XL₃₄ *, 8, 2, 1; 1999 XM₃₄ *, 9, 2, 1; 1999 XN₃₄ *, 9, 2, 1; 1999 XO₃₄ *, 9, 2, 1; 1999 XP₃₄ *, 8, 2, 1; 1999 XQ₃₄ *, 8, 2, 1; 1999 XR₃₄ *, 9, 2, 1; 1999 XS₃₄ *, 9, 2, 1; 1999 XT₃₄ *, 8, 2, 1; 1999 XU₃₄ *, 6, 2, 1; 1999 XV₃₄ *, 8, 2, 1; 1999 XW₃₄ *, 9, 2, 1; 1999 XX₃₄ *, 7, 2, 1; 1999 XY₃₄ *, 6, 2, 1; 1999 XZ₃₄ *, 8, 2, 1; 1999 XA₃₅ *, 7, 2, 1; 1999 XB₃₅ *, 7, 2, 1; 1999 XC₃₅ *, 9, 2, 1; 1999 XD₃₅ *, 9, 2, 1; 1999 XE₃₅ *, 10, 2, 1; 1999 XF₃₅ *, 9, 2, 1; 1999 XG₃₅ *, 7, 2, 1; 1999 XH₃₅ *, 7, 2, 1; 1999 XJ₃₅ *, 9, 2, 1; 1999 XK₃₅ *, 7, 2, 1; 1999 XL₃₅ *, 8, 2, 1; 1999 XM₃₅ *, 4, 1, 0; 1999 XO₃₅ *, 19, 3, 2; 1999 XP₃₅ *, 15, 3, 2; 1999 XR₃₅ *, 3, 1, 0; 1999 XW₃₅ *, 5, 1, 0; 1999 XY₃₅ *, 3, 1, 0; 1999 XZ₃₅ *, 4, 1, 0; 1999 XA₃₆ *, 10, 2, 1; 1999 XB₃₆ *, 5, 1, 0; 1999 XC₃₆ *, 5, 1, 0; 1999 XD₃₆ *, 5, 1, 0; 1999 XE₃₆ *, 5, 1, 0; 1999 XF₃₆ *, 5, 1, 0; 1999 XG₃₆ *, 5, 1, 0; 1999 XH₃₆ *, 5, 1, 0; 1999 XI₃₆ *, 5, 1, 0; 1999 XJ₃₆ *, 5, 1, 0; 1999 XK₃₆ *, 5, 1, 0; 1999 XL₃₆ *, 5, 1, 0; 1999 XM₃₆ *, 5, 1, 0; 1999 XN₃₆ *, 5, 1, 0; 1999 XO₃₆ *, 9, 2, 1; 1999 XP₃₆ *, 5, 1, 0; 1999 XQ₃₆ *, 5, 1, 0; 1999 XR₃₆ *, 5, 1, 0; 1999 XS₃₆ *, 5, 1, 0; 1999 XT₃₆ *, 5, 1, 0; 1999 XU₃₆ *, 5, 1, 0; 1999 XV₃₆ *, 4, 1, 0; 1999 XW₃₆ *, 5, 1, 0; 1999 XX₃₆ *, 5, 1, 0; 1999 XY₃₆ *, 5, 1, 0; 1999 XZ₃₆ *, 5, 1, 0; 1999 XA₃₇ *, 9, 2, 1; 1999 XB₃₇ *, 5, 1, 0; 1999 XC₃₇ *, 5, 1, 0; 1999 XD₃₇ *, 5, 1, 0; 1999 XE₃₇ *, 5, 1, 0; 1999 XF₃₇ *, 5, 1, 0; 1999 XG₃₇ *, 10, 2, 1; 1999 XH₃₇ *, 8, 2, 1; 1999 XI₃₇ *, 8, 2, 1; 1999 XJ₃₇ *, 5, 1, 0; 1999 XK₃₇ *, 8, 2, 1; 1999 XL₃₇ *, 8, 2, 1; 1999 XM₃₇ *, 10, 2, 1; 1999 XN₃₇ *, 10, 2, 1; 1999 XO₃₇ *, 10, 2, 1; 1999 XP₃₇ *, 9, 2, 1; 1999 XQ₃₇ *, 9, 2, 1; 1999 XR₃₇ *, 10, 2, 1; 1999 XS₃₇ *, 10, 2, 1; 1999 XT₃₇ *, 9, 2, 1; 1999 XU₃₇ *, 8, 2, 1; 1999 XV₃₇ *, 8, 2, 1; 1999 XW₃₇ *, 8, 2, 1; 1999 XX₃₇ *, 8, 2, 1; 1999 XY₃₇ *, 8, 2, 1; 1999 XZ₃₇ *, 10, 2, 2; 1999 XA₄₀ *, 10, 2, 2; 1999 XB₄₀ *, 10, 2, 2; 1999 XC₄₀ *, 10, 2, 2; 1999 XD₄₀ *, 10, 2, 2; 1999 XE₄₀ *, 10, 2, 2; 1999 XF₄₀ *, 10, 2, 1; 1999 XG₄₀ *, 10, 2, 1; 1999 XH₄₀ *, 7, 2, 1; 1999 XJ₄₀ *, 10, 2, 1; 1999 XK₄₀ *, 8, 2, 1; 1999 XL₄₀ *, 10, 2, 1; 1999 XM₄₀ *, 8, 2, 1; 1999 XN₄₀ *, 7, 2, 1; 1999 XO₄₀ *, 10, 2, 1; 1999 XP₄₀ *, 9, 2, 1; 1999 XQ₄₀ *, 9, 2, 1; 1999 XR₄₀ *, 10, 2, 1; 1999 XS₄₀ *, 7, 2, 1; 1999 XT₄₀ *, 8, 2, 1; 1999 XU₄₀ *, 10, 2, 1; 1999 XV₄₀ *, 10, 2, 1; 1999 XW₄₀ *, 10, 2, 1; 1999 XX₄₀ *, 10, 2, 1; 1999 XY₄₀ *, 10, 2, 1; 1999 XZ₄₀ *, 10, 2, 1; 1999 XA₄₁ *, 10, 2, 1; 1999 XB₄₁ *, 10, 2, 1; 1999 XC₄₁ *, 7, 2, 1; 1999 XD₄₁ *, 7, 2, 1; 1999 XE₄₁ *, 9, 2, 1; 1999 XF₄₁ *, 8, 2, 1; 1999 XG₄₁ *, 9, 2, 1; 1999 XH₄₁ *, 8, 2, 1; 1999 XJ₄₁ *, 9, 2, 1; 1999 XK₄₁ *, 8, 2, 1; 1999 XL₄₁ *, 9, 2, 1; 1999 XM₄₁ *, 9, 2, 1; 1999 XN₄₁ *, 8, 2, 1; 1999 XO₄₁ *, 9, 2, 1; 1999 XP₄₁ *, 8, 2, 1; 1999 XQ₄₁ *, 7, 2, 1; 1999 XR₄₁ *, 10, 2, 1; 1999 XS₄₁ *, 8, 2, 1; 1999 XT₄₁ *, 8, 2, 1; 1999 XU₄₁ *, 9, 2, 1; 1999 XV₄₁ *, 8, 2, 1; 1999 XW₄₁ *, 10, 2, 1; 1999 XX₄₁ *, 10, 2, 1; 1999 XY₄₁ *, 10, 2, 1; 1999 XZ₄₁ *, 10, 2, 1; 1999 XA₄₂ *, 10, 2, 1; 1999 XB₄₂ *, 8, 2, 1; 1999 XC₄₂ *, 10, 2, 1; 1999 XD₄₂ *, 9, 2, 1; 1999 XE₄₂ *, 9, 2, 1; 1999 XF₄₂ *, 9, 2, 1; 1999 XG₄₂ *, 10, 2, 1; 1999 XH₄₂ *, 10, 2, 1; 1999 XJ₄₂ *, 10, 2, 1; 1999 XK₄₂ *, 10, 2, 1; 1999 XL₄₂ *, 8, 2, 1; 1999 XM₄₂ *, 10, 2, 1; 1999 XO₄₂ *, 10, 2, 1; 1999 XP₄₂ *, 6, 2, 1; 1999 XQ₄₂ *, 9, 2, 1; 1999 XR₄₂ *, 9, 2, 1; 1999 XS₄₂ *, 8, 2, 1; 1999 XT₄₂ *, 9, 2, 1; 1999 XU₄₂ *, 10, 2, 1; 1999 XV₄₂ *, 8, 2, 1; 1999 XW₄₂ *, 8, 2, 1; 1999 XX₄₂ *, 9, 2, 1; 1999 XY₄₂ *, 10, 2, 1; 1999 XZ₄₂ *, 10, 2, 1; 1999 XA₄₃ *, 7, 2, 1; 1999 XB₄₃ *, 10, 2,

1; 1999 XC₄₃ *, 8, 2, 1; 1999 XD₄₃ *, 10, 2, 1; 1999 XE₄₃ *, 10, 2, 1; 1999 XF₄₃ *, 9, 2, 1; 1999 XG₄₃ *, 10, 2, 1; 1999 XH₄₃ *, 8, 2, 1; 1999 XJ₄₃ *, 10, 2, 1; 1999 XK₄₃ *, 10, 2, 1; 1999 XL₄₃ *, 9, 2, 1; 1999 XM₄₃ *, 10, 2, 1; 1999 XN₄₃ *, 7, 2, 1; 1999 XO₄₃ *, 10, 2, 1; 1999 XP₄₃ *, 10, 2, 1; 1999 XQ₄₃ *, 10, 2, 1; 1999 XR₄₃ *, 9, 2, 1; 1999 XS₄₃ *, 7, 2, 1; 1999 XT₄₃ *, 10, 2, 1; 1999 XU₄₃ *, 10, 2, 1; 1999 XV₄₃ *, 10, 2, 1; 1999 XW₄₃ *, 9, 2, 1; 1999 XX₄₃ *, 10, 2, 1; 1999 XY₄₃ *, 9, 2, 1; 1999 XZ₄₃ *, 10, 2, 1; 1999 XA₄₄ *, 10, 2, 1; 1999 XB₄₄ *, 8, 2, 1; 1999 XC₄₄ *, 9, 2, 1; 1999 XD₄₄ *, 10, 2, 1; 1999 XE₄₄ *, 9, 2, 1; 1999 XF₄₄ *, 10, 2, 1; 1999 XG₄₄ *, 10, 2, 1; 1999 XH₄₄ *, 10, 2, 1; 1999 XJ₄₄ *, 10, 2, 1; 1999 XK₄₄ *, 8, 2, 1; 1999 XL₄₄ *, 10, 2, 1; 1999 XM₄₄ *, 10, 2, 1; 1999 XN₄₄ *, 10, 2, 1; 1999 XO₄₄ *, 7, 2, 1; 1999 XP₄₄ *, 6, 2, 1; 1999 XQ₄₄ *, 9, 2, 1; 1999 XR₄₄ *, 8, 2, 1; 1999 XS₄₄ *, 10, 2, 1; 1999 XT₄₄ *, 9, 2, 1; 1999 XU₄₄ *, 9, 2, 1; 1999 XV₄₄ *, 10, 2, 1; 1999 XW₄₄ *, 7, 2, 1; 1999 XX₄₄ *, 8, 2, 1; 1999 XY₄₄ *, 8, 2, 1; 1999 XZ₄₄ *, 10, 2, 1; 1999 XA₄₅ *, 9, 2, 1; 1999 XB₄₅ *, 8, 2, 1; 1999 XC₄₅ *, 9, 2, 1; 1999 XD₄₅ *, 10, 2, 1; 1999 XE₄₅ *, 9, 2, 1; 1999 XF₄₅ *, 10, 2, 1; 1999 XG₄₅ *, 9, 2, 1; 1999 XH₄₅ *, 10, 2, 1; 1999 XJ₄₅ *, 10, 2, 1; 1999 XK₄₅ *, 7, 2, 1; 1999 XL₄₅ *, 8, 2, 1; 1999 XM₄₅ *, 8, 2, 1; 1999 XN₄₅ *, 8, 2, 1; 1999 XO₄₅ *, 9, 2, 1; 1999 XP₄₅ *, 10, 2, 1; 1999 XQ₄₅ *, 9, 2, 1; 1999 XR₄₅ *, 8, 2, 1; 1999 XS₄₅ *, 9, 2, 1; 1999 XT₄₅ *, 10, 2, 1; 1999 XU₄₅ *, 10, 2, 1; 1999 XV₄₅ *, 9, 2, 1; 1999 XW₄₅ *, 8, 2, 1; 1999 XZ₄₅ *, 10, 2, 1; 1999 XA₄₆ *, 10, 2, 1; 1999 XB₄₆ *, 10, 2, 1; 1999 XC₄₆ *, 8, 2, 1; 1999 XD₄₆ *, 10, 2, 1; 1999 XE₄₆ *, 10, 2, 1; 1999 XF₄₆ *, 10, 2, 1; 1999 XG₄₆ *, 8, 2, 1; 1999 XH₄₆ *, 9, 2, 1; 1999 XJ₄₆ *, 8, 2, 1; 1999 XK₄₆ *, 7, 2, 1; 1999 XL₄₆ *, 9, 2, 1; 1999 XM₄₆ *, 8, 2, 1; 1999 XN₄₆ *, 10, 2, 1; 1999 XO₄₆ *, 7, 2, 1; 1999 XP₄₆ *, 7, 2, 1; 1999 XQ₄₆ *, 10, 2, 1; 1999 XR₄₆ *, 9, 2, 1; 1999 XS₄₆ *, 10, 2, 1; 1999 XT₄₆ *, 8, 2, 1; 1999 XU₄₆ *, 9, 2, 1; 1999 XV₄₆ *, 7, 2, 1; 1999 XW₄₆ *, 10, 2, 1; 1999 XX₄₆ *, 10, 2, 1; 1999 XY₄₆ *, 10, 2, 1; 1999 XZ₄₆ *, 10, 2, 1; 1999 XA₄₇ *, 9, 2, 1; 1999 XB₄₇ *, 10, 2, 1; 1999 XC₄₇ *, 8, 2, 1; 1999 XD₄₇ *, 9, 2, 1; 1999 XE₄₇ *, 9, 2, 1; 1999 XF₄₇ *, 9, 2, 1; 1999 XG₄₇ *, 8, 2, 1; 1999 XH₄₇ *, 9, 2, 1; 1999 XJ₄₇ *, 9, 2, 1; 1999 XK₄₇ *, 8, 2, 1; 1999 XL₄₇ *, 10, 2, 1; 1999 XM₄₇ *, 9, 2, 1; 1999 XN₄₇ *, 8, 2, 1; 1999 XO₄₇ *, 10, 2, 1; 1999 XP₄₇ *, 10, 2, 1; 1999 XQ₄₇ *, 8, 2, 1; 1999 XR₄₇ *, 9, 2, 1; 1999 XS₄₇ *, 8, 2, 1; 1999 XT₄₇ *, 10, 2, 1; 1999 XU₄₇ *, 10, 2, 1; 1999 XV₄₇ *, 9, 2, 1; 1999 XW₄₇ *, 10, 2, 1; 1999 XX₄₇ *, 7, 2, 1; 1999 XY₄₇ *, 9, 2, 1; 1999 XZ₄₇ *, 10, 2, 1; 1999 XA₄₈ *, 9, 2, 1; 1999 XB₄₈ *, 9, 2, 1; 1999 XC₄₈ *, 7, 2, 1; 1999 XD₄₈ *, 10, 2, 1; 1999 XE₄₈ *, 9, 2, 1; 1999 XF₄₈ *, 6, 2, 1; 1999 XG₄₈ *, 8, 2, 1; 1999 XH₄₈ *, 9, 2, 1; 1999 XJ₄₈ *, 10, 2, 1; 1999 XK₄₈ *, 10, 2, 1; 1999 XL₄₈ *, 10, 2, 1; 1999 XM₄₈ *, 10, 2, 1; 1999 XN₄₈ *, 10, 2, 1; 1999 XO₄₈ *, 8, 2, 1; 1999 XP₄₈ *, 10, 2, 1; 1999 XQ₄₈ *, 8, 2, 1; 1999 XR₄₈ *, 9, 2, 1; 1999 XS₄₈ *, 10, 2, 1; 1999 XT₄₈ *, 10, 2, 1; 1999 XU₄₈ *, 9, 2, 1; 1999 XV₄₈ *, 10, 2, 1; 1999 XW₄₈ *, 9, 2, 1; 1999 XX₄₈ *, 10, 2, 1; 1999 XY₄₈ *, 9, 2, 1; 1999 XZ₄₈ *, 10, 2, 1; 1999 XA₄₉ *, 10, 2, 1; 1999 XB₄₉ *, 10, 2, 1; 1999 XC₄₉ *, 10, 2, 1; 1999 XD₄₉ *, 8, 2, 1; 1999 XE₄₉ *, 8, 2, 1; 1999 XF₄₉ *, 7, 2, 1; 1999 XG₄₉ *, 9, 2, 1; 1999 XH₄₉ *, 8, 2, 1; 1999 XJ₄₉ *, 8, 2, 1; 1999 XK₄₉ *, 9, 2, 1; 1999 XL₄₉ *, 9, 2, 1; 1999 XM₄₉ *, 10, 2, 1; 1999 XN₄₉ *, 7, 2, 1; 1999 XO₄₉ *, 9, 2, 1; 1999 XP₄₉ *, 10, 2, 1; 1999 XQ₄₉ *, 10, 2, 1; 1999 XR₄₉ *, 8, 2, 1; 1999 XS₄₉ *, 6, 2, 1; 1999 XT₄₉ *, 7, 2, 1; 1999 XU₄₉ *, 10, 2, 1; 1999 XV₄₉ *, 10, 2, 1; 1999 XW₄₉ *, 8, 2, 1; 1999 XX₄₉ *, 10, 2, 1; 1999 XY₄₉ *, 10, 2, 1; 1999 XZ₄₉ *, 10, 2, 1; 1999 XA₅₀ *, 10, 2, 1; 1999 XB₅₀ *, 9, 2, 1; 1999 XC₅₀ *, 9, 2, 1; 1999 XD₅₀ *, 9, 2, 1; 1999 XE₅₀ *, 10, 2, 1; 1999 XF₅₀ *, 10, 2, 1; 1999 XG₅₀ *, 9, 2, 1; 1999 XH₅₀ *, 8, 2, 1; 1999 XJ₅₀ *, 9, 2, 1; 1999 XK₅₀ *, 9, 2, 1; 1999 XL₅₀ *, 9, 2, 1; 1999 XM₅₀ *, 9, 2, 1; 1999 XN₅₀ *, 7, 2, 1; 1999 XO₅₀ *, 6, 2, 1; 1999 XP₅₀ *, 5, 2, 1; 1999 XQ₅₀ *, 9, 2, 1; 1999 XR₅₀ *, 8, 2, 1; 1999 XS₅₀ *, 9, 2, 1; 1999 XT₅₀ *, 9, 2, 1; 1999 XU₅₀ *, 8, 2, 1; 1999 XV₅₀ *, 8, 2, 1; 1999 XW₅₀ *, 7, 2, 1; 1999 XX₅₀ *, 7, 2, 1; 1999 XY₅₀ *, 7, 2, 1; 1999 XZ₅₀ *, 9, 2, 1; 1999 XA₅₁ *, 8, 2, 1; 1999 XB₅₁ *, 10, 2, 1; 1999 XC₅₁ *, 10, 2, 1; 1999 XD₅₁ *, 9, 2, 1; 1999 XE₅₁ *, 9, 2, 1; 1999 XF₅₁ *, 9, 2, 1; 1999 XG₅₁ *, 10, 2, 1; 1999 XH₅₁ *, 8, 2, 1; 1999 XJ₅₁ *, 10, 2, 1; 1999 XK₅₁ *, 9, 2, 1; 1999 XL₅₁ *, 8, 2, 1; 1999 XM₅₁ *, 9, 2, 1; 1999 XN₅₁ *, 9, 2, 1; 1999 XO₅₁ *, 7, 2, 1; 1999 XP₅₁ *, 10, 2, 1; 1999 XQ₅₁ *, 9, 2, 1; 1999 XR₅₁ *, 8, 2, 1; 1999 XS₅₁ *, 8, 2, 1; 1999 XT₅₁ *, 10, 2, 1; 1999 XU₅₁ *, 6, 2, 1; 1999 XV₅₁ *, 9, 2, 1; 1999 XW₅₁ *, 9, 2, 1; 1999 XY₅₁ *, 10, 2, 1; 1999 XZ₅₁ *, 10, 2, 1; 1999 XA₅₂ *, 10, 2, 1; 1999 XB₅₂ *, 10, 2, 1; 1999 XC₅₂ *, 8, 2, 1; 1999 XD₅₂ *, 10, 2, 1; 1999 XE₅₂ *, 9, 2, 1; 1999 XF₅₂ *, 8, 2, 1; 1999 XG

1; 1999 XO₅₄ *, 10, 2, 1; 1999 XP₅₄ *, 10, 2, 1; 1999 XQ₅₄ *, 8, 2, 1; 1999 XR₅₄ *, 10, 2, 1; 1999 XS₅₄ *, 10, 2, 1; 1999 XT₅₄ *, 10, 2, 1; 1999 XU₅₄ *, 10, 2, 1; 1999 XV₅₄ *, 9, 2, 2, 1; 1999 XW₅₄ *, 10, 2, 1; 1999 XX₅₄ *, 10, 2, 1; 1999 XY₅₄ *, 10, 2, 1; 1999 XZ₅₄ *, 10, 2, 1; 1999 XA₅₅ *, 10, 2, 1; 1999 XB₅₅ *, 9, 2, 1; 1999 XC₅₅ *, 10, 2, 1; 1999 XD₅₅ *, 7, 2, 1; 1999 XE₅₅ *, 9, 2, 1; 1999 XF₅₅ *, 9, 2, 1; 1999 XG₅₅ *, 8, 2, 1; 1999 XH₅₅ *, 10, 2, 1; 1999 XJ₅₅ *, 10, 2, 1; 1999 XK₅₅ *, 9, 2, 1; 1999 XL₅₅ *, 7, 2, 1; 1999 XM₅₅ *, 10, 2, 1; 1999 XN₅₅ *, 10, 2, 1; 1999 XO₅₅ *, 9, 2, 1; 1999 XP₅₅ *, 9, 2, 1; 1999 XQ₅₅ *, 9, 2, 1; 1999 XR₅₅ *, 10, 2, 1; 1999 XS₅₅ *, 9, 2, 1; 1999 XT₅₅ *, 7, 2, 1; 1999 XU₅₅ *, 9, 2, 1; 1999 XV₅₅ *, 8, 2, 1; 1999 XW₅₅ *, 10, 2, 1; 1999 XX₅₅ *, 9, 2, 1; 1999 XY₅₅ *, 8, 2, 1; 1999 XZ₅₅ *, 10, 2, 1; 1999 XA₅₆ *, 7, 2, 1; 1999 XB₅₆ *, 9, 2, 1; 1999 XC₅₆ *, 9, 2, 1; 1999 XD₅₆ *, 9, 2, 1; 1999 XE₅₆ *, 10, 2, 1; 1999 XF₅₆ *, 8, 2, 1; 1999 XG₅₆ *, 8, 2, 1; 1999 XH₅₆ *, 13, 3, 3; 1999 XJ₅₆ *, 10, 2, 1; 1999 XK₅₆ *, 10, 2, 1; 1999 XL₅₆ *, 10, 2, 1; 1999 XM₅₆ *, 8, 2, 1; 1999 XN₅₆ *, 8, 2, 1; 1999 XO₅₆ *, 13, 3, 3; 1999 XP₅₆ *, 8, 2, 1; 1999 XQ₅₆ *, 10, 2, 1; 1999 XR₅₆ *, 8, 2, 1; 1999 XS₅₆ *, 10, 2, 1; 1999 XT₅₆ *, 10, 2, 1; 1999 XU₅₆ *, 10, 2, 1; 1999 XV₅₆ *, 9, 2, 1; 1999 XW₅₆ *, 10, 2, 1; 1999 XX₅₆ *, 10, 2, 1; 1999 XY₅₆ *, 8, 2, 1; 1999 XZ₅₆ *, 10, 2, 1; 1999 XA₅₇ *, 8, 2, 1; 1999 XB₅₇ *, 10, 2, 1; 1999 XC₅₇ *, 10, 2, 1; 1999 XD₅₇ *, 9, 2, 1; 1999 XE₅₇ *, 10, 2, 1; 1999 XF₅₇ *, 10, 2, 1; 1999 XG₅₇ *, 9, 2, 1; 1999 XH₅₇ *, 9, 2, 1; 1999 XJ₅₇ *, 9, 2, 1; 1999 XK₅₇ *, 10, 2, 1; 1999 XL₅₇ *, 10, 2, 1; 1999 XM₅₇ *, 8, 2, 1; 1999 XN₅₇ *, 8, 2, 1; 1999 XO₅₇ *, 10, 2, 1; 1999 XP₅₇ *, 8, 2, 1; 1999 XQ₅₇ *, 9, 2, 1; 1999 XR₅₇ *, 9, 2, 1; 1999 XS₅₇ *, 9, 2, 1; 1999 XT₅₇ *, 9, 2, 1; 1999 XU₅₇ *, 8, 2, 1; 1999 XV₅₇ *, 10, 2, 1; 1999 XW₅₇ *, 10, 2, 1; 1999 XX₅₇ *, 10, 2, 1; 1999 XY₅₇ *, 9, 2, 1; 1999 XZ₅₇ *, 10, 2, 1; 1999 XA₅₈ *, 7, 2, 1; 1999 XB₅₈ *, 8, 2, 1; 1999 XC₅₈ *, 10, 2, 1; 1999 XD₅₈ *, 14, 3, 3; 1999 XE₅₈ *, 10, 2, 1; 1999 XF₅₈ *, 10, 2, 1; 1999 XG₅₈ *, 10, 2, 1; 1999 XH₅₈ *, 10, 2, 1; 1999 XJ₅₈ *, 8, 2, 1; 1999 XK₅₈ *, 8, 2, 1; 1999 XL₅₈ *, 8, 2, 1; 1999 XM₅₈ *, 10, 2, 1; 1999 XN₅₈ *, 10, 2, 1; 1999 XO₅₈ *, 10, 2, 1; 1999 XP₅₈ *, 10, 2, 1; 1999 XQ₅₈ *, 10, 2, 1; 1999 XR₅₈ *, 9, 2, 1; 1999 XS₅₈ *, 10, 2, 1; 1999 XT₅₈ *, 9, 2, 1; 1999 XU₅₈ *, 10, 2, 1; 1999 XV₅₈ *, 10, 2, 1; 1999 XW₅₈ *, 7, 2, 1; 1999 XX₅₈ *, 9, 2, 1; 1999 XY₅₈ *, 7, 2, 1; 1999 XZ₅₈ *, 7, 2, 1; 1999 XA₅₉ *, 10, 2, 1; 1999 XB₅₉ *, 8, 2, 1; 1999 XC₅₉ *, 8, 2, 1; 1999 XD₅₉ *, 10, 2, 1; 1999 XE₅₉ *, 8, 2, 1; 1999 XF₅₉ *, 10, 2, 1; 1999 XG₅₉ *, 10, 2, 1; 1999 XH₅₉ *, 11, 3, 5; 1999 XJ₅₉ *, 15, 3, 5; 1999 XK₅₉ *, 8, 2, 1; 1999 XL₅₉ *, 10, 2, 1; 1999 XM₅₉ *, 10, 2, 1; 1999 XN₅₉ *, 9, 2, 1; 1999 XO₅₉ *, 9, 2, 1; 1999 XP₅₉ *, 10, 2, 1; 1999 XQ₅₉ *, 8, 2, 1; 1999 XR₅₉ *, 8, 2, 1; 1999 XS₅₉ *, 10, 2, 1; 1999 XT₅₉ *, 10, 2, 1; 1999 XU₅₉ *, 9, 2, 1; 1999 XV₅₉ *, 8, 2, 1; 1999 XW₅₉ *, 10, 2, 1; 1999 XX₅₉ *, 10, 2, 1; 1999 XY₅₉ *, 6, 2, 1; 1999 XZ₅₉ *, 8, 2, 1; 1999 XA₆₀ *, 10, 2, 1; 1999 XB₆₀ *, 10, 2, 1; 1999 XC₆₀ *, 9, 2, 1; 1999 XD₆₀ *, 9, 2, 1; 1999 XE₆₀ *, 7, 2, 1; 1999 XF₆₀ *, 9, 2, 1; 1999 XG₆₀ *, 10, 2, 1; 1999 XH₆₀ *, 8, 2, 1; 1999 XJ₆₀ *, 10, 2, 1; 1999 XK₆₀ *, 10, 2, 1; 1999 XL₆₀ *, 6, 2, 1; 1999 XM₆₀ *, 10, 2, 1; 1999 XN₆₀ *, 8, 2, 1; 1999 XO₆₀ *, 6, 2, 1; 1999 XP₆₀ *, 10, 2, 1; 1999 XQ₆₀ *, 10, 2, 1; 1999 XR₆₀ *, 10, 2, 1; 1999 XS₆₀ *, 10, 2, 1; 1999 XT₆₀ *, 10, 2, 1; 1999 XU₆₀ *, 10, 2, 1; 1999 XV₆₀ *, 9, 2, 1; 1999 XW₆₀ *, 10, 2, 1; 1999 XX₆₀ *, 10, 2, 1; 1999 XY₆₀ *, 10, 2, 1; 1999 XZ₆₀ *, 9, 2, 1; 1999 XA₆₁ *, 9, 2, 1; 1999 XB₆₁ *, 9, 2, 1; 1999 XC₆₁ *, 8, 2, 1; 1999 XD₆₁ *, 10, 2, 1; 1999 XE₆₁ *, 9, 2, 1; 1999 XF₆₁ *, 10, 2, 1; 1999 XG₆₁ *, 8, 2, 1; 1999 XH₆₁ *, 14, 2, 1; 1999 XJ₆₁ *, 10, 2, 1; 1999 XK₆₁ *, 7, 2, 1; 1999 XL₆₁ *, 6, 2, 1; 1999 XM₆₁ *, 8, 2, 1; 1999 XN₆₁ *, 9, 2, 1; 1999 XO₆₁ *, 9, 2, 1; 1999 XP₆₁ *, 7, 2, 1; 1999 XQ₆₁ *, 10, 2, 1; 1999 XR₆₁ *, 8, 2, 1; 1999 XS₆₁ *, 9, 2, 1; 1999 XT₆₁ *, 8, 2, 1; 1999 XU₆₁ *, 8, 2, 1; 1999 XV₆₁ *, 7, 2, 1; 1999 XW₆₁ *, 7, 2, 1; 1999 XX₆₁ *, 8, 2, 1; 1999 XY₆₁ *, 6, 2, 1; 1999 XZ₆₁ *, 9, 2, 1; 1999 XA₆₂ *, 8, 2, 1; 1999 XB₆₂ *, 8, 2, 1; 1999 XC₆₂ *, 9, 2, 1; 1999 XD₆₂ *, 8, 2, 1; 1999 XE₆₂ *, 6, 2, 1; 1999 XF₆₂ *, 7, 2, 1; 1999 XG₆₂ *, 9, 2, 1; 1999 XH₆₂ *, 8, 2, 1; 1999 XJ₆₂ *, 7, 2, 1; 1999 XK₆₂ *, 8, 2, 1; 1999 XL₆₂ *, 6, 2, 1; 1999 XM₆₂ *, 8, 2, 1; 1999 XN₆₂ *, 8, 2, 1; 1999 XO₆₂ *, 8, 2, 1; 1999 XP₆₂ *, 6, 2, 1; 1999 XQ₆₂ *, 6, 2, 1; 1999 XR₆₂ *, 9, 2, 1; 1999 XS₆₂ *, 8, 2, 1; 1999 XT₆₂ *, 7, 2, 1; 1999 XU₆₂ *, 9, 2, 1; 1999 XV₆₂ *, 9, 2, 1; 1999 XW₆₂ *, 7, 2, 1; 1999 XX₆₂ *, 8, 2, 1; 1999 XY₆₂ *, 8, 2, 1; 1999 XZ₆₂ *, 9, 2, 1; 1999 XA₆₃ *, 8, 2, 1; 1999 XB₆₃ *, 6, 2, 1; 1999 XC₆₃ *, 6, 2, 1; 1999 XD₆₃ *, 7, 2, 1; 1999 XE₆₃ *, 7, 2, 1; 1999 XF₆₃ *, 9, 2, 1; 1999 XG₆₃ *, 9, 2, 1; 1999 XH₆₃ *, 8, 2, 1; 1999 XJ₆₃ *, 8, 2, 1; 1999 XK₆₃ *, 8, 2, 1; 1999 XL₆₃ *, 7, 2, 1; 1999 XM₆₃ *, 6, 2, 1; 1999 XN₆₃ *, 8, 2, 1; 1999 XO₆₃ *, 7, 2, 1; 1999 XP₆₃ *, 8, 2, 1; 1999 XQ₆₃ *, 8, 2, 1; 1999 XR₆₃ *, 9, 2, 1; 1999 XS₆₃ *, 10, 2, 1; 1999 XT₆₃ *, 8, 2, 1; 1999 XU₆₃ *, 10, 2, 1; 1999 XV₆₃ *, 10, 2, 1; 1999 XW₆₃ *, 9, 2, 1; 1999 XX₆₃ *, 8, 2, 1; 1999 XY₆₃ *, 9, 2, 1; 1999 XZ₆₃ *, 13, 2, 1; 1999 XA₆₄ *, 8, 2, 1; 1999 XB₆₄ *, 10, 2, 1; 1999 XC₆₄ *, 9, 2, 1; 1999 XD₆₄ *, 7, 2, 1; 1999 XE₆₄ *, 7, 2, 1; 1999 XF₆₄ *, 8, 2, 1; 1999 XG₆₄ *, 10, 2, 1; 1999 XH₆₄ *, 9, 2, 1; 1999 XJ₆₄ *, 10, 2, 1; 1999 XK₆₄ *, 10, 2, 1; 1999 XL₆₄ *, 10, 2, 1; 1999 XM₆₄ *, 10, 2, 1; 1999 XN₆₄ *, 7, 2, 1; 1999 XO₆₄ *, 8, 2, 1; 1999 XP₆₄ *, 10, 2, 1; 1999 XQ₆₄ *, 8, 2, 1; 1999 XR₆₄ *, 10, 2, 1; 1999 XS₆₄ *, 15, 3, 5; 1999 XT₆₄ *, 9, 2, 1; 1999 XU₆₄ *, 9, 2, 1; 1999 XV₆₄ *, 10, 2, 1; 1999 XW₆₄ *, 9, 2, 1; 1999 XX₆₄ *, 10, 2, 1; 1999 XY₆₄ *, 9, 2, 1; 1999 XZ₆₄ *, 7, 2, 1; 1999 XA₆₅ *, 9, 2, 1; 1999 XB₆₅ *, 8, 2, 1; 1999 XC₆₅ *, 9, 2, 1; 1999 XD₆₅ *, 9, 2, 1; 1999 XE₆₅ *, 10, 2, 1; 1999 XF₆₅ *, 7, 2, 1; 1999 XG₆₅ *, 10, 2, 1; 1999 XH₆₅ *, 10, 2, 1; 1999 XJ₆₅ *, 9, 2, 1; 1999 XK₆₅ *, 9, 2, 1; 1999 XL₆₅ *, 8, 2, 1; 1999 XM₆₅ *, 9, 2, 1; 1999 XN₆₅ *, 9, 2, 1; 1999 XO₆₅ *, 10, 2, 1; 1999 XP₆₅ *, 9, 2, 1; 1999 XQ₆₅ *, 9, 2, 1; 1999 XR₆₅ *, 9, 2, 1; 1999 XS₆₅ *, 10, 2, 1; 1999 XT₆₅ *, 9, 2, 1; 1999 XU₆₅ *, 9, 2, 1; 1999 XV₆₅ *, 10, 2, 1; 1999 XW₆₅ *, 9, 2, 1; 1999 XX₆₅ *, 12, 2, 1; 1999 XY₆₅ *, 8, 2, 1; 1999 XZ₆₅ *, 10, 2, 1; 1999 XA₆₆ *, 10,

2, 1; 1999 XB₆₆ *, 10, 2, 1; 1999 XC₆₆ *, 10, 2, 1; 1999 XD₆₆ *, 9, 2, 1; 1999 XE₆₆ *, 10, 2, 1; 1999 XF₆₆ *, 9, 2, 1; 1999 XG₆₆ *, 10, 2, 1; 1999 XH₆₆ *, 10, 2, 1; 1999 XJ₆₆ *, 10, 2, 1; 1999 XK₆₆ *, 9, 2, 1; 1999 XL₆₆ *, 9, 2, 1; 1999 XM₆₆ *, 10, 2, 1; 1999 XN₆₆ *, 10, 2, 1; 1999 XO₆₆ *, 10, 2, 1; 1999 XP₆₆ *, 10, 2, 1; 1999 XQ₆₆ *, 8, 2, 1; 1999 XR₆₆ *, 10, 2, 1; 1999 XS₆₆ *, 10, 2, 1; 1999 XT₆₆ *, 10, 2, 1; 1999 XU₆₆ *, 10, 2, 1; 1999 XV₆₆ *, 10, 2, 1; 1999 XW₆₆ *, 10, 2, 1; 1999 XX₆₆ *, 10, 2, 1; 1999 XY₆₆ *, 10, 2, 1; 1999 XZ₆₆ *, 10, 2, 1; 1999 XA₆₇ *, 10, 2, 1; 1999 XB₆₇ *, 9, 2, 1; 1999 XC₆₇ *, 9, 2, 1; 1999 XD₆₇ *, 9, 2, 1; 1999 XE₆₇ *, 9, 2, 1; 1999 XF₆₇ *, 8, 2, 1; 1999 XG₆₇ *, 10, 2, 1; 1999 XH₆₇ *, 9, 2, 1; 1999 XJ₆₇ *, 7, 2, 1; 1999 XK₆₇ *, 10, 2, 1; 1999 XL₆₇ *, 10, 2, 1; 1999 XM₆₇ *, 9, 2, 1; 1999 XN₆₇ *, 8, 2, 1; 1999 XO₆₇ *, 8, 2, 1; 1999 XP₆₇ *, 10, 2, 1; 1999 XQ₆₇ *, 10, 2, 1; 1999 XR₆₇ *, 7, 2, 1; 1999 XS₆₇ *, 9, 2, 1; 1999 XT₆₇ *, 10, 2, 1; 1999 XU₆₇ *, 10, 2, 1; 1999 XV₆₇ *, 10, 2, 1; 1999 XW₆₇ *, 10, 2, 1; 1999 XX₆₇ *, 9, 2, 1; 1999 XY₆₇ *, 9, 2, 1; 1999 XZ₆₇ *, 8, 2, 1; 1999 XA₆₈ *, 10, 2, 1; 1999 XB₆₈ *, 9, 2, 1; 1999 XC₆₈ *, 10, 2, 1; 1999 XD₆₈ *, 8, 2, 1; 1999 XE₆₈ *, 9, 2, 1; 1999 XF₆₈ *, 9, 2, 1; 1999 XG₆₈ *, 8, 2, 1; 1999 XH₆₈ *, 10, 2, 1; 1999 XJ₆₈ *, 10, 2, 1; 1999 XK₆₈ *, 9, 2, 1; 1999 XL₆₈ *, 7, 2, 1; 1999 XM₆₈ *, 10, 2, 1; 1999 XN₆₈ *, 10, 2, 1; 1999 XO₆₈ *, 8, 2, 1; 1999 XP₆₈ *, 10, 2, 1; 1999 XQ₆₈ *, 10, 2, 1; 1999 XR₆₈ *, 10, 2, 1; 1999 XS₆₈ *, 10, 2, 1; 1999 XT₆₈ *, 10, 2, 1; 1999 XU₆₈ *, 10, 2, 1; 1999 XV₆₈ *, 10, 2, 1; 1999 XW₆₈ *, 10, 2, 1; 1999 XX₆₈ *, 10, 2, 1; 1999 XY₆₈ *, 10, 2, 1; 1999 XZ₆₈ *, 9, 2, 1; 1999 XA₆₉ *, 9, 2, 1; 1999 XB₆₉ *, 10, 2, 1; 1999 XC₆₉ *, 10, 2, 1; 1999 XD₆₉ *, 8, 2, 1; 1999 XE₆₉ *, 9, 2, 1; 1999 XF₆₉ *, 9, 2, 1; 1999 XG₆₉ *, 7, 2, 1; 1999 XH₆₉ *, 9, 2, 1; 1999 XJ₆₉ *, 10, 2, 1; 1999 XK₆₉ *, 7, 2, 1; 1999 XL₆₉ *, 10, 2, 1; 1999 XM₆₉ *, 9, 2, 1; 1999 XN₆₉ *, 9, 2, 1; 1999 XO₆₉ *, 10, 2, 1; 1999 XP₆₉ *, 10, 2, 1; 1999 XQ₆₉ *, 9, 2, 1; 1999 XR₆₉ *, 10, 2, 1; 1999 XS₆₉ *, 10, 2, 1; 1999 XT₆₉ *, 9, 2, 1; 1999 XU₆₉ *, 10, 2, 1; 1999 XV₆₉ *, 10, 2, 1; 1999 XW₆₉ *, 7, 2, 1; 1999 XX₆₉ *, 9, 2, 1; 1999 XY₆₉ *, 9, 2, 1; 1999 XZ₆₉ *, 9, 2, 1; 1999 XA₇₀ *, 10, 2, 1; 1999 XB₇₀ *, 9, 2, 1; 1999 XC₇₀ *, 9, 2, 1; 1999 XD₇₀ *, 10, 2, 1; 1999 XE₇₀ *, 8, 2, 1; 1999 XF₇₀ *, 9, 2, 1; 1999 XG₇₀ *, 9, 2, 1; 1999 XH₇₀ *, 9, 2, 1; 1999 XJ₇₀ *, 10, 2, 1; 1999 XK₇₀ *, 9, 2, 1; 1999 XL₇₀ *, 9, 2, 1; 1999 XM₇₀ *, 10, 2, 1; 1999 XN₇₀ *, 10, 2, 1; 1999 XO₇₀ *, 10, 2, 1; 1999 XP₇₀ *, 10, 2, 1; 1999 XQ₇₀ *, 7, 2, 1; 1999 XR₇₀ *, 10, 2, 1; 1999 XS₇₀ *, 9, 2, 1; 1999 XT₇₀ *, 9, 2, 1; 1999 XU₇₀ *, 10, 2, 1; 1999 XV₇₀ *, 10, 2, 1; 1999 XW₇₀ *, 10, 2, 1; 1999 XX₇₀ *, 10, 2, 1; 1999 XY₇₀ *, 9, 2, 1; 1999 XZ₇₀ *, 9, 2, 1; 1999 XA₇₁ *, 10, 2, 1; 1999 XB₇₁ *, 10, 2, 1; 1999 XC₇₁ *, 8, 2, 1; 1999 XD₇₁ *, 10, 2, 1; 1999 XE₇₁ *, 10, 2, 1; 1999 XF₇₁ *, 9, 2, 1; 1999 XG₇₁ *, 10, 2, 1; 1999 XH₇₁ *, 10, 2, 1; 1999 XJ₇₁ *, 8, 2, 1; 1999 XK₇₁ *, 10, 2, 1; 1999 XL₇₁ *, 6, 2, 1; 1999 XM₇₁ *, 9, 2, 1; 1999 XN₇₁ *, 7, 2, 1; 1999 XO₇₁ *, 10, 2, 1; 1999 XP₇₁ *, 10, 2, 1; 1999 XQ₇₁ *, 7, 2, 1; 1999 XR₇₁ *, 9, 2, 1; 1999 XS₇₁ *, 10, 2, 1; 1999 XT₇₁ *, 9, 2, 1; 1999 XU₇₁ *, 9, 2, 1; 1999 XV₇₁ *, 8, 2, 1; 1999 XW₇₁ *, 9, 2, 1; 1999 XX₇₁ *, 7, 2, 1; 1999 XY₇₁ *, 9, 2, 1; 1999 XZ₇₁ *, 9, 2, 1; 1999 XA₇₂ *, 9, 2, 1; 1999 XB₇₂ *, 9, 2, 1; 1999 XC₇₂ *, 8, 2, 1; 1999 XD₇₂ *, 9, 2, 1; 1999 XE₇₂ *, 9, 2, 1; 1999 XF₇₂ *, 8, 2, 1; 1999 XG₇₂ *, 9, 2, 1; 1999 XH₇₂ *, 14, 3, 3; 1999 XJ₇₂ *, 9, 2, 1; 1999 XK₇₂ *, 9, 2, 1; 1999 XL₇₂ *, 8, 2, 1; 1999 XM₇₂ *, 9, 2, 1; 1999 XN₇₂ *, 7, 2, 1; 1999 XO₇₂ *, 7, 2, 1; 1999 XP₇₂ *, 8, 2, 1; 1999 XQ₇₂ *, 9, 2, 1; 1999 XR₇₂ *, 9, 2, 1; 1999 XS₇₂ *, 9, 2, 1; 1999 XT₇₂ *, 9, 2, 1; 1999 XU₇₂ *, 9, 2, 1; 1999 XV₇₂ *, 9, 2, 1; 1999 XW₇₂ *, 7, 2, 1; 1999 XX₇₂ *, 9, 2, 1; 1999 XY₇₂ *, 9, 2, 1; 1999 XZ₇₂ *, 9, 2, 1; 1999 XA₇₃ *, 9, 2, 1; 1999 XB₇₃ *, 7, 2, 1; 1999 XC₇₃ *, 9, 2, 1; 1999 XD₇₃ *, 8, 2, 1; 1999 XE₇₃ *, 9, 2, 1; 1999 XF₇₃ *, 7, 2, 1; 1999 XG₇₃ *, 9, 2, 1; 1999 XH₇₃ *, 7, 2, 1; 1999 XJ₇₃ *, 8, 2, 1; 1999 XK₇₃ *, 9, 2, 1; 1999 XL₇₃ *, 8, 2, 1; 1999 XM₇₃ *, 9, 2, 1; 1999 XN₇₃ *, 9, 2, 1; 1999 XO₇₃ *, 9, 2, 1; 1999 XP₇₃ *, 9, 2, 1; 1999 XQ₇₃ *, 9, 2, 1; 1999 XR₇₃ *, 8, 2, 1; 1999 XS₇₃ *, 9, 2, 1; 1999 XT₇₃ *, 9, 2, 1; 1999 XU₇₃ *, 8, 2, 1; 1999 XV₇₃ *, 9, 2, 1; 1999 XW₇₃ *, 9, 2, 1; 1999 XX₇₃ *, 9, 2, 1; 1999 XY₇₃ *, 9, 2, 1; 1999 XZ₇₃ *, 8, 2, 1; 1999 XA₇₄ *, 8, 2, 1; 1999 XB₇₄ *, 9, 2, 1; 1999 XC₇₄ *, 7, 2, 1; 1999 XD₇₄ *, 9, 2, 1; 1999 XE₇₄ *, 9, 2, 1; 1999 XF₇₄ *, 9, 2, 1; 1999 XG₇₄ *, 8, 2, 1; 1999 XH_{74</}

1999 DEC. 22

M.P.C. 37017

3, 6, 2, 1; 1999 XV₇₇ *, 8, 2, 1; 1999 XW₇₇ *, 7, 2, 1; 1999 XX₇₇ *, 16, 4, 6; 1999 XY₇₇ *, 11, 3, 6; 1999 XZ₇₇ *, 7, 2, 1; 1999 XA₇₈ *, 9, 2, 1; 1999 XB₇₈ *, 9, 2, 1; 1999 XC₇₈ *, 13, 3, 6; 1999 XD₇₈ *, 8, 2, 1; 1999 XE₇₈ *, 9, 2, 1; 1999 XF₇₈ *, 9, 2, 1; 1999 XG₇₈ *, 9, 2, 1; 1999 XH₇₈ *, 8, 2, 1; 1999 XJ₇₈ *, 9, 2, 1; 1999 XK₇₈ *, 6, 2, 1; 1999 XL₇₈ *, 9, 2, 1; 1999 XM₇₈ *, 9, 2, 1; 1999 XN₇₈ *, 9, 2, 1; 1999 XO₇₈ *, 8, 2, 1; 1999 XP₇₈ *, 9, 2, 1; 1999 XQ₇₈ *, 8, 2, 1; 1999 XR₇₈ *, 9, 2, 1; 1999 XS₇₈ *, 9, 2, 1; 1999 XT₇₈ *, 7, 2, 1; 1999 XU₇₈ *, 6, 2, 1; 1999 XV₇₈ *, 7, 2, 1; 1999 XW₇₈ *, 8, 2, 1; 1999 XX₇₈ *, 9, 2, 1; 1999 XY₇₈ *, 9, 2, 1; 1999 XZ₇₈ *, 8, 2, 1; 1999 XA₇₉ *, 9, 2, 1; 1999 XB₇₉ *, 9, 2, 1; 1999 XC₇₉ *, 8, 2, 1; 1999 XD₇₉ *, 7, 2, 1; 1999 XE₇₉ *, 7, 2, 1; 1999 XF₇₉ *, 9, 2, 1; 1999 XG₇₉ *, 8, 2, 1; 1999 XH₇₉ *, 6, 2, 1; 1999 XJ₇₉ *, 9, 2, 1; 1999 XK₇₉ *, 8, 2, 1; 1999 XL₇₉ *, 8, 2, 1; 1999 XM₇₉ *, 8, 2, 1; 1999 XN₇₉ *, 7, 2, 1; 1999 XO₇₉ *, 9, 2, 1; 1999 XP₇₉ *, 7, 2, 1; 1999 XQ₇₉ *, 9, 2, 1; 1999 XR₇₉ *, 7, 2, 1; 1999 XS₇₉ *, 7, 2, 1; 1999 XT₇₉ *, 8, 2, 1; 1999 XU₇₉ *, 7, 2, 1; 1999 XV₇₉ *, 7, 2, 1; 1999 XW₇₉ *, 6, 2, 1; 1999 XX₇₉ *, 9, 2, 1; 1999 XY₇₉ *, 9, 2, 1; 1999 XZ₇₉ *, 8, 2, 1; 1999 XA₈₀ *, 8, 2, 1; 1999 XB₈₀ *, 9, 2, 1; 1999 XC₈₀ *, 9, 2, 1; 1999 XD₈₀ *, 8, 2, 1; 1999 XE₈₀ *, 9, 2, 1; 1999 XF₈₀ *, 7, 2, 1; 1999 XG₈₀ *, 7, 2, 1; 1999 XH₈₀ *, 9, 2, 1; 1999 XJ₈₀ *, 7, 2, 1; 1999 XK₈₀ *, 6, 2, 1; 1999 XL₈₀ *, 8, 2, 1; 1999 XM₈₀ *, 5, 2, 1; 1999 XN₈₀ *, 9, 2, 1; 1999 XO₈₀ *, 9, 2, 1; 1999 XP₈₀ *, 8, 2, 1; 1999 XQ₈₀ *, 7, 2, 1; 1999 XR₈₀ *, 7, 2, 1; 1999 XS₈₀ *, 7, 2, 1; 1999 XT₈₀ *, 6, 2, 1; 1999 XU₈₀ *, 8, 2, 1; 1999 XV₈₀ *, 8, 2, 1; 1999 XW₈₀ *, 8, 2, 1; 1999 XA₈₁ *, 8, 2, 1; 1999 XB₈₁ *, 8, 2, 1; 1999 XC₈₁ *, 8, 2, 1; 1999 XD₈₁ *, 8, 2, 1; 1999 XE₈₁ *, 6, 2, 1; 1999 XF₈₁ *, 8, 2, 1; 1999 XG₈₁ *, 7, 2, 1; 1999 XH₈₁ *, 8, 2, 1; 1999 XJ₈₁ *, 6, 2, 1; 1999 XK₈₁ *, 8, 2, 1; 1999 XL₈₁ *, 7, 2, 1; 1999 XM₈₁ *, 7, 2, 1; 1999 XN₈₁ *, 6, 2, 1; 1999 XO₈₁ *, 8, 2, 1; 1999 XP₈₁ *, 8, 2, 1; 1999 XQ₈₁ *, 8, 2, 1; 1999 XR₈₁ *, 8, 2, 1; 1999 XS₈₁ *, 6, 2, 1; 1999 XT₈₁ *, 7, 2, 1; 1999 XU₈₁ *, 6, 2, 1; 1999 XV₈₁ *, 7, 2, 1; 1999 XW₈₁ *, 6, 2, 1; 1999 XA₈₂ *, 8, 2, 1; 1999 XB₈₂ *, 7, 2, 1; 1999 XC₈₂ *, 6, 2, 1; 1999 XD₈₂ *, 7, 2, 1; 1999 XE₈₂ *, 6, 2, 1; 1999 XF₈₂ *, 6, 2, 1; 1999 XG₈₂ *, 7, 2, 1; 1999 XH₈₂ *, 8, 2, 1; 1999 XJ₈₂ *, 6, 2, 1; 1999 XK₈₂ *, 6, 2, 1; 1999 XL₈₂ *, 8, 2, 1; 1999 XM₈₂ *, 6, 2, 1; 1999 XN₈₂ *, 8, 2, 1; 1999 XO₈₂ *, 8, 2, 1; 1999 XP₈₂ *, 7, 2, 1; 1999 XQ₈₂ *, 9, 2, 1; 1999 XR₈₂ *, 8, 2, 1; 1999 XS₈₂ *, 10, 2, 1; 1999 XT₈₂ *, 10, 2, 1; 1999 XU₈₂ *, 10, 2, 1; 1999 XV₈₂ *, 10, 2, 1; 1999 XW₈₂ *, 8, 2, 1; 1999 XX₈₂ *, 10, 2, 1; 1999 XY₈₂ *, 10, 2, 1; 1999 XZ₈₂ *, 10, 2, 1; 1999 XA₈₃ *, 9, 2, 1; 1999 XB₈₃ *, 9, 2, 1; 1999 XC₈₃ *, 10, 2, 1; 1999 XD₈₃ *, 10, 2, 1; 1999 XE₈₃ *, 8, 2, 1; 1999 XF₈₃ *, 10, 2, 1; 1999 XG₈₃ *, 10, 2, 1; 1999 XH₈₃ *, 10, 2, 1; 1999 XJ₈₃ *, 14, 3, 3; 1999 XK₈₃ *, 10, 2, 1; 1999 XL₈₃ *, 9, 2, 1; 1999 XM₈₃ *, 10, 2, 1; 1999 XN₈₃ *, 9, 2, 1; 1999 XO₈₃ *, 10, 2, 1; 1999 XP₈₃ *, 9, 2, 1; 1999 XQ₈₃ *, 9, 2, 1; 1999 XR₈₃ *, 10, 2, 1; 1999 XS₈₃ *, 8, 2, 1; 1999 XT₈₃ *, 8, 2, 1; 1999 XU₈₃ *, 10, 2, 1; 1999 XV₈₃ *, 10, 2, 1; 1999 XW₈₃ *, 9, 2, 1; 1999 XA₈₄ *, 10, 2, 1; 1999 XB₈₄ *, 9, 2, 1; 1999 XC₈₄ *, 9, 2, 1; 1999 XD₈₄ *, 6, 2, 1; 1999 XE₈₄ *, 9, 2, 1; 1999 XF₈₄ *, 8, 2, 1; 1999 XG₈₄ *, 10, 2, 1; 1999 XH₈₄ *, 9, 2, 1; 1999 XJ₈₄ *, 9, 2, 1; 1999 XK₈₄ *, 8, 2, 1; 1999 XL₈₄ *, 10, 2, 1; 1999 XM₈₄ *, 10, 2, 1; 1999 XN₈₄ *, 10, 2, 1; 1999 XO₈₄ *, 10, 2, 1; 1999 XP₈₄ *, 10, 2, 1; 1999 XQ₈₄ *, 10, 2, 1; 1999 XR₈₄ *, 10, 2, 1; 1999 XS₈₄ *, 10, 2, 1; 1999 XT₈₄ *, 9, 2, 1; 1999 XU₈₄ *, 10, 2, 1; 1999 XV

2, 1; 1999 XQ₈₉ *, 7, 2, 1; 1999 XR₈₉ *, 8, 2, 1; 1999 XS₈₉ *, 8, 2, 1; 1999 XT₈₉ *, 8, 2, 1; 1999 XU₈₉ *, 7, 2, 1; 1999 XV₈₉ *, 7, 2, 1; 1999 XW₈₉ *, 7, 2, 1; 1999 XX₈₉ *, 6, 2, 1; 1999 XY₈₉ *, 6, 2, 1; 1999 XZ₈₉ *, 9, 2, 1; 1999 XA₉₀ *, 8, 2, 1; 1999 XB₉₀ *, 7, 2, 1; 1999 XC₉₀ *, 8, 2, 1; 1999 XD₉₀ *, 9, 2, 1; 1999 XE₉₀ *, 8, 2, 1; 1999 XF₉₀ *, 7, 2, 1; 1999 XG₉₀ *, 9, 2, 1; 1999 XH₉₀ *, 9, 2, 1; 1999 XI₉₀ *, 8, 2, 1; 1999 XJ₉₀ *, 8, 2, 1; 1999 XK₉₀ *, 8, 2, 1; 1999 XL₉₀ *, 8, 2, 1; 1999 XM₉₀ *, 9, 2, 1; 1999 XN₉₀ *, 9, 2, 1; 1999 XO₉₀ *, 8, 2, 1; 1999 XP₉₀ *, 9, 2, 1; 1999 XQ₉₀ *, 9, 2, 1; 1999 XR₉₀ *, 9, 2, 1; 1999 XS₉₀ *, 9, 2, 1; 1999 XT₉₀ *, 9, 2, 1; 1999 XU₉₀ *, 9, 2, 1; 1999 XV₉₀ *, 6, 2, 1; 1999 XW₉₀ *, 9, 2, 1; 1999 XX₉₀ *, 6, 2, 1; 1999 XY₉₀ *, 8, 2, 1; 1999 XZ₉₀ *, 8, 2, 1; 1999 XA₉₁ *, 8, 2, 1; 1999 XB₉₁ *, 7, 2, 1; 1999 XC₉₁ *, 9, 2, 1; 1999 XD₉₁ *, 7, 2, 1; 1999 XE₉₁ *, 9, 2, 1; 1999 XF₉₁ *, 8, 2, 1; 1999 XG₉₁ *, 9, 2, 1; 1999 XH₉₁ *, 9, 2, 1; 1999 XI₉₁ *, 8, 2, 1; 1999 XJ₉₁ *, 6, 2, 1; 1999 XK₉₁ *, 6, 2, 1; 1999 XL₉₁ *, 9, 2, 1; 1999 XM₉₁ *, 7, 2, 1; 1999 XN₉₁ *, 7, 2, 1; 1999 XO₉₁ *, 9, 2, 1; 1999 XP₉₁ *, 7, 2, 1; 1999 XQ₉₁ *, 9, 2, 1; 1999 XR₉₁ *, 9, 2, 1; 1999 XS₉₁ *, 8, 2, 1; 1999 XT₉₁ *, 9, 2, 1; 1999 XU₉₁ *, 8, 2, 1; 1999 XV₉₁ *, 8, 2, 1; 1999 XW₉₁ *, 7, 2, 1; 1999 XX₉₁ *, 6, 2, 1; 1999 XY₉₁ *, 7, 2, 1; 1999 XZ₉₁ *, 7, 2, 1; 1999 XA₉₂ *, 8, 2, 1; 1999 XB₉₂ *, 7, 2, 1; 1999 XC₉₂ *, 7, 2, 1; 1999 XD₉₂ *, 7, 2, 1; 1999 XE₉₂ *, 6, 2, 1; 1999 XF₉₂ *, 7, 2, 1; 1999 XG₉₂ *, 8, 2, 1; 1999 XH₉₂ *, 8, 2, 1; 1999 XJ₉₂ *, 7, 2, 1; 1999 XK₉₂ *, 8, 2, 1; 1999 XL₉₂ *, 7, 2, 1; 1999 XM₉₂ *, 6, 2, 1; 1999 XN₉₂ *, 8, 2, 1; 1999 XO₉₂ *, 7, 2, 1; 1999 XP₉₂ *, 8, 2, 1; 1999 XQ₉₂ *, 8, 2, 1; 1999 XR₉₂ *, 8, 2, 1; 1999 XS₉₂ *, 8, 2, 1; 1999 XT₉₂ *, 8, 2, 1; 1999 XU₉₂ *, 8, 2, 1; 1999 XV₉₂ *, 7, 2, 1; 1999 XW₉₂ *, 7, 2, 1; 1999 XX₉₂ *, 7, 2, 1; 1999 XY₉₂ *, 8, 2, 1; 1999 XZ₉₂ *, 7, 2, 1; 1999 XA₉₃ *, 8, 2, 1; 1999 XB₉₃ *, 8, 2, 1; 1999 XC₉₃ *, 7, 2, 1; 1999 XD₉₃ *, 10, 2, 1; 1999 XE₉₃ *, 10, 2, 1; 1999 XF₉₃ *, 9, 2, 1; 1999 XG₉₃ *, 8, 2, 1; 1999 XH₉₃ *, 9, 2, 1; 1999 XJ₉₃ *, 10, 2, 1; 1999 XK₉₃ *, 10, 2, 1; 1999 XL₉₃ *, 10, 2, 1; 1999 XM₉₃ *, 10, 2, 1; 1999 XN₉₃ *, 9, 2, 1; 1999 XO₉₃ *, 8, 2, 1; 1999 XP₉₃ *, 15, 3; 1999 XQ₉₃ *, 10, 2, 1; 1999 XR₉₃ *, 7, 2, 1; 1999 XS₉₃ *, 9, 2, 1; 1999 XT₉₃ *, 10, 2, 1; 1999 XU₉₃ *, 10, 2, 1; 1999 XV₉₃ *, 9, 2, 1; 1999 XW₉₃ *, 15, 2, 1; 1999 XX₉₃ *, 15, 2, 1; 1999 XY₉₃ *, 8, 2, 1; 1999 XZ₉₃ *, 10, 2, 1; 1999 XA₉₄ *, 9, 2, 1; 1999 XB₉₄ *, 10, 2, 1; 1999 XC₉₄ *, 10, 2, 1; 1999 XD₉₄ *, 6, 2, 1; 1999 XE₉₄ *, 10, 2, 1; 1999 XF₉₄ *, 9, 2, 1; 1999 XG₉₄ *, 8, 2, 1; 1999 XH₉₄ *, 8, 2, 1; 1999 XJ₉₄ *, 6, 2, 1; 1999 XK₉₄ *, 10, 2, 1; 1999 XL₉₄ *, 9, 2, 1; 1999 XM₉₄ *, 9, 2, 1; 1999 XN₉₄ *, 10, 2, 1; 1999 XO₉₄ *, 10, 2, 1; 1999 XP₉₄ *, 9, 2, 1; 1999 XQ₉₄ *, 10, 2, 1; 1999 XR₉₄ *, 9, 2, 1; 1999 XS₉₄ *, 10, 2, 1; 1999 XT₉₄ *, 10, 2, 1; 1999 XU₉₄ *, 8, 2, 1; 1999 XV₉₄ *, 8, 2, 1; 1999 XW₉₄ *, 9, 2, 1; 1999 XX₉₄ *, 7, 2, 1; 1999 XY₉₄ *, 7, 2, 1; 1999 XZ₉₄ *, 9, 2, 1; 1999 XA₉₅ *, 15, 2, 6; 1999 XJ₉₅ *, 3, 1, 0; 1999 XK₉₅ *, 5, 1, 0; 1999 XM₉₅ *, 4, 1, 0; 1999 XN₉₅ *, 5, 1, 0; 1999 XO₉₅ *, 5, 1, 0; 1999 XS₉₅ *, 5, 1, 0; 1999 XU₉₅ *, 5, 1, 0; 1999 XV₉₅ *, 5, 1, 0; 1999 XZ₉₅ *, 5, 1, 0; 1999 XA₉₆ *, 5, 1, 0; 1999 XB₉₆ *, 5, 1, 0; 1999 XC₉₆ *, 5, 1, 0; 1999 XE₉₆ *, 10, 2, 3; 1999 XF₉₆ *, 9, 2, 3; 1999 XG₉₆ *, 9, 2, 3; 1999 XH₉₆ *, 10, 2, 3; 1999 XJ₉₆ *, 9, 2, 3; 1999 XK₉₆ *, 9, 2, 3; 1999 XL₉₆ *, 8, 2, 3; 1999 XM₉₆ *, 10, 2, 3; 1999 XN₉₆ *, 10, 2, 3; 1999 XO₉₆ *, 10, 2, 3; 1999 XP₉₆ *, 8, 2, 3; 1999 XQ₉₆ *, 10, 2, 3; 1999 XR₉₆ *, 10, 2, 3; 1999 XS₉₆ *, 10, 2, 3; 1999 XT₉₆ *, 10, 2, 3; 1999 XU₉₆ *, 9, 2, 3; 1999 XV₉₆ *, 9

10, 2, 3; 1999 XZ₁₀₁ *, 10, 2, 3; 1999 XA₁₀₂ *, 9, 2, 3; 1999 XB₁₀₂ *, 10, 2, 3; 1999 XC₁₀₂ *, 10, 2, 3; 1999 XD₁₀₂ *, 9, 2, 3; 1999 XE₁₀₂ *, 9, 2, 3; 1999 XF₁₀₂ *, 8, 2, 3; 1999 XG₁₀₂ *, 8, 2, 3; 1999 XH₁₀₂ *, 7, 2, 3; 1999 XJ₁₀₂ *, 6, 2, 3; 1999 XK₁₀₂ *, 7, 2, 3; 1999 XL₁₀₂ *, 6, 2, 3; 1999 XM₁₀₂ *, 6, 2, 3; 1999 XN₁₀₂ *, 7, 2, 3; 1999 XO₁₀₂ *, 6, 2, 3; 1999 XP₁₀₂ *, 8, 2, 3; 1999 XQ₁₀₂ *, 8, 2, 3; 1999 XR₁₀₂ *, 8, 2, 3; 1999 XS₁₀₂ *, 6, 2, 3; 1999 XT₁₀₂ *, 6, 2, 3; 1999 XU₁₀₂ *, 6, 2, 3; 1999 XV₁₀₂ *, 8, 2, 3; 1999 XW₁₀₂ *, 8, 2, 3; 1999 XX₁₀₂ *, 9, 2, 3; 1999 XY₁₀₂ *, 7, 2, 3; 1999 XZ₁₀₂ *, 8, 2, 3; 1999 XA₁₀₃ *, 7, 2, 3; 1999 XB₁₀₃ *, 9, 2, 3; 1999 XC₁₀₃ *, 9, 2, 3; 1999 XD₁₀₃ *, 8, 2, 3; 1999 XE₁₀₃ *, 7, 2, 3; 1999 XF₁₀₃ *, 8, 2, 3; 1999 XG₁₀₃ *, 7, 2, 3; 1999 XH₁₀₃ *, 8, 2, 3; 1999 XJ₁₀₃ *, 9, 2, 3; 1999 XK₁₀₃ *, 9, 2, 3; 1999 XL₁₀₃ *, 9, 2, 3; 1999 XM₁₀₃ *, 9, 2, 3; 1999 XN₁₀₃ *, 7, 2, 3; 1999 XO₁₀₃ *, 7, 2, 3; 1999 XP₁₀₃ *, 8, 2, 3; 1999 XQ₁₀₃ *, 8, 2, 3; 1999 XR₁₀₃ *, 6, 2, 3; 1999 XS₁₀₃ *, 8, 2, 3; 1999 XT₁₀₃ *, 7, 2, 3; 1999 XU₁₀₃ *, 8, 2, 3; 1999 XV₁₀₃ *, 7, 2, 3; 1999 XW₁₀₃ *, 7, 2, 3; 1999 XX₁₀₃ *, 9, 2, 3; 1999 XY₁₀₃ *, 9, 2, 1; 1999 XG₁₀₄ *, 10, 2, 3; 1999 XH₁₀₄ *, 10, 2, 3; 1999 XJ₁₀₄ *, 8, 2, 3; 1999 XK₁₀₄ *, 9, 2, 3; 1999 XL₁₀₄ *, 9, 2, 3; 1999 XM₁₀₄ *, 8, 2, 3; 1999 XN₁₀₄ *, 7, 2, 3; 1999 XO₁₀₄ *, 14, 3, 8; 1999 XP₁₀₄ *, 8, 2, 1; 1999 XR₁₀₄ *, 10, 2, 1; 1999 XZ₁₀₄ *, 29, 6, 66; 1999 XN₁₀₅ *, 10, 1, 0; 1999 XD₁₀₆ *, 26, 6, 28; 1999 XP₁₁₁ *, 8, 2, 5; 1999 XQ₁₁₁ *, 8, 2, 5; 1999 XR₁₁₁ *, 9, 2, 5; 1999 XS₁₁₁ *, 10, 2, 5; 1999 XT₁₁₁ *, 14, 2, 5; 1999 XU₁₁₁ *, 9, 2, 5; 1999 XV₁₁₁ *, 14, 3, 6; 1999 XW₁₁₁ *, 18, 3, 6; 1999 XX₁₁₁ *, 15, 3, 6; 1999 XY₁₁₁ *, 14, 3, 6; 1999 XZ₁₁₁ *, 15, 3, 6; 1999 XA₁₁₂ *, 12, 3, 6; 1999 XB₁₁₂ *, 15, 3, 6; 1999 XC₁₁₂ *, 20, 3, 6; 1999 XD₁₁₂ *, 11, 3, 6; 1999 XE₁₁₂ *, 13, 3, 6; 1999 XF₁₁₂ *, 11, 3, 6; 1999 XG₁₁₂ *, 13, 3, 6; 1999 XH₁₁₂ *, 8, 2, 2; 1999 XJ₁₁₂ *, 10, 2, 2; 1999 XK₁₁₂ *, 7, 2, 2; 1999 XL₁₁₂ *, 9, 2, 2; 1999 XM₁₁₂ *, 9, 2, 2; 1999 XN₁₁₂ *, 8, 2, 2; 1999 XO₁₁₂ *, 6, 2, 1; 1999 XP₁₁₂ *, 10, 2, 1; 1999 XQ₁₁₂ *, 10, 2, 1; 1999 XR₁₁₂ *, 8, 2, 1; 1999 XS₁₁₂ *, 9, 2, 1; 1999 XT₁₁₂ *, 10, 2, 1; 1999 XV₁₁₂ *, 9, 2, 1; 1999 XW₁₁₂ *, 9, 2, 1; 1999 XX₁₁₂ *, 7, 2, 1; 1999 XY₁₁₂ *, 8, 2, 1; 1999 XZ₁₁₂ *, 9, 2, 1; 1999 XA₁₁₃ *, 9, 2, 1; 1999 XB₁₁₃ *, 8, 2, 1; 1999 XC₁₁₃ *, 7, 2, 1; 1999 XD₁₁₃ *, 9, 2, 1; 1999 XE₁₁₃ *, 8, 2, 1; 1999 XF₁₁₃ *, 10, 2, 1; 1999 XG₁₁₃ *, 10, 2, 1; 1999 XH₁₁₃ *, 9, 2, 1; 1999 XJ₁₁₃ *, 9, 2, 1; 1999 XK₁₁₃ *, 9, 2, 1; 1999 XL₁₁₃ *, 9, 2, 1; 1999 XM₁₁₃ *, 9, 2, 1; 1999 XN₁₁₃ *, 7, 2, 1; 1999 XO₁₁₃ *, 8, 2, 1; 1999 XP₁₁₃ *, 9, 2, 1; 1999 XQ₁₁₃ *, 8, 2, 1; 1999 XR₁₁₃ *, 9, 2, 1; 1999 XS₁₁₃ *, 13, 3, 2; 1999 XT₁₁₃ *, 8, 2, 1; 1999 XU₁₁₃ *, 8, 2, 1; 1999 XV₁₁₃ *, 8, 2, 1; 1999 XW₁₁₃ *, 8, 2, 1; 1999 XX₁₁₃ *, 9, 2, 1; 1999 XY₁₁₃ *, 9, 2, 1; 1999 XZ₁₁₃ *, 8, 2, 1; 1999 XA₁₁₄ *, 9, 2, 1; 1999 XB₁₁₄ *, 14, 3, 2; 1999 XC₁₁₄ *, 8, 2, 1; 1999 XD₁₁₄ *, 10, 2, 1; 1999 XE₁₁₄ *, 10, 2, 1; 1999 XF₁₁₄ *, 7, 2, 1; 1999 XG₁₁₄ *, 9, 2, 1; 1999 XH₁₁₄ *, 9, 2, 1; 1999 XJ₁₁₄ *, 9, 2, 1; 1999 XK₁₁₄ *, 9, 2, 1; 1999 XL₁₁₄ *, 9, 2, 1; 1999 XM₁₁₄ *, 9, 2, 1; 1999 XN₁₁₄ *, 7, 2, 1; 1999 XO₁₁₄ *, 7, 2, 1; 1999 XP₁₁₄ *, 8, 2, 1; 1999 XQ₁₁₄ *, 8, 2, 1; 1999 XR₁₁₄ *, 9, 2, 1; 1999 XS₁₁₄ *, 7, 2, 1; 1999 XT₁₁₄ *, 9, 2, 1; 1999 XU₁₁₄ *, 8, 2, 1; 1999 XV₁₁₄ *, 9, 2, 1; 1999 XW₁₁₄ *, 9, 2, 1; 1999 XX₁₁₄ *, 8, 2, 1; 1999 XY₁₁₄ *, 9, 2, 1; 1999 XZ₁₁₄ *, 8, 2, 1; 1999 XA₁₁₅ *, 8, 2, 1; 1999 XB₁₁₅ *, 9, 2, 1; 1999 XC₁₁₅ *, 12, 3, 2; 1999 XE₁₁₅ *, 15, 2, 1; 1999 XF₁₁₅ *, 8, 2, 1; 1999 XP₁₂₇ *, 10, 2, 6; 1999 XY₁₂₇ *, 9, 2, 6; 1999 XZ₁₂₇ *, 10, 2, 6; 1999 XA₁₂₈ *, 10, 2, 6; 1999 XB₁₂₈ *, 10, 2, 6; 1999 XC₁₂₈ *, 9, 2, 6; 1999 XD₁₂₈ *, 13, 2, 6; 1999 XE₁₂₈ *, 10, 2, 6; 1999 XF₁₂₈ *, 9, 2, 6; 1999 XG₁₂₈ *, 9, 2, 6; 1999 XH₁₂₈ *, 9, 2, 6; 1999 XJ₁₂₈ *, 8, 2, 6; 1999 XK₁₂₈ *, 14, 2, 6; 1999 XL₁₂₈ *, 7, 2, 6; 1999 XM₁₂₈ *, 8, 2, 6; 1999 XN₁₂₈ *, 9, 2, 6; 1999 XO₁₂₈ *, 8, 2, 6; 1999 XP₁₂₈ *, 9, 2, 6; 1999 XQ₁₂₈ *, 9, 2, 6; 1999 XR₁₂₈ *, 9, 2, 3; 1999 XS₁₂₈ *, 8, 2, 3; 1999 XT₁₂₈ *, 10, 2, 1; 1999 XU₁₂₈ *, 9, 2, 1; 1999 XV₁₂₈ *, 10, 2, 1; 1999 XW₁₂₈ *, 8, 2, 1; 1999 XX₁₂₈ *, 10, 2, 1; 1999 XY₁₂₈ *, 10, 2, 1; 1999 XZ₁₂₈ *, 10, 2, 1; 1999 XA₁₂₉ *, 10, 2, 1; 1999 XB₁₂₉ *, 10, 2, 1; 1999 XC₁₂₉ *, 9, 2, 1; 1999 XD₁₂₉ *, 14, 2, 1; 1999 XE₁₂₉ *, 10, 2, 1; 1999 XF₁₂₉ *, 15, 2, 1; 1999 XG₁₂₉ *, 15, 2, 1; 1999 XH₁₂₉ *, 14, 2, 1; 1999 XJ₁₂₉ *, 7, 2, 1; 1999 XK₁₂₉ *, 15, 2, 1; 1999 XL₁₂₉ *, 15, 2, 1; 1999 XM₁₂₉ *, 13, 2, 1; 1999 XN₁₂₉ *, 10, 2, 1; 1999 XO₁₂₉ *, 10, 2, 1; 1999 XP₁₂₉ *, 10, 2, 1; 1999 XQ₁₂₉ *, 9, 2, 1; 1999 XR₁₂₉ *, 9, 2, 1; 1999 XS₁₂₉ *, 10, 2, 1; 1999 XT₁₂₉ *, 10, 2, 1; 1999 XU₁₂₉ *, 10, 2, 1; 1999 XV₁₂₉ *, 10, 2, 1; 1999 XW₁₂₉ *, 10, 2, 1; 1999 XX₁₂₉ *, 10, 2, 1; 1999 XY₁₂₉ *, 10, 2, 1; 1999 XZ₁₂₉ *, 9, 2, 1; 1999 XA₁₃₀ *, 10, 2, 1; 1999 XB₁₃₀ *, 10, 2, 1; 1999 XC₁₃₀ *, 10, 2, 1; 1999 XD₁₃₀ *, 8, 2, 1; 1999 XE₁₃₀ *, 10, 2, 1; 1999 XF₁₃₀ *, 10, 2, 1; 1999 XG₁₃₀ *, 10, 2, 1; 1999 XH₁₃₀ *, 9, 2, 1; 1999 XJ₁₃₀ *, 10, 2, 1; 1999 XK₁₃₀ *, 10, 2, 1; 1999 XL₁₃₀ *, 10, 2, 1; 1999 XM₁₃₀ *, 9, 2, 1; 1999 XN₁₃₀ *, 14, 2, 1; 1999 XO₁₃₀ *, 7, 2, 1; 1999 XP₁₃₀ *, 9, 2, 1; 1999 XQ₁₃₀ *, 7, 2, 1; 1999 XR₁₃₀ *, 8, 2, 1; 1999 XS₁₃₀ *, 6, 2, 1; 1999 XT₁₃₀ *, 9, 2, 1; 1999 XU₁₃₀ *, 8, 2, 1; 1999 XV₁₃₀ *, 9, 2, 1; 1999 XW₁₃₀ *, 7, 2, 1; 1999 XX₁₃₀ *, 7, 2, 1; 1999 XY₁₃₀ *, 12, 2, 1; 1999 XZ₁₃₀ *, 9, 2, 1; 1999 XA₁₃₁ *, 9, 2, 1; 1999 XB₁₃₁ *, 8, 2, 1; 1999 XC₁₃₁ *, 12, 2, 1; 1999 XD₁₃₁ *, 7, 2, 1; 1999 XE₁₃₁ *, 8, 2, 1; 1999 XF₁₃₁ *, 9, 2, 1; 1999 XG₁₃₁ *, 9, 2, 1; 1999 XH₁₃₁ *, 8, 2, 1; 1999 XJ₁₃₁ *, 8, 2, 1; 1999 XK₁₃₁ *, 9, 2, 1; 1999 XL₁₃₁ *, 8, 2, 1; 1999 XM₁₃₁ *, 11, 2, 1; 1999 XN₁₃₁ *, 8, 2, 1; 1999 XO₁₃₁ *, 8, 2, 1; 1999 XP₁₃₁ *, 7, 2, 1; 1999 XQ₁₃₁ *, 7, 2, 1; 1999 XR₁₃₁ *, 6, 2, 1; 1999 XS₁₃₁ *, 8, 2, 1; 1999 XT₁₃₁ *, 13, 2, 1; 1999 XU₁₃₁ *, 10, 2, 1; 1999 XV₁₃₁ *, 10, 2, 1; 1999 XW₁₃₁ *, 9, 2, 1; 1999 XX₁₃₁ *, 12, 2, 1; 1999 XY₁₃₁ *, 10, 2, 1; 1999 XZ₁₃₁ *, 10, 2, 1; 1999 XA₁₃₂ *, 10, 2, 1; 1999 XB₁₃₂ *, 9, 2, 1; 1999 XC₁₃₂ *, 9, 2, 1; 1999 XD₁₃₂ *, 9, 2, 1; 1999 XE₁₃₂ *, 10, 2, 1; 1999 XF₁₃₂ *, 8, 2, 1; 1999 XG₁₃₂ *, 10, 2, 1; 1999 XH₁₃₂ *, 10, 2, 1; 1999 XJ₁₃₂ *, 10, 2, 1; 1999 XK₁₃₂ *, 9, 2, 1; 1999 XL₁₃₂ *, 9, 2, 1; 1999 XM₁₃₂ *, 10, 2, 1; 1999 XN₁₃₂ *, 9, 2, 1; 1999 XO₁₃₂ *, 9, 2, 1; 1999 XP₁₃₂ *, 9, 2, 1;

1; 1999 XQ₁₃₂ *, 9, 2, 1; 1999 XR₁₃₂ *, 10, 2, 1; 1999 XS₁₃₂ *, 10, 2, 1; 1999 XT₁₃₂ *, 8, 2, 1; 1999 XU₁₃₂ *, 13, 2, 1; 1999 XV₁₃₂ *, 10, 2, 1; 1999 XW₁₃₂ *, 8, 2, 1; 1999 XX₁₃₂ *, 9, 2, 1; 1999 XY₁₃₂ *, 7, 2, 1; 1999 XZ₁₃₂ *, 8, 2, 1; 1999 XA₁₃₃ *, 8, 2, 1; 1999 XB₁₃₃ *, 10, 2, 1; 1999 XC₁₃₃ *, 10, 2, 1; 1999 XD₁₃₃ *, 10, 2, 1; 1999 XE₁₃₃ *, 10, 2, 1; 1999 XF₁₃₃ *, 9, 2, 1; 1999 XG₁₃₃ *, 10, 2, 1; 1999 XH₁₃₃ *, 10, 2, 1; 1999 XJ₁₃₃ *, 10, 2, 1; 1999 XK₁₃₃ *, 8, 2, 1; 1999 XL₁₃₃ *, 10, 2, 1; 1999 XM₁₃₃ *, 10, 2, 1; 1999 XN₁₃₃ *, 8, 2, 1; 1999 XO₁₃₃ *, 10, 2, 1; 1999 XY₁₃₃ *, 9, 2, 1; 1999 XQ₁₃₃ *, 10, 2, 1; 1999 XR₁₃₃ *, 7, 2, 1; 1999 XS₁₃₃ *, 8, 2, 1; 1999 XT₁₃₃ *, 8, 2, 1; 1999 XU₁₃₃ *, 7, 2, 1; 1999 XV₁₃₃ *, 8, 2, 1; 1999 XW₁₃₃ *, 10, 2, 1; 1999 XX₁₃₃ *, 7, 2, 1; 1999 XY₁₃₃ *, 8, 2, 1; 1999 XZ₁₃₃ *, 10, 2, 1; 1999 XA₁₃₄ *, 10, 2, 1; 1999 XB₁₃₄ *, 15, 2, 1; 1999 XC₁₃₄ *, 8, 2, 1; 1999 XD₁₃₄ *, 10, 2, 1; 1999 XE₁₃₄ *, 15, 2, 1; 1999 XF₁₃₄ *, 15, 2, 1; 1999 XG₁₃₄ *, 10, 2, 1; 1999 XH₁₃₄ *, 9, 2, 1; 1999 XJ₁₃₄ *, 9, 2, 1; 1999 XK₁₃₄ *, 9, 2, 1; 1999 XL₁₃₄ *, 9, 2, 1; 1999 XM₁₃₄ *, 10, 2, 1; 1999 XN₁₃₄ *, 8, 2, 1; 1999 XO₁₃₄ *, 7, 2, 1; 1999 XP₁₃₄ *, 7, 2, 11; 1999 XQ₁₃₄ *, 15, 3, 12; 1999 XR₁₃₄ *, 9, 2, 9; 1999 XS₁₃₄ *, 8, 2, 9; 1999 XT₁₃₄ *, 9, 2, 9; 1999 XU₁₃₄ *, 15, 3, 10; 1999 XV₁₃₄ *, 7, 2, 9; 1999 XW₁₃₄ *, 8, 2, 9; 1999 XX₁₃₄ *, 10, 2, 9; 1999 XY₁₃₄ *, 10, 2, 8; 1999 XZ₁₃₄ *, 15, 3, 9; 1999 XA₁₃₅ *, 10, 2, 8; 1999 XB₁₃₅ *, 10, 2, 8; 1999 XC₁₃₅ *, 10, 2, 8; 1999 XD₁₃₅ *, 9, 2, 8; 1999 XE₁₃₅ *, 9, 2, 8; 1999 XF₁₃₅ *, 9, 2, 8; 1999 XG₁₃₅ *, 7, 2, 8; 1999 XH₁₃₅ *, 7, 2, 8; 1999 XJ₁₃₅ *, 8, 2, 8; 1999 XK₁₃₅ *, 15, 2, 6; 1999 XL₁₃₅ *, 7, 2, 6; 1999 XM₁₃₅ *, 6, 2, 6; 1999 XN₁₃₅ *, 9, 2, 6; 1999 XO₁₃₅ *, 16, 3, 7; 1999 XP₁₃₅ *, 10, 2, 6; 1999 XQ₁₃₅ *, 10, 2, 6; 1999 XR₁₃₅ *, 13, 3, 7; 1999 XS₁₃₅ *, 7, 2, 6; 1999 XT₁₃₅ *, 7, 2, 6; 1999 XU₁₃₅ *, 6, 2, 6; 1999 XV₁₃₅ *, 8, 2, 6; 1999 XW₁₃₅ *, 16, 4, 3; 1999 XX₁₃₅ *, 24, 4, 3; 1999 XY₁₃₅ *, 14, 3, 2; 1999 XZ₁₃₅ *, 16, 2, 1; 1999 XA₁₃₆ *, 9, 2, 1; 1999 XB₁₃₆ *, 19, 3, 2; 1999 XC₁₃₆ *, 15, 2, 1; 1999 XD₁₃₆ *, 10, 2, 1; 1999 XE₁₃₆ *, 8, 2, 1; 1999 XF₁₃₆ *, 10, 2, 1; 1999 XG₁₃₆ *, 10, 2, 1; 1999 XH₁₃₆ *, 10, 2, 1; 1999 XJ₁₃₆ *, 7, 2, 1; 1999 XK₁₃₆ *, 28, 5, 5; 1999 XL₁₃₆ *, 24, 4, 3; 1999 XM₁₃₆ *, 20, 3, 2; 2072 P-L, 14, 2, 1; 2100 P-L, 4, 1, 0; 2221 P-L, 3, 1, 0; 2549 P-L, 8, 2, 1; 2565 P-L, 3, 1, 0; 2579 P-L, 10, 2, 1; 2589 P-L, 5, 1, 0; 2646 P-L, 5, 1, 0; 3024 P-L, 5, 1, 0; 3082 P-L, 4, 1, 0; 3092 P-L, 4, 1, 0; 3503 P-L, 10, 2, 1; 3504 P-L, 4, 1, 0; 3541 P-L, 5, 1, 0; 4026 P-L, 10, 1, 0; 4032 P-L, 5, 1, 0; 4080 P-L, 9, 2, 1; 4104 P-L, 4, 1, 0; 4115 P-L, 4, 1, 0; 4206 P-L, 5, 1, 0; 4274 P-L, 3, 1, 0; 4517 P-L, 5, 1, 0; 4526 P-L, 4, 1, 0; 4572 P-L, 5, 1, 0; 4588 P-L, 14, 3, 2; 4597 P-L, 3, 1, 0; 4638 P-L, 9, 2, 1; 4646 P-L, 4, 1, 0; 4647 P-L, 10, 2, 1; 4778 P-L, 5, 1, 0; 4810 P-L, 4, 1, 0; 4845 P-L, 5, 1, 0; 5565 P-L, 10, 2, 1; 6054 P-L, 5, 1, 0; 6056 P-L, 7, 2, 4; 6103 P-L, 4, 1, 0; 6111 P-L, 5, 1, 0; 6326 P-L, 4, 1, 0; 6513 P-L, 4, 1, 0; 6529 P-L, 4, 1, 0; 6576 P-L, 4, 1, 0; 6594 P-L, 4, 1, 0; 6634 P-L, 10, 2, 1; 6745 P-L, 10, 2, 1; 6818 P-L, 3, 1, 0; 9534 P-L, 13, 3, 3; 1043 T-1, 9, 2, 1; 1056 T-1, 4, 1, 0; 1182 T-1, 5, 1, 0; 1222 T-1, 9, 2, 1; 1290 T-1, 4, 1, 0; 2153 T-1, 9, 2, 1; 2183 T-1, 10, 2, 1; 3041 T-1, 5, 1, 0; 3109 T-1, 8, 2, 1; 3195 T-1, 8, 2, 4; 3243 T-1, 8, 2, 4; 4172 T-1, 3, 1, 0; 4206 T-1, 10, 2, 1; 4273 T-1, 5, 1, 0; 4321 T-1, 4, 1, 0; 4406 T-1, 5, 1, 0; 4841 T-1, 5, 1, 0; 1041 T-2, 10, 2, 1; 1043 T-2, 3, 1, 0; 1102 T-2, 3, 1, 0; 1108 T-2, 3, 1, 0; 1198 T-2, 3, 1, 0; 1242 T-2, 5, 1, 0; 1259 T-2, 9, 2, 1; 1264 T-2, 4, 1, 0; 1320 T-2, 5, 1, 0; 2039 T-2, 5, 1, 0; 2040 T-2, 5, 1, 0; 2076 T-2, 4, 1, 0; 2085 T-2, 4, 1, 0; 2168 T-2, 9, 2, 1; 2232 T-2, 5, 1, 0; 2258 T-2, 9, 2, 1; 2276 T-2, 7, 2, 1; 2638 T-2, 8, 2, 1; 3063 T-2, 5, 1, 0; 3086 T-2, 5, 1, 0; 3156 T-2, 12, 3, 5; 3270 T-2, 3, 1, 0; 4165 T-2, 5, 1, 0; 4184 T-2, 5, 1, 0; 4230 T-2, 7, 2, 1; 4262 T-2, 9, 2, 1; 4297 T-2, 4, 1, 0; 5030 T-2, 7, 2, 3; 5036 T-2, 5, 1, 0; 5104 T-2, 9, 2, 1; 5159 T-2, 5, 1, 0; 1036 T-3, 10, 2, 1; 1039 T-3, 5, 1, 0; 1071 T-3, 5, 1, 0; 1079 T-3, 4, 1, 0; 1080 T-3, 5, 1, 0; 1102 T-3, 5, 1, 0; 1168 T-3, 4, 1, 0; 1194 T-3, 5, 1, 0; 2077 T-3, 7, 2, 1; 2139 T-3, 9, 2, 1; 2315 T-3, 3, 1, 0; 2416 T-3, 5, 1, 0; 2634 T-3, 4, 1, 0; 2676 T-3, 4, 1, 0; 3039 T-3, 9, 2, 2; 3195 T-3, 3, 1, 0; 3261 T-3, 4, 1, 0; 3424 T-3, 8, 2, 1; 3465 T-3, 10, 1, 0; 3482 T-3, 10, 2, 1; 3574 T-3, 5, 1, 0; 4012 T-3, 10, 2, 1; 4046 T-3, 7, 1, 0; 4054 T-3, 9, 2, 1; 4064 T-3, 4, 1, 0; 4072 T-3, 4, 1, 0; 4079 T-3, 5, 1, 0; 4303 T-3, 10, 2, 1; 5078 T-3, 5, 1, 0; 5122 T-3, 3, 1, 0; 5124 T-3, 5, 1, 0; (35), 4, 1, 0; (43), 6, 2, 1; (46), 3, 1, 0; (71), 5, 2, 1; (72), 10, 2, 8; (73), 4, 2, 1; (75), 14, 2, 1; (81), 3, 1, 0; (83), 3, 1, 0; (87), 3, 1, 0; (92), 3, 1, 0; (100), 5, 1, 0; (107), 3, 1, 0; (108), 3, 1, 0; (112), 10, 2, 4; (114), 1, 1, 0; (131), 4, 1, 0; (139), 4, 1, 0; (141), 5, 1, 0; (145), 2, 1, 0; (147), 7, 2, 1; (150), 6, 2, 1; (155), 1, 1, 0; (157), 5, 1, 0; (162), 3, 1, 0; (165), 3, 1, 0; (174), 4, 1, 0; (188), 5, 1, 0; (193), 3, 1, 0; (201), 2, 1, 0; (205), 5, 1, 0; (223), 2, 1, 0; (226), 4, 1, 0; (231), 5, 1, 0; (248), 10, 2, 1; (249), 6, 2, 1; (263), 9, 2, 1; (264), 1, 1, 0; (

3, 1, 0; (647), 7, 2, 1; (648), 2, 2, 2; (657), 5, 1, 0; (658), 4, 1, 0; (662), 5, 1, 0; (665), 4, 1, 0; (672), 5, 1, 0; (676), 4, 1, 0; (677), 5, 1, 0; (678), 3, 1, 0; (679), 4, 1, 0; (681), 5, 1, 0; (683), 6, 2, 1; (690), 2, 1, 0; (692), 5, 1, 0; (699), 5, 1, 0; (709), 4, 1, 0; (711), 4, 1, 0; (721), 4, 1, 0; (723), 2, 1, 0; (728), 5, 1, 0; (745), 5, 1, 0; (746), 5, 1, 0; (749), 7, 2, 1; (750), 5, 1, 0; (753), 3, 1, 0; (762), 5, 1, 0; (764), 9, 2, 1; (765), 9, 2, 1; (769), 4, 1, 0; (770), 4, 2, 2; (771), 4, 1, 0; (773), 4, 1, 0; (774), 5, 2, 1; (777), 8, 2, 1; (782), 3, 1, 0; (784), 5, 1, 0; (785), 5, 1, 0; (789), 4, 1, 0; (792), 4, 1, 0; (794), 5, 1, 0; (797), 8, 2, 1; (799), 5, 1, 0; (803), 8, 2, 1; (804), 4, 1, 0; (806), 4, 1, 0; (810), 5, 1, 0; (811), 10, 2, 5; (814), 4, 1, 0; (818), 9, 2, 1; (822), 3, 1, 0; (826), 5, 1, 0; (829), 5, 1, 0; (831), 5, 1, 0; (832), 10, 2, 1; (840), 4, 1, 0; (843), 9, 2, 1; (846), 8, 2, 1; (860), 4, 1, 0; (861), 2, 1, 0; (866), 2, 1, 0; (868), 2, 1, 0; (870), 2, 1, 0; (885), 3, 1, 0; (890), 4, 1, 0; (896), 5, 1, 0; (911), 3, 1, 0; (912), 3, 1, 0; (913), 4, 1, 0; (922), 5, 1, 0; (925), 6, 2, 1; (927), 5, 1, 0; (929), 5, 1, 0; (933), 5, 1, 0; (936), 5, 1, 0; (938), 10, 2, 4; (941), 2, 1, 0; (942), 10, 2, 1; (950), 5, 1, 0; (951), 5, 1, 0; (952), 5, 1, 0; (960), 10, 2, 1; (963), 5, 1, 0; (968), 8, 2, 1; (969), 5, 1, 0; (970), 5, 1, 0; (981), 2, 1, 0; (982), 5, 1, 0; (985), 5, 1, 0; (993), 10, 2, 1; (1000), 4, 1, 0; (1004), 4, 1, 0; (1007), 5, 1, 0; (1010), 5, 2, 1; (1016), 4, 1, 0; (1018), 7, 2, 1; (1021), 3, 1, 0; (1023), 4, 1, 0; (1025), 3, 1, 0; (1036), 3, 1, 0; (1039), 5, 1, 0; (1052), 5, 1, 0; (1056), 9, 2, 1; (1057), 10, 2, 4; (1059), 7, 2, 1; (1060), 9, 2, 1; (1063), 5, 1, 0; (1065), 5, 1, 0; (1067), 8, 1, 0; (1075), 5, 1, 0; (1079), 7, 2, 1; (1081), 1, 1, 0; (1082), 3, 1, 0; (1084), 10, 2, 1; (1088), 10, 2, 5; (1090), 5, 1, 0; (1093), 18, 3, 2; (1098), 6, 2, 1; (1106), 8, 2, 1; (1114), 5, 1, 0; (1115), 1, 1, 0; (1117), 4, 1, 0; (1119), 9, 2, 1; (1124), 5, 1, 0; (1130), 3, 1, 0; (1131), 7, 2, 1; (1136), 5, 1, 0; (1143), 10, 2, 1; (1145), 9, 2, 1; (1146), 4, 1, 0; (1148), 1, 1, 0; (1149), 4, 1, 0; (1154), 3, 1, 0; (1155), 5, 1, 0; (1157), 5, 1, 0; (1158), 4, 1, 0; (1160), 4, 1, 0; (1162), 5, 1, 0; (1164), 5, 1, 0; (1165), 5, 1, 0; (1172), 5, 1, 0; (1174), 4, 1, 0; (1175), 4, 1, 0; (1180), 5, 1, 0; (1186), 5, 1, 0; (1190), 5, 1, 0; (1191), 5, 1, 0; (1198), 5, 1, 0; (1207), 5, 1, 0; (1217), 4, 1, 0; (1218), 2, 1, 0; (1222), 5, 1, 0; (1223), 8, 2, 5; (1226), 5, 1, 0; (1234), 2, 1, 0; (1236), 15, 2, 1; (1243), 1, 1, 0; (1247), 9, 2, 4; (1251), 5, 1, 0; (1253), 5, 2, 1; (1257), 5, 1, 0; (1260), 5, 1, 0; (1262), 2, 1, 0; (1266), 7, 2, 1; (1271), 5, 1, 0; (1281), 10, 2, 1; (1290), 4, 1, 0; (1292), 7, 2, 1; (1294), 3, 1, 0; (1299), 5, 1, 0; (1304), 4, 1, 0; (1305), 4, 1, 0; (1312), 4, 1, 0; (1313), 5, 1, 0; (1314), 5, 1, 0; (1319), 9, 2, 1; (1324), 5, 1, 0; (1325), 5, 1, 0; (1331), 4, 1, 0; (1338), 4, 1, 0; (1342), 9, 2, 1; (1349), 10, 1, 0; (1355), 5, 1, 0; (1357), 9, 2, 1; (1358), 5, 1, 0; (1365), 4, 1, 0; (1367), 5, 1, 0; (1371), 1, 1, 0; (1374), 5, 1, 0; (1377), 5, 1, 0; (1382), 10, 2, 4; (1383), 10, 2, 4; (1388), 1, 1, 0; (1389), 10, 2, 1; (1390), 3, 1, 0; (1393), 5, 1, 0; (1397), 5, 1, 0; (1398), 3, 1, 0; (1399), 4, 1, 0; (1402), 4, 1, 0; (1403), 2, 1, 0; (1404), 3, 1, 0; (1406), 5, 1, 0; (1415), 5, 1, 0; (1419), 4, 1, 0; (1425), 4, 1, 0; (1428), 4, 1, 0; (1440), 3, 1, 0; (1444), 3, 1, 0; (1448), 5, 1, 0; (1449), 5, 1, 0; (1451), 5, 1, 0; (1453), 2, 1, 0; (1455), 5, 1, 0; (1459), 5, 1, 0; (1462), 5, 1, 0; (1465), 15, 3, 2; (1478), 5, 1, 0; (1480), 5, 1, 0; (1482), 9, 2, 1; (1483), 5, 1, 0; (1484), 5, 1, 0; (1487), 10, 2, 1; (1489), 10, 2, 1; (1495), 5, 1, 0; (1498), 5, 1, 0; (1499), 5, 1, 0; (1509), 3, 1, 0; (1510), 5, 1, 0; (1511), 10, 2, 1; (1516), 2, 1, 0; (1519), 9, 2, 4; (1520), 1, 1, 0; (1533), 4, 1, 0; (1537), 9, 2, 1; (1549), 6, 2, 1; (1551), 2, 1, 0; (1552), 5, 1, 0; (1557), 4, 1, 0; (1558), 1, 1, 0; (1559), 10, 2, 4; (1560), 4, 1, 0; (1569), 5, 1, 0; (1572), 5, 1, 0; (1574), 4, 1, 0; (1575), 5, 1, 0; (1576), 5, 1, 0; (1579), 4, 1, 0; (1589), 5, 1, 0; (1592), 10, 2, 1; (1598), 10, 2, 1; (1602), 3, 1, 0; (1603), 1, 1, 0; (1606), 5, 1, 0; (1607), 3, 1, 0; (1611), 10, 2, 1; (1618), 4, 1, 0; (1623), 9, 2, 1; (1633), 4, 1, 0; (1635), 10, 2, 1; (1641), 2, 1, 0; (1643), 8, 2, 1; (1647), 3, 1, 0; (1648), 5, 1, 0; (1651), 5, 1, 0; (1654), 8, 2, 4; (1655), 8, 2, 1; (1657), 4, 1, 0; (1658), 10, 2, 2; (1660), 5, 1, 0; (1664), 7, 2, 1; (1666), 5, 1, 0; (1667), 5, 1, 0; (1668), 9, 2, 5; (1670), 5, 1, 0; (1679), 5, 1, 0; (1680), 9, 2, 1; (1687), 5, 1, 0; (1688), 5, 1, 0; (1689), 5, 1, 0; (1696), 4, 1, 0; (1697), 5, 1, 0; (1700), 5, 1, 0; (1701), 5, 1, 0; (1704), 2, 1, 0; (1708), 4, 1, 0; (1712), 5, 1, 0; (1716), 5, 1, 0; (1726), 10, 2, 1; (1735), 5, 1, 0; (1745), 10, 2, 1; (1747), 4, 1, 0; (1748), 9, 2, 1; (1749), 10, 2, 1; (1766), 5, 1, 0; (1769), 9, 2, 1; (1771), 4, 1, 0; (1772), 4, 1, 0; (1776), 5, 1, 0; (1778), 9, 1, 0; (1779), 10, 2, 1; (1781), 4, 1, 0; (1789), 9, 2, 4; (1790), 5, 1, 0; (1791), 10, 2, 4; (1792), 14, 3, 2; (1793), 5, 1, 0; (1794), 4, 1, 0; (1798), 5, 1, 0; (1802), 5, 1, 0; (1806), 5, 1, 0; (1811), 4, 1, 0; (1816), 5, 1, 0; (1817), 10, 2, 6; (1819), 8, 2, 1; (1821), 10, 2, 1; (1822), 10, 2, 1; (1825), 4, 1, 0; (1828), 3, 1, 0; (1829), 10, 2, 1; (1830), 4, 1, 0; (1831), 4, 1, 0; (1835), 10, 2, 4; (1836), 5, 1, 0; (1839), 5, 1, 0; (1844), 14, 2, 1; (1847), 9, 2, 1; (1852), 5, 1, 0; (1853), 5, 1, 0; (1856), 5, 1, 0; (1877), 5, 1, 0; (1882), 5, 1, 0; (1892), 5, 1, 0; (1897), 5, 1, 0; (1898), 11, 2, 1; (1901), 5, 1, 0; (1902), 5, 1, 0; (1905), 9, 2, 5; (1909), 10, 2, 2; (1929), 2, 1, 0; (1930), 5, 1, 0; (1935), 4, 1, 0; (1938), 5, 1, 0; (1943), 5, 1, 0; (1944), 5, 1, 0; (1947), 5, 1, 0; (1949), 5, 1, 0; (1957), 5, 1, 0; (1958), 5, 1, 0; (1964), 15, 2, 1; (1966), 9, 2, 1; (1968), 5, 1, 0; (1969), 9, 2, 1; (1984), 9, 2, 4; (1985), 5, 1, 0; (1995), 9, 2, 4; (1999), 3, 1, 0; (2005), 5, 1, 0; (2013), 10, 2, 1; (2018), 5, 1, 0; (2019), 10, 2, 1; (2025), 5, 1, 0; (2026), 5, 1, 0; (2031), 4, 1, 0; (2035), 11, 2, 1; (2038), 5, 1, 0; (2040), 10, 2, 2; (2047), 5, 1, 0; (2053), 10, 2, 1; (2057), 4, 1, 0; (2065), 5, 1, 0; (2066), 10, 2, 1; (2071), 5, 1, 0; (2077), 5, 1, 0; (2092), 5, 1, 0; (2095), 5, 1, 0; (2098), 5, 1, 0; (2106), 4, 1, 0; (2109), 5, 1, 0; (2118), 5, 1, 0; (2119), 5, 1, 0; (2120), 4, 1, 0; (2123), 5, 1, 0; (2129), 5, 1, 0; (2130), 5, 1, 0; (2131), 5, 1, 0; (2141), 10, 2, 1; (2145), 5, 1, 0; (2148), 5, 1, 0; (2149), 10, 2, 1; (2153), 10, 2, 1; (2154), 4, 1, 0; (2155), 7, 2, 1; (2158), 10, 2, 1; (2172), 5, 1, 0; (2178), 5, 1, 0; (2180), 5, 1, 0; (2182), 9, 2, 5; (2191), 9, 2, 1; (2193), 9, 2, 1; (2197), 5, 1, 0; (2199), 5, 1, 0; (2212), 4, 1, 0; (2216), 5, 1, 0; (2219), 5, 1, 0; (2222), 8, 2, 2; (2223), 5, 1, 0; (2224), 8, 2, 5; (2225), 10, 2, 1; (2227), 5, 1, 0; (2229), 5, 1, 0; (2233), 10, 2, 2; (2236), 5, 1, 0; (2242), 5, 1, 0; (2244), 6, 2, 1; (2253), 5, 1, 0; (2254), 5, 1, 0; (2255), 5, 1, 0; (2256), 10, 2, 1; (2259), 5, 1, 0; (2260), 5, 1, 0; (2262), 5, 1, 0; (2263), 10, 2, 1; (2265), 5, 1,

0; (2266), 5, 1, 0; (2270), 10, 2, 5; (2276), 5, 1, 0; (2277), 9, 2, 1; (2284), 10, 2, 1; (2288), 5, 1, 0; (2289), 10, 2, 2; (2315), 5, 1, 0; (2321), 5, 1, 0; (2322), 5, 1, 0; (2323), 5, 1, 0; (2326), 10, 1, 0; (2328), 5, 1, 0; (2331), 10, 2, 1; (2341), 5, 1, 0; (2344), 15, 2, 1; (2349), 4, 1, 0; (2355), 10, 2, 1; (2358), 5, 1, 0; (2359), 9, 2, 4; (2363), 5, 1, 0; (2367), 10, 2, 5; (2377), 9, 2, 1; (2379), 10, 2, 1; (2383), 5, 1, 0; (2385), 5, 1, 0; (2387), 8, 2, 2; (2399), 4, 1, 0; (2400), 4, 1, 0; (2402), 5, 1, 0; (2405), 5, 1, 0; (2410), 9, 2, 2; (2411), 10, 2, 1; (2418), 10, 2, 1; (2425), 10, 2, 1; (2427), 4, 1, 0; (2434), 5, 1, 0; (2438), 5, 1, 0; (2442), 5, 1, 0; (2443), 14, 3, 2; (2451), 5, 1, 0; (2454), 10, 2, 1; (2456), 5, 1, 0; (2467), 5, 1, 0; (2472), 5, 1, 0; (2475), 5, 1, 0; (2478), 5, 1, 0; (2482), 5, 1, 0; (2486), 9, 2, 1; (2489), 5, 1, 0; (2491), 5, 1, 0; (2498), 10, 2, 1; (2505), 8, 2, 1; (2507), 4, 1, 0; (2513), 12, 2, 1; (2515), 5, 1, 0; (2520), 5, 1, 0; (2524), 10, 2, 1; (2525), 4, 1, 0; (2536), 5, 1, 0; (2537), 9, 2, 1; (2542), 5, 1, 0; (2548), 10, 1, 0; (2549), 10, 2, 1; (2550), 5, 1, 0; (2551), 4, 1, 0; (2553), 5, 1, 0; (2557), 8, 2, 4; (2565), 5, 1, 0; (2570), 5, 1, 0; (2582), 5, 1, 0; (2585), 5, 1, 0; (2586), 5, 1, 0; (2587), 10, 2, 1; (2589), 3, 1, 0; (2590), 5, 1, 0; (2595), 3, 1, 0; (2598), 5, 1, 0; (2602), 3, 1, 0; (2603), 5, 1, 0; (2604), 5, 1, 0; (2609), 8, 2, 1; (2611), 10, 2, 1; (2614), 10, 2, 1; (2616), 9, 2, 1; (2626), 5, 1, 0; (2634), 5, 1, 0; (2639), 10, 2, 1; (2640), 5, 1, 0; (2642), 7, 1, 0; (2653), 4, 1, 0; (2679), 5, 1, 0; (2680), 5, 1, 0; (2683), 10, 2, 1; (2685), 4, 1, 0; (2686), 10, 2, 1; (2687), 5, 1, 0; (2690), 4, 1, 0; (2702), 10, 2, 1; (2707), 10, 2, 1; (2710), 4, 1, 0; (2711), 5, 1, 0; (2713), 5, 1, 0; (2717), 5, 1, 0; (2724), 5, 1, 0; (2725), 10, 2, 1; (2726), 4, 1, 0; (2728), 8, 2, 1; (2729), 10, 2, 1; (2730), 9, 2, 4; (2742), 10, 1, 0; (2743), 5, 1, 0; (2756), 5, 1, 0; (2758), 10, 2, 1; (2775), 5, 1, 0; (2779), 15, 3, 2; (2780), 9, 2, 1; (2781), 8, 2, 4; (2783), 8, 2, 1; (2786), 5, 1, 0; (2789), 10, 2, 2; (2792), 5, 1, 0; (2797), 4, 1, 0; (2800), 5, 1, 0; (2806), 10, 2, 1; (2808), 5, 1, 0; (2812), 10, 2, 1; (2814), 10, 2, 1; (2815), 5, 1, 0; (2820), 5, 1, 0; (2822), 5, 1, 0; (2833), 9, 2, 1; (2836), 5, 1, 0; (2841), 10, 2, 1; (2844), 10, 2, 1; (2845), 5, 1, 0; (2846), 5, 1, 0; (2847), 9, 2, 1; (2848), 5, 1, 0; (2853), 10, 2, 4; (2858), 5, 1, 0; (2859), 5, 1, 0; (2863), 10, 2, 1; (2864), 5, 1, 0; (2872), 10, 2, 4; (2874), 10, 2, 1; (2879), 5, 1, 0; (2881), 5, 1, 0; (2882), 10, 2, 1; (2887), 5, 1, 0; (2890), 5, 1, 0; (2892), 5, 2, 1; (2899), 5, 1, 0; (2905), 5, 1, 0; (2906), 5, 1, 0; (2912), 3, 1, 0; (2914), 5, 1, 0; (2916), 5, 1, 0; (2920), 9, 2, 1; (2923), 10, 2, 1; (2926), 10, 2, 2; (2928), 5, 1, 0; (2931), 5, 1, 0; (2939), 5, 1, 0; (2941), 5, 1, 0; (2946), 10, 2, 1; (2951), 5, 1, 0; (2956), 5, 1, 0; (2958), 10, 2, 1; (2959), 5, 1, 0; (2961), 3, 1, 0; (2963), 5, 1, 0; (2965), 5, 1, 0; (2975), 10, 2, 1; (2985), 4, 1, 0; (2995), 24, 3, 2; (2997), 4, 1, 0; (3001), 10, 2, 1; (3003), 8, 2, 1; (3008), 5, 1, 0; (3016), 4, 1, 0; (3022), 5, 1, 0; (3023), 5, 1, 0; (3025), 5, 1, 0; (3028), 5, 1, 0; (3033), 5, 1, 0; (3034), 5, 1, 0; (3035), 10, 2, 1; (3037), 5, 1, 0; (3039), 5, 1, 0; (3042), 10, 2, 4; (3045), 10, 2, 1; (3046), 4, 1, 0; (3047), 10, 2, 1; (3049), 10, 2, 1; (3050), 10, 2, 1; (3051), 5, 1, 0; (3061), 10, 2, 1; (3063), 4, 1, 0; (3067), 5, 1, 0; (3070), 5, 1, 0; (3071), 10, 2, 1; (3072), 3, 1, 0; (3073), 9, 2, 4; (3076), 5, 1, 0; (3077), 2, 1, 0; (3080), 5, 1, 0; (3082), 10, 2, 3; (3086), 5, 1, 0; (3096), 5, 1, 0; (3098), 3, 1, 0; (3100), 10, 2, 1; (3105), 5, 1, 0; (3107), 3, 1, 0; (3108), 10, 2, 2; (3119), 10, 1, 0; (3127), 9, 2, 1; (3129), 10, 2, 1; (3134), 5, 1, 0; (3143), 8, 2, 5; (3151), 5, 1, 0; (3155), 5, 1, 0; (3160), 5, 1, 0; (3164), 5, 1, 0; (3166), 5, 1, 0; (3176), 3, 1, 0; (3180), 5, 1, 0; (3181), 10, 2, 1; (3188), 4, 1, 0; (3190), 3, 1, 0; (3191), 10, 2, 1; (3192), 5, 1, 0; (3194), 4, 1, 0; (3195), 4, 1, 0; (3196), 8, 2, 5; (3203), 3, 1, 0; (3207), 10, 2, 1; (3214), 5, 1, 0; (3216), 5, 1, 0; (3226), 5, 1, 0; (3227), 4, 1, 0; (3228), 3, 1, 0; (3231), 4, 1, 0; (3237), 5, 1, 0; (3241), 2, 1, 0; (3243), 5, 1, 0; (3251), 10, 2, 1; (3261), 5, 1, 0; (3264), 10, 2, 2; (3274), 9, 2, 1; (3276), 10, 2, 1; (3277), 5, 1, 0; (3278), 4, 1, 0; (3282), 10, 2, 4; (3285), 5, 1, 0; (3286), 3, 1, 0; (3290), 5, 1, 0; (3291), 9, 2, 1; (3301), 5, 1, 0; (3306), 10, 2, 4; (3313), 5, 1, 0; (3315), 5, 1, 0; (3318), 5, 1, 0; (3324), 5, 1, 0; (3331), 9, 2, 1; (3332), 4, 1, 0; (3340), 10, 2, 4; (3349), 5, 1, 0; (3353), 5, 1, 0; (3355), 10, 2, 1; (3356), 10, 2, 1; (3362), 5, 1, 0; (3363), 5, 1, 0; (3364), 5, 1, 0; (3367), 5, 1, 0; (3368), 4, 1, 0; (3370), 5, 1, 0; (3373), 5, 1, 0; (3381), 9, 2, 1; (3382), 5, 1, 0; (3383), 5, 1, 0; (3385), 5, 1, 0; (3391), 5, 1, 0; (3394), 5, 1, 0; (3406), 4, 1, 0; (3408), 3, 1, 0; (3415), 5, 1, 0; (3417), 5, 1, 0; (3420), 4, 1, 0; (3429), 9, 2, 5; (3432), 8, 2, 4; (3435), 5, 1, 0; (3437), 10, 2, 1; (3440), 3, 1, 0; (3445), 5, 1, 0; (3449), 5, 1, 0; (3455), 10, 2, 1; (3456), 4, 1, 0; (3461), 10, 2, 4; (3464), 5, 1, 0; (3465), 5, 2, 1; (3466), 10, 2, 1; (3468), 2, 1, 0; (3478), 8, 2, 1; (3485), 4, 1, 0; (3492), 2, 1, 0; (3495), 8, 2, 5; (3504), 10, 2, 1; (3510), 8, 2, 1; (3513), 15, 2, 4; (3533), 10, 2, 5; (3537), 5, 1, 0; (3538), 5, 1, 0; (3539), 4, 1, 0; (3542), 5, 1, 0; (3543), 10, 2, 1; (3564), 5, 1, 0; (3569), 3, 1, 0; (3570), 5, 1, 0; (3573), 9, 2, 2; (3579), 8, 2, 4; (3587), 5, 1, 0; (3588), 5, 1, 0; (3590), 5, 1, 0; (3600), 5, 1, 0; (3607), 5, 1, 0; (3611), 5, 1, 0; (3616), 5, 1, 0; (3617), 4, 1, 0; (3622), 4, 1, 0; (3630), 5, 1, 0; (3632), 10, 2, 4; (3633), 10, 2, 4; (3634), 5, 1, 0; (3636), 10, 2, 1; (3638), 4, 1, 0; (3640), 5, 1, 0; (3641), 13, 3, 5; (3642), 3, 1, 0; (3645), 5, 1, 0; (3646), 10, 2, 1; (3647), 7, 2, 1; (3656), 4, 1, 0; (3657), 5, 1, 0; (3663), 8, 2, 1; (3666), 10, 2, 1; (3669), 5, 1, 0; (3670), 5, 1, 0; (3683), 3, 1, 0; (3684), 4, 1, 0; (3686), 4, 1, 0; (3690), 5, 1, 0; (3693), 5, 1, 0; (3699), 10, 2, 1; (3709), 4, 1, 0; (3731), 5, 1, 0; (3733), 5, 1, 0; (3735), 5, 1, 0; (3740), 15, 2, 1; (3742), 3, 1, 0; (3745), 4, 1, 0; (3746), 4, 1, 0; (3748), 9, 2, 1; (3756), 14, 3, 3; (3760), 5, 1, 0; (3761), 4, 1, 0; (3766), 10, 2, 1; (3776), 5, 1, 0; (3777), 9, 2, 2; (3786), 4, 1, 0; (3789), 10, 2, 1; (3790), 15, 3, 5; (3796), 5, 1, 0; (3797), 4, 1, 0; (3800), 12, 3, 7; (3804), 10, 2, 1; (3807), 10, 2, 2; (3809), 5, 1, 0; (3811), 3, 1, 0; (3831), 14, 3, 2; (3832), 5, 1, 0; (3835), 4, 1, 0; (3836), 10, 2, 4; (3838), 10, 2, 9; (3839), 9, 2, 1; (3848), 9, 2, 1; (3851), 5, 1, 0; (385

2, 2; (3941), 10, 2, 1; (3943), 15, 3, 2; (3944), 10, 2, 1; (3945), 10, 2, 1; (3948), 10, 2, 1; (3951), 10, 1, 0; (3955), 5, 1, 0; (3957), 5, 1, 0; (3962), 10, 2, 1; (3967), 10, 2, 1; (3968), 5, 1, 0; (3973), 10, 2, 4; (3976), 5, 1, 0; (3980), 5, 1, 0; (3982), 10, 2, 1; (3986), 9, 2, 1; (3996), 4, 1, 0; (3997), 10, 2, 2; (4002), 3, 1, 0; (4003), 8, 2, 4; (4004), 5, 1, 0; (4005), 8, 2, 1; (4007), 10, 2, 1; (4010), 3, 1, 0; (4014), 8, 2, 1; (4022), 5, 1, 0; (4029), 10, 2, 4; (4038), 5, 1, 0; (4039), 10, 2, 1; (4042), 10, 2, 1; (4044), 10, 2, 1; (4045), 5, 1, 0; (4047), 4, 1, 0; (4050), 8, 2, 1; (4052), 10, 2, 1; (4057), 5, 1, 0; (4058), 5, 1, 0; (4059), 5, 1, 0; (4060), 3, 1, 0; (4063), 5, 1, 0; (4068), 5, 1, 0; (4071), 10, 2, 1; (4073), 10, 2, 1; (4075), 5, 1, 0; (4077), 5, 1, 0; (4081), 5, 1, 0; (4082), 5, 1, 0; (4085), 4, 1, 0; (4088), 5, 1, 0; (4091), 5, 1, 0; (4092), 10, 2, 1; (4099), 4, 1, 0; (4101), 5, 1, 0; (4102), 5, 1, 0; (4104), 5, 1, 0; (4107), 4, 1, 0; (4108), 10, 2, 1; (4115), 4, 1, 0; (4122), 5, 1, 0; (4126), 5, 1, 0; (4128), 4, 1, 0; (4135), 10, 2, 2; (4137), 5, 1, 0; (4138), 10, 2, 1; (4145), 5, 1, 0; (4147), 5, 1, 0; (4149), 4, 1, 0; (4151), 10, 2, 1; (4152), 5, 1, 0; (4153), 8, 2, 1; (4154), 5, 1, 0; (4159), 5, 1, 0; (4164), 10, 2, 1; (4166), 9, 2, 4; (4177), 10, 2, 4; (4180), 5, 1, 0; (4181), 4, 1, 0; (4182), 5, 1, 0; (4191), 4, 1, 0; (4196), 9, 2, 1; (4199), 10, 2, 1; (4202), 9, 2, 1; (4203), 5, 1, 0; (4211), 10, 2, 1; (4212), 5, 1, 0; (4213), 3, 1, 0; (4214), 15, 2, 1; (4215), 5, 1, 0; (4229), 5, 1, 0; (4234), 4, 1, 0; (4235), 10, 2, 1; (4240), 3, 1, 0; (4241), 10, 2, 1; (4244), 5, 1, 0; (4245), 5, 1, 0; (4246), 5, 1, 0; (4248), 5, 1, 0; (4249), 5, 1, 0; (4252), 4, 1, 0; (4253), 8, 2, 1; (4258), 5, 1, 0; (4263), 5, 1, 0; (4269), 3, 1, 0; (4271), 5, 1, 0; (4277), 14, 3, 2; (4286), 10, 2, 1; (4287), 10, 2, 2; (4291), 5, 1, 0; (4292), 5, 1, 0; (4295), 5, 1, 0; (4296), 10, 2, 4; (4305), 10, 2, 1; (4306), 10, 2, 1; (4309), 10, 2, 4; (4316), 10, 2, 1; (4320), 5, 1, 0; (4329), 10, 2, 4; (4336), 5, 1, 0; (4338), 5, 1, 0; (4340), 5, 1, 0; (4351), 10, 2, 1; (4356), 14, 1, 0; (4357), 10, 2, 4; (4361), 10, 2, 5; (4362), 5, 1, 0; (4364), 9, 2, 2; (4367), 5, 1, 0; (4369), 10, 2, 1; (4370), 4, 1, 0; (4371), 5, 1, 0; (4372), 10, 2, 4; (4374), 5, 1, 0; (4378), 5, 1, 0; (4381), 4, 1, 0; (4389), 6, 2, 1; (4392), 10, 2, 4; (4394), 9, 2, 1; (4395), 5, 1, 0; (4402), 8, 2, 5; (4406), 5, 1, 0; (4408), 5, 1, 0; (4410), 9, 2, 2; (4412), 10, 2, 4; (4419), 10, 2, 1; (4427), 5, 1, 0; (4428), 3, 1, 0; (4430), 5, 1, 0; (4437), 10, 2, 4; (4441), 10, 2, 1; (4445), 10, 2, 1; (4454), 10, 2, 4; (4455), 3, 1, 0; (4460), 5, 1, 0; (4462), 5, 1, 0; (4469), 4, 1, 0; (4474), 10, 2, 1; (4475), 5, 1, 0; (4489), 10, 2, 1; (4493), 5, 1, 0; (4494), 5, 1, 0; (4497), 4, 1, 0; (4500), 9, 2, 1; (4501), 3, 1, 0; (4502), 3, 1, 0; (4505), 5, 1, 0; (4510), 5, 1, 0; (4514), 4, 1, 0; (4519), 5, 1, 0; (4524), 5, 1, 0; (4527), 5, 1, 0; (4530), 5, 1, 0; (4533), 5, 1, 0; (4536), 5, 1, 0; (4537), 5, 1, 0; (4543), 10, 2, 1; (4553), 5, 1, 0; (4561), 5, 1, 0; (4562), 10, 2, 1; (4564), 5, 1, 0; (4567), 5, 1, 0; (4568), 5, 1, 0; (4569), 3, 1, 0; (4570), 5, 1, 0; (4572), 4, 1, 0; (4575), 5, 1, 0; (4579), 10, 2, 1; (4582), 12, 3, 2; (4586), 5, 1, 0; (4593), 5, 1, 0; (4595), 9, 2, 1; (4602), 5, 1, 0; (4610), 4, 1, 0; (4612), 5, 1, 0; (4613), 10, 2, 3; (4615), 5, 1, 0; (4618), 5, 1, 0; (4619), 5, 1, 0; (4625), 5, 1, 0; (4628), 5, 1, 0; (4636), 5, 1, 0; (4637), 3, 1, 0; (4639), 5, 1, 0; (4644), 9, 2, 1; (4649), 3, 1, 0; (4653), 9, 2, 4; (4694), 5, 1, 0; (4701), 5, 1, 0; (4702), 5, 1, 0; (4704), 5, 1, 0; (4709), 4, 1, 0; (4717), 5, 1, 0; (4725), 4, 1, 0; (4726), 15, 3, 6; (4727), 5, 1, 0; (4733), 9, 2, 5; (4737), 4, 1, 0; (4738), 5, 1, 0; (4739), 10, 2, 1; (4744), 5, 1, 0; (4747), 4, 1, 0; (4749), 5, 1, 0; (4750), 5, 1, 0; (4751), 5, 1, 0; (4756), 5, 1, 0; (4761), 4, 1, 0; (4763), 5, 1, 0; (4770), 5, 1, 0; (4774), 5, 1, 0; (4777), 8, 2, 1; (4780), 8, 2, 1; (4781), 10, 2, 2; (4782), 10, 2, 4; (4784), 5, 1, 0; (4794), 5, 1, 0; (4798), 10, 2, 1; (4802), 10, 2, 1; (4803), 5, 1, 0; (4813), 10, 2, 4; (4818), 8, 2, 2; (4823), 4, 1, 0; (4831), 5, 1, 0; (4833), 10, 2, 1; (4834), 5, 1, 0; (4835), 5, 1, 0; (4842), 10, 2, 1; (4843), 5, 1, 0; (4847), 9, 2, 1; (4849), 4, 1, 0; (4854), 5, 1, 0; (4855), 5, 1, 0; (4866), 5, 1, 0; (4869), 5, 1, 0; (4875), 5, 1, 0; (4877), 5, 1, 0; (4887), 4, 1, 0; (4889), 4, 1, 0; (4892), 5, 1, 0; (4893), 5, 1, 0; (4897), 5, 1, 0; (4902), 5, 1, 0; (4906), 6, 2, 1; (4910), 5, 1, 0; (4912), 5, 1, 0; (4921), 10, 2, 1; (4929), 8, 2, 1; (4930), 10, 2, 1; (4936), 5, 1, 0; (4938), 10, 2, 1; (4942), 5, 1, 0; (4946), 5, 1, 0; (4949), 5, 1, 0; (4951), 15, 3, 2; (4952), 5, 1, 0; (4965), 9, 2, 1; (4968), 10, 2, 1; (4970), 5, 1, 0; (4978), 5, 1, 0; (4981), 5, 1, 0; (4988), 10, 2, 1; (4991), 8, 2, 1; (4992), 3, 1, 0; (4993), 5, 1, 0; (4996), 8, 2, 7; (5004), 3, 1, 0; (5006), 4, 1, 0; (5007), 5, 1, 0; (5009), 10, 2, 1; (5019), 10, 2, 1; (5021), 9, 2, 1; (5023), 5, 1, 0; (5025), 5, 1, 0; (5026), 3, 1, 0; (5027), 5, 1, 0; (5028), 5, 1, 0; (5034), 5, 1, 0; (5035), 5, 1, 0; (5041), 5, 1, 0; (5046), 3, 1, 0; (5051), 5, 1, 0; (5056), 7, 2, 1; (5060), 5, 1, 0; (5064), 5, 1, 0; (5066), 10, 2, 5; (5083), 5, 1, 0; (5089), 5, 1, 0; (5090), 5, 1, 0; (5093), 5, 1, 0; (5095), 4, 1, 0; (5099), 5, 1, 0; (5100), 9, 2, 1; (5104), 5, 1, 0; (5105), 5, 1, 0; (5110), 4, 1, 0; (5113), 5, 1, 0; (5126), 4, 1, 0; (5127), 5, 1, 0; (5133), 5, 1, 0; (5134), 4, 1, 0; (5141), 10, 2, 1; (5146), 5, 1, 0; (5150), 9, 2, 4; (5152), 5, 1, 0; (5156), 5, 1, 0; (5163), 5, 1, 0; (5165), 5, 1, 0; (5167), 10, 2, 4; (5171), 5, 1, 0; (5173), 5, 1, 0; (5175), 5, 1, 0; (5181), 5, 1, 0; (5186), 4, 1, 0; (5188), 5, 1, 0; (5197), 4, 1, 0; (5199), 5, 1, 0; (5206), 5, 1, 0; (5212), 4, 1, 0; (5215), 5, 1, 0; (5225), 8, 2, 5; (5232), 4, 1, 0; (5242), 8, 2, 1; (5244), 5, 1, 0; (5245), 4, 1, 0; (5246), 5, 1, 0; (5253), 5, 1, 0; (5254), 5, 1, 0; (5255), 10, 2, 1; (5258), 10, 2, 1; (5259), 5, 1, 0; (5262), 5, 1, 0; (5263), 4, 1, 0; (5264), 4, 1, 0; (5274), 5, 1, 0; (5275), 10, 2, 2; (5281), 4, 1, 0; (5284), 5, 1, 0; (5286), 10, 2, 1; (5294), 4, 1, 0; (5298), 4, 1, 0; (5300), 7, 2, 1; (5301), 10, 2, 1; (5303), 15, 2, 1; (5304), 5, 1, 0; (5309), 10, 2, 1; (5313), 5, 1, 0; (5315), 4, 1, 0; (5316), 5, 1, 0; (5317), 5, 1, 0; (5319), 5, 1, 0; (5334), 9, 2, 5; (5336), 10, 2, 1; (5337), 10, 2, 1; (5340), 5, 1, 0; (5341), 10, 2, 1; (5346), 5, 1, 0; (5347), 5, 1, 0; (5361), 5, 1, 0; (5363), 10, 2, 4; (5365), 10, 2, 1; (5366), 5, 1, 0; (5369), 5, 1, 0; (5371), 15, 3, 3; (5374), 5, 1, 0; (5375), 9, 2, 1; (5386), 5, 1, 0; (5392), 5, 1, 0; (5394), 5, 1, 0; (5400), 3, 1, 0; (5403), 9, 2, 1; (5404), 5, 1, 0; (5415), 5, 1, 0; (5417), 5, 1, 0; (5421), 5, 1, 0; (5428), 3, 1, 0; (5431), 5, 1, 0; (5435), 3, 1, 0; (5436), 9, 2, 1; (5439), 10, 2, 1; (5441), 5, 1, 0; (5450), 5, 1, 0; (5453), 5, 1, 0; (5455), 5, 1, 0; (5456), 5, 1, 0; (5462), 5, 1, 0; (5472), 10, 2, 1; (5473), 10, 2, 2; (5474), 10, 2, 1; (5480), 3, 1, 0; (5486), 5, 1, 0; (5490), 4, 1, 0; (5498), 5, 1, 0; (5499), 5, 1, 0; (5501),

10, 2, 1; (5503), 5, 1, 0; (5506), 5, 1, 0; (5509), 5, 1, 0; (5512), 5, 1, 0; (5516), 4, 1, 0; (5517), 5, 1, 0; (5524), 5, 1, 0; (5529), 5, 1, 0; (5530), 5, 1, 0; (5533), 5, 1, 0; (5536), 5, 1, 0; (5538), 5, 1, 0; (5541), 5, 1, 0; (5543), 5, 1, 0; (5546), 5, 1, 0; (5547), 5, 1, 0; (5554), 8, 2, 1; (5557), 5, 1, 0; (5562), 4, 1, 0; (5564), 15, 3, 2; (5577), 15, 3, 8; (5581), 5, 1, 0; (5584), 4, 1, 0; (5586), 5, 1, 0; (5591), 8, 2, 5; (5599), 8, 2, 1; (5607), 3, 1, 0; (5612), 5, 1, 0; (5614), 5, 1, 0; (5617), 5, 1, 0; (5618), 5, 1, 0; (5627), 11, 2, 1; (5631), 5, 1, 0; (5632), 4, 1, 0; (5652), 10, 2, 1; (5653), 4, 1, 0; (5657), 4, 1, 0; (5662), 5, 1, 0; (5668), 10, 2, 4; (5672), 4, 1, 0; (5679), 10, 2, 1; (5680), 5, 1, 0; (5692), 5, 1, 0; (5694), 5, 1, 0; (5695), 4, 1, 0; (5700), 5, 1, 0; (5704), 4, 1, 0; (5706), 4, 1, 0; (5709), 9, 2, 1; (5715), 5, 1, 0; (5725), 5, 1, 0; (5729), 5, 1, 0; (5733), 10, 2, 1; (5741), 4, 1, 0; (5750), 5, 1, 0; (5759), 5, 1, 0; (5760), 15, 3, 2; (5770), 5, 1, 0; (5774), 5, 1, 0; (5779), 5, 1, 0; (5788), 9, 2, 1; (5794), 5, 1, 0; (5800), 10, 2, 1; (5802), 9, 2, 5; (5815), 5, 1, 0; (5816), 5, 1, 0; (5826), 10, 2, 1; (5829), 9, 2, 4; (5833), 5, 1, 0; (5843), 9, 2, 5; (5844), 5, 1, 0; (5846), 10, 2, 1; (5854), 5, 1, 0; (5857), 9, 2, 1; (5858), 5, 1, 0; (5861), 5, 1, 0; (5865), 10, 2, 4; (5872), 5, 1, 0; (5873), 5, 1, 0; (5880), 10, 2, 1; (5883), 5, 1, 0; (5887), 5, 1, 0; (5901), 8, 2, 4; (5909), 15, 3, 5; (5910), 5, 1, 0; (5911), 10, 2, 2; (5924), 5, 1, 0; (5928), 8, 2, 1; (5930), 5, 1, 0; (5933), 14, 2, 1; (5934), 3, 1, 0; (5943), 10, 2, 1; (5949), 10, 2, 1; (5951), 5, 1, 0; (5958), 4, 1, 0; (5969), 10, 2, 4; (5984), 4, 1, 0; (5985), 4, 1, 0; (5986), 5, 1, 0; (5987), 5, 1, 0; (5988), 5, 1, 0; (5989), 9, 2, 1; (5993), 4, 1, 0; (5999), 3, 1, 0; (6003), 10, 2, 1; (6008), 5, 1, 0; (6009), 5, 1, 0; (6010), 5, 1, 0; (6012), 10, 2, 1; (6013), 5, 1, 0; (6014), 5, 1, 0; (6015), 5, 1, 0; (6017), 5, 1, 0; (6020), 5, 1, 0; (6021), 5, 1, 0; (6022), 4, 1, 0; (6023), 5, 1, 0; (6034), 10, 2, 4; (6043), 4, 1, 0; (6048), 9, 2, 5; (6049), 9, 2, 1; (6056), 5, 1, 0; (6060), 5, 1, 0; (6071), 4, 1, 0; (6078), 8, 2, 1; (6082), 9, 2, 1; (6088), 3, 1, 0; (6090), 5, 1, 0; (6093), 5, 1, 0; (6094), 5, 1, 0; (6096), 5, 1, 0; (6102), 4, 1, 0; (6105), 5, 1, 0; (6111), 5, 1, 0; (6118), 9, 2, 1; (6119), 5, 1, 0; (6120), 5, 1, 0; (6127), 5, 1, 0; (6128), 4, 1, 0; (6129), 5, 1, 0; (6132), 4, 1, 0; (6134), 4, 1, 0; (6135), 5, 1, 0; (6138), 3, 1, 0; (6141), 4, 1, 0; (6142), 4, 1, 0; (6143), 5, 1, 0; (6147), 5, 1, 0; (6152), 15, 2, 1; (6154), 3, 1, 0; (6155), 5, 1, 0; (6156), 10, 2, 1; (6174), 10, 2, 4; (6178), 4, 1, 0; (6190), 4, 1, 0; (6191), 4, 1, 0; (6199), 10, 2, 1; (6201), 9, 2, 1; (6206), 5, 1, 0; (6210), 10, 2, 1; (6216), 5, 1, 0; (6220), 10, 2, 2; (6221), 4, 1, 0; (6222), 5, 1, 0; (6223), 5, 1, 0; (6225), 8, 1, 0; (6228), 15, 3, 2; (6229), 8, 2, 4; (6231), 5, 1, 0; (6232), 5, 1, 0; (6236), 10, 2, 1; (6238), 5, 1, 0; (6250), 5, 1, 0; (6254), 3, 1, 0; (6260), 4, 1, 0; (6275), 5, 1, 0; (6283), 4, 1, 0; (6284), 4, 1, 0; (6287), 8, 2, 1; (6288), 10, 2, 2; (6289), 4, 1, 0; (6296), 7, 2, 1; (6297), 5, 1, 0; (6299), 15, 2, 1; (6300), 9, 2, 1; (6301), 10, 2, 1; (6308), 8, 2, 5; (6310), 10, 2, 3; (6327), 5, 1, 0; (6340), 10, 2, 1; (6343), 5, 1, 0; (6346), 9, 2, 1; (6350), 4, 1, 0; (6353), 10, 2, 1; (6359), 5, 1, 0; (6365), 5, 1, 0; (6371), 6, 1, 0; (6372), 5, 1, 0; (6378), 9, 2, 1; (6384), 5, 1, 0; (6385), 8, 2, 1; (6392), 5, 1, 0; (6393), 4, 1, 0; (6407), 5, 1, 0; (6414), 5, 1, 0; (6415), 5, 1, 0; (6419), 10, 2, 1; (6430), 5, 1, 0; (6434), 5, 1, 0; (6437), 4, 1, 0; (6438), 3, 1, 0; (6444), 5, 1, 0; (6462), 4, 1, 0; (6469), 5, 1, 0; (6475), 5, 1, 0; (6480), 8, 2, 5; (6481), 5, 1, 0; (6482), 9, 2, 1; (6487), 4, 1, 0; (6494), 3, 1, 0; (6495), 5, 1, 0; (6497), 10, 2, 2; (6498), 5, 1, 0; (6507), 3, 1, 0; (6515), 3, 1, 0; (6516), 4, 1, 0; (6519), 5, 1, 0; (6521), 9, 2, 4; (6522), 5, 1, 0; (6526), 5, 1, 0; (6527), 5, 1, 0; (6532), 5, 1, 0; (6534), 5, 1, 0; (6536), 5, 1, 0; (6537), 10, 2, 1; (6540), 5, 1, 0; (6541), 5, 1, 0; (6543), 4, 1, 0; (6545), 10, 2, 1; (6550), 4, 1, 0; (6554), 4, 1, 0; (6558), 5, 1, 0; (6560), 5, 1, 0; (6566), 5, 1, 0; (6567), 8, 2, 1; (6571), 5, 1, 0; (6572), 10, 2, 1; (6573), 9, 2, 4; (6577), 5, 1, 0; (6578), 4, 1, 0; (6581), 5, 1, 0; (6584), 5, 1, 0; (6586), 10, 2, 4; (6587), 5, 1, 0; (6595), 5, 1, 0; (6597), 4, 1, 0; (6599), 5, 1, 0; (6600), 4, 1, 0; (6601), 3, 1, 0; (6608), 5, 1, 0; (6610), 3, 1, 0; (6612), 5, 1, 0; (6615), 10, 2, 1; (6617), 3, 1, 0; (6627), 4, 1, 0; (6631), 5, 1, 0; (6632), 5, 1, 0; (6633), 5, 1, 0; (6634), 3, 1, 0; (6636), 10, 2, 1; (6637), 10, 2, 1; (6638), 10, 2, 1; (6647), 9, 2, 1; (6649), 5, 1, 0; (6657), 9, 2, 6; (6658), 5, 1, 0; (6659), 5, 1, 0; (6660), 8, 2, 1; (6661), 10, 2, 1; (6662), 5, 1, 0; (6663), 5, 1, 0; (6666), 10, 2, 4; (6667), 5, 1, 0; (6669), 5, 1, 0; (6672), 5, 1, 0; (6674), 3, 1, 0; (6682), 8, 2, 1; (6685), 5, 1, 0; (6693), 7, 1, 0; (6694), 5, 1, 0; (6695), 3, 1, 0; (6699), 10, 2, 1; (6701), 5, 1, 0; (6703), 15, 3, 2; (6705), 9, 2, 1; (6706), 4, 1, 0; (6708), 5, 1, 0; (6709), 5, 1, 0; (6711), 5, 1, 0; (6714), 5, 1, 0; (6715), 5, 1, 0; (6726), 5, 1, 0; (6729), 9, 2, 4; (6734), 5, 1, 0; (6736), 4, 1, 0; (6737), 5, 1, 0; (6738), 3, 1, 0; (6740), 4, 1, 0; (6741), 5, 1, 0; (6742), 5, 1, 0; (6744), 10, 2, 1; (6745), 5, 1, 0; (6748), 5, 1, 0; (6751), 5, 1, 0; (6754), 5, 1, 0; (6755), 5, 1, 0; (6758), 5, 1, 0; (6763), 5, 1, 0; (6769), 5, 1, 0; (6771), 10, 2, 1; (6772), 5, 1, 0; (6775), 4, 1, 0; (6776), 4, 1, 0; (6778), 10, 2, 1; (6780), 3, 1, 0; (6784), 4, 1, 0; (6787), 4, 1, 0; (6788), 10, 2, 1; (6789), 5, 1, 0; (6791), 9, 2, 1; (6792), 5, 1, 0; (6795), 5, 1, 0; (6796), 5, 1, 0; (6806), 5, 1, 0; (6811), 5, 1, 0; (6813), 5, 1, 0; (6814), 8, 2, 2; (6828), 5, 1, 0; (6829), 9, 2, 1; (6830), 10, 2, 1; (6833), 5, 1, 0; (6838), 5, 1, 0; (6840), 3, 1, 0; (6842), 5, 1, 0; (6846), 3, 1, 0; (6848), 5, 1, 0; (6854), 5, 1, 0; (6862), 8, 2, 4; (6863), 10, 2, 2; (6881), 10, 2, 1; (6890), 10, 2, 1; (6894), 5, 1, 0; (6898), 5, 1, 0; (6899), 9, 2, 1; (6903), 10, 2, 1; (6905), 5, 1, 0; (6906), 4, 1, 0; (6907), 2, 1, 0; (6908), 10, 2, 1; (6914), 3, 1, 0; (6916), 5, 1, 0; (6918), 14, 3, 2; (6923), 3, 1, 0; (6926), 5, 1, 0; (6928), 5, 1, 0; (6931), 5, 1, 0; (6936), 10, 2, 1; (6937), 5, 1, 0; (6938), 9, 1, 0; (6941), 5, 1, 0; (6950), 5, 1, 0; (6951), 5, 1, 0; (6953), 5, 1, 0; (6958), 5, 1, 0; (6960), 5, 1, 0; (6978), 3, 1, 0; (6983), 10, 2, 1; (6984), 4, 1, 0; (6986), 9, 2, 1; (6987), 9, 2, 1; (6989), 5, 1, 0; (6990), 10, 2, 1; (6993), 10, 2, 1; (6994), 8, 2, 1; (6995), 5, 1, 0; (6996), 10, 2, 2; (7008), 5, 1, 0; (7013), 5, 1, 0; (7028), 4, 1, 0; (7029), 5, 1, 0; (7035), 10, 2, 1; (7036), 4, 1, 0; (7037), 4, 1,

(7173), 4, 1, 0; (7174), 5, 1, 0; (7177), 5, 1, 0; (7179), 3, 1, 0; (7187), 5, 1, 0; (7189), 10, 2, 1; (7191), 10, 2, 1; (7205), 4, 1, 0; (7208), 10, 2, 1; (7210), 10, 2, 1; (7247), 3, 1, 0; (7289), 9, 2, 1; (7308), 5, 1, 0; (7309), 10, 2, 4; (7312), 5, 1, 0; (7317), 14, 2, 1; (7318), 4, 1, 0; (7332), 5, 1, 0; (7342), 5, 1, 0; (7354), 10, 2, 1; (7376), 10, 2, 2; (7382), 4, 1, 0; (7386), 5, 1, 0; (7389), 5, 1, 0; (7396), 10, 2, 1; (7398), 5, 1, 0; (7401), 10, 2, 1; (7405), 4, 1, 0; (7408), 10, 2, 4; (7435), 7, 2, 1; (7436), 10, 2, 1; (7437), 4, 1, 0; (7441), 5, 1, 0; (7443), 10, 2, 1; (7447), 5, 1, 0; (7448), 9, 2, 1; (7453), 10, 2, 1; (7455), 4, 1, 0; (7465), 10, 2, 4; (7470), 4, 1, 0; (7471), 5, 1, 0; (7473), 9, 2, 5; (7475), 5, 1, 0; (7478), 8, 2, 1; (7485), 4, 1, 0; (7490), 7, 2, 3; (7493), 3, 1, 0; (7494), 4, 1, 0; (7498), 5, 1, 0; (7503), 5, 1, 0; (7510), 5, 1, 0; (7515), 10, 2, 1; (7518), 5, 1, 0; (7524), 7, 2, 1; (7532), 10, 2, 5; (7534), 9, 2, 1; (7536), 5, 1, 0; (7540), 5, 1, 0; (7542), 10, 2, 2; (7545), 9, 2, 8; (7555), 10, 2, 2; (7558), 5, 1, 0; (7565), 4, 1, 0; (7570), 5, 1, 0; (7575), 9, 2, 1; (7579), 5, 1, 0; (7594), 9, 2, 1; (7600), 15, 3, 2; (7601), 5, 1, 0; (7602), 5, 1, 0; (7606), 5, 1, 0; (7608), 5, 1, 0; (7611), 5, 1, 0; (7612), 5, 1, 0; (7619), 10, 2, 1; (7622), 3, 1, 0; (7626), 5, 1, 0; (7627), 10, 2, 1; (7628), 5, 1, 0; (7632), 9, 2, 1; (7633), 5, 1, 0; (7634), 10, 2, 1; (7635), 5, 1, 0; (7637), 9, 1, 0; (7639), 4, 1, 0; (7641), 4, 1, 0; (7642), 4, 1, 0; (7646), 5, 1, 0; (7647), 8, 2, 2; (7648), 8, 2, 1; (7651), 2, 1, 0; (7654), 3, 1, 0; (7656), 10, 2, 1; (7657), 10, 2, 1; (7658), 10, 2, 1; (7659), 4, 1, 0; (7665), 10, 2, 1; (7667), 4, 1, 0; (7670), 3, 1, 0; (7672), 4, 1, 0; (7673), 9, 2, 1; (7676), 5, 1, 0; (7677), 10, 2, 1; (7680), 4, 1, 0; (7683), 5, 1, 0; (7685), 3, 1, 0; (7689), 10, 2, 1; (7691), 9, 2, 1; (7693), 5, 1, 0; (7694), 4, 1, 0; (7696), 9, 2, 1; (7697), 5, 1, 0; (7698), 7, 2, 1; (7700), 10, 2, 1; (7704), 5, 1, 0; (7706), 5, 1, 0; (7707), 4, 1, 0; (7711), 4, 1, 0; (7717), 4, 1, 0; (7725), 5, 1, 0; (7726), 3, 1, 0; (7730), 3, 1, 0; (7735), 5, 1, 0; (7740), 5, 1, 0; (7742), 5, 1, 0; (7743), 4, 1, 0; (7745), 3, 1, 0; (7752), 9, 2, 1; (7756), 5, 1, 0; (7763), 5, 1, 0; (7764), 3, 1, 0; (7765), 3, 1, 0; (7769), 5, 1, 0; (7771), 3, 1, 0; (7772), 9, 2, 4; (7774), 10, 2, 1; (7776), 10, 2, 1; (7779), 5, 1, 0; (7782), 9, 2, 1; (7788), 4, 1, 0; (7790), 5, 1, 0; (7791), 5, 1, 0; (7796), 15, 3, 2; (7803), 3, 1, 0; (7804), 4, 1, 0; (7807), 5, 1, 0; (7808), 10, 2, 2; (7817), 10, 2, 1; (7819), 10, 2, 5; (7821), 8, 2, 1; (7831), 5, 1, 0; (7834), 10, 2, 1; (7836), 4, 1, 0; (7838), 5, 1, 0; (7841), 3, 1, 0; (7844), 10, 2, 1; (7855), 3, 1, 0; (7856), 4, 1, 0; (7878), 4, 1, 0; (7895), 5, 1, 0; (7896), 5, 1, 0; (7902), 4, 1, 0; (7903), 3, 1, 0; (7905), 4, 1, 0; (7935), 10, 2, 1; (7937), 5, 1, 0; (7941), 5, 1, 0; (7942), 7, 2, 1; (7946), 4, 1, 0; (7956), 3, 1, 0; (7965), 5, 1, 0; (7991), 5, 1, 0; (8049), 4, 1, 0; (8086), 3, 1, 0; (8150), 5, 1, 0; (8176), 5, 1, 0; (8250), 4, 1, 0; (8257), 8, 2, 1; (8328), 3, 1, 0; (8384), 4, 1, 0; (8416), 10, 2, 4; (8417), 10, 2, 1; (8424), 5, 1, 0; (8425), 5, 1, 0; (8442), 3, 1, 0; (8447), 10, 2, 4; (8466), 8, 2, 5; (8470), 14, 3, 5; (8474), 4, 1, 0; (8476), 5, 1, 0; (8479), 4, 1, 0; (8488), 3, 1, 0; (8494), 3, 1, 0; (8509), 9, 2, 4; (8527), 4, 1, 0; (8530), 10, 2, 1; (8557), 5, 1, 0; (8572), 3, 1, 0; (8574), 9, 2, 2; (8592), 5, 1, 0; (8603), 9, 2, 4; (8604), 5, 1, 0; (8611), 10, 2, 2; (8616), 9, 2, 5; (8617), 5, 1, 0; (8639), 5, 1, 0; (8644), 10, 2, 4; (8649), 3, 1, 0; (8652), 4, 1, 0; (8670), 5, 1, 0; (8672), 5, 1, 0; (8688), 3, 1, 0; (8692), 10, 2, 2; (8704), 3, 1, 0; (8707), 8, 2, 5; (8714), 10, 2, 1; (8715), 5, 1, 0; (8719), 5, 1, 0; (8725), 8, 2, 5; (8732), 4, 1, 0; (8736), 8, 2, 5; (8748), 5, 1, 0; (8750), 9, 2, 4; (8772), 10, 2, 4; (8783), 5, 1, 0; (8785), 5, 1, 0; (8797), 5, 1, 0; (8805), 14, 3, 2; (8807), 3, 1, 0; (8810), 4, 1, 0; (8812), 7, 2, 1; (8816), 8, 2, 5; (8817), 15, 3, 2; (8819), 4, 1, 0; (8823), 8, 2, 1; (8825), 4, 1, 0; (8827), 5, 1, 0; (8830), 4, 1, 0; (8831), 5, 1, 0; (8833), 5, 1, 0; (8840), 9, 2, 5; (8842), 4, 1, 0; (8843), 5, 1, 0; (8852), 10, 2, 4; (8854), 9, 2, 1; (8855), 4, 1, 0; (8857), 4, 1, 0; (8858), 5, 1, 0; (8859), 5, 1, 0; (8861), 4, 1, 0; (8862), 5, 1, 0; (8864), 5, 1, 0; (8873), 3, 1, 0; (8874), 5, 1, 0; (8875), 10, 2, 1; (8883), 5, 1, 0; (8884), 9, 2, 1; (8886), 5, 1, 0; (8887), 3, 1, 0; (8894), 5, 1, 0; (8895), 5, 1, 0; (8896), 4, 1, 0; (8898), 5, 1, 0; (8900), 10, 2, 1; (8903), 3, 1, 0; (8904), 10, 2, 2; (8905), 5, 1, 0; (8909), 4, 1, 0; (8918), 10, 2, 4; (8922), 4, 1, 0; (8924), 5, 1, 0; (8927), 8, 2, 1; (8928), 3, 1, 0; (8929), 9, 2, 1; (8930), 9, 2, 3; (8931), 5, 1, 0; (8936), 10, 2, 1; (8937), 10, 2, 1; (8948), 10, 2, 2; (8949), 10, 2, 4; (8951), 10, 2, 1; (8959), 18, 4, 6; (8964), 4, 1, 0; (8972), 10, 2, 1; (8974), 10, 2, 4; (8979), 10, 2, 1; (8985), 4, 1, 0; (8987), 5, 1, 0; (8988), 15, 3, 2; (8989), 4, 1, 0; (8994), 5, 1, 0; (8995), 5, 1, 0; (8999), 9, 2, 1; (9000), 5, 1, 0; (9001), 5, 1, 0; (9002), 2, 1, 0; (9004), 4, 1, 0; (9005), 10, 2, 1; (9006), 5, 1, 0; (9007), 5, 1, 0; (9008), 9, 2, 1; (9009), 10, 2, 1; (9010), 5, 1, 0; (9012), 10, 2, 1; (9013), 4, 1, 0; (9014), 4, 1, 0; (9015), 5, 1, 0; (9018), 9, 2, 1; (9019), 9, 2, 1; (9021), 15, 1, 0; (9024), 10, 2, 1; (9028), 5, 1, 0; (9031), 9, 2, 1; (9035), 10, 2, 4; (9037), 5, 1, 0; (9038), 2, 1, 0; (9040), 5, 1, 0; (9042), 10, 2, 1; (9043), 5, 1, 0; (9044), 10, 2, 1; (9045), 10, 2, 1; (9046), 4, 1, 0; (9048), 5, 1, 0; (9049), 8, 2, 1; (9050), 8, 2, 1; (9052), 5, 1, 0; (9053), 5, 1, 0; (9054), 4, 1, 0; (9055), 5, 1, 0; (9057), 5, 1, 0; (9059), 10, 2, 1; (9061), 4, 1, 0; (9062), 5, 1, 0; (9063), 10, 2, 2; (9064), 9, 2, 1; (9065), 5, 1, 0; (9067), 5, 1, 0; (9072), 5, 1, 0; (9073), 6, 1, 0; (9074), 4, 1, 0; (9076), 4, 1, 0; (9078), 5, 1, 0; (9083), 5, 1, 0; (9086), 4, 1, 0; (9089), 4, 1, 0; (9090), 8, 2, 1; (9091), 5, 1, 0; (9092), 5, 1, 0; (9093), 5, 1, 0; (9095), 4, 1, 0; (9100), 3, 1, 0; (9103), 4, 1, 0; (9106), 4, 1, 0; (9109), 5, 1, 0; (9110), 5, 1, 0; (9111), 5, 1, 0; (9112), 4, 1, 0; (9114), 5, 1, 0; (9115), 5, 1, 0; (9116), 9, 2, 1; (9117), 4, 1, 0; (9118), 4, 1, 0; (9128), 9, 2, 1; (9130), 10, 2, 1; (9131), 10, 2, 1; (9132), 5, 1, 0; (9135), 10, 2, 1; (9137), 5, 1, 0; (9138), 8, 2, 2; (9139), 10, 2, 1; (9143), 5, 1, 0; (9146), 5, 1, 0; (9148), 5, 1, 0; (9151), 8, 2, 1; (9153), 5, 1, 0; (9155), 10, 2, 1; (9156), 4, 1, 0; (9158), 4, 1, 0; (9159), 5, 1, 0; (9163), 5, 1, 0; (9166), 10, 2, 1; (9167), 5, 1, 0; (9168), 5, 1, 0; (9169), 3, 1, 0; (9171), 5, 1, 0; (9173), 5, 1, 0; (9174), 8, 2, 1; (9175), 9, 2, 1; (9176), 5, 1, 0; (9178), 4, 1, 0; (9179), 5, 1, 0; (9182), 10, 2, 1; (9183), 3, 1, 0; (9184), 5, 1, 0; (9185), 5, 1, 0; (9187), 5, 1, 0; (9189), 7, 2, 1; (9191), 5, 1, 0; (9192), 5, 1, 0; (9193), 4, 1, 0; (9195), 5, 1, 0; (9199), 5, 1, 0; (9200), 4, 1, 0; (9203), 10, 2, 1; (9206), 4, 1, 0; (9207), 10, 2, 1; (9208), 5, 1, 0; (9209), 9, 1, 0; (9212), 5, 1, 0; (9213), 5, 1, 0; (9216), 5, 1, 0; (9220), 9, 2, 1; (9221), 3, 1, 0; (9223), 4, 1, 0;

(9225), 4, 1, 0; (9226), 9, 2, 2; (9228), 10, 2, 1; (9229), 10, 2, 1; (9232), 9, 2, 1; (9233), 5, 1, 0; (9235), 3, 1, 0; (9236), 4, 1, 0; (9237), 9, 2, 1; (9238), 10, 2, 1; (9240), 5, 1, 0; (9245), 10, 2, 1; (9246), 8, 2, 1; (9247), 5, 1, 0; (9248), 4, 1, 0; (9249), 4, 1, 0; (9251), 9, 2, 1; (9252), 4, 1, 0; (9257), 9, 2, 4; (9259), 10, 2, 1; (9263), 6, 1, 0; (9266), 9, 2, 1; (9267), 8, 2, 1; (9270), 9, 2, 1; (9271), 9, 2, 1; (9272), 3, 1, 0; (9273), 9, 2, 1; (9275), 5, 1, 0; (9284), 5, 1, 0; (9285), 5, 1, 0; (9287), 10, 2, 1; (9289), 5, 1, 0; (9291), 5, 1, 0; (9293), 9, 2, 2; (9294), 5, 1, 0; (9297), 5, 1, 0; (9303), 4, 1, 0; (9304), 9, 2, 1; (9305), 10, 2, 1; (9309), 10, 2, 1; (9310), 4, 1, 0; (9315), 5, 1, 0; (9316), 5, 1, 0; (9317), 5, 1, 0; (9323), 3, 1, 0; (9324), 4, 1, 0; (9325), 5, 1, 0; (9326), 5, 1, 0; (9327), 4, 1, 0; (9328), 4, 1, 0; (9330), 10, 2, 1; (9332), 5, 1, 0; (9334), 4, 1, 0; (9335), 4, 1, 0; (9337), 5, 1, 0; (9338), 5, 1, 0; (9340), 10, 2, 1; (9345), 5, 1, 0; (9346), 5, 1, 0; (9347), 10, 2, 2; (9350), 5, 1, 0; (9354), 4, 1, 0; (9358), 10, 2, 1; (9359), 9, 1, 0; (9363), 5, 1, 0; (9365), 4, 1, 0; (9366), 8, 2, 1; (9368), 10, 2, 1; (9369), 5, 1, 0; (9371), 10, 2, 1; (9373), 5, 1, 0; (9376), 5, 1, 0; (9377), 10, 2, 1; (9380), 9, 2, 1; (9381), 7, 1, 0; (9383), 9, 2, 1; (9384), 9, 2, 1; (9385), 4, 1, 0; (9386), 5, 1, 0; (9388), 9, 2, 1; (9389), 5, 1, 0; (9392), 3, 1, 0; (9393), 5, 1, 0; (9395), 5, 1, 0; (9401), 5, 1, 0; (9403), 4, 1, 0; (9404), 5, 1, 0; (9405), 5, 1, 0; (9408), 9, 2, 1; (9409), 5, 1, 0; (9410), 3, 1, 0; (9411), 5, 1, 0; (9413), 4, 1, 0; (9414), 5, 1, 0; (9416), 4, 1, 0; (9417), 5, 1, 0; (9423), 5, 1, 0; (9427), 5, 1, 0; (9429), 5, 1, 0; (9431), 4, 1, 0; (9432), 5, 1, 0; (9433), 5, 1, 0; (9435), 4, 1, 0; (9436), 8, 2, 1; (9437), 10, 2, 1; (9440), 4, 1, 0; (9441), 5, 1, 0; (9442), 19, 2, 1; (9444), 8, 2, 5; (9446), 5, 1, 0; (9448), 5, 1, 0; (9462), 5, 1, 0; (9464), 5, 1, 0; (9466), 5, 1, 0; (9469), 3, 1, 0; (9470), 10, 2, 1; (9471), 3, 1, 0; (9472), 10, 2, 1; (9473), 4, 1, 0; (9475), 10, 2, 2; (9480), 19, 4, 6; (9481), 3, 1, 0; (9483), 5, 1, 0; (9484), 4, 1, 0; (9485), 3, 1, 0; (9486), 4, 1, 0; (9487), 10, 2, 1; (9491), 6, 1, 0; (9494), 5, 1, 0; (9496), 10, 2, 1; (9497), 8, 2, 1; (9499), 5, 1, 0; (9504), 4, 1, 0; (9508), 4, 1, 0; (9512), 4, 1, 0; (9519), 10, 2, 1; (9522), 4, 1, 0; (9523), 10, 2, 1; (9536), 5, 1, 0; (9537), 4, 1, 0; (9540), 5, 1, 0; (9544), 10, 2, 1; (9550), 5, 1, 0; (9562), 10, 2, 1; (9568), 3, 1, 0; (9570), 5, 1, 0; (9571), 5, 1, 0; (9577), 4, 1, 0; (9578), 4, 1, 0; (9579), 9, 2, 1; (9580), 4, 1, 0; (9581), 4, 1, 0; (9583), 5, 1, 0; (9589), 3, 1, 0; (9591), 9, 2, 1; (9592), 5, 1, 0; (9608), 4, 1, 0; (9609), 5, 1, 0; (9614), 5, 1, 0; (9625), 10, 2, 1; (9629), 5, 1, 0; (9630), 5, 1, 0; (9631), 4, 1, 0; (9633), 5, 1, 0; (9635), 5, 1, 0; (9636), 3, 1, 0; (9638), 8, 2, 1; (9644), 4, 1, 0; (9645), 8, 2, 1; (9646), 10, 2, 1; (9652), 5, 1, 0; (9653), 5, 1, 0; (9657), 10, 2, 1; (9660), 10, 2, 1; (9661), 5, 1, 0; (9664), 10, 2, 1; (9665), 5, 1, 0; (9668), 4, 1, 0; (9674), 5, 1, 0; (9675), 5, 1, 0; (9676), 3, 1, 0; (9681), 3, 1, 0; (9685), 5, 1, 0; (9693), 4, 1, 0; (9705), 5, 1, 0; (9706), 10, 2, 1; (9708), 5, 1, 0; (9711), 10, 2, 1; (9712), 5, 1, 0; (9713), 10, 1, 0; (9714), 5, 1, 0; (9719), 5, 1, 0; (9720), 5, 1, 0; (9721), 10, 2, 1; (9738), 5, 1, 0; (9742), 10, 2, 1; (9744), 3, 1, 0; (9756), 4, 1, 0; (9759), 4, 1, 0; (9772), 4, 1, 0; (9777), 9, 2, 1; (9788), 5, 1, 0; (9789), 13, 2, 1; (9790), 5, 1, 0; (9797), 9, 2, 1; (9798), 4, 1, 0; (9799), 5, 1, 0; (9804), 5, 1, 0; (9807), 5, 1, 0; (9808), 5, 1, 0; (9815), 3, 1, 0; (9818), 5, 1, 0; (9822), 3, 1, 0; (9828), 7, 2, 1; (9829), 5, 1, 0; (9846), 5, 1, 0; (9875), 5, 1, 0; (9891), 10, 2, 1; (9906), 5, 1, 0; (9910), 5, 1, 0; (9912), 13, 2, 1; (9952), 5, 1, 0; (10001), 5, 1, 0; (10031), 4, 1, 0; (10068), 5, 1, 0; (10179), 3, 1, 0; (10235), 9, 2, 1; (10239), 5, 1, 0; (10379), 8, 2, 1; (10414), 5, 1, 0; (10417), 5, 1, 0; (10563), 5, 1, 0; (10612), 10, 2, 1; (10635), 4, 1, 0; (10637), 5, 1, 0; (10638), 3, 1, 0; (10745), 9, 2, 1; (10761), 5, 1, 0; (10778), 5, 1, 0; (10937), 5, 1, 0; (10989), 4, 1, 0; (10999), 5, 1, 0; (11027), 10, 2, 1; (11053), 10, 2, 1; (11249), 4, 1, 0; (11252), 4, 1, 0; (11254), 4, 1, 0; (11257), 4, 1, 0; (11259), 10, 2, 1; (11260), 4, 1, 0; (11277), 5, 1, 0; (11278), 5, 1, 0; (11281), 5, 1, 0; (11290), 5, 1, 0; (11307), 4, 1, 0; (11309), 5, 1, 0; (11312), 4, 1, 0; (11315), 5, 1, 0; (11321), 5, 1, 0; (11325), 3, 1, 0; (11370), 8, 2, 1; (11371), 3, 1, 0; (11372), 4, 1, 0; (11374), 4, 1, 0; (11375), 5, 1, 0; (11376), 10, 2, 1; (11377), 10, 2, 1; (11381), 9, 2, 1; (11383), 5, 1, 0; (11385), 10, 2, 1; (11387), 4, 1, 0; (11394), 4, 1, 0; (11405), 4, 1, 0; (11428), 3, 1, 0; (11429), 5, 1, 0; (11434), 5, 1, 0; (11435), 19, 4, 9; (11437), 4, 1, 0; (11438), 10, 2, 4; (11441), 5, 1, 0; (11444), 9, 2, 4; (11452), 3, 1, 0; (11453), 8, 1, 0; (11458), 5, 1, 0; (11466), 5, 1, 0; (11473), 5, 1, 0; (11475), 9, 2, 1; (11479), 4, 1, 0; (11481), 5, 1, 0; (11482), 3, 1, 0; (11483), 5, 1, 0; (11489), 10, 2, 1; (11491), 5, 1, 0; (11492), 10, 2, 4; (11495), 10, 2, 4; (11497), 5, 1, 0; (11499), 5, 1, 0; (11501), 4, 1, 0; (11503), 4, 1, 0; (11504), 4, 1, 0; (11507), 5, 1, 0; (11513), 8, 2, 4; (11516), 4, 1, 0; (11518), 4, 1, 0; (11522), 5, 1, 0; (11524), 4, 1, 0; (11525), 5, 1, 0; (11526), 5, 1, 0; (11528), 5, 1, 0; (11530), 4, 1, 0; (11531), 4, 1, 0; (11534), 9, 2, 4; (11535), 4, 1, 0; (11539), 5, 1, 0; (11541), 8, 2, 1; (11544), 5, 1, 0; (11546), 5, 1, 0; (11547), 5, 1, 0; (11548), 5, 1, 0; (11549), 5, 1, 0; (11552), 4, 1, 0; (11560), 5, 1, 0; (11563), 4, 1, 0; (11571), 5, 1, 0; (11575), 5, 1, 0; (11576), 8, 2, 4; (11579), 4, 1, 0; (11585), 5, 1, 0; (11589), 4, 1, 0; (11590), 8, 2, 5; (11599), 10, 2, 4; (11603), 5, 1, 0; (11605), 5, 1, 0; (11608), 5, 1, 0; (11614), 4, 1, 0; (11617), 8, 2, 4; (11624), 4, 1, 0; (11627), 8, 2, 1; (11631), 5, 1, 0; (11632), 10, 2, 5; (11634), 3, 1, 0; (11635), 10, 2, 4; (11639), 4, 1, 0; (11640), 5, 1, 0; (11646), 4, 1, 0; (11652), 4, 1, 0; (11659), 6, 2, 4; (11661), 10, 2, 4; (11687), 5, 1, 0; (11690), 9, 2, 4; (11693), 4, 1, 0; (11701), 3, 1, 0; (11704), 3, 1, 0; (11707), 5, 1, 0; (11711), 10, 2, 4; (11714), 10, 2, 4; (11715), 3, 1, 0; (11716), 9, 2, 2; (11721), 5, 1, 0; (11727), 9, 2, 4; (11731), 5, 1, 0; (11734), 5, 1, 0; (11736), 5, 1, 0; (11737), 10, 2, 1; (11738), 10, 2, 1; (11744), 3, 1, 0; (11764), 10, 2, 4; (11772), 3, 1, 0; (11780), 5, 1, 0; (11781), 4, 1, 0; (11782), 10, 2, 1; (11785), 4, 1, 0; (11786), 3, 1, 0; (11788), 5, 1, 0; (11789), 4, 1, 0; (11790), 5, 1, 0; (11793), 5, 1, 0; (11798), 10, 2, 1; (11799), 5, 1, 0; (11805), 3, 1, 0; (11808), 5, 1, 0; (11810), 4,

1, 0; (11860), 5, 1, 0; (11861), 5, 1, 0; (11863), 4, 1, 0; (11864), 4, 1, 0; (11873), 4, 1, 0; (11874), 4, 1, 0; (11875), 3, 1, 0; (11876), 4, 1, 0; (11877), 5, 1, 0; (11880), 5, 1, 0; (11881), 4, 1, 0; (11882), 10, 2, 5; (11883), 3, 1, 0; (11888), 10, 2, 2; (11889), 4, 1, 0; (11891), 5, 1, 0; (11892), 3, 1, 0; (11893), 5, 1, 0; (11897), 10, 2, 4; (11900), 3, 1, 0; (11901), 4, 1, 0; (11904), 5, 1, 0; (11905), 5, 1, 0; (11906), 4, 1, 0; (11909), 3, 1, 0; (11913), 5, 1, 0; (11915), 4, 1, 0; (11917), 10, 2, 1; (11919), 7, 2, 1; (11920), 5, 1, 0; (11922), 9, 2, 1; (11923), 4, 1, 0; (11924), 10, 2, 2; (11925), 8, 2, 4; (11926), 3, 1, 0; (11927), 5, 1, 0; (11931), 9, 2, 4; (11933), 3, 1, 0; (11934), 9, 2, 4; (11935), 3, 1, 0; (11936), 9, 2, 1; (11939), 4, 1, 0; (11941), 8, 2, 1; (11942), 4, 1, 0; (11943), 5, 1, 0; (11944), 4, 1, 0; (11945), 4, 1, 0; (11947), 10, 2, 4; (11949), 10, 2, 1; (11950), 5, 1, 0; (11954), 5, 1, 0; (11957), 10, 2, 4; (11958), 4, 1, 0; (11960), 8, 2, 4; (11962), 4, 1, 0; (11968), 10, 2, 5; (11969), 5, 1, 0; (11971), 5, 1, 0; (11974), 10, 2, 1; (11977), 5, 1, 0; (11983), 5, 1, 0; (11985), 10, 2, 4; (11987), 4, 1, 0; (11990), 5, 1, 0; (12001), 3, 1, 0; (12002), 4, 1, 0; (12005), 5, 1, 0; (12008), 10, 2, 1; (12015), 10, 2, 4; (12017), 3, 1, 0; (12018), 3, 1, 0; (12019), 9, 2, 4; (12023), 5, 1, 0; (12024), 6, 2, 4; (12026), 4, 1, 0; (12030), 5, 1, 0; (12032), 4, 1, 0; (12034), 5, 1, 0; (12036), 5, 1, 0; (12037), 3, 1, 0; (12038), 5, 1, 0; (12040), 9, 2, 2; (12044), 4, 1, 0; (12045), 9, 2, 1; (12050), 14, 3, 5; (12051), 5, 1, 0; (12054), 10, 1, 0; (12059), 4, 1, 0; (12061), 10, 2, 1; (12062), 10, 2, 4; (12064), 4, 1, 0; (12066), 4, 1, 0; (12073), 5, 1, 0; (12079), 8, 2, 5; (12081), 10, 2, 3; (12083), 14, 2, 4; (12087), 3, 1, 0; (12088), 4, 1, 0; (12090), 5, 1, 0; (12103), 5, 1, 0; (12105), 3, 1, 0; (12106), 5, 1, 0; (12107), 5, 1, 0; (12113), 5, 1, 0; (12122), 4, 1, 0; (12123), 5, 1, 0; (12124), 13, 3, 5; (12127), 10, 2, 4; (12128), 8, 2, 5; (12132), 5, 1, 0; (12136), 9, 2, 1; (12138), 4, 1, 0; (12141), 5, 1, 0; (12150), 5, 1, 0; (12151), 5, 1, 0; (12152), 3, 1, 0; (12154), 5, 1, 0; (12156), 10, 2, 2; (12158), 5, 1, 0; (12161), 4, 1, 0; (12162), 5, 1, 0; (12163), 5, 1, 0; (12164), 14, 3, 2; (12168), 5, 1, 0; (12170), 9, 2, 1; (12172), 14, 2, 4; (12174), 3, 1, 0; (12182), 10, 2, 1; (12183), 10, 2, 1; (12184), 5, 1, 0; (12186), 10, 2, 4; (12187), 4, 1, 0; (12189), 4, 1, 0; (12190), 5, 1, 0; (12191), 10, 2, 1; (12194), 5, 1, 0; (12196), 5, 1, 0; (12198), 5, 1, 0; (12199), 9, 2, 1; (12201), 5, 1, 0; (12202), 5, 1, 0; (12204), 7, 2, 1; (12205), 6, 2, 1; (12208), 4, 1, 0; (12209), 9, 2, 1; (12210), 5, 1, 0; (12211), 10, 2, 1; (12212), 5, 1, 0; (12213), 10, 2, 1; (12214), 5, 1, 0; (12215), 4, 1, 0; (12216), 5, 1, 0; (12218), 7, 2, 1; (12221), 10, 2, 1; (12222), 10, 2, 1; (12225), 4, 1, 0; (12227), 7, 2, 3; (12234), 5, 1, 0; (12235), 5, 1, 0; (12238), 4, 1, 0; (12239), 5, 1, 0; (12240), 5, 1, 0; (12241), 10, 2, 1; (12243), 5, 1, 0; (12244), 5, 1, 0; (12246), 5, 1, 0; (12247), 5, 1, 0; (12248), 9, 2, 2; (12249), 5, 1, 0; (12250), 5, 1, 0; (12251), 9, 2, 1; (12252), 5, 1, 0; (12254), 5, 1, 0; (12255), 10, 2, 1; (12256), 5, 1, 0; (12257), 5, 1, 0; (12258), 5, 1, 0; (12259), 5, 1, 0; (12262), 5, 1, 0; (12263), 8, 2, 1; (12264), 4, 1, 0; (12267), 9, 2, 8; (12268), 8, 2, 1; (12269), 4, 1, 0; (12271), 5, 1, 0; (12272), 9, 2, 1; (12273), 9, 2, 1; (12274), 5, 1, 0; (12275), 4, 1, 0; (12276), 5, 1, 0; (12278), 5, 1, 0; (12279), 5, 1, 0; (12280), 5, 1, 0; (12281), 5, 1, 0; (12282), 4, 1, 0; (12283), 5, 1, 0; (12286), 10, 2, 1; (12287), 5, 1, 0; (12289), 5, 1, 0; (12291), 10, 2, 1; (12292), 10, 2, 1; (12293), 10, 2, 1; (12294), 8, 2, 1; (12295), 5, 1, 0; (12297), 10, 2, 1; (12298), 5, 1, 0; (12299), 4, 1, 0; (12300), 5, 1, 0; (12301), 3, 1, 0; (12302), 5, 1, 0; (12303), 3, 1, 0; (12306), 5, 1, 0; (12309), 10, 2, 1; (12310), 10, 2, 1; (12314), 4, 1, 0; (12315), 5, 1, 0; (12316), 5, 1, 0; (12317), 5, 1, 0; (12319), 15, 3, 9; (12321), 5, 1, 0; (12323), 5, 1, 0; (12324), 4, 1, 0; (12325), 10, 2, 1; (12327), 7, 2, 4; (12330), 10, 2, 8; (12332), 5, 1, 0; (12335), 5, 1, 0; (12338), 10, 2, 1; (12340), 5, 1, 0; (12341), 5, 1, 0; (12342), 4, 1, 0; (12344), 10, 2, 1; (12345), 9, 2, 1; (12346), 9, 2, 1; (12349), 5, 1, 0; (12350), 5, 1, 0; (12351), 4, 1, 0; (12352), 4, 1, 0; (12354), 5, 1, 0; (12356), 10, 2, 1; (12357), 5, 1, 0; (12359), 10, 2, 1; (12360), 10, 2, 1; (12361), 10, 2, 1; (12362), 5, 1, 0; (12363), 5, 1, 0; (12364), 3, 1, 0; (12365), 4, 1, 0; (12366), 10, 2, 1; (12368), 5, 1, 0; (12369), 5, 1, 0; (12370), 10, 2, 1; (12371), 9, 2, 1; (12372), 5, 1, 0; (12373), 5, 1, 0; (12374), 14, 2, 1; (12375), 10, 2, 1; (12378), 10, 2, 1; (12382), 4, 1, 0; (12385), 5, 1, 0; (12386), 10, 2, 1; (12387), 5, 1, 0; (12388), 14, 3, 2; (12389), 5, 1, 0; (12390), 9, 2, 1; (12391), 9, 2, 1; (12393), 9, 2, 1; (12394), 10, 2, 1; (12396), 5, 1, 0; (12399), 8, 2, 1; (12400), 9, 2, 1; (12401), 5, 1, 0; (12403), 10, 2, 1; (12404), 10, 2, 1; (12405), 8, 2, 1; (12406), 9, 2, 1; (12407), 4, 1, 0; (12408), 10, 2, 1; (12411), 5, 1, 0; (12412), 5, 1, 0; (12413), 9, 2, 1; (12414), 10, 2, 1; (12415), 10, 2, 1; (12416), 5, 1, 0; (12417), 10, 2, 1; (12420), 10, 2, 1; (12421), 8, 2, 1; (12422), 4, 1, 0; (12423), 5, 1, 0; (12424), 5, 1, 0; (12425), 3, 1, 0; (12426), 10, 2, 1; (12428), 5, 1, 0; (12429), 7, 2, 1; (12430), 10, 2, 1; (12431), 5, 1, 0; (12433), 5, 1, 0; (12435), 10, 2, 2; (12436), 5, 1, 0; (12437), 5, 1, 0; (12438), 5, 1, 0; (12439), 9, 2, 1; (12440), 5, 1, 0; (12441), 4, 1, 0; (12442), 5, 1, 0; (12443), 5, 1, 0; (12444), 5, 1, 0; (12446), 10, 2, 1; (12447), 5, 1, 0; (12448), 5, 1, 0; (12449), 5, 1, 0; (12450), 10, 2, 1; (12451), 3, 1, 0; (12452), 10, 2, 1; (12454), 5, 1, 0; (12455), 8, 2, 1; (12457), 5, 1, 0; (12458), 10, 2, 1; (12459), 5, 1, 0; (12461), 8, 2, 1; (12463), 5, 1, 0; (12464), 9, 2, 1; (12465), 5, 1, 0; (12466), 5, 1, 0; (12471), 10, 2, 1; (12472), 4, 1, 0; (12473), 10, 2, 1; (12474), 10, 2, 1; (12476), 5, 1, 0; (12477), 9, 2, 1; (12478), 10, 2, 1; (12481), 5, 1, 0; (12482), 5, 1, 0; (12484), 4, 1, 0; (12487), 4, 1, 0; (12488), 10, 2, 1; (12489), 10, 2, 1; (12491), 10, 2, 1; (12492), 10, 2, 1; (12494), 5, 1, 0; (12495), 5, 1, 0; (12496), 4, 1, 0; (12499), 11, 2, 1; (12501), 10, 2, 1; (12502), 3, 1, 0; (12504), 5, 1, 0; (12505), 9, 2, 2; (12507), 4, 1, 0; (12508), 4, 1, 0; (12510), 9, 2, 4; (12512), 10, 2, 1; (12513), 4, 1, 0; (12515), 5, 1, 0; (12518), 9, 2, 1; (12520), 8, 2, 1; (12521), 3, 1, 0; (12522), 5, 1, 0; (12523), 10, 2, 2; (12524), 9, 2, 1; (12527), 4, 1, 0; (12528), 4, 1, 0; (12529), 10, 2, 1; (12534), 9, 2, 4; (12535), 5, 1, 0; (12536), 5, 1, 0; (12537), 10, 2, 1; (12539), 5, 1, 0; (12540), 10, 2, 1; (12541), 5, 1, 0; (12542), 8, 2, 1; (12543), 5, 1, 0; (12544), 5, 1, 0; (12545), 3, 1, 0; (12546), 8, 2, 1; (12548), 15, 2, 1; (12549), 10, 2, 1; (12550), 5, 1, 0; (12551), 5, 1, 0; (12552), 5, 1, 0; (12553), 8, 2, 1; (12554), 5, 1, 0; (12555), 10, 2, 1; (12556), 5, 1, 0; (12557), 3, 1, 0; (12559), 7, 2, 1; (12560), 9, 2, 1; (12561), 8, 2, 1; (12562), 5, 1, 0; (12564), 10, 2, 1; (12565), 5, 1, 0; (12566), 5, 1, 0; (12567), 3, 1, 0;

(12570), 3, 1, 0; (12571), 3, 1, 0; (12578), 3, 1, 0; (12581), 4, 1, 0; (12582), 10, 2, 1; (12584), 5, 1, 0; (12586), 9, 2, 4; (12587), 10, 2, 4; (12588), 4, 1, 0; (12591), 5, 1, 0; (12592), 3, 1, 0; (12596), 5, 1, 0; (12600), 4, 1, 0; (12601), 7, 2, 5; (12602), 5, 1, 0; (12603), 7, 2, 5; (12604), 7, 2, 4; (12605), 5, 1, 0; (12606), 5, 1, 0; (12610), 5, 1, 0; (12611), 8, 2, 1; (12612), 5, 1, 0; (12613), 5, 1, 0; (12614), 10, 2, 2; (12616), 10, 2, 1; (12618), 3, 1, 0; (12619), 10, 2, 1; (12620), 4, 1, 0; (12621), 10, 2, 1; (12622), 5, 1, 0; (12623), 5, 1, 0; (12624), 4, 1, 0; (12628), 10, 3, 2; (12629), 5, 1, 0; (12630), 5, 1, 0; (12631), 5, 1, 0; (12633), 14, 2, 1; (12637), 9, 2, 1; (12638), 7, 2, 1; (12639), 9, 2, 1; (12640), 4, 1, 0; (12641), 5, 1, 0; (12643), 10, 2, 1; (12644), 5, 1, 0; (12645), 10, 2, 1; (12647), 4, 1, 0; (12648), 4, 1, 0; (12651), 5, 1, 0; (12654), 4, 1, 0; (12655), 5, 1, 0; (12656), 5, 1, 0; [65873, 9256, 2529*, 1997/05/01–1999/12/15]

709 W & B Observatory, Cloudcroft

W. Offutt, P.O. Drawer 1130, Cloudcroft, NM 88317, U.S.A.

[offutt@galileo.apo.nmsu.edu]

0.60-m $f/7$ Ritchey-Chrétien + CCD

USNO-SA1.0

1998 XY₉₅, 16, 4, 329; 1999 TD₁₀, 6, 1, 0; [22, 2, 0*, 1999/01/18–1999/12/13]

711 McDonald Observatory

J. G. Reis, McDonald Observatory, University of Texas, Austin, TX 78712-1013, U.S.A. [moon@astro.as.utexas.edu]

Observers J. G. Ries, P. J. Shelus, E. S. Barker

0.76-m $f/3.0$ reflector + CCD

GSC

1999 VL₄₆, 3, 1, 0; 1999 WK₁₁, 3, 1, 0; 1999 WK₁₃, 3, 1, 0; 1999 XZ₇, 3, 1, 0; 1999 XS₃₅, 3, 1, 0; [15, 5, 0*, 1999/12/03]

713 Thornton

R. A. Koff, 1915 W. 101st Ave., Thornton, CO 80221, U.S.A.

[Bob.Koff@worldnet.att.net]

0.20-m $f/10$ Schmidt-Cassegrain + CCD

USNO-A2.0

1999 US₃, 18, 3, 3; 1999 XO₃₅, 4, 1, 0; 1999 XS₃₅, 15, 3, 3; 1999 XN₁₃₆, 6, 1, 0; (1509), 17, 4, 4; [60, 5, 0*, 1999/11/01–1999/12/15]

715 Las Cruces

D. Dixon, 5975 Moonrise Vista, Las Cruces, NM 88012, U.S.A.

[ddixon@lascruces.com]

0.3-m $f/3.5$ Schmidt-Cassegrain + CCD

GSC, USNO-A2.0

1979 DF, 2, 1, 0; 1988 VV, 2, 1, 0; 1991 PD₁₀, 2, 1, 0; 1999 VG₂, 2, 1, 0; 1999 VH₂₂, 6, 2, 7; 3024 P-L, 2, 1, 0; (6481), 2, 1, 0; (12411), 3, 1, 0; (12552), 2, 1, 0; [23, 9, 0*, 1999/11/28–1999/12/13]

718 University of Utah Hansen Planetarium, Tooele

P. Wiggins, University of Utah Hansen Planetarium, 15 South State Street, Salt Lake City, UT 84111-1590, U.S.A. [p.wiggins@m.cc.utah.edu]

Observers P. Wiggins, H. Phaneuf

0.35-m $f/4.1$ Schmidt-Cassegrain + CCD

GSC

1999 RW₂₇, 6, 2, 4; 1999 VS, 4, 1, 0; 1999 VU₁₉, 3, 1, 0; 1999 XS₃₈, 3, 1, 0; 1999 XT₃₈, 3, 1, 0; 3099 T-1, 6, 2, 3; (12411), 6, 2, 4; [31, 7, 0*, 1999/11/28–1999/12/09]

719 Etschorn Observatory

D. A. Klinglesmith III, 1215 Vista Drive, Socorro, NM 87801, U.S.A.

[TheKs@aol.com]

Observers D. A. Klinglesmith III, B. S. Smith, J. H. Crossley

0.355-m Schmidt-Cassegrain + CCD

GSC

1999 VL₄₆, 2, 1, 0; 1999 WK₁₃, 6, 2, 2; 1999 XO₃₅, 2, 1, 0; 1999 XP₃₅, 2, 1, 0; 1999 XS₃₅, 3, 2, 2; 1999 XK₁₃₆, 8, 3, 2; 1999 XL₁₃₆, 4, 1, 0; 1999 XN₁₃₆, 2, 1, 0; *[29, 8, 0*, 1999/12/03–1999/12/15]*

720 Universidad de Monterrey

P. V. Sada, Apartado Postal 134-C, MX-66270 San Pedro Garza García, Nuevo Leon, Mexico [psada@ix.netcom.com]

0.18-m *f*/15.0 Maksutov + focal reducer + CCD
USNO-A2.0

1989 TR₂, 6, 2, 2; 1997 AW₁, 5, 2, 2; 1998 MD₉, 5, 2, 2; (248), 10, 3, 3; (2047), 3, 1, 0; (2469), 5, 2, 1; (3922), 6, 2, 1; (3939), 5, 2, 1; (4813), 4, 2, 1; (5435), 3, 1, 0; *[52, 10, 0*, 1999/10/29–1999/11/01]*

726 Brainerd

J. E. Wentworth, 6469 Madson Ave. N.W., Brainerd, MN 56401, U.S.A.

[jimw@brainerd.net]

0.280-m Schmidt-Cassigrain + CCD
GSC-1.1

1999 ND₄₃, 11, 2, 13; 1999 RH₂₇, 24, 5, 15; 1999 VU, 19, 4, 7; 1999 VV, 6, 1, 0; 1999 VN₆, 28, 5, 8; 1999 WK₁₃, 10, 2, 6; 1999 XB₄, 3, 1, 0; 1999 XO₃₅, 6, 1, 0; 1999 XS₃₅, 7, 1, 0; *[114, 9, 0*, 1999/11/28–1999/12/13]*

727 Zeno Observatory, Edmond

T. Stafford, 2947 Village Circle, Edmond, OK 73013, U.S.A.

[tsstaffor@aignetplex.com]

0.15-m *f*/6 refractor + CCD
GSC

1994 WO, 3, 1, 0; 1996 DY₂, 6, 2, 1; 1998 JT, 3, 1, 0; 1999 VN, 3, 1, 0; 1999 VF₁, 3, 1, 0; 1999 VV₆, 3, 1, 0; 1999 VR₁₉, 6, 2, 7; 1999 VS₁₉, 6, 2, 6; 1999 VE₂₄, 3, 1, 0; 1999 VV₂₄, 3, 1, 0; 1999 VQ₅₂, 6, 2, 1; 1999 WF, 3, 1, 0; 1999 WB₉ *, 8, 3, 6; (1319), 3, 1, 0; (6353), 3, 1, 0; (12315), 8, 3, 7; *[70, 16, 1*, 1999/11/29–1999/12/07]*

732 Oaxaca

J. Roe, Apdo. No. 221, MX-68000 Oaxaca, Mexico [jamesroe@antequera.com]

0.25-m *f*/3.4 reflector + CCD
GSC-ACT

1978 XW, 8, 3, 3; 1991 VE₂, 4, 1, 0; 1997 AJ₄, 6, 2, 1; 1999 TS₅, 6, 2, 1; 1999 UH₄, 5, 2, 3; 1999 VG, 6, 2, 1; 1999 VL, 4, 2, 1; 1999 VM, 6, 2, 3; 1999 VZ₁, 3, 2, 3; 1999 VA₂, 6, 2, 1; 1999 VB₅, 8, 3, 4; 1999 VV₁₉, 6, 2, 1; 1999 VB₂₁, 5, 2, 1; 1999 VU₂₁, 5, 2, 3; 1999 VM₂₅, 12, 2, 1; 1999 WZ, 3, 1, 0; 1999 XM *, 18, 6, 7; 1999 XS₁ *, 21, 8, 11; 1999 XQ₅ *, 12, 4, 5; 1999 XV₇ *, 23, 8, 10; 1999 XZ₃₆ *, 20, 6, 7; 1999 XA₃₇ *, 17, 5, 6; 1999 XL₇₁, 6, 2, 1; 1999 XC₈₀, 11, 4, 3; 1999 XD₉₅, 6, 2, 1; 1999 XD₉₈, 6, 2, 1; 1999 XQ₁₀₄ *, 6, 2, 2; 1999 XQ₁₀₅ *, 8, 3, 2; 1999 XR₁₀₅ *, 9, 4, 3; (868), 3, 1, 0; (2387), 6, 2, 1; (3200), 6, 2, 1; (3663), 3, 1, 0; (3786), 7, 2, 1; (5706), 6, 2, 1; (5987), 3, 1, 0; (6201), 6, 2, 1; (6814), 5, 2, 1; (8937), 6, 2, 1; (9188), 4, 2, 1; (9236), 6, 2, 1; (9238), 6, 2, 1; (9252), 5, 2, 1; (9267), 8, 3, 2; (9313), 31, 9, 11; (9389), 6, 2, 1; (9413), 12, 4, 5; (9426), 12, 2, 1; (9431), 6, 2, 1; (9440), 4, 1, 0; (9471), 6, 2, 1; (9497), 9, 3, 3; (9557), 6, 2, 1; (9653), 7, 2, 1; (9713), 4, 2, 1; (10637), 6, 2, 1; (11252), 6, 2, 1; (11375), 5, 2, 1; (11376), 4, 2, 1; (11381), 6, 2, 1; (11738), 6, 2, 1; (11798), 6, 2, 1; (12209), 6, 2, 1; (12214), 10, 2, 1; (12251), 4, 2, 1; *[498, 65, 9*, 1999/11/27–1999/12/14]*

734 Farpoint Observatory, Eskridge

G. Hug, RTE 1 Box 35c, Eskridge, KS 66423, U.S.A. [frogstar@inlandnet.net]

Observers G. Hug, G. Bell, C. Lambrecht

Measurers G. Hug, G. Bell

0.30-m Schmidt-Cassegrain + CCD
GSC-1.1, USNO-A2.0

1999 TO, 3, 1, 0; 1999 UB₂, 2, 1, 0; 1999 UJ₄, 2, 1, 0; 1999 VQ, 4, 1, 0; 1999 VW, 3, 1, 0; 1999 VV₈, 2, 1, 0; 1999 VQ₁₀, 3, 1, 0; 1999 VS₁₁, 4, 1, 0; 1999 VA₁₉, 4, 1, 0; 1999 VB₁₉, 2, 1, 0; 1999 VC₁₉, 3, 1, 0; 1999 VE₂₂, 3, 1, 0; 1999 VU₂₂, 4, 1, 0; 1999 VM₂₃, 4, 1, 0; 1999 VY₂₅, 10, 2, 9; 1999 VX₂₇, 2, 1, 0; 1999 VX₃₂, 7, 2, 2; 1999 VM₄₀, 7, 2, 5; 1999 VU₅₀, 3, 1, 0; 1999 VV₇₁ *, 11, 3, 16; 1999 VW₇₁ *, 12, 3, 16; 1999 WB₁ *, 5, 2, 2; 1999 XU₃₈ *, 7, 2, 2; 1999 XU₈₂, 11, 2, 2;

1999 XJ₈₅, 3, 1, 0; 1999 XX₈₈, 4, 1, 0; 1999 XE₁₀₄, 3, 1, 0; 1999 XF₁₀₄, 2, 1, 0; 1999 XM₁₂₇ *, 7, 2, 3; 1999 XM₁₃₆, 4, 1, 0; *[141, 30, 5*, 1999/11/15–1999/12/13]*

735 George Observatory, Needville

W. G. Dillon, 4703 Birkenhead Circle, Missouri City, TX 77459, U.S.A.

[bdillon@houston.geoquest.slb.com]

Observers W. G. Dillon, M. Eastman, R. Pepper, R. Wicker, J. Dellinger,
P. Dessementet, C. Gustava, K. Rivich

Measurers W. G. Dillon, R. Wicker

0.46-m reflector + CCD

USNO-A2.0

1999 VO₃₅, 6, 2, 1; 1999 XV₃₅ *, 9, 4, 8; 4093 T-3, 4, 2, 3; (3200), 3, 1, 0; *[22, 4, 1*, 1999/12/01–1999/12/14]*

739 Sunflower Observatory, Olathe

L. Robinson, Sunflower Observatory, 14680 W. 144 St., Olathe, KS 66062, U.S.A.

[lrobinson@ix.netcom.com]

0.30-m Schmidt-Cassegrain + CCD

GSC-1.1

1987 RG₁, 2, 1, 0; 1996 XZ₃₀, 2, 1, 0; 1998 QS₂₂, 6, 2, 4; 1999 OS₂, 6, 2, 1; 1999 RV₂, 3, 1, 0; 1999 RH₂₇, 2, 1, 0; 1999 RB₃₅, 8, 3, 16; 1999 TD₅, 3, 1, 0; 1999 TP₇, 6, 2, 2; 1999 TS₁₁, 2, 1, 0; 1999 UA₂, 2, 1, 0; 1999 UM₃, 3, 1, 0; 1999 US₃, 3, 1, 0; 1999 VV, 3, 1, 0; 1999 VE₁, 2, 1, 0; 1999 VH₂, 3, 1, 0; 1999 VN₆, 3, 1, 0; 1999 VZ₉, 3, 1, 0; 1999 VM₁₀, 3, 1, 0; 1999 VC₁₂, 3, 1, 0; 1999 VO₁₂, 3, 1, 0; 1999 VR₁₂, 3, 1, 0; 1999 VS₁₂, 3, 1, 0; 1999 VV₁₂, 3, 1, 0; 1999 VT₁₉, 5, 2, 14; 1999 VE₂₁, 3, 1, 0; 1999 VW₂₂, 4, 1, 0; 1999 WA, 3, 1, 0; 1999 WD, 2, 1, 0; 1999 WF, 2, 1, 0; 1999 WK, 2, 1, 0; 1999 WP, 3, 1, 0; 1999 WA₈ *, 20, 6, 11; 1999 WD₉, 3, 1, 0; 1999 XS₁, 3, 1, 0; 1999 XO₃₅, 3, 1, 0; 1999 XN₇₂, 10, 3, 3; 1999 XD₉₅ *, 7, 2, 2; (1036), 3, 1, 0; (1373), 3, 1, 0; (1944), 3, 1, 0; (2379), 3, 1, 0; (5066), 2, 1, 0; (6178), 2, 1, 0; (7524), 3, 1, 0; (8176), 3, 1, 0; *[172, 46, 2*, 1999/11/22–1999/12/11]*

740 SFA Observatory, Nacogdoches

W. D. Bruton, Box 13044, Nacogdoches, TX 75962 U.S.A.

[f.bruntonwd@titan.sfasu.edu]

Observers W. D. Bruton, C. Porter

0.46-m Cassegrain reflector + CCD

GSC-1.1

1999 TG₄, 6, 2, 1; 1999 TN₄, 6, 2, 1; 1999 XS₃₈, 5, 1, 0; 1999 XT₃₈, 4, 1, 0; 1999 XE₁₀₄, 3, 1, 0; (8729), 5, 2, 1; *[29, 6, 0*, 1999/11/07–1999/12/11]*

744 Doyan Rose Observatory, Indianapolis

J. Ruthroff, 5221 Graceland Ave., Indianapolis, IN 46254, U.S.A.

[jruthroff@sprintmail.com]

0.25-m *f*/5.5 Schmidt-Cassegrain + CCD

GSC-1.1, USNO-A2.0

1983 AA, 2, 1, 0; 1987 SL₃, 3, 1, 0; 1988 RO₂, 3, 1, 0; 1995 UY₄₄, 2, 1, 0; 1999 RH₂₇, 3, 1, 0; 1999 RW₂₇, 3, 1, 0; 1999 XN₃₇ *, 10, 2, 1; (1145), 2, 1, 0; (1260), 2, 1, 0; (1266), 2, 1, 0; (1290), 2, 1, 0; (1342), 2, 1, 0; (1440), 3, 1, 0; (1453), 2, 1, 0; (1572), 2, 1, 0; (1641), 3, 1, 0; (1735), 3, 1, 0; (1747), 3, 1, 0; (1777), 2, 1, 0; (1885), 3, 1, 0; (2691), 1, 1, 0; (2848), 2, 1, 0; (2905), 2, 1, 0; (3600), 2, 1, 0; (3700), 2, 1, 0; (5788), 2, 1, 0; (6894), 2, 1, 0; (9191), 2, 1, 0; (12559), 2, 1, 0; *[74, 29, 1*, 1999/11/20–1999/12/08]*

747 Baton Rouge Observatory

W. R. Cooney, Jr., 10330 Dunn Dr., Baton Rouge, LA 70810, U.S.A.

[walt@sprintmail.com]

Observers W. R. Cooney, Jr., D. Thomas

Measurer W. R. Cooney, Jr.

0.51-m *f*/8.4 reflector + CCD

USNO-A2.0

1971 FB₁, 1, 1, 0; 1998 EA₉, 3, 1, 0; 1998 FG₇₁, 3, 1, 0; 1998 FT₇₉, 3, 1, 0; 1998 HL₃₄, 4, 1, 0; 1999 VG₁, 4, 1, 0; 1999 VJ₁, 4, 2, 1; 1999 VU₆, 4, 1, 0; 1999 VU₁₉, 4, 1, 0; 1999 VX₁₉, 4, 1, 0; 1999 VL₄₆, 4, 1, 0; 1999 VO₆₀, 6, 2, 1; 1999 VP₆₀, 5, 2, 1; 1999 WR₂, 1, 0; 1999 WQ₂ *, 10, 3, 6; 1999 WK₁₃, 3, 1, 0; 1999 XT₁ *, 7, 2, 1; 1999 XU₁ *, 6, 2, 1; 1999 XJ₈₅, 5, 1, 0; *[82, 19, 3*, 1999/10/03–1999/12/11]*

750 Hobbs Observatory, Fall Creek

R. Elliott, S475 County Road K, Fall Creek, WI 54742, U.S.A.

[elliottb@uwec.edu]

0.30-m $f/3.3$ reflector + CCD

GSC-ACT

1999 XO₃₅, 3, 1, 0; *[3, 1, 0*, 1999/12/11]*

757 High Point

D. K. Chesney, 4210 Lauren Place, High Point, NC 27265, U.S.A.

[dkchesney@aol.com]

0.25-m Schmidt-Cassegrain + CCD

GSC, USNO-SA2.0

1999 TP₃, 2, 1, 0; 1999 TT₅, 2, 1, 0; 1999 TU₅, 2, 1, 0; 1999 VQ₂, 4, 2, 11; 1999 VH₁₂, 2, 1, 0; 1999 VF₅₃, 2, 1, 0; 1999 WE₂, 1, 0; 1999 WA₁ *, 8, 4, 19; 1999 XJ₈₄, 4, 2, 1; (1399), 2, 1, 0; (1804), 2, 1, 0; (1893), 2, 1, 0; (2306), 2, 1, 0; (6687), 2, 1, 0; (9196), 2, 1, 0; *[40, 15, 1*, 1999/11/08–1999/12/15]*

807 Cerro Tololo

J. W. Parker, Southwest Research Institute, 1050 Walnut Street, Suite 426,

Boulder, CO 80302, U.S.A. [joel@boulder.swri.edu]

4-m Blanco reflector + CCD

USNO-A2.0

1999 PR₆ *, 6, 2, 1; 1999 PS₆ *, 6, 2, 1; 1999 PT₆ *, 6, 2, 1; 1999 PU₆ *, 8, 2, 1; 1999 PV₆ *, 9, 2, 1; 1999 PW₆ *, 9, 2, 1; 1999 PX₆ *, 9, 2, 1; 1999 PY₆ *, 8, 2, 1; 1999 PZ₆ *, 9, 2, 1; 1999 PA₇ *, 9, 2, 1; 1999 PB₇ *, 9, 2, 1; 1999 PC₇ *, 9, 2, 1; 1999 PD₇ *, 9, 2, 1; 1999 PE₇ *, 9, 2, 1; 1999 PF₇ *, 9, 2, 1; 1999 PG₇ *, 9, 2, 1; 1999 PH₇ *, 8, 2, 1; (7288), 6, 1, 0; *[147, 18, 17*, 1999/08/06–1999/08/07]*

819 Val-des-Bois

D. Bergeron, 117 Ch. Guenette, C.P. 130, Val-des-Bois, Quebec JOX 3C0, Canada

[bergeron@achilles.net]

Observer D. Bergeron

Measurer T. Alderweireldt

0.25-m $f/10$ Schmidt-Cassegrain + CCD

GSC-1.2

1997 AB₁₃, 4, 1, 0; *[4, 1, 0*, 1999/12/02]*

831 Rosemary Hill Observatory, University of Florida

R. A. Kowalski, 7630 Conrad St, Zephyrhills, FL 33544-2729, U.S.A.

[bitnik@bitnik.com]

0.45m $f/10.5$ reflector + CCD

USNO-A2.0

(3838), 3, 1, 0; (7619), 3, 1, 0; (9045), 3, 1, 0; *[9, 3, 0*, 1999/11/17]*

832 Etters

J. D. Fetter, Redland Observatory, 386 Cameron Street, PA 17319, U.S.A.

[jfetter@mindspring.com]

0.30-m $f/10$ Schmidt-Cassegrain + CCD

GSC, USNO-SA2.0

1999 CU₃, 4, 2, 9; 1999 NN₂, 4, 2, 5; 1999 NR₁₁, 4, 2, 5; 1999 NK₅₆, 4, 2, 1; *[16, 4, 0*, 1999/10/30–1999/11/09]*

846 Principia Astronomical Observatory, Elsayh

D. A. Cornell, Physics Department, Principia College, Elsayh, IL 62028, U.S.A.

[dcorn@prin.edu]

Observers D. A. Cornell, T. H. Fuller, C. A. Hooper

0.41-m $f/10$ reflector + CCD

USNO-A2.0

1999 TZ₁, 5, 3, 4; *[5, 1, 0*, 1999/12/07–1999/12/11]*

849 Everstar Observatory, Olathe

G. Fedon, 21251 W. 123rd St., Olathe, KS 66061, U.S.A. [antares@everstar.com]

Observers M. Abraham, G. Fedon

0.25-m Schmidt-Cassegrain + CCD

GSC-1.1

1978 CK₃, 3, 1, 0; 1979 SG₂, 3, 1, 0; 1980 FU₃, 3, 1, 0; 1990 FH₃, 3, 1, 0; 1991 FY₃, 3, 1, 0; 1991 XD₃, 3, 1, 0; 1992 AV₁, 3, 1, 0; 1994 RR₁₁, 3, 1, 0; 1995 SD₅₃, 4, 1, 0; 1998 HV₉₇, 3, 1, 0; 1999 TS₁₁, 3, 1, 0; 1999 VH₂, 3, 1, 0; 1999 VG₆, 3, 1, 0; 1999 VJ₆, 2, 1, 0; 1999 VO₁₀, 3, 1, 0; 1999 VR₁₀, 3, 1, 0; 1999 VS₁₀, 2, 1, 0; 1999 VC₁₂, 3, 1, 0; 1999 VO₁₂, 6, 2, 2; 1999 VS₁₂, 4, 1, 0; 1999 VT₁₉, 2, 1, 0; 1999 VE₂₁, 10, 3, 18; 1999 VJ₂₂, 5, 1, 0; (12187), 3, 1, 0; *[83, 24, 0*, 1999/11/22–1999/12/13]*

854 Sabino Canyon Observatory, Tucson

J. E. McGaha, 5100 Sabino Foothills, Tucson, AZ 85750, U.S.A.

[jmcgaha@azstarnet.com]

0.30-m $f/6.1$ Schmidt-Cassegrain + CCD

GSC-1.1

1999 WC₂, 2, 1, 0; *[2, 1, 0*, 1999/11/24]*

855 Wayside Observatory, Minnetonka

T. E. Giencke, 14310 Mount Terrace, Minnetonka, MN 55345, U.S.A.

[todd@visi.com]

0.2-m $f/1.93$ Schmidt Camera + CCD

(1082), 6, 2, 1; (1131), 6, 2, 1; (1792), 6, 2, 1; *[18, 3, 0*, 1999/10/31–1999/11/01]*

886 Susono

M. Akiyama, 1655-23, Chabatake, Susono, Shizuoka-Ken, 410-11 Japan

0.25-m $f/6.3$ reflector + CCD

GSC

1991 YC₄, 4, 2, 10; 1993 BP₃, 2, 1, 0; 1995 VJ₂, 4, 2, 8; 1997 BS₆, 2, 1, 0; 1999 VT₁, 2, 1, 0; 1999 VW₁, 4, 2, 10; 1999 VX₂, 4, 2, 1; 1999 VY₂, 4, 2, 10; 1999 VJ₅, 2, 1, 0; 1999 VT₅, 2, 1, 0; 1999 VR₈, 2, 1, 0; 1999 VU₂₀, 6, 3, 14; 1999 VV₂₀, 2, 1, 0; 1999 VX₂₃, 2, 1, 0; 1999 VL₃₄, 4, 2, 1; *[46, 15, 0*, 1999/11/18–1999/12/02]*

888 Gekko Observatory

T. Kagawa, 1308-222, Kuwahara, Kannami-cho, Tagata-gun, Shizuoka-Ken, 419-010, Japan

0.50-m $f/4.0$ reflector + CCD

GSC-1.1

1989 EZ₅, 5, 2, 6; 1991 YC₃, 3, 1, 0; 1993 FE₁₂, 4, 2, 2; 1995 VH₂, 3, 1, 0; 1995 WB₉, 3, 1, 0; 1997 BS₆, 3, 1, 0; 1997 CB₂₆, 2, 1, 0; 1998 TA₆, 6, 2, 1; 1999 RE₁, 3, 1, 0; 1999 TS₈, 2, 1, 0; 1999 TT₈, 3, 1, 0; 1999 TD₁₅, 2, 1, 0; 1999 UZ₂, 6, 2, 6; 1999 UC₃, 6, 2, 7; 1999 VU₃, 3, 1, 0; 1999 VV₄, 4, 1, 0; 1999 VV₁, 5, 2, 6; 1999 VW₁, 2, 1, 0; 1999 VR₈, 3, 1, 0; 1999 VO₁₁, 3, 1, 0; 1999 VQ₁₂, 5, 1, 0; 1999 VB₂₁, 3, 1, 0; 1999 XE₂ *, 6, 2, 1; 1999 XF₂ *, 8, 3, 6; 1999 XO₃, 3, 1, 0; 1999 XL₈ *, 10, 4, 8; 1999 XE₂₄, 3, 1, 0; 1999 XF₂₄, 6, 2, 1; 1999 XA₃₆ *, 10, 4, 6; 1999 XD₃₆ *, 12, 4, 6; 1999 XK₃₈ *, 6, 2, 2; 1999 XX₇₃, 6, 2, 1; 1999 XC₁₀₄ *, 9, 3, 3; 1999 XD₁₀₄ *, 9, 3, 3; *[167, 34, 8*, 1999/12/03–1999/12/14]*

897 YGCO Chiyoda Station

T. Kojima, 45 Shimonakamori, Chiyoda, Ohra-Gun, Gunma-Ken, 370-0724 Japan

[kojitaku@sannet.ne.jp]

0.25-m $f/6.0$ reflector + CCD

GSC

1999 WG₄ *, 6, 3, 2; 1999 WH₄ *, 7, 3, 2; 1999 WO₉ *, 5, 2, 2; 1999 WP₉ *, 5, 2, 2; [23, 4, 4*, 1999/11/28–1999/12/02]

900 Moriyama

Y. Ikari, Katube-Cho 626, Moriyama, Shiga-Ken 524, Japan

[ikari@gold.ocn.ne.jp]

0.25-m $f/6.3$ Schmidt-Cassegrain + CCD

GSC

1998 MV₄₂, 2, 1, 0; 1999 RH₂₇, 2, 1, 0; 1999 US₃, 2, 1, 0; 1999 VZ, 2, 1, 0; [8, 4, 0*, 1999/11/28–1999/11/29]

903 Fukuchiyama

M. Yoshimi, Osas 185-4-101, Fukuchiyama, Kyoto 620-0845, Japan

[myoshimi@silver.ocn.ne.jp]

Observer M. Yoshimi

0.25-m $f/6.3$ Schmidt-Cassegrain + CCD

GSC

1998 RX, 5, 2, 1; 1999 VK₆, 2, 1, 0; 1999 VM₄₀, 3, 1, 0; (2691), 5, 2, 3; [15, 4, 0*, 1999/11/18–1999/11/19]

905 Nachi-Katsuura Observatory

T. Urata, 1-8, Dobayashi 1 Chome, Shimizu, Shizuoka-Ken 424, Japan

[urata@sannet.ne.jp]

Observer Y. Shimizu

Measurer T. Urata

0.40-m $f/3.3$ Baker-Schmidt

GSC

1999 WB₄, 2, 1, 0; 1999 WC₄, 4, 2, 1; 1999 WN₄, 2, 1, 0; 1999 WL₁₁ *, 2, 1, 0; 1999 WM₁₁ *, 2, 1, 0; 1999 WN₁₁ *, 2, 1, 0; 1999 WO₁₁ *, 2, 1, 0; 1999 WP₁₁ *, 2, 1, 0; 1999 XM₁₄ *, 2, 1, 0; 1999 XE₃₈ *, 3, 2, 3; 1999 XF₃₈ *, 3, 2, 3; 1999 XZ₁₀₃ *, 2, 1, 0; 1999 XA₁₀₄ *, 2, 1, 0; 1999 XB₁₀₄ *, 2, 1, 0; 1999 XK₁₀₅ *, 2, 1, 0; 1999 XL₁₀₅ *, 2, 1, 0; 1999 XM₁₀₅ *, 2, 1, 0; 1999 XN₁₀₅ *, 2, 1, 0; 1999 XO₁₀₅ *, 2, 1, 0; [42, 19, 16*, 1999/11/29–1999/12/08]

910 Caussols-ODAS

A. Maury, Observatoire de la Côte d'Azur, B.P. 229, F-06304 Nice, France

[maury@obs-azur.fr]

G. Hahn, DLR Institute of Planetary Exploration, Rudower Chaussee 5, D-12489

Berlin, Germany [Gerhard.Hahn@DLR.de]

Observers A. Maury, D. Albanese, G. Hahn, M. Hoffmann

Measurers A. Maury, G. Hahn

0.90-m Schmidt + CCD

GSC

1997 EB₅₇, 3, 1, 0; 1998 KJ₁₀, 3, 1, 0; 1999 RN₁₄, 3, 1, 0; [9, 3, 0*, 1997/05/02–1998/03/25]

944 Observatorio Geminis, Dos Hermanas

J. M. Garcia J., c/Montserrat Caballe 8, E-41700 Dos Hermanas (Sevilla), Spain

[jmgarcia@wanadoo.es]

0.304-m $f/5.5$ reflector + CCD

USNO-SA2.0

(699), 21, 5, 9; [21, 1, 0*, 1999/11/28–1999/12/07]

945 Monte Deva

R. Cuesta, Avda de Portugal 52 1 D, E-33207 Gijon, Asturias, Spain

[ruli12@bigfoot.com]

Observers R. Cuesta, J. R. Vidal, E. Riego

Measurer R. Cuesta

0.36-m $f/6.3$ Schmidt-Cassegrain + CCD

USNO-A2.0

(216), 3, 1, 0; [3, 1, 0*, 1999/11/28]

946 Ametlla de Mar

J. Nomen, Rio de Oro 25, bjos2, E-08034 Barcelona, Spain

[jnomen@astro.gea.cesca.es]

0.30-m $f/5.0$ reflector + CCD

USNO-SA1.0

1999 XY, 6, 2, 1; 1999 XO₃₅, 3, 1, 0; 1999 XS₃₅, 3, 1, 0; 1999 XW₃₅ *, 8, 2, 1; 1999 XL₃₆ *, 6, 2, 1; [26, 5, 2*, 1999/12/04–1999/12/08]

ORBITAL ELEMENTS

Orbital elements have been computed by the following contributors:

A. Doppler, c/o Archenhold-Sternwarte, Alt-Treptow 1, D-12435 Berlin, Germany

[doppler@aobs.de]

A. Gnädig, c/o Archenhold-Sternwarte, Alt-Treptow 1, D-12435 Berlin, Germany

[gnadig@mind.de]

E. Goffin, Agfa-Gevaert N.V., Mortsel, Belgium [goffin@twi.agfa.be]

B. G. Marsden, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A. [bmarsden@cfa.harvard.edu]

S. Nakano, 3-19, 1 chome, Takenokuchi, Sumoto, Hyogo-ken 656, Japan

[snakano@cfa.harvard.edu]

G. V. Williams, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A. [gwilliams@cfa.harvard.edu]

C/1997 K2

T	1997 June 26.16 TT		Marsden	
q	1.5463	(2000.0)	P	Q
		ω	246.10	+0.34285
		Ω	173.87	−0.26569
e	1.0	i	127.94	−0.90104
				−0.35288

From 9 observations 1997 May 24–July 19.

C/1998 K2 (LINEAR)

Epoch 1998 Aug. 15.0 TT = JDT 2451040.5

T	1998 Sept. 1.2278 TT		Nakano	
q	2.323487	(2000.0)	P	Q
z	+0.000269	ω	221.4172	−0.0055088
	± 0.000004	Ω	68.7810	−0.4986818
e	0.999374	i	64.4569	−0.8667676
				−0.4220321

From 167 observations 1998 May 22–1999 Dec. 3, mean residual 0''.7.

C/1999 L3 (LINEAR)

Epoch 2000 Jan. 17.0 TT = JDT 2451560.5

T	2000 Jan. 4.9027 TT		Nakano	
q	1.989094	(2000.0)	P	Q
z	+0.012904	ω	353.2931	−0.8352425
	± 0.000013	Ω	140.1632	+0.5150102
e	0.974334	i	166.0992	+0.1927029
				+0.5431370

From 67 observations 1999 June 9–Dec. 7, mean residual 0''.5.

C/1999 S3 (LINEAR)

<i>T</i>	1999 Nov. 9.0121 TT		Nakano	
<i>q</i>	1.894932	(2000.0)	P	Q
<i>n</i>	0.0119604	ω 44.1262	+0.6547443	−0.7305047
<i>a</i>	18.936774	Ω 11.8780	+0.0824371	−0.1862424
<i>e</i>	0.899934	<i>i</i> 70.5605	+0.7513415	+0.6570210
<i>P</i>	82.4			

From 493 observations 1999 Sept. 24–Dec. 8.

C/1999 S4 (LINEAR)

<i>T</i>	2000 July 26.1053 TT		Nakano	
<i>q</i>	0.763984	(2000.0)	P	Q
		ω 151.0719	+0.3088435	−0.8053246
		Ω 83.1520	−0.9408697	−0.1808135
<i>e</i>	1.0	<i>i</i> 149.3583	−0.1392119	−0.5645873

From 366 observations 1999 Sept. 27–Dec. 10.

C/1999 T1 (McNaught-Hartley)

<i>T</i>	2000 Dec. 13.4147 TT		Marsden	
<i>q</i>	1.171919	(2000.0)	P	Q
		ω 344.7428	−0.9658332	−0.2556262
		Ω 182.4840	+0.1067073	−0.5423115
<i>e</i>	1.0	<i>i</i> 79.9743	−0.2361774	+0.8003459

From 128 observations 1999 Oct. 7–Dec. 14.

C/1999 T3 (LINEAR)

<i>T</i>	2000 Aug. 30.0278 TT		Nakano	
<i>q</i>	5.366184	(2000.0)	P	Q
		ω 211.0549	+0.7109351	−0.2252930
		Ω 223.5096	+0.6530636	−0.1399656
<i>e</i>	1.0	<i>i</i> 104.6168	−0.2609200	−0.9641850

From 115 observations 1999 Oct. 3–Dec. 9.

C/1999 U1 (Ferris)

<i>T</i>	1998 Sept. 2.4247 TT		Nakano	
<i>q</i>	4.131209	(2000.0)	P	Q
		ω 290.9412	−0.0265162	+0.5732636
		Ω 58.2697	+0.7582903	+0.5453504
<i>e</i>	1.0	<i>i</i> 105.6650	−0.6513776	+0.6115242

From 125 observations 1999 Oct. 18–Dec. 11.

P/1999 U3 (LINEAR)

<i>T</i>	1999 Nov. 18.4598 TT		Nakano	
<i>q</i>	1.846286	(2000.0)	P	Q
<i>n</i>	0.0923390	ω 111.3097	+0.4789615	−0.8325302
<i>a</i>	4.847814	Ω 306.9810	+0.6191618	+0.5451815
<i>e</i>	0.619151	<i>i</i> 20.3937	+0.6222817	+0.0983386
<i>P</i>	10.7			

From 124 observations 1999 Oct. 30–Dec. 10.

C/1999 U4 (Catalina-Skiff)

Epoch 2001 Oct. 18.0 TT = JDT 2452200.5

<i>T</i>	2001 Oct. 28.1799 TT		Nakano	
<i>q</i>	4.912757	(2000.0)	P	Q
<i>z</i>	−0.001734	ω 77.5327	−0.1392153	−0.8965812
	± 0.000059	Ω 32.2868	+0.2672498	−0.4428273
<i>e</i>	1.008519	<i>i</i> 51.9144	+0.9535180	−0.0067878

From 95 observations 1999 Sept. 18–Dec. 8, mean residual 0''.5.

P/1999 V1 (Catalina)

<i>T</i>	1999 Oct. 25.4466 TT		Nakano	
<i>q</i>	2.944255	(2000.0)	P	Q
<i>n</i>	0.0590026	ω 186.7889	−0.5125694	−0.8229831
<i>a</i>	6.534647	Ω 294.3110	+0.7998886	−0.3539722
<i>e</i>	0.549439	<i>i</i> 15.5881	+0.3121712	−0.4443000
<i>P</i>	16.7			

From 44 observations 1999 Nov. 5–Dec. 13.

P/1999 X1 (Hug-Bell)

<i>T</i>	1999 June 20.7944 TT		Marsden	
<i>q</i>	1.936537	(2000.0)	P	Q
<i>n</i>	0.1401428	ω 296.8985	+0.7440671	−0.6420105
<i>a</i>	3.670756	Ω 103.6462	+0.6603709	+0.6647419
<i>e</i>	0.472442	<i>i</i> 10.9684	+0.1013624	+0.3820220
<i>P</i>	7.03			

From 28 observations 1999 Oct. 10–Dec. 13.

141P/Machholz 2-A

Epoch 1999 Dec. 8.0 TT = JDT 2451520.5

<i>T</i>	1999 Dec. 9.2742 TT		Nakano	
<i>q</i>	0.748933	(2000.0)	P	Q
<i>n</i>	0.1888715	ω 149.3010	+0.8031177	−0.5602499
<i>a</i>	3.008558	Ω 246.1372	+0.4916667	+0.8154074
<i>e</i>	0.751066	<i>i</i> 12.8113	+0.3365498	+0.1457078
<i>P</i>	5.22			

From 241 observations 1994–1999, mean residual 1''.0. Nongravitational parameters

$$A_1 = +0.32, A_2 = -0.1757, A_3 = +0.17.$$

141P/Machholz 2-D

Epoch 1999 Dec. 8.0 TT = JDT 2451520.5

<i>T</i>	1999 Dec. 9.9558 TT		Nakano	
<i>q</i>	0.749005	(2000.0)	P	Q
<i>n</i>	0.1888436	ω 149.2918	+0.8032406	−0.5600722
<i>a</i>	3.008855	Ω 246.1339	+0.4914913	+0.8155190
<i>e</i>	0.751066	<i>i</i> 12.8119	+0.3365128	+0.1457663
<i>P</i>	5.22			

From 117 observations 1994–1999, mean residual 1''.0. Nongravitational parameters

$$A_1 = +2.17, A_2 = +0.5804.$$

(12657)* 1971 QO₁ = 1971 SC₄ = 1982 VV₁ = 1984 CE₁ = 1998 XA₃₂

Discovered 1971 Aug. 30 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Id. H. Oishi (d, *JAM* 1814), T. Kobayashi (*MPC* 33472), G. V. Williams (*ibid.*)

1999 DEC. 22

M.P.C. 37027

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	113.71887		(2000.0)	P	Q				
<i>n</i>	0.18805296	ω	32.54837	+0.99053311	+0.09222283				
<i>a</i>	3.0172822	Ω	321.75219	-0.13153100	+0.84962435				
<i>e</i>	0.1091317	<i>i</i>	9.45369	+0.03929070	+0.51926238				
<i>P</i>	5.24	<i>H</i>	12.3	<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc									
1971 08 30	095	0.2-	0.6-	1998 11 16	704	0.1-	0.0	1999 01 22	561
1971 09 16	095	(5.0-	3.0+)	1998 11 16	704	0.1-	0.6-	1999 11 04	703
1971 09 26	095	0.1-	1.0-	1998 11 16	704	0.2-	1.8+	1999 11 04	703
1982 11 14	033	0.2-	0.1-	1998 12 14	704	0.1+	0.5+	1999 11 04	703
1984 02 04	688	(3.7+	2.9-)	1998 12 14	704	0.4+	0.1+	1999 11 04	703
1984 02 04	688	2.1+	2.5-	1998 12 14	704	0.6+	0.2-	1999 11 16	704
1992 09 03	095	(2.3-	3.8+)	1998 12 14	704	0.3+	0.6-	1999 11 16	704
1992 09 03	095	(3.0-	4.1+)	1998 12 14	704	0.8+	0.3-	1999 11 16	704
1997 09 02	566	0.2-	1.3+	1998 12 17	704	0.5+	0.7+	1999 11 16	704
1997 09 02	566	0.4-	1.2+	1998 12 17	704	0.0	0.5+	1999 12 05	704
1997 09 02	566	0.4-	1.3+	1998 12 17	704	0.3-	0.3+	1999 12 05	704
1998 08 31	704	0.7+	1.9-	1998 12 17	704	0.0	1.4+	1999 12 05	704
1998 08 31	704	(2.6-	1.4-)	1998 12 17	704	0.3+	1.2+	1999 12 05	703
1998 08 31	704	0.9-	0.4+	1999 01 08	704	(2.3+	0.4+)	1999 12 05	704
1998 08 31	704	(0.4-	2.4-)	1999 01 08	704	0.3-	1.7-	1999 12 05	703
1998 11 14	704	0.3-	0.8+	1999 01 08	704	0.4+	0.6-	1999 12 05	704
1998 11 14	704	0.6-	0.3+	1999 01 08	704	1.5-	1.8-	1999 12 05	703
1998 11 14	704	0.5-	0.7-	1999 01 22	561	0.1+	0.5+	1999 12 05	703
1998 11 14	704	0.6-	1.2-	1999 01 22	561	0.1+	0.6+	1999 12 09	699
1998 11 16	704	0.8+	1.4-	1999 01 22	561	0.0	0.6+	1999 12 09	699
1998 11 16	704	(3.5-	0.3+)	1999 01 22	561	0.2+	0.6+	1999 12 09	699

(12658)* 1973 SL = 1996 TZ₃₉ = 1998 XU₇₉

Discovered 1973 Sept. 19 at Palomar.

Id. A. Doppler (*MPC* 33920)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	20.15782		(2000.0)	P	Q				
<i>n</i>	0.08527547	ω	324.85478	+0.22911058	-0.97297417				
<i>a</i>	5.1119505	Ω	111.88535	+0.90003450	+0.20047965				
<i>e</i>	0.0585961	<i>i</i>	1.77875	+0.37073743	+0.11458265				
<i>P</i>	11.56	<i>H</i>	11.1	<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc									
1973 09 19	675	1.9+	0.6-	1996 10 10	809	0.2+	0.9+	1998 12 15	704
1973 09 19	675	0.5-	0.3-	1996 10 10	809	0.5-	0.8+	1998 12 22	704
1973 09 20	675	0.3+	0.6+	1996 10 17	809	(3.5-	0.5-)	1998 12 22	704
1973 09 24	675	0.2+	1.9-	1996 10 19	809	(4.8-	2.3-)	1998 12 22	704
1973 09 24	675	1.0-	0.7+	1997 10 29	704	0.0	1.5-	1998 12 22	704
1973 09 25	675	0.7-	0.6-	1997 10 29	704	0.1+	0.5-	1998 12 22	704
1973 09 25	675	0.8-	0.0	1997 10 29	704	1.9-	1.2-	1999 10 22	704
1973 09 29	675	0.4-	0.9-	1997 10 29	704	0.7-	1.1-	1999 10 22	704
1973 09 29	675	0.9-	0.3-	1997 10 29	704	1.6-	0.4-	1999 10 22	704
1973 09 30	675	0.1+	0.6+	1997 10 30	704	0.1+	0.5-	1999 10 22	704
1973 09 30	675	0.7-	0.9+	1997 10 30	704	0.0	1.1-	1999 10 22	704
1973 10 04	675	1.9+	0.6-	1997 10 30	704	0.3+	1.0-	1999 12 03	691
1973 10 04	675	0.0	0.5-	1997 10 30	704	0.6-	1.4-	1999 12 03	691
1973 10 05	675	2.0+	1.7-	1997 10 30	704	(6.5-	0.2-)	1999 12 03	691
1973 10 05	675	0.2+	0.8+	1997 11 03	704	0.5+	1.5+	1999 12 08	704
1996 10 07	809	0.2-	1.1+	1997 11 03	704	0.7-	0.7+	1999 12 08	704
1996 10 07	809	0.7-	1.5+	1997 11 03	704	0.1-	1.0+	1999 12 08	704
1996 10 07	809	0.7-	0.2+	1997 11 03	704	1.1+	0.2-	1999 12 08	704
1996 10 08	809	0.5-	1.5+	1997 11 03	704	(2.5-	1.0-)	1999 12 09	691
1996 10 08	809	0.4+	1.5+	1998 12 15	704	0.2+	0.8+	1999 12 09	691
1996 10 08	809	(2.1+	1.5+)	1998 12 15	704	1.7+	0.8+	1999 12 09	691
1996 10 10	809	1.0+	0.9+	1998 12 15	704	0.2+	1.0+		

(12659)* 1973 UR₅ = 1991 PT₆

Discovered 1973 Oct. 27 at Tautenburg.

Id. H. Kaneda (*MPC* 19010)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	4.43530		(2000.0)	P	Q				
<i>n</i>	0.26920152	ω	14.77619	+0.70893775	-0.70483770				
<i>a</i>	2.3754782	Ω	30.08789	+0.64196825	+0.63039596				
<i>e</i>	0.1959710	<i>i</i>	2.82633	+0.29203429	+0.32527643				
<i>P</i>	3.66	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc									
1973 10 27	033	0.4-	0.3-	1995 09 21	033	0.3+	0.7+	1999 10 08	703
1973 10 28	033	0.5+	0.1-	1995 09 23	033	1.0-	0.5+	1999 10 08	703
1973 10 31	033	0.0	0.0	1995 09 24	033	0.3+	0.2+	1999 10 08	703
1973 11 01	033	0.0	0.4+	1995 10 24	801	0.1+	0.3+	1999 10 08	703
1973 11 02	033	0.4+	0.1+	1995 10 25	033	0.6+	0.4+	1999 10 13	704
1973 11 03	033	0.5-	0.5-	1995 10 25	033	0.0	0.5+	1999 10 13	704
1991 08 06	809	1.3+	1.4+	1995 10 29	801	0.1+	0.3+	1999 10 13	704
1991 08 06	809	1.0+	1.6+	1995 10 29	801	0.0	0.2+	1999 10 13	704
1991 08 06	809	0.6-	1.3+	1995 11 23	801	0.4+	0.3+	1999 12 03	699
1991 08 14	809	1.3+	0.9-	1995 11 23	801	0.6+	0.4+	1999 12 03	699
1991 08 14	809	0.5-	0.6-	1995 11 25	801	(0.6+	2.1+)	1999 12 03	699
1991 08 14	809	1.1-	1.1-	1997 03 10	809	0.9+	0.3-	1999 12 06	703
1991 09 06	809	0.5-	0.0	1997 03 10	809	1.3+	1.1+	1999 12 06	703
1991 09 06	809	1.5-	0.3-	1997 03 10	809	1.5+	0.2-	1999 12 06	703
1991 09 06	809	1.6-	0.5-	1997 03 11	809	(0.8+	2.3+)	1999 12 06	703
1991 09 29	413	0.3-	0.4+	1997 03 11	809	0.1+	1.8+		
1991 09 29	413	0.5-	0.2+	1997 03 11	809	0.4+	1.9+		

(12660)* 1975 NC = 1975 PM = 1980 RY₇

Discovered 1975 July 15 by C. Torres and S. Barros at Cerro El Roble.

Id. T. Urata (d, *MPC* 4576), E. Bowell (d, *ibid.*), S. J. Bus (*MPC* 18280)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	132.39157		(2000.0)	P	Q				
<i>n</i>	0.21632898	ω	357.44277	-0.04342781	+0.99399452				
<i>a</i>	2.7482712	Ω	270.05528	-0.91482461	-0.07997013				
<i>e</i>	0.1563524	<i>i</i>	5.76472	-0.40150960	+0.07469718				
<i>P</i>	4.56	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2		
Residuals in seconds of arc									
1953 10 12	675	1.0-	1.9-	1998 09 14	704	0.3-	0.2-	1998 11 24	561
1953 10 12	675	0.0	1.0+	1998 09 14	704	0.7-	0.2-	1998 11 24	561
1975 07 15	805	2.2-	0.1-	1998 09 14	704	0.4+	0.1-	1998 11 24	561
1975 08 14	805	0.7-	0.3-	1998 09 14	704	0.0	0.5-	1999 11 03	704
1975 08 15	805	1.5+	1.9+	1998 09 15	699	0.6+	0.6+	1999 11 03	704
1975 08 16	805	1.1+	0.5+	1998 09 15	699	0.5+	0.2+	1999 11 03	704
1980 09 13	675	0.8+	0.0	1998 09 15	699	0.2+	0.1+	1999 11 03	704
1980 09 14	675	0.1+	0.1-	1998 09 18	699	0.5+	0.1-	1999 11 03	704
1989 09 30	675	1.6+	0.5-	1998 09 18	699	0.0	0.6+	1999 11 14	704
1989 09 30	675	(2.9+	0.5-)	1998 09 18	704	0.3-	0.2+	1999 11 14	704
1998 08 17	704	0.3-	0.5-	1998 09 18	699	0.1+	1.1+	1999 11 14	704
1998 08 17	704	0.4-	0.2+	1998 09 18	704	0.4-	0.1+	1999 11 14	704
1998 08 17	704	0.3-	0.4+	1998 09 18	704	0.3-	0.6-	1999 11 14	704
1998 08 17	704	0.1-	0.1-	1998 09 18	704	0.8-	0.3-	1999 12 07	704
1998 08 17	704	0.0	0.9-	1998 09 25	704	0.2+	0.2+	1999 12 07	704
1998 08 23	704	0.1+	0.0	1998 09 25	704	0.2-	0.1-	1999 12 07	704
1998 08 23	704	0.1-	1.8-	1998 09 25	704	0.3-	0.4+	1999 12 07	704
1998 08 23	704	(0.1+	2.6-)	1998 09 25	704	0.5-	0.4+	1999 12 07	704
1998 08 23	704	1.0-	0.5-	1998 09 25	704	1.4-	0.9+	1999 12 12	704
1998 08 23	704	1.6-	0.7-	1998 09 27	704	0.2+	0.1-	1999 12 12	704
1998 08 30	699	0.2+	0.0	1998 09 27	704	0.4+	0.7-	1999 12 12	704
1998 08 30	699	0.2-	0.3+	1998 09 27	704	0.3+	0.7-	1999 12 12	704
1998 08 30	699	0.6+	0.4-	1998 09 27	704	1.6+	0.5-	1999 12 12	704
1998 09 14	704	0.0	0.2-	1998 09 27	704	0.8+	1.0+		

(12661)* 1976 DA₁ = 1990 EM₆

Discovered 1976 Feb. 27 by F. Börngen and R. Ziener at Tautenburg.
Id. K. Ichikawa (*MPC* 27441)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 231.93978		(2000.0)		P		Q	
<i>n</i>	0.28456492	ω	59.81734	−0.96632991	+0.25010478		
<i>a</i>	2.2891899	Ω	134.58992	−0.25545853	−0.90443540		
<i>e</i>	0.1168896	<i>i</i>	4.86928	−0.03078059	−0.34560702		
<i>P</i>	3.46	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 02 27	033	0.3+	0.5+	1997 03 08	886	0.3+	0.0	1998 09 20	113	0.3−	0.3−
1976 03 01	033	0.1−	1.0+	1997 03 08	886	1.6+	0.9+	1998 09 20	113	0.8+	0.0
1976 03 02	033	0.0	0.4−	1998 08 14	113	0.2−	0.2+	1998 09 22	113	0.7+	0.2−
1976 03 03	033	1.6−	1.5+	1998 08 14	113	1.4+	0.2+	1998 09 22	113	0.6+	0.7+
1976 03 03	033	1.6+	1.5−	1998 08 14	113	0.6−	0.6+	1998 09 22	113	0.7+	0.6−
1977 09 08	413	1.3−	1.5−	1998 08 15	113	0.1−	0.9+	1998 09 25	704	0.4−	1.6+
1977 09 08	413	0.6+	0.0	1998 08 17	704	0.2−	0.9+	1998 09 25	704	1.3−	1.5−
1990 03 02	809	0.3−	0.2−	1998 08 17	704	(0.6− 2.2+)		1998 09 25	704	1.8+	0.1−
1990 03 02	809	0.3+	0.3−	1998 08 17	704	(2.3− 1.0−)		1998 09 25	704	0.5+	1.5−
1990 03 02	809	0.7+	0.4−	1998 08 17	704	0.2−	0.6−	1998 09 25	704	(0.5+ 2.1−)	
1990 03 03	809	(2.2+ 0.0)		1998 08 17	704	1.6−	0.1−	1998 09 27	704	0.8+	0.7+
1990 03 03	809	(2.4+ 0.2+)		1998 08 17	113	(4.9− 0.7−)		1998 09 27	704	0.6+	1.4+
1990 03 03	809	(2.9+ 0.2+)		1998 08 17	113	1.3−	0.2+	1998 09 27	704	0.4+	0.3+
1990 03 04	809	0.7−	0.4−	1998 08 19	113	0.2+	0.2+	1998 09 27	704	0.4+	0.6+
1990 03 04	809	0.1−	0.4−	1998 08 19	113	0.6−	0.2−	1999 11 17	704	0.1+	0.8+
1990 03 04	809	0.6+	0.4−	1998 09 14	704	(0.5+ 3.1+)		1999 11 17	704	0.4−	0.7−
1991 07 17	413	0.0	0.2−	1998 09 14	704	(1.2− 2.3+)		1999 11 17	704	0.4+	0.6+
1991 07 17	413	0.6+	1.4+	1998 09 14	704	(2.2− 2.7+)		1999 11 17	704	0.6+	0.3−
1997 02 02	691	0.1+	0.2−	1998 09 14	704	(0.0 2.9+)		1999 12 08	704	0.6−	0.1+
1997 02 02	691	0.2+	0.2−	1998 09 18	704	0.0	0.7−	1999 12 08	704	0.4+	0.4−
1997 02 02	691	0.2+	0.1−	1998 09 18	704	0.5−	1.2−	1999 12 08	704	0.4−	0.0
1997 03 07	886	1.3−	0.3+	1998 09 18	704	1.0−	1.6−	1999 12 08	704	0.3+	0.0
1997 03 07	886	1.6−	0.1−	1998 09 18	704	(2.1+ 2.5+)		1999 12 08	704	1.0−	0.0

(12662)* 1978 CK = 1995 BK

Discovered 1978 Feb. 2 by J. Gibson at Palomar.
Id. T. Kobayashi (*MPC* 25326)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 324.17345		(2000.0)		P		Q	
<i>n</i>	0.17348652	ω	142.22289	−0.06927708	−0.96026639		
<i>a</i>	3.1838961	Ω	310.01644	+0.80749792	+0.10515418		
<i>e</i>	0.0534412	<i>i</i>	20.67104	+0.58578819	−0.25851705		
<i>P</i>	5.68	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 02 02	675	0.1−	0.0	1998 08 27	704	0.6−	0.3+	1998 09 23	704	0.6−	0.2−
1978 02 03	675	0.3−	0.0	1998 09 19	704	0.4+	0.1+	1998 12 09	704	0.1−	0.4+
1978 02 08	675	0.5+	0.5+	1998 09 19	704	0.3+	0.6−	1998 12 09	704	1.8+	1.1+
1989 01 10	675	0.8−	1.4−	1998 09 19	704	0.8+	0.4+	1998 12 09	704	0.3−	0.3+
1989 01 10	675	0.0	0.9−	1998 09 19	704	0.5+	0.8+	1998 12 09	704	0.4+	0.6−
1995 01 23	411	0.6−	1.0−	1998 09 19	704	0.7+	0.9+	1999 09 27	704	1.0+	1.3−
1995 01 23	411	0.3−	0.1+	1998 09 20	557	0.0	0.3+	1999 09 27	704	0.3−	0.7−
1995 01 25	411	0.1+	0.6+	1998 09 20	557	0.2+	0.1+	1999 09 27	704	0.5+	0.8−
1995 01 25	411	0.5+	0.4−	1998 09 20	557	0.2+	0.3+	1999 09 27	704	1.1+	0.4−
1998 08 19	704	0.1−	1.1−	1998 09 20	557	0.3+	0.3+	1999 10 31	704	0.0	0.3+
1998 08 19	704	0.7−	0.5−	1998 09 21	704	0.8−	0.4+	1999 10 31	704	0.2−	0.2−
1998 08 19	704	0.8−	1.7+	1998 09 21	704	0.8−	0.0	1999 10 31	704	0.1+	0.4−
1998 08 19	704	(1.3+ 2.1−)		1998 09 21	704	0.7−	0.3−	1999 10 31	704	0.0	0.3+
1998 08 19	704	0.7−	0.7−	1998 09 21	704	0.8−	0.4−	1999 10 31	704	0.2+	0.1+
1998 08 24	704	0.1−	0.4−	1998 09 21	704	0.8−	0.0	1999 12 08	849	0.1−	0.2+
1998 08 24	704	0.1−	0.3+	1998 09 23	704	0.7+	0.3−	1999 12 08	849	0.1−	0.5+
1998 08 24	704	0.2−	1.0+	1998 09 23	704	0.8+	0.5−	1999 12 08	849	0.2−	1.4+
1998 08 24	704	0.1+	0.5−	1998 09 23	704	0.2−	0.5−	1999 12 13	704	0.6−	0.2−
1998 08 24	704	0.2+	0.6+	1998 09 23	704	0.4+	0.1−	1999 12 13	704	0.4−	1.8+

1998 08 27	704	0.1+	0.1−	1998 09 23	704	0.3+	0.4+	1999 12 13	704	0.1−	0.1+
1998 08 27	704	0.3+	0.8−	1998 09 23	704	0.7+	0.2+	1999 12 13	704	0.6−	0.6+
1998 08 27	704	0.0	0.5−	1998 09 23	704	1.0+	0.5−	1999 12 13	704	0.3−	0.3+
1998 08 27	704	0.4−	1.2−	1998 09 23	704	0.4−	0.3−				

(12663)* 1978 RL₇ = 1993 QL₃

Discovered 1978 Sept. 2 by C.-I. Lagerkvist at the European Southern Observatory.

Id. B. G. Marsden (*MPC* 22587)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 40.39977		(2000.0)		P		Q	
<i>n</i>	0.19846980	ω	160.82041	+0.93887428	−0.34405523		
<i>a</i>	2.9107602	Ω	219.31014	+0.31335189	+0.86835983		
<i>e</i>	0.0730920	<i>i</i>	1.07428	+0.14256812	+0.35717952		
<i>P</i>	4.97	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 09 02	809	0.3−	0.7−	1996 03 15	566	0.3+	0.4+	1998 09 18	704	0.5+	0.1+
1978 09 02	809	0.3−	1.1−	1998 08 17	704	1.3−	1.0+	1998 09 18	704	0.8+	0.1−
1978 09 02	809	0.7−	0.2−	1998 08 17	704	1.3−	0.2+	1998 09 27	704	1.1−	1.0−
1978 09 02	809	0.0	0.6+	1998 08 17	704	1.2−	0.5−	1998 09 27	704	1.1+	0.3−
1978 09 02	809	0.5−	0.7−	1998 08 17	704	1.1−	1.2−	1998 09 27	704	0.9−	0.4−
1978 09 06	809	0.1+	0.4−	1998 08 17	704	1.2−	0.5+	1998 09 27	704	0.2−	0.5+
1978 09 10	809	0.4−	1.0+	1998 08 23	704	0.6−	0.2−	1998 09 27	704	0.7+	0.9−
1978 09 10	809	0.3+	2.2−	1998 08 23	704	0.7−	0.3+	1998 10 13	552	0.2+	0.0
1978 09 10	809	1.2+	0.8−	1998 08 23	704	0.5−	1.2−	1998 10 13	552	0.0	0.4−
1988 09 10	675	0.1−	1.7+	1998 08 23	704	0.1−	0.4−	1998 10 13	552	0.1−	0.7−
1988 09 10	675	0.4+	0.7+	1998 09 09	120	0.4−	0.0	1999 10 22	704	(1.8+ 2.2−)	
1993 08 18	010	1.3+	0.9+	1998 09 09	120	(2.0+ 2.4+)		1999 10 22	704	0.9+	0.3−
1993 08 19	010	(2.6+ 0.4+)		1998 09 13	691	0.4−	0.4+	1999 10 22	704	1.4+	0.6−
1993 08 19	010	(2.2+ 0.3+)		1998 09 13	691	0.5−	0.3+	1999 12 07	704	0.5−	0.2+
1993 08 19	010	1.8+	0.9+	1998 09 13	691	0.2−	0.5+	1999 12 07	704	0.2−	0.4+
1993 09 19	010	(1.4+ 2.8+)		1998 09 14	704	0.7+	0.3+	1999 12 07	704	0.1−	0.2+
1993 09 19	010	(1.1+ 2.5+)		1998 09 14	704	0.5+	0.3−	1999 12 07	704	0.5+	0.4+
1993 09 20	010	0.6+	0.6+	1998 09 14	704	0.2+	0.9+	1999 12 08	704	0.6−	0.3−
1993 09 20	010	0.6+	0.6+	1998 09 14	704	0.3+	0.6+	1999 12 08	704	0.1−	0.3−
1993 09 20	010	0.4+	1.8+	1998 09 18	704	0.6+	0.3+	1999 12 08	704	0.3−	0.4+
1996 03 15	566	0.2+	0.4+	1998 09 18	704	0.3+	0.3+	1999 12 08	704	0.0	0.1−
1996 03 15	566	0.1+	0.5+	1998 09 18	704	0.4+	0.2−	1999 12 08	704	0.2−	0.1−

(12664)* 1978 SS₅ = 1982 UZ₃ = 1985 HR₁

Discovered 1978 Sept. 27 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. D. W. E. Green (*MPC* 13674), L. D. Schmadel (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 23.12850		(2000.0)		P		Q	
<i>n</i>	0.23734305	ω	166.86274	+0.99991795	−0.00612660		
<i>a</i>	2.5835589	Ω	193.50342	+0.00174313	+0.93511673		
<i>e</i>	0.1605198	<i>i</i>	2.76142	+0.01269049	+0.35428684		
<i>P</i>	4.15	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1978 09 27	095	(2.0− 2.6+)	1993 03 28	691	1.2−	0.9−	1999 11 15	704	0.4−	1.3−
1978 10 03	095	0.6− 1.2+	1999 11 04	704	0.4+	0.6+	1999 11 15	704	0.8+	0.1+
1978 10 07	095	0.4− 1.9+	1999 11 04	704	0.1+	0.2+	1999 11 17	704	0.3+	0.2−
1982 09 16	095	1.0− 1.1+	1999 11 04	704	0.2+	0.4+	1999 11 17	704	0.3+	0.4−
1982 09 18	095	0.4+ 1.6−	1999 11 04	704	0.5+	0.5+	1999 11 17	704	0.0	0.7−
1982 09 26	095	1.1+ 2.0+	1999 11 04	704	0.1−	0.1+	1999 11 17	704	0.5+	0.6−
1982 10 19	033	0.4− 0.8−	1999 11 15	704	0.5+	1.2−	1999 12 07	704	0.3−	0.4+
1982 10 19	033	0.4− 0.5−	1999 11 15	704	0.5+	0.2−	1999 12 07	704	0.2−	0.3+
1985 04 25	801	0.3+ 0.1+	1999 11 15	704	0.1+	0.8−	1999 12 07	704	0.6−	0.8+
1993 03 19	809	0.4− 1.5+	1999 11 15	704	0.2+	0.0	1999 12 07	704	0.2−	0.7+
1993 03 20	809	0.8+ 0.6+	1999 11 15	704	0.2−	0.9−	1999 12 07	704	0.6−	0.6+
1993 03 24	809	1.6+ 1.6+	1999 11 15	704	0.7+	0.0	1999 12 12	691	0.8−	0.3+

1999 DEC. 22

M.P.C. 37029

1993 03 28 691 (1.0– 2.3–) 1999 11 15 704 0.1– 0.9– 1999 12 12 691 1.1– 0.5+
 1993 03 28 691 (1.7– 3.3–) 1999 11 15 704 0.8+ 0.2+ 1999 12 12 691 0.9– 0.3+

(12665)* 1978 VE₇ = 1998 FS₄₆

Discovered 1978 Nov. 6 by E. F. Helin and S. J. Bus at Palomar.

Id. S. Nakano (*MPC* 32208)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	339.05487		(2000.0)	P	Q
<i>n</i>	0.27561904	ω	172.10698	+0.98021271	+0.19794539
<i>a</i>	2.3384598	Ω	176.47588	−0.18232575	+0.90444492
<i>e</i>	0.2202806	<i>i</i>	0.75574	−0.07707370	+0.37788491
<i>P</i>	3.58	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1978 11 05	675	0.1–	0.3–	1999 05 21	704	1.1+	0.6–	1999 10 01	691	0.3+	1.1–
1978 11 06	675	0.6+	0.0	1999 07 13	704	0.2+	0.2+	1999 10 01	691	0.4+	1.1–
1978 11 08	675	0.2–	0.1+	1999 07 13	704	0.1–	0.3+	1999 10 01	691	0.3+	0.9–
1978 11 29	675	0.3+	0.1+	1999 07 13	704	0.1–	0.0	1999 10 05	699	0.5+	0.4–
1978 11 30	675	0.5–	0.4–	1999 07 13	704	0.9–	0.6–	1999 10 05	704	0.3–	0.4+
1992 09 30	691	0.1–	0.2–	1999 07 13	704	1.1–	0.3–	1999 10 05	704	0.4–	0.0
1992 09 30	691	0.2+	0.0	1999 07 16	704	0.0	0.2–	1999 10 05	699	0.1+	0.1+
1992 09 30	691	0.0	0.2+	1999 07 16	704	0.1–	0.4+	1999 10 05	704	0.1–	0.3+
1994 02 12	691	0.1–	0.7+	1999 07 16	704	0.6–	0.0	1999 10 05	704	0.1+	0.4+
1994 02 12	691	0.0	0.0	1999 07 20	699	0.8–	1.2+	1999 10 05	699	0.1–	0.1+
1994 02 12	691	0.2+	0.0	1999 07 20	699	1.4–	0.1+	1999 10 05	704	0.3+	0.5+
1998 03 20	704	0.6+	0.8–	1999 07 20	699	0.8–	1.1+	1999 10 06	691	0.5+	0.7–
1998 03 20	704	0.8+	0.5–	1999 08 07	106	0.1–	0.2–	1999 10 06	691	0.3+	0.6–
1998 03 20	704	0.8–	0.5+	1999 08 07	106	0.1–	0.3+	1999 10 06	691	0.4+	1.2–
1998 03 20	704	1.2–	0.4–	1999 08 07	106	0.0	0.1–	1999 10 13	691	0.6+	0.1–
1998 03 20	704	1.1–	1.6+	1999 08 15	649	0.1+	0.0	1999 10 13	691	0.6+	0.1–
1998 03 22	704	0.5+	1.3+	1999 08 15	649	0.1+	0.1+	1999 10 13	691	0.5+	0.2–
1998 03 22	704	0.3–	1.3–	1999 09 02	649	0.4–	0.3–	1999 10 15	704	0.9+	0.1+
1998 03 22	704	(4.7+ 0.3+)		1999 09 02	649	0.2–	0.3–	1999 10 15	704	0.7+	0.1–
1998 03 22	704	0.5–	0.1–	1999 09 04	699	0.4–	0.0	1999 10 15	704	0.6+	0.0
1998 04 19	704	1.1–	1.0–	1999 09 04	699	0.2–	0.2+	1999 10 15	704	0.7+	0.1–
1998 04 19	704	1.4+	0.1–	1999 09 04	699	0.3–	0.1+	1999 10 15	704	0.8+	0.1+
1998 04 19	704	0.6–	0.8–	1999 09 29	699	0.0	0.2+	1999 11 04	699	0.1–	0.9–
1998 04 19	704	2.1+	1.1+	1999 09 29	699	0.6–	0.2+	1999 11 04	699	1.7–	0.5+
1998 04 19	704	0.1+	1.0–	1999 09 29	699	0.5+	1.0+	1999 11 04	699	0.0	0.9+
1999 05 21	704	0.1+	1.6–	1999 09 30	704	0.1–	0.1+	1999 11 10	704	0.0	0.3–
1999 05 21	704	1.5+	1.4+	1999 09 30	704	0.4–	0.4+	1999 11 10	704	0.2+	0.4+
1999 05 21	704	0.9+	1.2–	1999 09 30	704	0.3–	0.4+	1999 11 10	704	0.2+	0.2+
1999 05 21	704	1.9+	0.2–	1999 09 30	704	0.1–	0.4+	1999 11 10	704	0.8+	0.1–

(12666)* 1978 XW = 1975 GC₁ = 1985 DE₃

Discovered 1978 Dec. 6 by E. Bowell and A. Warnock at Palomar.

Id. K. Ichikawa (*MPC* 20140)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	292.57036		(2000.0)	P	Q
<i>n</i>	0.18510693	ω	1.55692	−0.30000500	−0.95342887
<i>a</i>	3.0492118	Ω	105.90181	+0.87487023	−0.28800939
<i>e</i>	0.1854318	<i>i</i>	1.85616	+0.38026187	−0.08957667
<i>P</i>	5.32	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1975 04 15	805	1.6–	2.1+	1999 10 15	704	0.1+	0.0	1999 11 17	704	0.2+	0.4+
1978 11 30	675	0.1+	0.3–	1999 10 15	704	0.0	0.5+	1999 11 17	704	0.7–	0.5–
1978 12 03	675	0.8–	0.4–	1999 10 15	704	0.3+	0.1–	1999 11 17	704	0.5–	0.5+
1978 12 03	675	0.5+	0.5+	1999 10 15	704	0.3+	0.0	1999 11 17	704	0.3–	0.2–
1978 12 05	675	0.8+	0.6+	1999 10 20	704	0.2–	0.1–	1999 11 17	704	0.1–	0.1–
1978 12 06	675	0.2+	1.0–	1999 10 20	704	0.1+	0.2+	1999 11 17	704	1.5+	0.0
1978 12 06	675	1.9+	0.1+	1999 10 20	704	0.5+	0.4+	1999 11 17	704	0.2+	0.2+
1985 02 20	675	0.7–	0.1–	1999 10 20	704	0.0	0.3+	1999 11 17	704	0.9+	0.3–
1985 02 22	675	0.2–	0.5–	1999 10 20	704	0.6–	0.7+	1999 11 29	732	0.6–	0.1–
1996 03 26	566	0.9+	0.6+	1999 10 29	703	0.1–	0.1+	1999 11 29	732	0.3+	0.8–

1996 03 26	566	1.2+	0.4+	1999 10 29	703	0.6–	0.7+	1999 11 29	732	0.3–	0.6+
1996 03 26	566	1.3+	0.5+	1999 10 29	703	0.4–	0.8+	1999 11 30	732	0.8+	0.2–
1998 08 17	704	0.7+	1.6–	1999 10 29	703	0.7–	0.6+	1999 11 30	732	1.6–	0.4+
1998 08 17	704	1.6+	1.0–	1999 11 03	703	0.4–	0.5+	1999 12 02	732	0.8–	0.1+
1998 08 17	704	0.5–	0.2–	1999 11 03	703	0.6–	0.7+	1999 12 02	732	1.2–	0.6–
1998 08 17	704	0.9–	0.5+	1999 11 03	703	0.9–	0.8+	1999 12 02	732	0.1–	0.4–
1998 08 17	704	0.0	1.2+	1999 11 03	703	(2.2– 1.3–)		1999 12 05	704	(0.2+ 2.9–)	
1999 10 07	704	0.1+	0.0	1999 11 05	704	0.0	0.2–	1999 12 05	704	0.1+	0.6–
1999 10 07	704	0.6+	0.6+	1999 11 05	704	0.6+	0.0	1999 12 05	704	(0.6– 2.2–)	
1999 10 07	704	0.3+	0.7+	1999 11 05	704	0.2+	0.1+	1999 12 05	704	1.4–	0.6–
1999 10 07	704	0.1–	0.4+	1999 11 05	704	0.6+	0.1+	1999 12 07	704	0.2+	0.4–
1999 10 07	704	0.1–	0.6+	1999 11 05	704	0.1–	0.3+	1999 12 07	704	0.8–	0.0
1999 10 10	704	0.5+	0.5+	1999 11 12	704	0.6+	0.1–	1999 12 07	704	0.3–	0.4–
1999 10 10	704	0.1+	0.1+	1999 11 12	704	0.3+	0.4–	1999 12 07	704	0.3–	1.1–
1999 10 10	704	0.4+	0.4+	1999 11 12	704	0.1+	0.1–	1999 12 07	704	1.5–	0.9–
1999 10 10	704	0.1+	0.1+	1999 11 12	704	0.0	0.1–				
1999 10 10	704	0.2+	0.3+	1999 11 12	704	0.1+	0.2–				

(12667)* 1979 DF = 1977 UL₅

Discovered 1979 Feb. 28 by N. G. Thomas at the Anderson Mesa Station of the Lowell Observatory.

Id. K. L. Faul (*MPC* 18105)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	255.80875		(2000.0)	P	Q
<i>n</i>	0.22732188	ω	126.38181	−0.93807051	−0.31210931
<i>a</i>	2.6589401	Ω	36.12793	+0.17433747	−0.80035171
<i>e</i>	0.1666822	<i>i</i>	14.77617	+0.29938296	−0.51188369
<i>P</i>	4.34	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1977 10 18	675	0.1+	0.1+	1999 10 05	704	1.0+	0.0	1999 11 28	715	0.2–	0.4+
1977 10 19	675	0.2–	0.2+	1999 10 05	704	0.8+	0.1–	1999 11 28	715	0.3–	0.5+
1979 02 28	688	1.1+	1.2+	1999 10 05	704	1.6+	0.1+	1999 12 07	703	0.5–	0.3+
1979 03 04	688	(3.4– 0.6–)		1999 10 12	704	0.4+	0.8–	1999 12 07	703	0.2–	0.4+
1979 03 23	688	0.2+	1.1+	1999 10 12	704	0.1+	0.1+	1999 12 07	703	0.2–	0.7+
1979 04 01	688	(2.6+ 2.1–)		1999 10 12	704	0.8–	0.3+	1999 12 07	703	0.2–	0.1+
1979 05 01	801	0.1+	0.2+	1999 10 12	704	0.9–	0.5+	1999 12 12	704	0.1+	0.2–
1998 09 21	704	0.6–	0.7+	1999 10 12	704	1.5–	1.1+	1999 12 12	704	0.1+	0.7–
1998 09 21	704	0.4+	0.7+	1999 10 13	704	0.1+	0.4–	1999 12 12	704	0.6+	0.8–
1998 09 21	704	0.0	0.2+	1999 10 13	704	0.2–	0.2–	1999 12 12	704	0.6+	1.0–
1998 09 21	704	0.4+	0.3+	1999 10 13	704	0.1–	0.0	1999 12 12	704	1.0+	1.0–
1998 09 21	704	2.0–	0.3+	1999 10 13	704	0.3–	0.9+				
1999 10 05	704	0.7+	0.5–	1999 10 13	704	1.0–	0.4+				

(12668)* 1979 MX₁ = 1995 YW₂₅

Discovered 1979 June 25 by E. F. Helin and S. J. Bus at Siding Spring.

Id. G. V. Williams (*MPC* 30753)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	199.69029		(2000.0)	P	Q
<i>n</i>	0.21224093	ω	298.65657	−0.88210804	+0.46706001
<i>a</i>	2.7834492	Ω	269.24524	−0.40801334	−0.82248210
<i>e</i>	0.0447830	<i>i</i>	3.50661	−0.23539438	−0.32462000
<i>P</i>	4.64	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1979 06 24	413	0.8–	0.8+	1998 08 17	704	0.9–	1.8+	1999 11 14	704	0.3–	0.0
1979 06 25	413	0.0	1.4+	1998 08 23	704	0.6–	0.9–	1999 11 14	704	0.0	0.5–
1979 06 29	413	0.9–	0.7–	1998 08 23	704	(1.6– 2.3–)</					

1995 12 25	691	0.5−	0.1−	1998 09 18	704	1.8+	1.0+	1999 12 05	703	0.3+	0.9−
1996 01 29	691	0.5+	0.4+	1998 09 18	704	0.8+	0.1−	1999 12 05	703	0.3−	1.0+
1996 01 29	691	0.4+	0.2+	1998 09 18	704	0.1−	0.4−	1999 12 05	703	0.5−	0.4+
1996 01 29	691	0.4+	0.5+	1999 11 03	704	0.0	1.0+	1999 12 07	704	0.4−	0.4−
1998 08 17	704	1.2−	0.2+	1999 11 03	704	0.7+	0.0	1999 12 07	704	0.2+	0.1−
1998 08 17	704	(0.6−	2.2+)	1999 11 03	704	0.5+	0.5−	1999 12 07	704	(1.1−	2.2+)
1998 08 17	704	1.4−	0.8+	1999 11 03	704	0.8−	0.2+	1999 12 07	704	0.5+	0.5+
1998 08 17	704	0.8−	0.1+	1999 11 03	704	0.4−	0.4−	1999 12 07	704	0.0	0.7+

(12669)* 1979 MY₅ = 1994 XT₄

Discovered 1979 June 25 by E. F. Helin and S. J. Bus at Siding Spring.

Id. S. Nakano (*MPC* 24556)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22183677	<i>ω</i>	347.03688	−0.08108133	+0.97599280		
<i>a</i>	2.7025912	<i>Ω</i>	278.04342	−0.89527832	−0.16045694		
<i>e</i>	0.1102996	<i>i</i>	11.78013	−0.43806683	+0.14728078		
<i>P</i>	4.44	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 06 23	413	0.6+	0.0	1997 08 10	563	0.1+	0.0	1998 12 14	704	0.7+	0.6+
1979 06 24	413	0.4+	0.6+	1997 08 10	563	0.3−	0.2−	1998 12 14	704	0.2−	0.0
1979 06 25	413	0.5+	1.0+	1997 08 10	563	0.5−	0.1−	1998 12 17	704	0.2−	0.3−
1979 06 29	413	0.1−	1.4+	1997 08 10	563	0.1−	0.3+	1998 12 17	704	0.3−	0.2−
1979 07 24	413	0.7−	1.3−	1997 08 31	610	1.4+	0.1+	1998 12 17	704	0.1−	0.0
1979 07 26	675	1.7+	1.0−	1997 08 31	610	1.3+	0.4+	1998 12 17	704	0.0	0.6+
1979 07 27	675	1.1−	1.0+	1997 08 31	610	1.2+	0.6+	1998 12 17	704	1.5+	2.0+
1979 07 28	413	(2.6−	0.3−)	1997 09 06	610	1.0−	0.6−	1999 11 17	704	1.5−	0.5+
1979 08 22	675	0.3−	0.6−	1997 09 06	610	0.1−	0.1+	1999 11 17	704	0.2−	0.2+
1988 08 13	675	1.3−	0.6−	1997 09 06	610	0.5+	0.4+	1999 11 17	704	0.1−	0.2+
1988 08 13	675	1.4−	1.8−	1997 09 08	563	0.2−	0.2−	1999 11 17	704	0.6+	0.7+
1988 08 15	675	0.8+	1.1+	1997 09 08	563	0.7−	0.1+	1999 12 05	703	0.1−	0.2−
1994 12 09	411	0.5−	0.4−	1997 09 08	563	0.7−	0.0	1999 12 05	703	1.1+	0.1+
1994 12 09	411	0.1−	0.7−	1997 09 08	563	0.6−	0.1−	1999 12 05	703	0.1+	0.2+
1994 12 10	411	0.8−	0.0	1998 12 14	704	0.4−	0.9−	1999 12 05	703	1.1+	0.2+
1994 12 10	411	0.2−	0.2−	1998 12 14	704	0.1+	0.5−				

(12670)* 1979 SG₂ = 1992 PK

Discovered 1979 Sept. 22 by N. S. Chernykh at the Crimean Astrophysical

Observatory.

Id. G. V. Williams (*MPC* 26394)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29957659	<i>ω</i>	58.89702	+0.99659030	−0.00078649		
<i>a</i>	2.2120629	<i>Ω</i>	301.03021	−0.03584052	+0.89656144		
<i>e</i>	0.2113801	<i>i</i>	5.52524	+0.07431846	+0.44291869		
<i>P</i>	3.29	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 09 19	049	0.9+	0.5−	1992 07 26	809	0.5+	0.2+	1998 04 29	566	0.2+	0.3−
1979 09 19	049	0.9+	0.2+	1992 07 30	809	0.5+	0.3+	1998 04 29	566	0.1+	0.2+
1979 09 22	095	(1.4−	3.0+)	1992 07 30	809	0.5+	1.1+	1998 04 29	566	0.4+	0.6+
1979 09 28	095	2.3−	1.4+	1992 07 30	809	0.4−	0.4+	1998 05 22	704	0.6+	0.2+
1992 06 28	675	1.6−	1.7+	1992 08 04	675	0.0	0.3−	1998 05 22	704	0.6−	0.4−
1992 06 28	675	0.1+	0.5+	1992 08 05	675	0.0	0.7+	1998 05 22	704	0.6−	0.2+
1992 07 24	809	0.3−	0.1−	1992 08 05	675	0.4+	0.1−	1998 05 22	704	(0.5−	2.8+)
1992 07 24	809	0.9−	0.8−	1992 08 07	675	1.0+	0.3+	1999 10 14	704	0.1+	0.3−
1992 07 24	809	1.5−	1.1−	1992 08 07	675	0.5+	0.3+	1999 10 14	704	0.0	0.0
1992 07 24	809	0.7+	0.7−	1992 08 08	010	1.6−	0.6−	1999 10 14	704	0.2+	0.3+
1992 07 24	809	0.0	1.2−	1992 08 08	010	(2.6−	0.9−)	1999 10 14	704	0.1+	0.3−
1992 07 24	809	1.9−	0.7−	1992 08 08	010	(3.3−	1.3−)	1999 10 14	704	0.0	0.3−
1992 07 25	010	0.6+	0.2−	1992 08 09	010	(2.2−	0.4−)	1999 12 08	849	0.6+	0.3+
1992 07 25	010	1.1+	0.5−	1992 08 09	010	(2.4−	0.3−)	1999 12 08	849	0.3−	0.8+
1992 07 25	010	1.0+	0.3−	1992 08 09	010	(2.6−	0.6+)	1999 12 08	849	0.1−	0.7+
1992 07 26	010	(3.1+	1.4−)	1997 01 09	691	0.3−	0.5−	1999 12 13	704	0.1+	0.1−

1992 07 26	010	0.8+	1.5−	1997 01 09	691	0.3−	1.0−	1999 12 13	704	0.2−	0.3−
1992 07 26	010	(0.6+	2.7−)	1997 02 04	566	0.1+	0.3−	1999 12 13	704	0.2−	0.1−
1992 07 26	809	1.0+	0.5+	1997 02 04	566	0.0	0.4−	1999 12 13	704	0.2−	0.0
1992 07 26	809	0.4+	0.1+	1997 02 04	566	0.2−	0.4−	1999 12 13	704	0.2−	0.9−

(12671)* 1980 FU = 1973 EP = 1978 UB₃

Discovered 1980 Mar. 16 by C.-I. Lagerkvist at the European Southern Observatory.

Id. C. M. Bardwell (*MPC* 11837), E. Bowell (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28387489	<i>ω</i>	241.82226	−0.69320783	+0.72000567		
<i>a</i>	2.2928979	<i>Ω</i>	344.15716	−0.61251503	−0.61226879		
<i>e</i>	0.1139568	<i>i</i>	6.83222	−0.37985292	−0.32667838		
<i>P</i>	3.47	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1966 02 21	760	0.5+	1.4−	1988 09 12	675	1.9−	2.0−	1999 11 14	049	0.8+	0.1−
1973 03 07	029	1.3+	0.1+	1988 09 15	675	1.0+	1.2−	1999 11 14	049	0.6+	0.1−
1973 03 07	029	(2.6−	0.2−)	1988 09 15	675	0.5+	0.4−	1999 11 14	049	0.5+	0.5−
1978 10 26	675	0.6+	0.2−	1988 09 16	675	0.6−	0.6+	1999 12 07	703	0.4−	0.1+
1978 10 27	675	1.5+	0.1+	1988 09 16	675	0.8−	0.9+	1999 12 07	703	0.1+	0.0
1980 02 21	095	0.6+	2.2−	1991 07 14	675	0.2+	1.3−	1999 12 07	703	0.2+	0.6−
1980 03 16	809	0.8−	0.1+	1991 07 14	675	0.2+	0.2+	1999 12 07	703	0.1−	0.1+
1980 03 16	809	0.3−	0.1+	1991 07 17	675	0.2+	1.2−	1999 12 08	849	0.4+	0.6+
1980 03 16	809	0.7−	0.0	1991 07 17	675	1.2+	0.2−	1999 12 08	849	1.2+	0.8+
1980 03 16	809	0.6−	0.0	1991 07 18	675	(1.9+	3.1+)	1999 12 08	849	1.9−	0.2−
1980 03 17	809	0.4−	0.7+	1991 07 18	675	(1.3−	3.1+)	1999 12 12	704	0.5+	0.5−
1980 03 17	809	0.4−	0.3+	1997 01 28	689	(7.6−	1.7+)	1999 12 12	704	0.2+	1.0−
1980 03 17	809	0.7−	0.3+	1998 08 17	704	(0.4+	2.2−)	1999 12 12	704	0.1−	0.4−
1980 03 17	809	0.0	0.1−	1998 08 17	704	0.2+	0.7−	1999 12 12	704	0.2−	0.5−
1980 03 23	809	0.6−	0.3−	1998 08 17	704	0.1−	0.1−	1999 12 12	704	0.1−	0.1+
1988 09 12	675	2.0−	0.5−	1998 08 17	704	1.5+	0.8+				

(12672)* 1980 FY₂ = 1988 VL₈ = 1995 BW₁₅

Discovered 1980 Mar. 16 by C.-I. Lagerkvist at the European Southern Observatory.

Id. G. V. Williams (*MPC* 25061), A. Doppler (*MPC* 34481), A. Milani (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18919270	<i>ω</i>	91.26488	−0.06638350	−0.99779401		
<i>a</i>	3.0051522	<i>Ω</i>	2.54164	+0.91008846	−0.06079071		
<i>e</i>	0.0509684	<i>i</i>	0.76197	+0.40906262	−0.02667596		
<i>P</i>	5.21	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1980 03 16	809	0.2−	0.4+	1998 09 14	704	0.4−	0.9−	1998 10 16	691	0.0	0.3−
1980 03 16	809	0.4+	0.3−	1998 09 14	704	0.4−	0.9−	1998 10 16	691	0.2+	0.5−
1980 03 16	809	0.1−	0.8−	1998 09 14	704	0.1−	0.2−	1998 10 22	691	0.1−	0.1+
1980 03 16	809	0.5+	0.3+	1998 09 18	704	0.0	0.0	1998 10 22	691	0.3+	0.8−
1980 03 17	809	0.1+	0.0	1998 09 18	704	0.2+	1.9+	1998 10 22	691	0.3+	0.3−
1980 03 17	809	0.3+	0.6+	1998 09 18	704	(2.2+	0.3+)	1998 10 28	691	0.7−	0.2−
1980 03 17	809	0.3−	0.4−	1998 09 18	704	(2.4+	0.0)	1998 10 28	691	0.6−	0.2−
1980 03 17	809	0.5+	0.1−	1998 09 18	704	1.3+	0.3−	1998 10 28	691	0.5−	0.1−
1980 03 23	809	1.1−	0.9−	1998 09 26	704	0.2+	0.8+	1999 10 22	704	0.3+	0.1+
1988 11 04	033	(4.4−	2.0−)	1998 09 26	704	0.4+	0.3−	1999 10 22	704	0.1+	0.5+
1988 11 04	033	1.9−	1.3−	1998 09 26	704	0.4−	0.9−	1999 10 22	704	0.2+	0.2−
1993 10 12	809	1.8+	0.2+	1998 09 26	704	1.1−	0.1+	1999 10 22	704	0.6+	0.6+
1993 10 12	809	1.4+	0.4−	1998 09 26	704	(3.1−	0.1+)	1999 10 22	704	0.6−	0.1+
1993 10 12	809	1.3+	0.1−	1998 09 27	704	0.3−	0.2+	1999 12 07	704	0.3−	0.3−
1993 10 22	809	(5.9+	2.8−)	1998 09 27	704	0.3−	0.5+	1999 12 07	704	0.0	0.3−
1993 10 22	809	(4.1+	1.3−)	1998 09 27	704	0.8−	1.3+	1999 12 07	704	0.6+	0.2+
1995 01 30	033	0.3−	0.1−	1998 09 27	704	0.2+	1.8+	1999 12 07	704	0.6+	0.3−
1995 01 30	033	0.0	1.1+	1998 09 27	704	(2.0−	2.7+)				
1995 02 02	033	0.9−	0.4+	1998 10 16	691	0.3−	0.2−				

1999 DEC. 22

M.P.C. 37031

(12673)* 1980 FH₃ = 1987 QP₈ = 1988 VJ₁₃ = 1993 TQ₁₈

Discovered 1980 Mar. 16 by C.-I. Lagerkvist at the European Southern Observatory.

Id. K. Ichikawa (*MPC* 23235)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
22.89471		(2000.0)			
<i>n</i>	0.18845515	ω	220.62222	+0.75594283	−0.65463725
<i>a</i>	3.0129878	Ω	180.27301	+0.63265857	+0.73084166
<i>e</i>	0.0825516	<i>i</i>	8.59755	+0.16820693	+0.19318526
<i>P</i>	5.23	<i>H</i>	13.4	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1980 03 16	809	0.4−	0.2+	1988 08 18	566	0.5+	0.1−	1998 09 28	691	0.5−	0.3+
1980 03 16	809	0.3+	0.1+	1988 08 18	566	1.0+	0.1−	1998 10 12	910	0.6+	0.9+
1980 03 16	809	0.6−	0.2−	1988 09 14	704	0.1+	0.9−	1998 10 12	910	0.8+	0.8+
1980 03 16	809	0.1+	0.2−	1988 09 14	704	0.2+	0.8−	1998 10 12	910	0.3+	0.9+
1980 03 17	809	0.3+	0.8−	1988 09 14	704	0.5−	0.7−	1998 10 14	704	1.0+	0.4+
1980 03 17	809	0.2−	0.4−	1988 09 14	704	0.8−	0.6−	1998 10 14	704	1.6+	0.6+
1980 03 17	809	0.4−	0.5−	1988 09 14	704	1.1−	0.7+	1998 10 14	704	0.3+	0.6−
1980 03 17	809	0.3−	0.7−	1988 09 18	704	0.1+	0.2+	1998 10 14	704	0.5+	0.9−
1980 03 23	809	0.5−	0.4−	1988 09 18	704	0.2−	0.5+	1998 10 15	704	0.0	1.1+
1987 08 17	010	2.1+	0.3+	1988 09 18	704	0.6−	0.1+	1998 10 15	704	0.5−	2.0+
1987 08 17	010	0.8−	0.0	1988 09 18	704	0.2+	0.6+	1998 10 15	704	0.6−	0.9+
1987 08 17	010	0.1+	0.5+	1988 09 18	704	1.4−	0.5+	1998 10 15	704	1.1−	1.6+
1988 11 04	327	0.1+	1.2+	1988 09 26	704	0.3−	0.0	1999 10 10	704	0.1+	0.2−
1988 11 04	327	0.2−	1.1+	1988 09 26	704	0.3+	0.7−	1999 10 10	704	0.1−	1.2+
1993 10 09	809	0.5+	1.6−	1988 09 26	704	0.3−	1.3−	1999 10 10	704	0.3+	0.4+
1993 10 09	809	0.0	1.5−	1988 09 26	704	0.2−	0.5−	1999 10 10	704	0.2−	0.3+
1993 10 09	809	0.2−	1.4−	1988 09 26	704	0.0	1.0−	1999 10 20	704	0.2−	0.2+
1993 10 11	809	2.0+	0.7−	1988 09 27	704	0.1−	0.8+	1999 10 20	704	0.2−	1.0+
1993 10 11	809	1.1+	1.0−	1988 09 27	704	0.6−	0.1−	1999 10 20	704	0.4−	0.7+
1993 10 11	809	0.6+	1.3−	1988 09 27	704	0.7−	0.1+	1999 10 20	704	0.5−	0.2+
1993 10 20	809	0.5−	1.5−	1988 09 27	704	0.1+	0.3−	1999 12 05	704	0.4−	0.3+
1993 10 20	809	0.4−	1.1−	1988 09 27	704	0.1−	0.1−	1999 12 05	704	0.2+	0.6+
1993 10 20	809	0.9−	1.2−	1988 09 28	691	0.7−	0.4+	1999 12 05	704	1.0+	0.8−
1998 08 18	566	1.2+	0.1−	1988 09 28	691	0.5−	0.4+	1999 12 05	704	1.3+	0.5−

(12674)* 1980 RL₂ = 1991 PU₁₅

Discovered 1980 Sept. 7 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. E. Bowell (*MPC* 19014)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
57.83129		(2000.0)			
<i>n</i>	0.26518683	ω	8.23429	+0.75897392	+0.65072244
<i>a</i>	2.3993931	Ω	311.14388	−0.59910192	+0.68420858
<i>e</i>	0.2124299	<i>i</i>	1.73340	−0.25502055	+0.32927028
<i>P</i>	3.72	<i>H</i>	13.9	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1980 09 07	095	(4.2+ 0.8−)	1998 05 22	704	0.3+	0.6−	1999 11 16	704	0.1−	0.4−
1980 09 08	095	1.2+ 1.0−	1998 05 22	704	0.4+	0.0	1999 11 16	704	0.8+	0.4−
1980 10 08	095	(2.5− 1.9−)	1998 05 24	704	0.0	0.1+	1999 11 16	704	0.5−	0.7−
1980 10 12	095	0.9− 0.4+	1998 05 24	704	0.4−	0.1−	1999 11 16	704	0.1−	0.4−
1991 08 06	675	0.4+ 0.4−	1998 05 24	704	1.5−	0.0	1999 11 16	704	0.2+	0.6−
1991 08 06	675	0.2+ 0.9−	1998 05 24	704	(3.9− 0.9+)	1999 12 07	704	0.3−	0.1+	
1991 08 10	675	0.1+ 0.4−	1998 05 24	704	1.6−	1.1+	1999 12 07	704	0.1−	0.2−
1991 08 10	675	0.1− 0.7−	1998 06 16	704	1.0+	0.2−	1999 12 07	704	0.3−	0.0
1991 09 04	033	0.6+ 0.7+	1998 06 16	704	0.4−	0.5+	1999 12 07	704	0.3−	0.2−
1991 09 05	033	0.2+ 0.7+	1998 06 16	704	0.7+	1.5+	1999 12 12	704	0.4−	1.0+
1991 09 13	033	0.7− 0.5+	1998 06 16	704	0.1−	0.2+	1999 12 12	704	0.3+	0.3+
1991 09 13	033	0.6− 0.6+	1999 11 03	704	0.2+	0.5−	1999 12 12	704	0.3+	0.5+
1998 05 01	704	0.7+ 0.6−	1999 11 03	704	0.0	0.1+	1999 12 12	704	0.8+	0.5−
1998 05 01	704	1.1+ 0.1−	1999 11 03	704	0.6+	0.4−	1999 12 12	704	0.7+	0.5−
1998 05 01	704	0.2− 0.2−	1999 11 03	704	0.4+	0.3−	1999 12 13	704	0.1−	0.0

1998 05 01	704	0.4+	0.5−	1999 11 03	704	0.2+	0.1+	1999 12 13	704	0.3−	0.1+
1998 05 02	566	1.0+	0.6−	1999 11 14	704	0.4−	0.5−	1999 12 13	704	0.1−	0.4+
1998 05 02	566	0.9−	1.1−	1999 11 14	704	0.5−	0.3−	1999 12 13	704	0.1+	0.2+
1998 05 02	566	0.6−	0.8−	1999 11 14	704	0.3−	0.3−	1999 12 13	704	0.2−	0.6+
1998 05 22	704	0.0	0.5−	1999 11 14	704	0.3−	0.2−				
1998 05 22	704	0.2−	0.4−	1999 11 14	704	0.1+	0.2−				

(12675)* 1980 TA₄ = 1991 RT₂₀

Discovered 1980 Oct. 9 by C. S. Shoemaker at Palomar.

Id. K. Ichikawa (*MPC* 20010)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
300.44922		(2000.0)			
<i>n</i>	0.26546240	ω	86.14231	−0.24437661	−0.96907856
<i>a</i>	2.3977324	Ω	18.11368	+0.84035692	−0.22922958
<i>e</i>	0.0492203	<i>i</i>	6.30776	+0.48381848	−0.09132654
<i>P</i>	3.71	<i>H</i>	13.3	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1954 09 04	675	1.0−	1.2+	1995 10 23	046	(1.9+ 2.3−)	1999 10 05	704	(2.4+ 0.0)
1954 09 04	675	0.7−	0.0	1995 10 23	046	0.9+ 1.3−	1999 10 05	704	0.9+ 0.0
1980 10 08	675	1.2+ 0.4−		1995 11 11	608	0.3− 0.6+	1999 10 05	704	1.0+ 0.9−
1980 10 09	675	0.5+ 0.0		1995 11 11	608	0.3− 0.6+	1999 10 13	704	0.2− 0.3−
1980 10 10	675	1.4+ 0.8+		1995 11 12	608	0.1+ 0.2−	1999 10 13	704	0.2− 0.1+
1991 09 14	675	0.8+ 1.0−		1995 11 12	608	0.1− 0.3−	1999 10 13	704	0.0 0.2+
1991 09 14	675	0.4− 0.2+		1995 12 14	608	0.3+ 0.7+	1999 10 13	704	0.5− 0.6+
1991 09 16	675	0.2− 0.1−		1995 12 14	608	0.3+ 0.5+	1999 10 13	704	0.3− 1.4+
1991 09 16	675	0.3− 0.9+		1995 12 15	608	0.4+ 0.8+	1999 12 12	704	0.5− 0.3−
1991 09 17	675	1.5− 1.3−		1995 12 15	608	0.4+ 0.9+	1999 12 12	704	0.2+ 0.5−
1991 09 17	675	1.0− 0.3−		1998 08 17	704	0.4− 1.0+	1999 12 12	704	0.1− 0.5−
1995 10 04	608	(2.3− 0.8+)		1998 08 17	704	0.0 0.2−	1999 12 12	704	0.4− 0.8−
1995 10 04	608	0.9− 0.7−		1998 08 17	704	0.8+ 0.7−	1999 12 12	704	0.2− 0.7−
1995 10 05	608	0.4− 0.2−		1998 08 17	704	1.0+ 1.4−			
1995 10 05	608	0.3− 0.1+		1999 10 05	704	1.0+ 0.1+			

(12676)* 1981 DU₁

Discovered 1981 Feb. 28 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
5.89098		(2000.0)			
<i>n</i>	0.20019367	ω	190.29037	+0.41229502	−0.89567556
<i>a</i>	2.8940264	Ω	235.55159	+0.84957728	+0.44404770
<i>e</i>	0.1733597	<i>i</i>	11.66041	+0.32898519	−0.02422681
<i>P</i>	4.92	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1949 11 19	675	1.1+	0.7+	1981 05 01	413	0.4+	1.5−	1998 09 23	704	0.5+	0.0
1949 11 19	675	0.6−	1.4+	1998 08 19	704	0.2+	0.1+	1998 09 23	704	0.2+	0.3+
1954 10 06	675	(4.4+	3.2+)	1998 08 19	704	1.7+	1.4+	1998 09 23	704	1.0+	1.1−
1954 10 06	675	0.3−	0.1+	1998 08 19	704	0.2+	0.1−	1998 09 23	704	0.7+	0.5+
1954 11 23	675	0.6−	0.5−	1998 08 19	704	1.2−	0.1+	1999 10 20	704	1.0+	1.2+
1954 11 23	675	0.4−	0.2+	1998 08 19	704	0.3−	0.9−	1999 10 20	704	0.3+	0.1−
1981 02 04	413	0.7−	1.2−	1998 08 24	704	0.1+	0.4−	1999 10 20	704	0.5+	0.6−
1981 02 08	413	0.1−	0.5−	1998 08 24	704	1.3+	0.1−	1999 10 20	704	0.6+	0.3+
1981 02 28	413	1.9−	0.5+	1998 08 24	704	0.0	1.4+	1999 10 20	704	0.2+	1.9−
1981 02 28	413	1.9+	0.8−	1998 08 24	704	0.3+	0.0	1999 12 05	704	0.2−	0.6+
1981 03 06	413	0.2+	0.9+	1998 08 27	704	0.0	0.1−	1999 12 05	704	0.0	0.3+
1981 03 06	413	1.8+	0.7−	1998 08 27	704	0.7+	0.6+	1999 12 05	704	0.0	0.2+
1981 03 08	413	0.5+	0.0	1998 08 27	704	1.2+	0.2+	1999 12 05	704	0.3−	0.3+
1981 03 08	413	1.5+	0.5−	1998 08 27	704	2.0−	0.5−	1999 12 05	704	0.0	0.3−
1981 03 12	413	0.7−	0.2−	1998 09 19	704	0.1−	0.4+	1999 12 13	703	0.1−	0.3+
1981 04 08	413	1.2−	1.7+	1998 09 19	704	1.1−	0.9+	1999 12 13	703	0.3−	0.1−
1981 04 08	413	1.2−	1.6+	1998 09 19	704	1.6−	0.5−	1999 12 13	703	0.5−	0.5+
1981 04 09	413	0.9−	1.9+	1998 09 19	704	1.2−	0.5−	1999 12 13	703	0.3−	0.1+
1981 04 09	413	0.8+	1.0+	1998 09 19	704	1.5−	1.5+				
1981 05 01	413	1.3+	1.4+	1998 09 23	704	0.3+	0.7−				

(12677)* 1981 EO₄ = 1993 PK

Discovered 1981 Mar. 2 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Id. G. V. Williams (*MPC* 22587)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		31.63083		(2000.0)		P		Q	
<i>n</i>		0.19012432	ω	56.39854		+0.97368479		+0.17034258	
<i>a</i>		2.9953272	Ω	293.38890		-0.22147593		+0.86387348	
<i>e</i>		0.1201191	<i>i</i>	9.49443		+0.05372468		+0.47403165	
<i>P</i>		5.18	<i>H</i>	14.4		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1981 02 14	413	0.6+	1.4-	1993 08 13	691	0.2-	0.3+	1999 10 14	704	0.2+	0.8-
1981 03 02	413	0.6-	0.2+	1993 08 13	691	0.1-	0.0	1999 10 14	704	0.1+	0.2-
1981 03 07	413	1.0-	1.6+	1993 08 15	691	1.0-	1.4-	1999 10 14	704	0.1+	0.6-
1981 03 07	413	1.6+	0.9+	1993 08 15	691	0.2+	0.4+	1999 11 13	703	0.3+	0.1+
1981 03 10	413	1.4-	1.7+	1993 08 17	691	0.5+	0.8+	1999 11 13	703	0.5-	0.3+
1981 03 10	413	(3.3+	1.0+)	1993 08 17	691	0.2+	0.6+	1999 11 13	703	0.8-	0.3+
1981 03 12	413	0.3-	1.1+	1993 08 17	691	0.2+	0.8+	1999 11 13	703	0.6+	0.3+
1981 03 12	413	1.4+	0.2+	1998 06 21	688	0.4+	0.1-	1999 12 05	699	0.6-	0.7+
1981 04 09	413	1.6-	0.4+	1998 06 21	688	0.3+	0.3+	1999 12 05	699	0.4+	0.6+
1981 04 30	413	1.9+	0.3-	1998 06 21	688	0.3+	0.2+	1999 12 05	699	0.6-	0.7+
1981 05 02	413	1.0+	1.8-	1998 07 16	699	0.6-	0.2+	1999 12 07	703	0.2+	1.0+
1993 07 22	691	0.2-	0.4+	1998 07 16	699	0.4-	0.3+	1999 12 07	703	0.9-	0.2-
1993 07 22	691	0.4+	0.2+	1998 07 16	699	0.5-	0.6+	1999 12 07	703	0.5-	0.6+
1993 07 22	691	0.6-	0.4-	1999 10 14	704	0.2+	0.5-	1999 12 07	703	0.7+	0.4+
1993 08 13	691	0.1-	0.4-	1999 10 14	704	0.1+	0.3-				

(12678)* 1981 EQ₂₀ = 1997 ES₄₅

Discovered 1981 Mar. 2 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Id. G. V. Williams (*MPC* 29609)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		80.79375		(2000.0)		P		Q	
<i>n</i>		0.24282481	ω	123.30676		+0.50302699		+0.86426756	
<i>a</i>		2.5445287	Ω	176.89093		-0.80655788		+0.47040422	
<i>e</i>		0.1213808	<i>i</i>	2.46370		-0.31052896		+0.17821744	
<i>P</i>		4.06	<i>H</i>	14.7		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1981 02 09	413	0.9-	1.0-	1997 03 11	704	0.0	0.3+	1999 11 17	704	0.3-	0.7+
1981 02 13	413	0.0	0.3+	1997 03 11	704	0.1+	1.0+	1999 11 17	704	0.6-	0.1+
1981 03 02	413	2.2-	1.1+	1997 03 12	704	0.2-	0.1-	1999 11 17	704	0.1-	0.1-
1981 03 07	413	0.8-	1.1+	1997 03 12	704	0.8+	0.5+	1999 11 17	704	0.7+	0.2+
1981 03 07	413	1.0+	0.2-	1999 11 04	704	0.1+	0.3-	1999 11 17	704	0.4-	0.2-
1981 03 11	413	2.5+	2.5-	1999 11 04	704	0.3-	0.4-	1999 11 28	691	0.5+	0.2-
1981 03 11	413	0.9+	0.9-	1999 11 04	704	0.4-	0.0	1999 11 28	691	0.5+	0.1-
1981 03 16	413	0.4-	0.1-	1999 11 15	704	0.2-	0.0	1999 11 28	691	0.5+	0.1-
1981 03 29	413	0.1-	0.0	1999 11 15	704	0.0	0.6-	1999 12 07	704	0.1+	0.7+
1981 03 29	413	0.9-	0.4+	1999 11 15	704	0.1-	0.1+	1999 12 07	704	0.1-	0.3+
1981 05 02	413	0.3+	0.7-	1999 11 15	704	0.2+	0.1+	1999 12 07	704	0.1-	0.2+
1981 05 03	413	0.1-	0.5+	1999 11 15	704	0.1+	0.1-	1999 12 07	704	0.4+	0.1-
1991 12 04	691	0.0	0.1+	1999 11 16	691	0.3-	0.0	1999 12 07	704	0.1+	0.0
1991 12 04	691	0.1+	0.2-	1999 11 16	691	0.3-	0.3-				
1991 12 04	691	0.0	0.4-	1999 11 16	691	0.1-	0.0				

(12679)* 1981 EK₂₂

Discovered 1981 Mar. 2 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		255.45161		(2000.0)		P		Q	
<i>n</i>		0.19750249	ω	259.47802		-0.97881704		-0.20432937	
<i>a</i>		2.9202565	Ω	268.73085		+0.19253166		-0.89718448	
<i>e</i>		0.0566285	<i>i</i>	0.73998		+0.06963305		-0.39154759	
<i>P</i>		4.99	<i>H</i>	14.3		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1981 02 09	413	1.4-	1.1-	1988 11 08	807	0.7+	0.0	1998 09 18	704	0.3+	1.0-
1981 02 09	413	0.0	1.2-	1991 04 17	675	0.8-	1.4+	1998 09 18	704	(2.9+	0.7+)
1981 02 13	413	0.8-	0.5+	1993 09 19	675	0.0	1.8-	1998 09 18	704	1.6-	0.2+
1981 03 02	413	(3.6-	1.2+)	1993 09 19	675	0.3-	0.6+	1998 09 23	120	0.2+	0.5-
1981 03 02	413	(3.2-	1.0+)	1993 09 23	675	1.9+	0.1+	1998 09 23	120	0.7-	0.9+
1981 03 03	413	0.0	0.2-	1993 09 23	675	0.8+	1.1+	1998 09 23	120	1.2-	0.2+
1981 03 03	413	1.9-	0.9+	1996 03 20	566	0.7+	1.0-	1998 09 27	704	(2.0-	1.3+)
1981 03 07	413	1.2-	0.8+	1996 03 20	566	0.2+	1.7-	1998 09 27	704	1.9-	0.6+
1981 03 07	413	1.6+	0.1+	1996 03 20	566	0.3+	0.2-	1998 09 27	704	0.4-	1.5-
1981 03 11	413	0.5-	1.6+	1998 09 14	704	(2.1+	1.8-)	1998 09 27	704	0.7+	1.6+
1981 03 11	413	0.7+	0.2+	1998 09 14	704	0.1-	0.4+	1998 09 27	704	(2.4-	0.2+)
1981 03 16	413	1.6+	0.4+	1998 09 14	704	1.9+	0.5-	1999 11 09	704	0.1+	0.4+
1981 03 29	413	1.9+	0.7-	1998 09 14	704	0.4-	0.1+	1999 11 09	704	0.0	0.5+
1981 04 08	413	2.4-	1.0+	1998 09 14	704	(3.0-	0.4+)	1999 11 09	704	0.0	0.2+
1981 04 11	413	(7.2-	3.4+)	1998 09 15	691	0.3+	0.4-	1999 12 07	704	0.1-	0.6+
1981 04 26	413	1.1+	2.1-	1998 09 15	691	0.4+	0.5-	1999 12 07	704	0.4+	0.8-
1981 05 02	413	0.5-	1.3-	1998 09 15	691	0.4+	0.3-	1999 12 07	704	0.1-	0.4-
1988 11 03	807	(2.6+	0.3-)	1998 09 18	704	1.9-	1.9-	1999 12 07	704	0.1+	0.6-
1988 11 06	807	1.9+	0.4+	1998 09 18	704	0.1+	0.5-				

(12680)* 1981 JR₂ = 1995 UO₃₁

Discovered 1981 May 6 by C. S. Shoemaker at Palomar.

Id. G. V. Williams (*MPC* 26166)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		244.04773		(2000.0)		P		Q	
<i>n</i>		0.30370702	ω	169.85054		-0.91276778		+0.40701619	
<i>a</i>		2.1919610	Ω	34.23254		-0.37894391		-0.81217251	
<i>e</i>		0.0714316	<i>i</i>	3.51978		-0.15250079		-0.41798760	
<i>P</i>		3.25	<i>H</i>	14.9		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1981 04 11	675	1.3+	0.2+	1998 08 26	809	1.4+	0.3+	1998 09 27	704	0.5-	0.9+
1981 04 11	675	1.2+	0.4-	1998 08 27	809	1.7-	0.2-	1998 09 27	704	0.8+	0.8+
1981 05 05	675	0.4+	0.6-	1998 08 27	809	1.0-	0.2-	1998 09 27	704	(1.6-	2.7+)
1981 05 06	675	1.2-	0.1-	1998 08 27	809	0.5-	0.3-	1998 09 27	704	0.4+	1.2+
1981 05 08	675	1.8-	1.2-	1998 09 14	704	0.7+	1.1-	1998 09 27	704	0.1+	0.5+
1981 05 11	675	0.1-	0.4+	1998 09 14	704	1.9-	1.9-	1999 11 16	704	0.3+	0.5+
1994 05 10	675	(3.7-	3.0+)	1998 09 14	704	(2.4-	0.1-)	1999 11 16	704	1.0+	0.3+
1994 05 10	675	(5.5-	1.8+)	1998 09 14	704	0.8-	1.8-	1999 11 16	704	0.0	0.6-
1994 05 13	675	0.1-	0.5+	1998 09 18	704	0.3-	0.9-	1999 11 16	704	0.1-	0.4-
1994 05 13	675	(2.0-	3.0+)	1998 09 18	704	1.0+	1.4-	1999 12 04	703	(0.4+	3.0+)
1995 10 21	691	0.8-	0.1+	1998 09 18	704	1.2+	0.9+	1999 12 04	703	0.8-	0.0
1995 10 21	691	0.4-	0.1-	1998 09 18	704	0.4+	0.5+	1999 12 04	703	0.6-	0.4+
1995 10 21	691	0.3-	0.1-	1998 09 18	704	0.8-	1.7+	1999 12 04	703	0.4+	0.2-
1995 10 27	691	0.5+	0.2+	1998 09 26	704	0.0	0.9-	1999 12 08	704	0.3-	0.2+
1995 10 27	691	0.0	0.1+	1998 09 26	704	(2.2-	1.4-)	1999 12 08	704	0.3+	0.9-
1995 10 27	691	0.1+	0.0	1998 09 26	704	(1.1-	2.7+)	1999 12 08	704	0.6-	1.7-
1998 08 26	809	1.6+	0.2+	1998 09 26	704	(2.4-	0.1+)	1999 12 08	704	0.3-	0.1-
1998 08 26	809	1.6+	0.2-	1998 09 26	704	(3.5-	1.2+)				

(12681)* 1981 UL₂₉ = 1990 TF₁₀

Discovered 1981 Oct. 24 by S. J. Bus at Palomar.

Id. T. Kobayashi (*MPC* 23970)

1999 DEC. 22

M.P.C. 37033

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	5.15049		(2000.0)	P	Q
<i>n</i>	0.21806930	ω	130.85319	+0.95436780	+0.26502537
<i>a</i>	2.7336297	Ω	214.43826	-0.28896772	+0.93585942
<i>e</i>	0.2266451	<i>i</i>	14.08614	+0.07536414	+0.23222555
<i>P</i>	4.52	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1981 10 24	675	0.2-	1.7+	1999 09 18	704	0.0	0.4-	1999 11 14	704	0.0	0.3-
1981 10 25	675	0.3-	1.1+	1999 09 18	704	0.7-	0.1+	1999 11 14	704	0.1-	0.2-
1981 10 26	675	1.2-	0.7-	1999 09 18	704	0.5+	0.5-	1999 11 14	704	0.3+	0.0
1990 10 10	033	0.1+	0.2-	1999 09 18	704	0.0	0.4-	1999 11 14	704	0.6+	0.4-
1990 10 11	033	0.0	0.2-	1999 09 18	704	0.2-	0.4-	1999 11 14	704	0.6+	0.6-
1990 10 11	033	0.7+	0.2-	1999 09 30	703	0.2-	0.3+	1999 11 16	704	0.4+	0.2+
1990 10 12	033	1.1+	0.1+	1999 09 30	703	0.0	0.4+	1999 11 16	704	0.4+	0.4+
1990 10 13	033	1.3+	1.6-	1999 09 30	703	0.3-	0.2+	1999 11 16	704	0.3+	0.3+
1990 10 14	033	0.4-	0.3+	1999 09 30	703	0.4+	0.5+	1999 11 16	704	0.5+	0.3-
1998 05 01	704	0.2+	0.2+	1999 10 03	704	0.5+	0.0	1999 11 16	704	0.2-	0.5-
1998 05 01	704	0.4+	0.3+	1999 10 03	704	0.5+	0.1-	1999 11 27	699	0.4+	0.4+
1998 05 01	704	1.1-	0.4+	1999 10 03	704	0.0	0.1-	1999 11 27	699	1.0+	0.2+
1998 05 01	704	1.6+	0.4+	1999 10 03	704	0.7+	0.7-	1999 11 27	699	0.1-	0.8+
1998 05 01	704	(2.4-	0.6+)	1999 10 03	704	0.4+	0.0	1999 12 03	691	0.2+	0.7-
1998 05 22	704	1.7-	0.5+	1999 10 09	703	0.4-	0.3+	1999 12 03	691	0.3+	0.6-
1998 05 22	704	0.5-	1.7+	1999 10 09	703	0.3-	0.6+	1999 12 03	691	0.5+	0.7-
1998 05 22	704	1.0-	0.2-	1999 10 09	703	0.6-	0.1+	1999 12 03	704	0.2-	0.7-
1998 05 22	704	1.7+	0.6+	1999 10 09	703	0.1-	0.3+	1999 12 03	704	1.3+	0.6+
1998 05 24	704	0.8+	1.1+	1999 10 10	704	0.2+	0.1-	1999 12 03	704	1.0+	0.4+
1998 05 24	704	(0.5+	2.5-)	1999 10 10	704	0.5-	0.8+	1999 12 03	704	0.2-	0.3-
1998 05 24	704	0.2+	1.3-	1999 10 10	704	0.5-	0.1-	1999 12 07	704	0.7-	0.8+
1998 05 24	704	0.1+	0.5-	1999 10 10	704	0.5-	0.1+	1999 12 07	704	0.3-	0.6+
1998 05 24	704	0.4-	0.2+	1999 10 10	704	0.0	0.2+	1999 12 07	704	0.5-	0.3+
1999 07 22	704	1.4-	0.3+	1999 10 20	704	0.1-	0.2-	1999 12 07	704	0.2-	0.7+
1999 07 22	704	0.5-	0.8-	1999 10 20	704	0.5+	0.1+	1999 12 07	704	0.5-	0.7+
1999 07 22	704	0.2-	0.7-	1999 10 20	704	0.3-	0.1-	1999 12 08	704	0.7-	0.8+
1999 07 22	704	0.1+	0.4-	1999 10 20	704	0.0	0.1+	1999 12 08	704	0.6-	0.5+
1999 07 22	704	0.0	0.0	1999 10 20	704	0.2-	0.3+	1999 12 08	704	0.7-	0.2+
1999 09 08	704	0.6+	0.1+	1999 11 05	704	0.3-	0.0	1999 12 08	704	0.8-	0.4+
1999 09 08	704	0.3+	0.2+	1999 11 05	704	0.3-	0.2-	1999 12 08	704	0.1-	0.1-
1999 09 08	704	0.1-	0.3+	1999 11 05	704	0.0	0.1-	1999 12 09	691	0.5-	0.0
1999 09 08	704	0.0	0.5+	1999 11 05	704	0.8-	0.3-	1999 12 09	691	0.2-	0.1+
1999 09 08	704	0.2+	0.4-	1999 11 05	704	0.1-	0.1-	1999 12 09	691	0.4-	0.2-

(12682)* 1982 VC₃ = 1986 TA₂

Discovered 1982 Nov. 14 by H. Kosai and K. Hurukawa at the Kiso Station of the Tokyo Astronomical Observatory.

Id. E. Bowell (*MPC* 11518)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	42.22813		(2000.0)	P	Q
<i>n</i>	0.23475389	ω	261.05901	+0.91390641	+0.39350011
<i>a</i>	2.6025206	Ω	75.71875	-0.32016571	+0.84969411
<i>e</i>	0.2749864	<i>i</i>	5.90281	-0.24953756	+0.35096665
<i>P</i>	4.20	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1982 11 14	381	1.3-	1.2+	1990 09 14	675	0.9+	0.1-	1998 06 29	699	0.5+	0.1-
1982 11 14	381	1.0-	1.1+	1990 09 14	675	1.1+	0.7-	1998 06 29	699	0.1-	0.3+
1982 12 13	381	0.8-	0.6+	1998 05 22	704	1.5+	1.0+	1998 06 29	699	0.3+	1.1+
1982 12 13	381	0.5+	1.2+	1998 05 22	704	0.8-	1.1+	1999 11 09	704	0.3-	0.1+
1982 12 14	381	0.3-	1.1+	1998 05 22	704	0.2-	0.9+	1999 11 09	704	0.5-	0.2+
1982 12 14	381	0.2-	0.5+	1998 05 22	704	0.5+	0.7+	1999 11 09	704	0.5-	0.4+
1986 10 07	688	(2.9+	1.2+)	1998 05 24	704	0.6+	1.2+	1999 11 09	704	0.3-	0.4+
1986 10 07	688	1.8+	0.1+	1998 05 24	704	0.1-	1.2+	1999 11 09	704	0.0	0.2+
1986 12 01	801	(3.8+	4.0+)	1998 05 24	704	0.5-	1.1+	1999 11 17	704	0.6+	0.5-
1990 07 25	675	0.2+	1.2-	1998 05 24	704	0.5+	1.3+	1999 11 17	704	0.4-	0.0
1990 07 25	675	1.7-	0.4-	1998 05 24	704	0.5-	1.4+	1999 11 17	704	0.3+	0.3+

1990 07 28	675	0.1-	0.8+	1998 06 03	704	0.7+	0.0	1999 11 17	704	0.9+	0.9+
1990 07 28	675	1.2-	1.1+	1998 06 03	704	0.6-	1.8-	1999 12 07	704	0.3-	0.1-
1990 07 30	675	(1.4-	2.8+)	1998 06 03	704	1.4+	1.1-	1999 12 07	704	0.2+	0.2-
1990 07 30	675	0.5-	0.0	1998 06 03	704	0.4-	1.8-	1999 12 07	704	0.4-	0.1-

(12683)* 1983 RP₃

Discovered 1983 Sept. 2 by H. Debehogne at the European Southern Observatory.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	98.68731		(2000.0)	P	Q
<i>n</i>	0.26303640	ω	196.19242	+0.83788659	+0.54430526
<i>a</i>	2.4124527	Ω	130.75765	-0.49461282	+0.78884475
<i>e</i>	0.0630904	<i>i</i>	3.09984	-0.23087705	+0.28540452
<i>P</i>	3.75	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1983 09 02	809	0.9-	1.1-	1998 08 23	699	0.2+	0.2+	1998 12 08	704	(2.6-	1.3+)
1983 09 02	809	0.7-	1.1-	1998 08 23	704	0.4-	0.5-	1998 12 09	699	1.1-	0.4+
1983 09 02	809	0.4-	1.2-	1998 08 23	704	1.0-	0.1-	1998 12 09	699	0.3-	1.6-
1983 09 03	809	0.9-	0.2-	1998 08 23	699	0.2+	0.5+	1998 12 09	699	0.4-	0.0
1983 09 03	809	0.8-	0.5-	1998 08 23	704	(3.7-	1.3+)	1999 11 12	703	0.3-	0.3+
1983 09 03	809	(0.9-	5.7+)	1998 08 23	704	0.2+	0.5-	1999 11 12	703	0.4+	0.1-
1983 09 04	809	0.3+	0.0	1998 08 23	699	0.1-	0.3+	1999 11 12	703	0.6-	0.8+
1983 09 04	809	0.2+	0.4-	1998 08 23	704	0.5+	1.1+	1999 11 12	703	0.4+	0.9+
1983 09 04	809	0.6+	0.4-	1998 09 14	704	1.3+	0.0	1999 11 14	703	0.7-	0.8+
1983 09 08	809	1.0-	0.6-	1998 09 14	704	0.1+	0.1-	1999 11 14	703	0.6-	0.8-
1983 09 08	809	0.9-	0.7-	1998 09 14	704	0.6+	0.4-	1999 11 14	703	0.3+	0.3-
1983 09 08	809	0.8+	0.1+	1998 09 14	704	0.2-	1.0+	1999 11 14	703	0.1-	0.3+
1983 09 09	809	0.2+	0.7+	1998 09 14	704	0.2+	0.5+	1999 11 29	120	0.2+	0.3-
1983 09 09	809	0.0	0.7+	1998 09 18	704	0.6+	0.2-	1999 11 29	120	0.5+	0.2-
1983 09 09	809	0.1+	0.6+	1998 09 18	704	(0.4+	2.1+)	1999 12 02	049	0.2+	0.1+
1983 09 11	809	0.7+	0.7-	1998 09 18	704	0.3+	0.2-	1999 12 02	049	0.0	0.4+
1983 09 11	809	(5.1+	0.9+)	1998 09 18	704	0.0	0.4-	1999 12 02	049	0.1+	0.5+
1983 09 11	809	0.4+	1.3+	1998 09 18	704	0.3-	0.2-	1999 12 03	049	0.3+	0.2-
1983 09 12	809	1.0+	0.3+	1998 09 21	699	0.0	0.0	1999 12 03	049	0.2+	0.2-
1983 09 12	809	1.1+	0.1-	1998 09 21	699	0.0	0.1+	1999 12 03	049	0.3+	0.2+
1983 09 12	809	1.1+	0.3-	1998 09 21	699	0.2-	0.5+	1999 12 07	704	1.0+	0.3+
1991 11 04	691	0.7+	0.1-	1998 09 25	704	0.2+	0.0	1999 12 07	704	0.1+	0.6-
1991 11 04	691	0.7+	0.2-	1998 09 25	704	0.4-	0.1+	1999 12 07	704	0.1-	0.3+
1991 11 04	691	0.7+	0.2-	1998 09 25	704	0.0	0.5+	1999 12 07	704	0.4-	0.1+
1998 08 01	699	0.3+	0.5+	1998 09 25	704	0.5-	0.1+	1999 12 07	704	0.6-	0.2+
1998 08 01	699	0.1+	0.0	1998 09 25	704	1.1-	1.0+	1999 12 08	704	0.5+	0.4-
1998 08 01	699	0.2+	0.5+	1998 11 17	910	1.1-	0.6-	1999 12 08	704	0.2+	0.2-
1998 08 17	704	0.3+	0.6-	1998 11 17	910	1.1-	0.7-	1999 12 08	704	0.4-	0.3-
1998 08 17	704	0.5+	0.7+	1998 11 17	910	0.9-	0.5-	1999 12 08	704	0.3-	0.6-
1998 08 17	704	0.3+	0.3+	1998 12 08	704	1.6-	0.3-	1999 12 08	704	1.3-	0.4-
1998 08 17	704	0.3+	0.4-	1998 12 08	704	1.9-	0.5+				
1998 08 17	704	0.8+	0.0	1998 12 08	704	0.2+	1.9+				

(12684)* 1984 DQ = 1980 FU₉ = 1988 FF₁

Discovered 1984 Feb. 23 by H. Debehogne at the European Southern Observatory.

Id. C. M. Bardwell (*MPC* 13465)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	233.98891		(2000.0)	P	Q
n	0.24203833	ω	251.06391	-0.73618651	+0.67026324
a	2.5500378	Ω	330.79643	-0.52591345	-0.65369558
e	0.2270920	i	11.07001	-0.42596298	-0.35132503
P	4.07	H	13.7	G 0.15	U 1

1984 02 23	809	0.7+	0.2+	1984 03 02	809	0.8-	0.2-	1993 07 25	675	1.1+	0.7+
1984 02 23	809	1.4+	0.2-	1984 03 02	809	0.4-	0.5-	1993 07 25	675	1.3+	0.0
1984 02 25	809	0.3-	0.4+	1984 03 02	809	0.3-	0.4-	1994 11 07	675	1.9+	1.2-
1984 02 25	809	0.4+	0.5+	1984 03 04	809	0.3+	0.5-	1994 11 07	675	0.2+	0.3+
1984 02 25	809	0.6-	0.1-	1984 03 04	809	0.6+	0.3-	1997 07 09	689	1.4-	0.0
1984 02 26	809	1.2-	0.1-	1984 03 04	809	1.0+	0.2-	1998 11 19	159	0.1+	0.3+
1984 02 26	809	0.9-	0.0	1984 03 05	809	0.2-	0.8-	1998 11 19	159	0.3-	0.9+
1984 02 26	809	0.4-	0.3-	1984 03 05	809	0.2-	0.8-	1998 11 19	159	(2.1-	0.6+)
1984 02 27	809	0.9-	0.3-	1984 03 05	809	0.1-	0.4-	1998 11 19	159	1.4+	0.1+
1984 02 27	809	1.1-	0.3-	1984 03 06	809	0.2+	0.1+	1998 11 19	159	0.7-	0.4+
1984 02 27	809	0.9-	0.7-	1984 03 06	809	0.2+	0.0	1999 11 16	703	0.8-	0.1-
1984 02 27	809	0.8-	0.1+	1984 03 06	809	0.3+	0.1+	1999 11 16	703	0.7+	0.1-
1984 02 27	809	0.9-	0.1+	1984 03 07	809	0.5-	0.3-	1999 11 16	703	0.6-	0.3+
1984 02 27	809	1.0-	0.1+	1984 03 07	809	0.4-	0.1-	1999 11 16	703	0.1-	0.8+
1984 02 28	809	0.5+	0.1+	1984 03 07	809	0.0	0.0	1999 12 03	699	0.7-	1.8+
1984 02 28	809	0.7+	0.0	1984 03 08	809	0.6+	0.1-	1999 12 03	699	0.4-	0.6+
1984 02 28	809	1.2+	0.1-	1984 03 08	809	0.7+	0.2-	1999 12 03	699	0.3-	0.8+
1984 02 29	809	0.0	0.4+	1984 03 08	809	0.7+	0.1+	1999 12 12	704	0.2+	1.2-
1984 02 29	809	0.0	0.5+	1984 03 09	809	0.6+	0.2-	1999 12 12	704	0.2+	0.3-
1984 02 29	809	0.1-	0.9+	1984 03 09	809	0.4+	0.1-	1999 12 12	704	0.1-	0.7-
1984 02 29	809	0.2+	0.5+	1984 03 09	809	0.2+	0.0	1999 12 12	704	0.5-	0.3-
1984 02 29	809	0.0	0.3+	1984 03 11	809	0.6+	0.2-				

(12685)* 1985 VE = 1987 JB = 1990 BL₂

Discovered 1985 Nov. 14 by P. Jensen at Brorfelde.

Id. H. Kaneda (*MPC* 19019)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	229.04919		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$
n	0.27757563	ω	340.75942		-0.82341238		-0.56700449
a	2.3274579	Ω	164.63713		+0.53103696		-0.78384642
e	0.1012102	i	4.83175		+0.19997950		-0.25316140
P	3.55	H	13.5	G	0.15	U	1

Residuals in seconds of arc

1985 11 11	095	0.4+	0.5-	1999 10 01	106	0.4+	0.3+	1999 11 01	703	0.5-	0.4+
1985 11 14	054	0.4+	1.1+	1999 10 03	703	0.2+	0.2-	1999 11 01	703	0.4-	0.2+
1985 11 15	054	1.1-	0.6+	1999 10 03	703	0.2-	0.3+	1999 11 01	703	0.4-	0.2+
1985 11 15	054	0.5-	0.1+	1999 10 03	703	0.2+	0.1+	1999 11 01	703	0.0	0.4+
1987 05 02	675	(5.1+	0.4-)	1999 10 03	703	0.3+	0.3+	1999 11 02	703	0.4-	0.2+
1987 05 02	675	(5.3+	1.3+)	1999 10 04	704	0.5-	0.3+	1999 11 02	703	0.1-	0.1+
1990 01 21	675	1.1+	0.0	1999 10 04	704	0.5-	0.8-	1999 11 02	703	0.3-	0.2+
1990 01 21	675	0.3-	0.1-	1999 10 04	704	0.0	0.0	1999 11 02	703	0.2-	0.5+
1990 01 24	675	0.8+	1.6-	1999 10 04	704	0.2-	0.0	1999 11 06	704	0.0	0.3-
1990 01 24	675	(2.3+	1.3-)	1999 10 04	704	0.1+	0.7-	1999 11 06	704	0.1-	0.4-
1990 01 25	889	0.5-	1.2+	1999 10 07	704	0.2-	0.2-	1999 11 06	704	0.1-	0.5-
1990 01 25	889	0.8-	1.4+	1999 10 07	704	0.0	0.3-	1999 11 06	704	0.1-	0.6-
1992 10 25	675	0.6-	0.1+	1999 10 07	704	0.1-	0.4-	1999 11 06	704	0.5-	0.4-
1992 10 25	675	0.5+	0.1-	1999 10 07	704	0.3-	0.2-	1999 11 15	704	1.0+	0.2+
1994 03 31	596	1.0+	0.2+	1999 10 07	704	0.1-	0.7-	1999 11 15	704	0.3+	0.5+
1994 03 31	596	0.8+	1.8+	1999 10 09	704	0.4+	0.0	1999 11 15	704	0.1+	0.3+
1994 03 31	596	(5.4+	4.1+)	1999 10 09	704	0.4+	0.2-	1999 11 15	704	0.4+	0.6-
1997 04 10	691	0.2-	0.4+	1999 10 09	704	0.1+	0.3-	1999 11 15	704	0.3-	1.0-
1997 04 10	691	0.4-	0.9-	1999 10 09	704	0.3+	0.1-	1999 11 17	704	0.6+	0.1-
1997 04 10	691	1.0-	0.3+	1999 10 09	704	0.2+	0.2-	1999 11 17	704	0.1+	0.6+
1998 06 26	704	0.6+	0.4-	1999 10 15	704	0.2+	0.3-	1999 11 17	704	0.3+	0.3+
1998 06 26	704	0.2-	0.5+	1999 10 15	704	0.4+	0.1-	1999 11 17	704	0.6+	0.4+
1998 06 26	704	1.5-	1.9+	1999 10 15	704	0.4+	0.2-	1999 11 17	704	0.1+	0.3+
1999 10 01	699	0.1-	1.5+	1999 10 15	704	0.7+	0.5-	1999 11 27	699	0.1-	0.6+
1999 10 01	699	0.1-	1.1+	1999 10 15	704	0.2+	0.1-	1999 11 27	699	0.1+	0.2+
1999 10 01	699	0.2-	1.0+	1999 10 30	699	0.1+	0.9+	1999 11 27	699	0.4-	0.8+
1999 10 01	106	0.5+	0.4+	1999 10 30	699	0.5-	0.1-				
1999 10 01	106	0.6-	0.3+	1999 10 30	699	0.3-	0.1+				

(12686)* 1986 TT₁₁ = 1990 TZ₈

Discovered 1986 Oct. 3 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Id. S. Nakano (*MPC* 17438)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	78.39243		(2000.0)		P		Q
n	0.23977204	ω	329.07824	+0.89693470	+0.44169486		
a	2.5660810	Ω	4.84580	-0.34024513	+0.71884289		
e	0.1904703	i	13.93404	-0.28238518	+0.53681520		
P	4.11	H	13.4	G	0.15	U	2
Residuals in seconds of arc							
1986 10 03	095 (8.0- 1.7+)	1994 11 01	033 1.2- 0.5-	1998 09 22	689 0.3- 0.0		
1986 10 07	095 (5.8- 1.0+)	1997 03 10	809 0.0 0.0	1998 10 13	704 0.0 0.6-		
1986 10 11	095 0.1+ 2.1-	1997 03 10	809 0.4- 0.9-	1998 10 13	704 0.9- 0.4+		
1990 09 21	372 (3.3- 0.1+)	1997 03 10	809 0.2+ 1.3-	1998 10 13	704 (1.0+ 3.0-)		
1990 09 21	372 1.8- 0.2+	1997 03 11	809 0.2+ 0.8+	1998 11 24	699 0.2- 0.6-		
1990 10 10	400 1.2+ 0.7+	1997 03 11	809 0.6- 0.4+	1998 11 24	699 2.0- 0.1-		
1990 10 10	400 (3.0+ 1.5+)	1997 03 11	809 0.5- 0.4+	1998 12 08	704 0.4- 0.0		
1990 10 10	400 1.2+ 0.3-	1998 09 13	423 0.3+ 0.4+	1998 12 08	704 0.8- 0.4+		
1990 10 17	400 1.4+ 1.5+	1998 09 13	423 0.2+ 0.2+	1998 12 08	704 0.1+ 1.0+		
1990 10 17	400 0.7+ 0.8+	1998 09 13	423 0.7+ 0.3+	1998 12 08	704 0.6+ 1.1-		
1994 09 11	675 1.3- 0.1-	1998 09 17	423 0.2+ 0.2-	1999 11 01	704 0.4+ 1.2-		
1994 09 11	675 1.0- 0.0	1998 09 17	423 0.6+ 0.1-	1999 11 01	704 1.3+ 0.4-		
1994 09 12	675 0.8- 0.6-	1998 09 17	423 0.4+ 0.2-	1999 11 01	704 0.5+ 0.6-		
1994 09 12	675 0.5- 1.3+	1998 09 21	704 1.5+ 0.0	1999 12 13	704 0.3- 0.8-		
1994 09 12	675 0.6- 0.7-	1998 09 21	704 (1.0- 4.0+)	1999 12 13	704 0.6- 0.1+		
1994 09 12	675 0.7- 1.1+	1998 09 21	704 0.8+ 0.7-	1999 12 13	704 0.0 0.5+		
1994 10 01	675 0.6+ 0.8-	1998 09 21	689 0.6- 0.1+	1999 12 13	704 0.3- 0.1+		
1994 10 01	675 0.7+ 0.1-	1998 09 21	704 1.0+ 1.3-	1999 12 13	704 0.2- 1.5+		
1994 11 01	033 0.7- 0.1-	1998 09 21	704 0.8+ 0.4-				

Residuals in seconds of arc

1986 10 03	095	(8.0-	1.7+)	1994 11 01	033	1.2-	0.5-	1998 09 22	689	0.3-	0.0
1986 10 07	095	(5.8-	1.0+)	1997 03 10	809	0.0	0.0	1998 10 13	704	0.0	0.6-
1986 10 11	095	0.1+	2.1-	1997 03 10	809	0.4-	0.9-	1998 10 13	704	0.9-	0.4+
1990 09 21	372	(3.3-	0.1+)	1997 03 10	809	0.2+	1.3-	1998 10 13	704	(1.0+	3.0-)
1990 09 21	372	1.8-	0.2+	1997 03 11	809	0.2+	0.8+	1998 11 24	699	0.2-	0.6-
1990 10 10	400	1.2+	0.7+	1997 03 11	809	0.6-	0.4+	1998 11 24	699	2.0-	0.1-
1990 10 10	400	(3.0+	1.5+)	1997 03 11	809	0.5-	0.4+	1998 12 08	704	0.4-	0.0
1990 10 10	400	1.2+	0.3-	1998 09 13	423	0.3+	0.4+	1998 12 08	704	0.8-	0.4+
1990 10 17	400	1.4+	1.5+	1998 09 13	423	0.2+	0.2+	1998 12 08	704	0.1+	1.0+
1990 10 17	400	0.7+	0.8+	1998 09 13	423	0.7+	0.3+	1998 12 08	704	0.6+	1.1-
1994 09 11	675	1.3-	0.1-	1998 09 17	423	0.2+	0.2-	1999 11 01	704	0.4+	1.2-
1994 09 11	675	1.0-	0.0	1998 09 17	423	0.6+	0.1-	1999 11 01	704	1.3+	0.4-
1994 09 12	675	0.8-	0.6-	1998 09 17	423	0.4+	0.2-	1999 11 01	704	0.5+	0.6-
1994 09 12	675	0.5-	1.3+	1998 09 21	704	1.5+	0.0	1999 12 13	704	0.3-	0.8-
1994 09 12	675	0.6-	0.7-	1998 09 21	704	(1.0-	4.0+)	1999 12 13	704	0.6-	0.1+
1994 09 12	675	0.7-	1.1+	1998 09 21	704	0.8+	0.7-	1999 12 13	704	0.0	0.5+
1994 10 01	675	0.6+	0.8-	1998 09 21	689	0.6-	0.1+	1999 12 13	704	0.3-	0.1+
1994 10 01	675	0.7+	0.1-	1998 09 21	704	1.0+	1.3-	1999 12 13	704	0.2-	1.5+
1994 11 01	033	0.7-	0.1-	1998 09 21	704	0.8+	0.4-				

(12687)* 1987 YS₁ = 1989 GT₆

Discovered 1987 Dec. 17 by E. W. Elst and G. Pizarro at the European Southern Observatory.

Id. B. G. Marsden (*MPC* 14950)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	301.50284		(2000.0)		P		Q				
n	0.24101240	ω	304.98666	-0.08735384	-0.98954981						
a	2.5572692	Ω	149.40780	+0.97159265	-0.11005745						
e	0.1219310	i	13.02728	+0.21994779	+0.09315860						
P	4.09	H	13.0	G	0.15	U	1				
Residuals in seconds of arc											
1954 11 24	675	0.3-	0.6+	1993 04 18	675	0.8-	0.4+	1999 10 09	704	0.1-	0.0
1954 11 24	675	0.3-	0.1+	1997 07 09	599	0.9-	0.5+	1999 10 09	703	0.1-	0.1-
1987 12 17	809	0.2+	0.6-	1997 07 09	599	0.5-	0.7-	1999 10 09	704	0.2-	0.0
1987 12 17	809	2.0+	0.4+	1999 09 08	703	1.9+	0.8-	1999 10 09	703	0.1-	0.2+
1987 12 20	809	0.0	0.3-	1999 09 08	703	0.2-	0.1+	1999 10 09	703	0.1-	0.2+
1987 12 20	809	0.2+	0.1+	1999 09 08	703	0.2+	0.6-	1999 10 09	704	0.4-	0.1-
1987 12 23	809	1.0-	0.2-	1999 09 08	703	0.4+	0.2-	1999 11 04	699	0.3-	0.7+
1987 12 23	809	0.4-	0.5-	1999 09 16	704	0.6+	1.4-	1999 11 04	699	0.0	0.0
1989 04 05	809	0.4+	0.9-	1999 09 16	704	0.2-	0.4-	1999 11 04	699	0.4-	0.3+
1989 04 07	809	1.8+	1.1-	1999 09 16	704	0.2+	0.6-	1999 11 07	704	0.1-	0.5+
1989 04 11	809	0.1+	0.3+	1999 10 09	704	0.1+	0.1-	1999 11 07	704	0.1-	0.1+
1989 04 13	809	0.5+	0.5-	1999 10 09	704	0.0	0.0	1999 11 07	704	0.1-	0.5+
1993 04 18	675	1.3-	1.1+	1999 10 09	703	0.0	0.2+	1999 11 07	704	0.5-	0.2+

Residuals in seconds of arc

1954 11 24	675	0.3-	0.6+	1993 04 18	675	0.8-	0.4+	1999 10 09	704	0.1-	0.0
1954 11 24	675	0.3-	0.1+	1997 07 09	599	0.9-	0.5+	1999 10 09	703	0.1-	0.1-
1987 12 17	809	0.2+	0.6-	1997 07 09	599	0.5-	0.7-	1999 10 09	704	0.2-	0.0
1987 12 17	809	2.0+	0.4+	1999 09 08	703	1.9+	0.8-	1999 10 09	703	0.1-	0.2+
1987 12 20	809	0.0	0.3-	1999 09 08	703	0.2-	0.1+	1999 10 09	703	0.1-	0.2+
1987 12 20	809	0.2+	0.1+	1999 09 08	703	0.2+	0.6-	1999 10 09	704	0.4-	0.1-
1987 12 23	809	1.0-	0.2-	1999 09 08	703	0.4+	0.2-	1999 11 04	699	0.3-	0.7+
1987 12 23	809	0.4-	0.5-	1999 09 16	704	0.6+	1.4-	1999 11 04	699	0.0	0.0
1989 04 05	809	0.4+	0.9-	1999 09 16	704	0.2-	0.4-	1999 11 04	699	0.4-	0.3+
1989 04 07	809	1.8+	1.1-	1999 09 16	704	0.2+	0.6-	1999 11 07	704	0.1-	0.5+
1989 04 11	809	0.1+	0.3+	1999 10 09	704	0.1+	0.1-	1999 11 07	704	0.1-	0.1+
1989 04 13	809	0.5+	0.5-	1999 10 09	704	0.0	0.0	1999 11 07	704	0.1-	0.5+
1993 04 18	675	1.3-	1.1+	1999 10 09	703	0.0	0.2+	1999 11 07	704	0.5-	0.2+

(12688)* 1988 CK₄ = 1989 NW

Discovered 1988 Feb. 13 by E. W. Elst at the European Southern Observatory.

Id. C. M. Bardwell (*MPC* 14951)

1999 DEC. 22

M.P.C. 37035

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Williams						
M	109.45996		(2000.0)		P		Q				
n	0.22359070	ω	345.66216		+0.12586296		+0.97286892				
a	2.6884392	Ω	291.27612		-0.88843341		+0.02346966				
e	0.1553140	i	12.02415		-0.44141205		+0.23016349				
P	4.41	H	13.5		G	0.15	U	1			
Residuals in seconds of arc											
1954 07 04	675	1.1+	0.6-	1989 07 04	675	1.3-	1.1-	1998 08 17	704	0.3-	0.1-
1954 07 04	675	0.1+	0.5-	1998 05 27	699	0.0	0.3-	1998 08 17	704	0.3-	0.7-
1988 02 13	809	(0.6-	3.5-)	1998 05 27	699	0.4-	0.5+	1998 08 23	704	0.1-	0.4-
1988 02 15	809	0.1-	1.0-	1998 05 27	699	0.3-	0.5+	1998 08 23	704	0.3-	0.6+
1988 02 16	809	0.6-	1.5-	1998 06 24	699	0.9-	0.2-	1998 08 23	704	1.2+	0.0
1988 02 16	809	0.2-	1.7-	1998 06 24	699	0.6-	0.2-	1998 08 23	704	0.1+	0.7-
1988 02 16	809	0.4-	1.6-	1998 06 24	699	0.2-	0.4+	1999 10 14	704	0.4+	0.1+
1988 02 21	809	0.9-	0.4-	1998 07 15	699	0.8+	0.2+	1999 10 14	704	0.1-	0.3-
1988 02 21	809	1.3-	0.4+	1998 07 15	699	0.8+	0.3-	1999 10 14	704	0.9+	1.0-
1988 02 21	809	1.5-	0.6-	1998 07 15	699	0.4+	0.3-	1999 10 14	704	0.4+	0.8-
1988 02 23	809	0.3+	0.0	1998 07 24	566	0.2+	1.1-	1999 12 07	703	0.8-	0.4+
1988 02 23	809	0.1-	0.8-	1998 07 24	566	0.0	1.1-	1999 12 07	703	1.0-	0.3+
1988 02 23	809	0.8-	0.5-	1998 07 24	566	0.7+	1.1-	1999 12 07	703	0.4-	0.2+
1988 02 23	413	0.4+	0.7-	1998 07 30	610	0.8+	0.7-	1999 12 07	703	0.3-	0.0
1988 02 23	413	1.1+	0.8+	1998 07 30	610	1.0+	0.4-	1999 12 12	704	0.4+	0.3-
1988 02 25	413	0.6-	0.1+	1998 07 30	610	1.1+	0.1-	1999 12 12	704	0.0	0.3-
1988 02 25	413	1.0+	0.5-	1998 07 30	610	1.3+	0.0	1999 12 12	704	0.1+	0.2-
1989 07 01	675	0.6-	2.2+	1998 08 17	704	0.2+	0.4-	1999 12 12	704	0.1-	0.2+
1989 07 01	675	0.3-	1.0+	1998 08 17	704	0.1-	0.6-	1999 12 12	704	0.0	0.2+
1989 07 04	675	0.9-	0.3+	1998 08 17	704	0.0	0.2-				

(12689)* 1988 RO₂ = 1993 PQ₅

Discovered 1988 Sept. 8 by P. Jensen at Brorfelde.

Id. B. G. Marsden (*MPC* 22590)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Marsden						
M	18.71319		(2000.0)		P		Q				
n	0.18797227	ω	54.42082		+0.96610412		-0.23252424				
a	3.0181456	Ω	318.69623		+0.14510100		+0.84839344				
e	0.1205199	i	9.78174		+0.21351471		+0.47556392				
P	5.24	H	13.0		G	0.15	U	2			
Residuals in seconds of arc											
1988 09 08	054	0.0	0.3+	1998 08 17	704	1.1-	0.2+	1999 11 01	704	0.5-	0.2+
1988 09 08	054	0.2-	1.1-	1998 08 17	704	0.7+	0.5-	1999 11 08	596	0.1-	0.7-
1988 09 09	054	1.0+	0.0	1998 08 17	704	0.0	0.4-	1999 11 08	596	0.4-	0.2-
1988 09 11	675	0.6-	0.4+	1998 08 19	566	0.0	0.9+	1999 11 08	596	0.6-	0.2+
1988 09 11	675	1.8-	0.4+	1998 08 19	566	0.1-	0.7+	1999 11 20	744	0.2+	0.1+
1988 09 16	054	0.9+	0.9+	1998 08 19	566	0.9-	0.4+	1999 11 20	744	0.4+	0.6+
1993 08 15	010	0.9+	0.9-	1998 08 27	699	0.2+	1.1+	1999 11 20	744	0.3+	0.2+
1993 08 15	010	1.4+	0.1+	1998 08 27	699	0.5+	0.5+	1999 12 07	703	0.0	0.6+
1993 08 16	010	0.5+	2.0-	1998 08 27	699	0.2-	0.9+	1999 12 07	703	0.4-	0.6+
1993 08 16	010	0.5+	1.2-	1999 10 14	704	1.2+	0.4+	1999 12 07	703	0.2-	0.5+
1993 08 16	010	0.5+	1.3-	1999 10 14	704	0.9+	0.1+	1999 12 07	703	0.6-	0.3+
1993 08 19	010	0.9+	0.6-	1999 10 14	704	1.5+	0.3-	1999 12 12	704	0.3-	0.7-
1993 08 19	010	0.4-	0.1-	1999 10 14	704	1.0+	0.2-	1999 12 12	704	0.3-	0.4-
1993 08 20	010	0.6-	0.3+	1999 11 01	704	0.2-	0.0	1999 12 12	704	0.3-	0.0
1998 07 02	699	0.1-	0.2+	1999 11 01	704	0.3-	0.2+	1999 12 12	704	0.3-	0.1-
1998 07 02	699	0.5-	1.4+	1999 11 01	704	0.3-	0.2+	1999 12 12	704	0.4-	0.1-
1998 07 02	699	1.2-	0.4+	1999 11 01	704	0.4-	0.3+				

(12690)* 1988 VG₁ = 1980 KU = 1985 GA₂ = 1998 TR₃₂

Discovered 1988 Nov. 5 by T. Seki at Geisei.

Id. G. V. Williams (*MPC* 33222)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Williams						
<i>M</i>	290.35591		(2000.0)		P			Q			
<i>n</i>	0.18901773	ω	299.99054		-0.92641935		-0.35492746				
<i>a</i>	3.0070064	Ω	219.60274		+0.37578604		-0.89215004				
<i>e</i>	0.1134984	<i>i</i>	11.36282		-0.02306588		-0.27945447				
<i>P</i>	5.21	<i>H</i>	11.9		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
1980 05 17	095	1.0-	0.4+	1998 10 28	704	1.0-	0.9-	1999 01 10	699	0.0	0.5+
1985 04 14	688	1.1+	0.3-	1998 10 28	704	0.3-	0.0	1999 01 10	699	0.5-	0.1-
1988 11 05	372	(0.7-	48.0-)	1998 10 29	704	0.8+	0.0	1999 01 11	704	0.4-	1.6-
1988 11 06	372	0.6-	0.2-	1998 10 29	704	0.3+	0.1-	1999 01 11	704	0.8+	0.9-
1988 11 08	372	0.3+	0.5-	1998 10 29	704	0.0	0.4-	1999 01 11	704	1.1-	1.0-
1988 11 08	372	1.6+	0.4+	1998 10 29	704	0.2-	0.1-	1999 01 11	704	1.4+	0.6-
1988 11 10	372	1.8+	1.0-	1998 10 29	704	0.7+	0.5-	1999 01 11	704	0.2-	1.0-
1988 11 10	372	0.2+	0.7+	1998 11 10	704	0.8+	0.3-	1999 10 10	704	0.1-	0.4+
1988 11 18	372	(5.3+	0.5+)	1998 11 10	704	0.5+	0.7+	1999 10 10	704	0.1-	0.3+
1988 11 18	372	(3.2+	1.9+)	1998 11 10	704	0.0	0.4+	1999 10 10	704	0.2-	0.2+
1988 11 28	372	1.1-	1.0+	1998 11 10	699	0.2-	0.2+	1999 10 10	704	0.3-	0.3+
1988 11 28	372	1.8-	1.1-	1998 11 10	704	(1.1+	2.1-)	1999 10 10	704	0.6-	0.2+
1998 09 14	699	0.3+	0.0	1998 11 10	699	0.4-	0.2+	1999 10 20	704	0.2+	0.0
1998 09 14	699	0.1-	0.7-	1998 11 10	699	0.1-	0.4+	1999 10 20	704	0.2+	0.2-
1998 09 14	699	0.7-	0.4-	1998 11 11	704	0.4+	1.3+	1999 10 20	704	0.3+	0.5+
1998 10 12	699	0.2+	0.3+	1998 11 11	704	0.8+	1.3+	1999 10 20	704	0.1-	0.2-
1998 10 12	699	0.6-	0.7+	1998 11 11	704	0.1-	0.0	1999 10 20	704	0.2+	0.4-
1998 10 12	699	0.4-	0.4+	1998 11 11	704	0.1+	0.5+	1999 12 05	704	0.7+	1.4+
1998 10 17	699	0.3-	0.2+	1998 11 11	704	0.7+	0.1-	1999 12 05	704	0.7+	0.3-
1998 10 17	699	0.0	0.2+	1999 01 08	704	1.5-	0.1+	1999 12 05	704	0.9-	0.2+
1998 10 17	699	0.1-	0.3+	1999 01 08	704	1.1+	0.5+	1999 12 05	704	0.2-	0.7-
1998 10 28	704	0.1+	0.4-	1999 01 08	704	(2.3+	2.6-)	1999 12 05	704	0.3-	0.2-
1998 10 28	704	0.4-	0.0	1999 01 08	704	1.1+	1.0+				
1998 10 28	704	1.0-	0.2-	1999 01 10	699	0.6-	0.1+				

(12691)* 1988 VF₂ = 1981 UP₁₈ = 1995 WC₁₈

Discovered 1988 Nov. 7 by Y. Kushida and M. Inoue at the Yatsugatake

South Base Observatory.

Id. G. V. Williams (*MPC* 26396)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
<i>M</i>	71.94862		(2000.0)			P		Q			
<i>n</i>	0.27911443		ω	303.15194		+0.91660175		+0.39314288			
<i>a</i>	2.3188955		Ω	33.85992		-0.30943420		+0.81269332			
<i>e</i>	0.1626608		<i>i</i>	7.49361		-0.25316339		+0.43007934			
<i>P</i>	3.53		<i>H</i>	13.9		<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc											
1981 10 25	095	0.6-	0.9-	1995 11 17	691	0.3-	0.1+	1999 12 03	699	0.1+	0.5+
1988 11 07	896	2.0+	2.0-	Y 1995 11 17	691	0.2-	0.2+	1999 12 12	704	0.1+	0.4-
1988 11 07	896	(5.3+	0.7+)	Y 1995 11 23	691	0.4-	0.1-	1999 12 12	704	0.1-	0.2-
1988 11 09	896	1.4-	0.2+	Y 1995 11 23	691	0.2-	0.1-	1999 12 12	704	0.1-	0.3-
1988 11 12	386	0.4+	1.0+	1995 11 23	691	0.2-	0.1+	1999 12 12	704	0.2+	0.9-
1988 12 10	386	0.6+	1.1-	1995 11 30	691	0.5-	0.2-	1999 12 12	704	0.4-	0.7-
1988 12 10	386	1.3+	1.1-	1995 11 30	691	0.5-	0.1+	1999 12 12	704	0.2+	0.4-
1991 08 06	675	0.4+	0.1-	1995 11 30	691	0.3-	0.0	1999 12 12	704	0.6+	0.4-
1991 08 06	675	0.5-	0.1+	1997 03 12	691	0.3+	0.7+	1999 12 12	704	0.1+	0.8-
1995 10 17	114	0.1+	1.7+	1997 03 12	691	0.5+	0.8+	1999 12 12	704	0.4-	0.7-
1995 10 17	114	(3.0+	1.4+)	1997 03 12	691	0.3+	0.7+	1999 12 12	704	(2.8-	0.5-)
1995 10 18	114	(1.7+	3.5+)	1999 10 13	704	0.5-	0.7+	1999 12 13	704	0.3-	0.3-
1995 10 18	114	(4.2+	2.3+)	1999 10 13	704	0.0	1.4+	1999 12 13	704	0.2-	0.2-
1995 10 19	114	(5.6+	3.6+)	1999 10 13	704	0.0	0.7+	1999 12 13	704	0.2+	0.5-
1995 10 25	114	(0.5+	2.7+)	1999 10 13	704	0.6-	1.4+	1999 12 13	704	0.5+	0.1+
1995 10 25	114	0.3+	2.0+	1999 12 03	699	0.0	1.0+	1999 12 13	704	0.1+	0.1+
1995 11 17	691	0.6-	0.1-	1999 12 03	699	0.1-	0.9+				

Id. S. Nakano (*MPC* 22227)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	272.19134		(2000.0)	P		Q	
<i>n</i>	0.26291286	ω	182.28036	-0.93420308	-0.35650042		
<i>a</i>	2.4132084	Ω	336.82081	+0.32782925	-0.84340897		
<i>e</i>	0.1359226	<i>i</i>	1.90974	+0.14068613	-0.40195616		
<i>P</i>	3.75	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1989 01 29	046	1.8+	1.9-	1997 06 05	046	0.0	1.0+	1998 09 24	046	0.2+	0.0
1989 01 29	046	(2.3+	2.4-)	1997 06 05	046	0.0	1.3+	1998 09 24	046	0.3+	0.3-
1989 01 31	046	0.9+	0.6+	1997 06 07	046	0.7-	1.4+	1998 09 24	046	0.3-	0.5-
1989 01 31	046	(3.2+	1.8-)	1997 06 07	046	1.1+	0.4+	1998 09 26	327	1.2+	0.5+
1989 02 02	046	1.0-	0.6-	1998 08 15	046	1.5-	0.1-	1998 09 26	327	1.4+	0.1-
1989 02 02	046	0.8-	0.2+	1998 08 15	046	0.5-	0.5+	1998 09 26	327	0.8+	0.3+
1989 02 11	399	1.8-	0.6-	1998 08 15	046	0.0	0.5+	1998 09 29	691	0.4-	0.1+
1989 02 11	399	1.0-	1.9+	1998 08 15	046	0.6-	0.1-	1998 09 29	691	0.1-	0.3-
1989 02 11	399	1.3+	1.1+	1998 08 15	046	0.7-	0.4+	1998 09 29	691	0.3-	0.1-
1993 03 19	809	1.7+	0.5-	1998 08 15	046	1.2-	0.2-	1999 11 03	704	0.4-	0.0
1993 03 20	809	1.6+	0.1-	1998 08 15	046	0.7-	0.1-	1999 11 03	704	1.6-	0.1+
1993 03 24	809	1.2+	0.4-	1998 08 17	704	0.1-	0.6-	1999 11 03	704	0.1+	0.2-
1993 03 26	399	1.4-	0.5-	1998 08 17	704	1.3-	0.4+	1999 11 29	046	0.1+	0.3+
1993 03 26	399	0.9-	0.3+	1998 08 17	704	0.5+	1.3+	1999 11 29	046	0.1-	0.4+
1993 03 29	399	0.2+	0.4+	1998 08 17	704	2.0+	1.5+	1999 11 29	046	0.4-	0.4+
1993 03 29	399	0.9+	0.7-	1998 08 31	046	0.5-	0.6-	1999 11 30	046	0.3+	0.5+
1993 04 15	691	0.3+	0.3-	1998 08 31	046	0.0	0.5-	1999 11 30	046	0.3+	0.4+
1993 04 15	691	0.3+	0.4-	1998 08 31	046	0.2-	0.7-	1999 11 30	046	0.0	0.4+
1993 04 15	691	0.3+	0.5-	1998 09 18	704	(0.4-	2.5-)	1999 12 07	704	0.3+	0.9+
1993 04 15	399	1.1-	0.5+	1998 09 18	704	(2.3+	0.3+)	1999 12 07	704	0.4+	0.2-
1993 04 15	399	0.1+	0.6+	1998 09 18	704	0.2+	0.8+	1999 12 07	704	0.3+	0.0
1993 04 17	413	(5.4-	1.2-)	1998 09 18	704	(3.9-	1.0-)	1999 12 07	704	0.1+	0.3+
1993 04 19	399	1.6-	0.4-	1998 09 23	046	0.4+	0.3-	1999 12 07	704	0.4+	0.6+
1993 04 19	399	1.1-	0.0	1998 09 23	046	1.3+	0.3-				
1997 06 05	046	0.1-	0.8+	1998 09 23	046	0.2+	0.3-				

(12693)* 1989 EZ = 1937 ND = 1949 KB₁ = 1969 EF₂ = 1970 SJ₁
= 1998 KY₁₇ = 1999 TB₂₇

Discovered 1989 Mar. 9 by Y. Oshima at the Gekko Observatory.

Id. S. Nakano (*MPC* 36786)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	77.03328		(2000.0)	P		Q	
<i>n</i>	0.24097208	ω	257.93084	+0.14629610	+0.98828392		
<i>a</i>	2.5575545	Ω	20.63419	-0.85281074	+0.14828232		
<i>e</i>	0.2073087	<i>i</i>	7.09082	-0.50130958	+0.03615596		
<i>P</i>	4.09	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1937 07 05	078	(34.9+	58.7-)	X	1999 10 03	704	0.0	0.4+	1999 12 03	699	0.7+	0.2+
1949 05 20	078	0.3+	0.4-		1999 10 03	704	0.2+	0.2-	1999 12 03	699	0.3+	0.5+
1969 03 14	095	(1.8+	5.0-)		1999 10 03	704	0.2+	0.0	1999 12 03	888	0.2+	0.0
1970 09 30	095	1.4-	0.7+		1999 10 06	704	0.1-	1.6+	1999 12 03	888	0.1-	0.0
1989 03 09	888	0.4+	0.8+		1999 10 06	704	0.5-	0.5+	1999 12 03	888	0.0	0.3+
1989 03 09	888	0.6-	0.9+		1999 10 06	704	0.0	0.2+	1999 12 04	703	0.0	0.7+
1989 03 10	888	0.2+	1.5+		1999 10 06	704	0.0	0.1+	1999 12 04	703	0.0	0.3+
1989 03 10	888	(3.3-	3.8+)		1999 10 06	704	0.4-	0.3+	1999 12 04	703	0.1-	0.3+
1998 05 22	704	0.6+	0.5+		1999 11 04	704	0.6-	0.2-	1999 12 04	703	0.4-	0.4+
1998 05 22	704	0.6+	0.7+		1999 11 04	704	0.4-	0.1+	1999 12 06	704	(3.6+	0.4-)
1998 05 22	704	(4.0+	0.5+)		1999 11 04	704	(4.4-	0.4-)	1999 12 06	704	1.4+	0.2-
1998 05 22	704	1.1-	1.8+		1999 11 04	704	0.3-	0.2+	1999 12 06	704	1.3-	1.2-
1998 05 22	704	0.2-	1.5+		1999 11 04	704	0.1+	0.2-	1999 12 09	888	0.1+	0.0
1998 05 24	704	0.4+	0.6+		1999 11 04	704	0.1-	0.3-	1999 12 09	888	0.1+	0.3-
1998 05 24	704	1.7+	0.4-		1999 11 11	703	0.3-	0.3+	1999 12 12	703	0.0	0.2+
1998 05 24	704	(3.9+	0.1-)		1999 11 11	703	0.1-	0.1+	1999 12 12	703	0.1-	0.0
1998 05 24	704	(3.3+	0.3-)		1999 11 11	703	0.2-	0.1+	1999 12 12	703	0.1-	0.1+

1999 10 03	704	0.3+	0.1+	1999 11 11	703	0.1+	0.3+	1999 12 12	703	0.0	0.0
1999 10 03	704	0.3+	0.5+	1999 12 03	699	0.1+	0.5+				

(12694)* 1989 EJ₆ = 1995 DR₃

Discovered 1989 Mar. 7 by F. Börngen at Tautenburg.

Id. B. G. Marsden (*MPC* 28842)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden

<i>M</i>	295.15925		(2000.0)	P		Q	
<i>n</i>	0.16783053	ω	348.74006	-0.57042407	-0.82133018		
<i>a</i>	3.2550331	Ω	136.03942	+0.75421668	-0.52656168		
<i>e</i>	0.0918238	<i>i</i>	0.47503	+0.32522851	-0.21943003		
<i>P</i>	5.87	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1984 05 31	413	0.1-	0.7+	1998 09 18	704	1.0-	0.9+	1999 11 09	704	0.3-	0.1-
1984 05 31	413	0.5+	0.2+	1998 09 21	113	0.1+	0.6+	1999 11 09	704	0.1+	0.2-
1989 02 10	033	0.2+	0.8+	1998 09 21	113	0.3-	1.6+	1999 11 09	704	0.2-	0.1+
1989 02 10	033	0.4+	0.5+	1998 09 22	113	0.5-	0.3-	1999 11 09	704	0.3-	0.4+
1989 03 07	033	0.4+	0.2+	1998 09 22	113	0.4-	0.2+	1999 11 12	704	0.1-	1.1-
1989 03 10	033	0.2+	1.0-	1998 09 23	691	1.0-	0.4+	1999 11 12	704	0.1+	0.9-
1989 03 10	033	0.9-	0.4+	1998 09 23	691	0.9-	0.4+	1999 11 12	704	0.2-	1.1-
1995 02 24	098	(4.9-	0.1-)	1998 09 23	691	0.9-	0.2+	1999 11 12	704	0.4-	0.9-
1995 02 24	098	(3.8-	0.4-)	1998 09 26	704	1.4-	0.6-	1999 11 12	704	0.2-	1.2-
1995 02 25	098	(1.8-	7.7-)	1998 09 26	704	0.3-	0.9-	1999 11 16	704	0.3-	0.0
1995 02 26	098	(2.0-	8.2-)	1998 09 26	704	(1.0+	2.6-)	1999 11 16	704	0.0	0.4-
1995 02 27	098	0.6+	0.9-	1998 09 26	704	0.7-	1.4-	1999 11 16	704	0.4+	0.3+
1995 02 27	098	1.0-	0.5-	1998 09 26	704	(4.0-	0.5-)	1999 11 16	704	0.2+	0.3-
1998 08 27	691	0.1-	0.8-	1998 09 27	704	0.4-	1.0+	1999 11 16	704	0.5+	0.1-
1998 08 27	691	0.1-	1.0-	1998 09 27	704	1.6+	1.3+	1999 12 07	704	0.3+	0.1+
1998 08 27	691	1.3+	1.1-	1998 09 27	704	1.1-	0.3+	1999 12 07	704	0.4+	0.7+
1998 09 14	704	0.4+	0.8-	1998 09 27	704	0.3+	0.2-	1999 12 07	704	0.8+	0.5+
1998 09 14	704	0.8+	1.4-	1998 09 27	704	1.7-	0.8-	1999 12 07	704	0.6-	0.3+
1998 09 14	704	1.4+	0.1+	1998 10 12	910	0.8+	0.9+	1999 12 07	704	0.6+	0.5+
1998 09 14	704	(0.8-	3.5-)	1998 10 12	910	0.7+	0.8+	1999 12 08	704	0.2-	0.2+
1998 09 14	704	(4.1-	1.0-)	1998 10 12	910	1.1+	0.7+	1999 12 08	704	0.1+	0.3+
1998 09 18	704	1.6+	0.4-	1999 11 03	704	0.4-	1.1+	1999 12 08	704	0.1+	0.5+
1998 09 18	704	0.9+	1.2-	1999 11 03	704	0.2-	0.1-	1999 12 08	704	0.5+	0.8+
1998 09 18	704	(0.3+	2.4+)	1999 11 03	704	1.2-	0.1+	1999 12 08	704	0.0	0.7+
1998 09 18	704	0.1-	1.7+	1999 11 09	704	0.1+	0.1+				

(12695)* 1989 GR₃ = 1952 JA = 1990 TO₂

Discovered 1989 Apr. 1 by E. W. Elst at the European Southern Observatory.

Id. H. Kaneda (*MPC* 17443), R. Nagata (*ibid.*), R. W. Sinnott (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	131.12045		(2000.0)	P		Q	
<i>n</i>	0.23911951	ω	14.29430	+0.02143502	+0.99758253		
<i>a</i>	2.5707472	Ω	256.96570	-0.92380632	-0.00551721		
<i>e</i>	0.2483424	<i>i</i>	3.89059	-0.38225963	+0.06927237		
<i>P</i>	4.12	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1952 05 01	839	(1.3-	3.3-)	1998 08 23	704	0.2+	0.4-	1998 09 27	704	0.6-	0.2-
1952 05 01	839	1.1-	1.5-	1998 09 14	704	(0.5+	2.2-)	1998 09 27	704	0.4-	0.1+
1989 04 01	809	1.5+	0.1-	1998 09 14	704	0.3+	0.2+	1998 10 11	699	1.0-	0.6-
1989 04 01	809	1.4+	0.3+	1998 09 14	704	0.2-	0.2-	1998 10 11	699	0.8-	0.4-
1989 04 01	809	1.3+	0.6+	1998 09 14	704	0.2+	0.7-	1998 10 11	699	0.6-	0.2-
1989 04 04	809	(3.1+	1.5+)	1998 09 16	699	0.3+	0.1-	1999 11 09	704	0.3-	0.2+
1989 04 04	809	(4.2+	1.2+)	1998 09 16	699	0.1-	0.0	1999 11 09	704	0.2+	0.2+
1989 04 08	809	0.4-	2.0+	1998 09 16	699	0.1+	0.0	1999 11 09	704	0.7+	1.2+
1989 04 08	809	0.1-	1.3+	1998 09 18	704	0.8+	0.2-	1999 11 09	704	0.6-	1.0+
1989 04 08	809	0.6-	0.8+	1998 09 18	704	0.6+	0.2+	1999 12 05	703	0.1-	1.0+
1990 10 10	033	0.9+	0.4+	1998 09 18	704	0.8+	0.4+	1999 12 05	703	0.6-	0.1-
1990 10 11	033	0.7+	1.1-	1998 09 18	704	0.6-	0.0	1999 12 05	703	0.1+	1.2+
1990 10 11	033	0.5+	0.0	1998 09 18	704	1.0-	0.1-	1999 12 05	703	0.3+	1.6+
1990 10 12	033	0.0	0.9-	1998 09 25	704	0.0	0.9+	1999 12 07	704	0.7-	1.2-

1999 DEC. 22

M.P.C. 37037

1990 10 13	033	0.7+	0.6+	1998 09 25	704	(3.1–	2.1+)	1999 12 07	704	0.2–	0.2+
1990 10 14	033	0.4+	0.1+	1998 09 25	704	1.0–	0.1+	1999 12 07	704	0.6–	0.2–
1998 08 17	704	0.6+	0.9+	1998 09 25	699	0.3–	0.6+	1999 12 07	704	0.0	0.2+
1998 08 17	704	0.0	0.4+	1998 09 25	699	0.8–	0.3+	1999 12 08	704	0.2+	0.3–
1998 08 17	704	0.9+	0.4+	1998 09 25	704	0.2–	0.5+	1999 12 08	704	0.3+	0.1–
1998 08 17	704	(0.6+	2.0+)	1998 09 25	699	0.5–	1.0+	1999 12 08	704	0.5–	1.8–
1998 08 23	704	0.1+	0.5+	1998 09 25	704	0.5+	0.0	1999 12 08	704	0.5–	0.1–
1998 08 23	704	0.2+	0.5+	1998 09 27	704	0.2+	0.6+	1999 12 08	704	0.3+	0.6–
1998 08 23	704	0.4–	0.0	1998 09 27	704	0.5–	0.2–				
1998 08 23	704	0.1–	0.2–	1998 09 27	704	0.3–	0.1–				

(12696)* 1989 SF₁ = 1993 QL₂

Discovered 1989 Sept. 26 by E. W. Elst at the European Southern Observatory.

Id. E. Bowell (*MPC* 22685)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	184.39592	(2000.0)	P	Q	
<i>n</i>	0.23229638	ω	128.84567	+0.33373330	+0.94152142
<i>a</i>	2.6208435	Ω	160.49609	–0.90226344	+0.33331849
<i>e</i>	0.1437425	<i>i</i>	8.00080	–0.27302522	+0.04935794
<i>P</i>	4.24	<i>H</i>	13.4	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1989 09 26	809	1.5+	0.6–	1989 11 05	675	0.2–	0.1+	1998 11 13	704	1.9–	0.7+
1989 09 26	809	1.2+	0.6–	1993 08 13	675	0.7–	0.8+	1998 11 13	704	0.5+	1.3+
1989 09 26	809	0.4+	1.6–	1993 08 13	675	0.6–	0.2–	1998 11 13	704	1.1–	1.7+
1989 09 28	809	2.0+	1.3+	1993 08 16	010	0.5–	0.5–	1998 11 13	704	0.1–	1.1+
1989 09 28	809	0.9+	1.5+	1993 08 16	010	0.1+	0.8–	1998 11 13	704	0.2–	0.0
1989 09 28	809	0.2+	1.0+	1993 08 16	010	0.9–	0.8–	1999 01 10	699	0.5+	0.3–
1989 10 07	809	0.9–	1.5–	1993 08 17	010	(1.3–	2.5–)	1999 01 10	699	0.5+	0.1+
1989 10 07	809	1.3–	1.0–	1996 02 25	292	0.7+	0.1–	1999 01 10	699	0.7+	1.5+
1989 10 07	809	2.4–	1.4–	1996 02 25	292	0.0	1.4+	1999 11 17	704	1.0–	1.2–
1989 10 08	809	0.7+	0.1–	1996 03 10	292	0.7–	0.1–	1999 11 17	704	0.5–	0.7+
1989 10 08	809	0.9+	0.8–	1996 03 10	292	(4.0–	0.3–)	1999 11 17	704	1.9+	1.0+
1989 10 08	809	0.7+	0.4–	1997 06 10	689	0.8–	0.4–	1999 12 05	703	0.3+	0.6–
1989 11 02	675	0.2+	0.4+	1997 07 26	610	0.4+	1.2+	1999 12 05	703	1.2–	0.1–
1989 11 02	675	0.7–	0.1+	1997 07 26	610	0.5+	1.5+	1999 12 05	703	0.4–	0.1–
1989 11 05	675	0.4–	0.3+	1997 07 26	610	0.6+	1.8+	1999 12 05	703	1.0+	1.7–

(12697)* 1989 SK₃ = 1975 TP₃ = 1975 TN₄ = 1998 QP₄₈

Discovered 1989 Sept. 26 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 32658)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	325.54384	(2000.0)	P	Q	
<i>n</i>	0.21045120	ω	293.58069	–0.38858962	–0.92140943
<i>a</i>	2.7992076	Ω	179.27978	+0.88626593	–0.37426103
<i>e</i>	0.1804124	<i>i</i>	7.60438	+0.25205319	–0.10456262
<i>P</i>	4.68	<i>H</i>	13.4	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1975 10 03	095	0.6+	2.1–	1998 08 17	704	0.1+	0.8–	1998 10 10	699	1.1–	0.2+
1975 10 13	095	0.3+	0.0	1998 08 17	704	0.5–	0.1+	1998 11 15	699	0.3+	0.5+
1989 09 26	809	0.3–	0.1+	1998 08 17	704	0.7–	0.6–	1998 11 15	699	0.2–	1.0+
1989 09 26	809	0.5+	0.3+	1998 08 17	704	0.3–	0.6+	1998 11 15	699	0.0	0.7+
1989 09 26	809	0.1+	0.5–	1998 08 23	704	0.4–	1.7–	1999 10 10	704	0.4–	1.0–
1989 09 28	809	2.3–	1.1+	1998 08 23	704	0.2+	0.5–	1999 10 10	704	0.3–	0.6–
1989 09 28	809	(2.9–	0.1+)	1998 08 23	704	1.4–	1.3–	1999 10 10	704	0.1–	0.5–
1989 09 28	809	1.7–	0.7+	1998 08 23	704	0.4–	1.4–	1999 10 10	704	0.1–	0.8–
1989 09 29	675	0.4+	0.6–	1998 09 14	704	0.8+	0.1+	1999 10 20	704	0.9+	0.2–
1989 10 07	809	1.4+	1.4+	1998 09 14	704	0.4+	0.5+	1999 10 20	704	0.8–	0.2–
1989 10 07	809	1.0+	0.9+	1998 09 14	704	1.6+	0.5+	1999 10 20	704	0.8–	0.2–
1989 10 07	809	0.2+	0.4+	1998 09 14	704	1.5+	0.6+	1999 10 20	704	0.4–	0.2–
1989 10 08	809	0.5–	1.0+	1998 09 18	704	0.4+	0.3–	1999 10 20	704	1.0–	0.7–
1989 10 08	809	0.8–	0.9+	1998 09 18	704	0.4–	0.0	1999 12 05	704	1.7+	0.5+

1989 10 08	809	0.8–	0.8+	1998 09 18	704	0.5+	0.0	1999 12 05	704	0.5+	0.1+
1996 03 26	566	0.5–	0.2+	1998 09 18	704	0.5+	0.2–	1999 12 05	704	(1.4+ 4.2–)	
1996 03 26	566	0.1–	0.1+	1998 09 18	704	0.9+	0.7–	1999 12 05	704	(1.3– 2.8–)	
1996 03 26	566	0.4+	0.4+	1998 10 10	699	0.4+	0.2–				
1998 08 17	704	0.7–	0.1–	1998 10 10	699	0.0	0.4–				

(12698)* 1989 US₄ = 1998 SB₁₄₁ = 1998 VY₇

Discovered 1989 Oct. 22 by A. Mrkos at Kleť.

Id. A. Doppler (*MPC* 33676)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	47.54493	(2000.0)	P	Q	
<i>n</i>	0.21776859	ω	184.36298	+0.67443459	–0.73818774
<i>a</i>	2.7361457	Ω	223.22770	+0.67805771	+0.62714410
<i>e</i>	0.0989367	<i>i</i>	1.23198	+0.29219125	+0.24853397
<i>P</i>	4.53	<i>H</i>	13.3	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1989 10 22	046	1.6–	0.4–	1998 09 27	704	0.2–	0.3+	1999 01 10	327	0.2–	0.5+
1989 10 22	046	1.3–	0.2+	1998 09 27	704	0.9–	0.6+	1999 01 13	691	0.0	0.3–
1989 10 23	046	0.3–	0.6–	1998 11 10	704	0.2–	0.3–	1999 01 13	691	0.7–	0.5+
1989 10 23	046	2.2+	1.5+	1998 11 10	704	0.8+	0.6–	1999 01 13	691	1.0–	0.1–
1989 10 24	046	0.7–	0.1–	1998 11 10	704	0.9–	0.8–	1999 01 18	691	1.3–	0.4+
1989 10 24	046	0.7–	0.9+	1998 11 10	704	0.6–	0.7–	1999 01 18	691	(2.0–	0.5+)
1989 10 28	046	(3.9–	3.0+)	1998 11 11	704	0.1+	0.4–	1999 01 19	046	0.1–	0.6+
1989 10 28	046	(0.9+	3.8+)	1998 11 11	704	0.6–	0.2–	1999 01 19	046	0.6+	0.4+
1989 11 03	675	0.4–	1.2–	1998 11 11	704	0.3+	0.7–	1999 01 19	046	0.2+	0.2–
1989 11 03	675	0.7+	1.4–	1998 11 11	704	0.1–	0.1–	1999 01 20	046	0.2–	0.4+
1989 11 04	675	1.0+	1.3–	1998 11 11	704	0.6–	0.1–	1999 01 20	046	0.6+	0.7+
1989 11 04	675	2.2+	0.1–	1998 11 14	699	1.7+	0.4+	1999 01 20	046	0.2+	0.4+
1993 08 17	691	0.1–	0.8+	1998 11 14	699	0.1+	0.0	1999 11 04	703	(2.4+ 1.6+)	
1993 08 17	691	0.5–	0.9+	1998 11 14	699	0.0	0.2+	1999 11 04	703	0.4–	1.1+
1993 08 17	691	0.3–	0.4+	1999 01 01	327	0.3–	0.5–	1999 11 04	703	1.5+	1.3+
1998 09 14	699	0.0	0.6+	1999 01 01	327	0.2–	0.4–	1999 11 04	703	0.2+	1.0+
1998 09 14	699	0.1+	0.3+	1999 01 01	327	0.3–	0.5–	1999 11 17	704	0.2–	0.2+
1998 09 14	699	0.2–	0.4+	1999 01 04	327	0.1–	0.1–	1999 11 17	704	0.6–	1.6–
1998 09 20	809	1.5+	0.2+	1999 01 04	327	0.4+	0.1–	1999 11 17	704	0.7–	0.1–
1998 09 20	809	1.0+	0.3–	1999 01 04	327	0.4–	0.2–	1999 11 17	704	0.3–	0.4+
1998 09 20	809	0.6+	0.0	1999 01 04	327	0.5+	0.0	1999 11 17	704	0.3–	0.7+
1998 09 26	704	0.3–	0.2+	1999 01 08	704	0.3–	0.4–	1999 12 05	704	0.4–	0.4–
1998 09 26	704	0.3–	0.0	1999 01 08	704	1.2+	1.6+	1999 12 05	703	0.2+	0.6+
1998 09 26	704	0.4+	0.5–	1999 01 08	704	(2.3+ 0.4+)		1999 12 05	704	0.2+	0.4+
1998 09 26	704	0.5+	0.9+	1999 01 09	691	0.1–	0.2+	1999 12 05	703	0.3+	0.5+
1998 09 26	704	0.7–	0.3+	1999 01 09	691	0.5+	0.2–	1999 12 05	704	0.2+	1.9–
1998 09 27	704	0.2+	0.2+	1999 01 09	691	0.3+	0.1+	1999 12 05	703	0.7+	1.1+
1998 09 27	704	0.3+	0.0	1999 01 10	327	0.7–	0.2+	1999 12 05	703	0.9+	0.3+
1998 09 27	704	1.0–	0.5+	1999 01 10	327	0.7–	0.2+				

(12699)* 1990 DD₂ = 1976 GC₂ = 1983 HP₁

Discovered 1990 Feb. 24 by H. Debehogne at the European Southern Observatory.

Id. H. Kaneda (*MPC* 17444)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	169.52797	(2000.0)	P	Q	
<i>n</i>	0.27580673	ω	49.18924	–0.64311633	+0.76576813
<i>a</i>	2.3373988	Ω	180.78733	–0.71801968	–0.60335626
<i>e</i>	0.1565487	<i>i</i>	3.13565	–0.26617500	–0.22262164
<i>P</i>	3.57	<i>H</i>	14.6	<i>G</i>	0.15
				<i>U</i>	1

</

1990 02 24	809	0.3−	0.4−	1998 08 17	704	0.6+	0.8−	1999 12 07	704	0.7−	0.3+
1990 02 25	809	0.3−	0.3−	1999 11 04	704	0.5+	0.6+	1999 12 07	704	0.4−	0.7−
1990 02 25	809	0.3+	0.3−	1999 11 04	704	0.1+	0.4+	1999 12 07	704	0.3−	0.3+
1990 02 25	809	0.8+	0.4−	1999 11 04	704	(2.3−	0.1+)	1999 12 07	704	0.1+	0.1+
1990 02 28	809	0.1+	0.4+	1999 11 15	704	0.5+	0.0	1999 12 09	691	0.2−	1.1+
1990 02 28	809	0.2+	0.6+	1999 11 15	704	0.3−	0.1−	1999 12 09	691	0.2−	1.5+
1990 02 28	809	0.5+	0.7+	1999 11 15	704	0.6−	0.3−	1999 12 09	691	0.0	0.9+
1994 05 06	596	0.5+	1.4+	1999 11 15	704	0.3−	0.7−				
1994 05 06	596	(3.8−	0.0)	1999 11 15	704	0.1+	0.3−				

(12700)* 1990 FH = 1995 VP₅

Discovered 1990 Mar. 23 by E. F. Helin at Palomar.

Id. G. V. Williams (*MPC* 26397)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams		Q	
<i>M</i>	239.13410	(2000.0)		P		Q	
<i>n</i>	0.28147923	ω	145.67725	−0.92054149		+0.22271570	
<i>a</i>	2.3058895	Ω	50.60429	−0.38002433		−0.70082050	
<i>e</i>	0.2273108	<i>i</i>	24.53836	+0.09047031		−0.67767864	
<i>P</i>	3.50	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1990 03 23	675	1.0−	0.2+	1995 11 26	691	0.1−	0.6+	1997 05 13	688	0.0	0.2+
1990 03 23	675	0.8−	0.3−	1995 11 26	691	0.1+	0.2+	1997 06 17	608	0.8−	0.4+
1990 03 25	675	0.8+	0.5+	1995 11 27	691	0.1−	0.2+	1997 06 17	608	0.6−	0.6+
1990 03 25	675	1.0−	0.2−	1995 11 27	691	0.1+	0.0	1999 11 01	704	0.1−	0.2+
1990 04 26	675	1.2−	0.5−	1995 11 27	691	0.1+	0.1+	1999 11 01	704	0.3+	0.1+
1990 04 26	675	0.0	0.1−	1995 12 27	566	0.7+	0.5−	1999 11 01	704	1.0+	0.6+
1990 04 28	675	0.2+	0.8−	1995 12 27	566	1.4+	0.4−	1999 11 01	704	0.6+	0.6+
1990 04 28	675	0.0	1.7−	1995 12 27	566	0.9+	0.3−	1999 12 08	849	0.7−	1.8−
1995 11 14	691	0.1+	0.0	1997 04 23	608	1.6+	0.4+	1999 12 08	849	0.4−	1.0+
1995 11 14	691	0.3−	0.1−	1997 04 23	608	1.3+	0.2+	1999 12 08	849	0.9−	1.2+
1995 11 14	691	0.1−	0.2−	1997 04 29	608	1.2+	0.1+	1999 12 13	704	0.4−	0.0
1995 11 19	691	0.2−	0.1−	1997 04 29	608	(2.3+	1.1+)	1999 12 13	704	0.5−	0.1−
1995 11 19	691	0.3−	0.5−	1997 05 13	688	0.4−	0.2+	1999 12 13	704	0.1+	0.1−
1995 11 19	691	0.1−	0.3−	1997 05 13	688	0.4−	0.2+	1999 12 13	704	0.3+	0.6−
1995 11 26	691	0.1+	0.1−	1997 05 13	688	0.1−	0.2+				

(12701)* 1990 GE = 1977 RK₁₃ = 1983 EY₁

Discovered 1990 Apr. 15 by E. W. Elst at the European Southern

Observatory.

Id. E. Bowell (*MPC* 17963), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams		Q	
<i>M</i>	217.44680	(2000.0)		P		Q	
<i>n</i>	0.27623328	ω	192.47961	−0.98753118		+0.15727507	
<i>a</i>	2.3349919	Ω	356.54711	−0.13291395		−0.85626198	
<i>e</i>	0.1680713	<i>i</i>	6.51689	−0.08435672		−0.49201623	
<i>P</i>	3.57	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 09 09	675	1.9−	0.4−	1990 04 16	809	0.2+	0.2+	1999 10 12	704	0.6−	0.4−
1977 09 10	675	0.0	0.7+	1990 04 16	809	1.4−	0.0	1999 10 13	704	0.2+	0.3+
1983 03 11	381	1.3+	0.6−	1990 04 16	809	0.6+	0.5+	1999 10 13	704	0.2+	0.7+
1983 03 11	381	1.1+	0.5−	1990 04 17	809	0.9−	0.5+	1999 10 13	704	0.3+	0.1−
1990 02 28	809	0.4−	0.1+	1990 04 17	809	(2.6−	0.9+)	1999 10 13	704	0.0	0.3−
1990 02 28	809	0.1−	0.2−	1997 02 12	689	(3.0−	2.4+)	1999 10 13	704	0.4−	0.4+
1990 02 28	809	0.2+	0.2−	1998 08 17	704	1.0−	1.0−	1999 12 01	596	0.6+	0.5−
1990 03 01	809	1.7−	0.6+	1998 08 17	704	0.5+	1.0+	1999 12 01	596	0.5+	0.6−
1990 03 01	809	1.1−	0.8+	1998 08 17	704	0.6+	0.5−	1999 12 01	596	0.6+	0.6−
1990 03 01	809	0.4−	0.6+	1998 08 17	704	0.0	1.1+	1999 12 05	699	0.3+	1.4+
1990 03 02	809	0.4−	0.7+	1998 08 27	699	0.2+	0.2+	1999 12 05	699	0.1−	0.7+
1990 03 02	809	0.0	0.6+	1998 08 27	699	1.2−	0.7+	1999 12 05	699	0.2+	1.1+
1990 03 02	809	0.5+	0.3+	1998 08 27	699	0.2+	0.2−	1999 12 13	703	0.1−	0.0
1990 04 04	809	1.2+	0.4+	1999 10 12	704	0.5+	0.0	1999 12 13	703	0.7−	0.6−
1990 04 04	809	0.3+	0.2−	1999 10 12	704	0.8+	0.4+	1999 12 13	703	0.6−	0.2+

1990 04 04	809	1.4+	1.1−	1999 10 12	704	0.2+	0.4−	1999 12 13	703	0.2−	0.2−
1990 04 15	809	0.7+	0.3−	1999 10 12	704	0.1+	0.5−				

(12702)* 1990 SR₆ = 1941 RA = 1978 VM₁₅ = 1986 TT₄ = 1986 TF₁₀ = 1994 RT

Discovered 1990 Sept. 22 by E. W. Elst at the European Southern

Observatory.

Id. S. Nakano (*MPC* 23974)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Nakano		Q	
<i>M</i>	54.46383	(2000.0)		P		Q	
<i>n</i>	0.24220590	ω	309.98345	+0.94191390		−0.33402058	
<i>a</i>	2.5488615	Ω	69.55516	+0.31841714		+0.85494519	
<i>e</i>	0.1726417	<i>i</i>	2.14368	+0.10681168		+0.39686140	
<i>P</i>	4.07	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1941 09 14	053(79.2−	28.8+)	X	1997 05 04	809	0.2−	0.9+	1998 09 14	704	0.8−	0.4+
1941 09 17	053(56.4−	22.6+)	X	1997 05 04	809	(0.9−	2.3+)	1998 09 14	704	0.3−	0.5+
1941 09 20	053(38.8−	64.0+)	X	1997 05 07	704	0.6+	0.5+	1998 09 16	699	0.1−	1.0+
1978 11 01	095	0.4−	0.0	1997 05 07	704	0.3+	1.0+	1998 09 16	699	0.1−	1.2+
1986 10 01	010(10.8−	2.6+)		1997 05 07	704	0.9+	0.4+	1998 09 16	699	0.2+	0.8+
1986 10 01	010(14.3−	0.8+)		1997 05 07	704	0.7+	0.8+	1998 09 18	704	0.2+	0.3+
1986 10 01	010	(6.8−	1.9+)	1997 05 07	704	0.2+	0.6+	1998 09 18	704	0.5+	0.5−
1986 10 03	095	1.2−	1.2−	1998 08 01	699	0.0	0.4+	1998 09 18	704	0.3+	0.7−
1988 03 17	675	1.8−	0.7+	1998 08 01	699	0.2−	0.4+	1998 09 18	704	0.2+	0.1−
1988 03 17	675	0.3+	1.1+	1998 08 01	699	0.4−	0.2+	1998 09 18	704	0.6−	0.4−
1990 09 15	809	0.2−	0.8+	1998 08 17	704	0.1−	0.0	1998 09 25	704	0.1+	0.0
1990 09 15	809	0.3−	1.4+	1998 08 17	704	0.6−	0.3−	1998 09 25	704	0.2+	0.4−
1990 09 15	809	0.3+−	1.2+	1998 08 17	704	0.3+	0.3+	1998 09 25	704	0.2−	0.1−
1990 09 22	809	1.2+	0.3+	1998 08 17	704	0.2−	0.2+	1998 09 25	704	0.5−	0.4−
1990 09 22	809	0.9+	0.1+	1998 08 17	704	0.5−	0.5−	1998 09 25	704	0.9−	0.2+
1990 09 22	809	0.4+	0.9+	1998 08 20	823	0.2+	0.5−	1998 09 27	704	0.4+	0.0
1990 09 25	809	0.7+	0.7−	1998 08 20	823	0.2−	0.1+	1998 09 27	704	1.1−	0.2−
1990 09 25	809	1.1+	0.9−	1998 08 22	823	0.1−	0.0	1998 09 27	704	0.8−	1.3+
1990 09 25	809	0.7+	0.2−	1998 08 22	823	0.5+	0.2−	1998 09 27	704	0.2−	1.5+
1994 08 03	675	0.7+	0.5+	1998 08 23	704	0.3+	0.0	1998 09 27	704	0.5−	0.5+
1994 08 03	675	0.5+	0.1−	1998 08 23	704	0.4+	0.5+	1998 12 09	699	1.0−	0.7−
1994 09 01	400	0.4+	0.5+	1998 08 23	704	0.8+	0.5−	1998 12 09	699	0.1−	0.8−
1994 09 01	400	0.6+	0.1+	1998 08 23	704	0.7+	0.1−	1998 12 09	699	0.6−	0.4+
1994 09 06	400	1.4−	0.4−	1998 08 23	704	0.0	1.4+	1999 11 16	704	0.4+	0.7+
1994 09 06	400	1.7−	0.3+	1998 08 23	120	0.1−	1.5−	1999 11 16	704	0.6+	0.0
1997 04 11	704	0.7+	1.0−	1998 08 23	120	0.7+	0.3−	1999 11 16	704	0.4+	0.2−
1997 04 11	704	1.3+	0.3−	1998 08 28	823	0.6+	0.0	1999 11 16	704	0.0	0.5+
1997 05 03	809	0.3−	0.1+	1998 08 28	823	0.6+	0.2−	1999 12 04	703	1.1+	1.4+
1997 05 03	809	2.0−	1.1−	1998 09 14	704	0.2+	0.7−	1999 12 04	703	0.3+	1.0+
1997 05 03	809	(2.4−	0.9−)	1998 09 14	704	0.9−	0.4−	1999 12 04	703	0.9+	1.6+
1997 05 04	809	0.1+	1.6+	1998 09 14	704	1.1−	0.3−	1999 12 04	703	(2.7+	1.6−)

(12703)* 1990 SV₁₃ = 1978 UB = 1982 UV₃

Discovered 1990 Sept. 23 by H. Debehogne at the European Southern

Observatory.

Id. B. G. Marsden (*MPC* 18124)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	38.01984		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.24368449	ω	18.78138	+0.89614631	−0.44364181
a	2.5385407	Ω	7.57894	+0.39661182	+0.79043006
e	0.0593734	i	4.42878	+0.19904986	+0.42237692
P	4.04	H	14.3	G 0.15	U 1

1990 08 16	809	0.6+	0.5−	1997 05 01	704	0.2+	0.0	1998 09 18	704	0.1−	0.5+
1990 08 16	809	0.4+	0.1−	1997 05 01	704	0.5+	0.0	1998 09 18	704	1.2−	0.1+
1990 08 25	675	(1.0−	2.2−)	1998 08 17	704	0.3−	0.0	1998 09 18	704	1.3−	1.7+
1990 08 25	675	0.1−	1.4−	1998 08 17	704	0.5+	1.1+	1998 09 18	704	1.2−	1.6+
1990 08 26	809	1.9+	0.0	1998 08 17	704	0.4−	0.8+	1998 09 25	704	0.5+	1.1+
1990 08 26	809	1.4+	1.1−	1998 08 17	704	0.5−	0.2−	1998 09 25	704	1.3+	0.2−
1990 08 26	809	(2.2+	0.6−)	1998 08 17	704	1.1−	0.0	1998 09 25	704	0.4−	0.4−
1990 09 23	809	0.1+	0.4+	1998 08 18	566	1.0−	0.6−	1998 09 25	704	0.7+	0.7−
1990 09 23	809	0.5+	0.2+	1998 08 18	566	0.4+	0.5−	1998 09 25	704	0.0	0.4−
1990 09 23	809	1.1+	0.1+	1998 08 18	566	0.3+	0.8−	1998 11 11	910	1.9−	0.7−
1990 09 24	809	0.1−	0.5+	1998 08 22	566	0.2−	0.1+	1998 11 11	910	1.9−	0.7−
1990 09 24	809	0.3+	0.5+	1998 08 22	566	0.2−	0.2+	1998 11 11	910	1.8−	0.7−
1990 09 24	809	0.5+	0.3+	1998 08 22	566	0.2+	0.2+	1999 10 13	704	0.4−	0.4+
1993 04 19	675	1.2−	0.4+	1998 08 23	699	0.0	0.2+	1999 10 13	704	0.1+	0.7−
1993 04 19	675	0.8−	1.6+	1998 08 23	704	0.3+	0.6−	1999 10 13	704	0.2+	0.2+
1997 04 06	704	1.0−	0.9+	1998 08 23	704	1.2−	0.8−	1999 10 13	704	0.9+	0.4+
1997 04 06	704	0.7−	1.2+	1998 08 23	699	0.9−	0.5+	1999 12 03	699	0.3−	0.9+
1997 04 30	704	0.5+	0.2−	1998 08 23	704	0.8−	1.2+	1999 12 03	699	0.2−	1.1+
1997 04 30	704	0.3+	0.3−	1998 08 23	699	0.2−	0.6+	1999 12 03	699	0.5+	0.2+
1997 04 30	704	0.3+	0.4−	1998 08 23	704	0.7+	0.6+				

(12704)* 1990 SL₂₈ = 1964 RK = 1981 PJ = 1993 FN₂₅

Discovered 1990 Sept. 24 by G. R. Kastel' and L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. K. Ichikawa (*MPC* 23672), S. Nakano (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	63.62142		(2000.0)	<i>P</i>		<i>Q</i>
<i>n</i>	0.22964790	ω	0.22998	+0.77863748	+0.62732347	
<i>a</i>	2.6409554	Ω	320.90607	−0.57573097	+0.70554694	
<i>e</i>	0.1949601	<i>i</i>	1.24899	−0.24951456	+0.32964947	
<i>P</i>	4.29	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1964 09 10	095	0.6+	0.9−	1994 08 09	801	0.1+	1.0−	1998 06 24	704	0.0	2.1+
1981 08 04	688	0.1−	0.4−	1994 08 09	801	0.2+	0.5−	1998 06 26	704	0.3+	0.8+
1981 08 04	688	1.0+	0.5−	1994 08 10	809	0.6+	0.6+	1998 06 26	704	0.7+	0.7−
1989 05 07	675	1.4−	0.7−	1994 08 10	809	0.0	0.9+	1998 06 26	704	0.6+	0.0
1989 05 07	675	(2.3−	0.2−)	1994 08 10	809	0.7−	0.6+	1998 06 26	704	1.0+	0.4−
1990 09 24	095	0.5−	0.1+	1994 08 11	809	(0.2+	2.2−)	1999 11 03	704	0.3−	0.9−
1990 09 30	095	(2.3−	1.1+)	1994 08 11	809	0.9−	1.7−	1999 11 03	704	0.3+	0.4+
1990 10 15	095	0.5+ 1.1+	1.3−	1994 08 11	809	0.6−	1.1−	1999 11 03	704	0.1+	0.4−
1990 10 15	095	(0.4+	2.5−)	1994 09 02	691	0.3−	0.5+	1999 11 03	704	0.4−	0.0
1992 01 09	691	0.3+	0.8−	1994 09 02	691	0.0	0.3+	1999 11 03	704	0.1+	0.2+
1992 01 09	691	0.5+	0.4−	1994 09 02	691	0.1−	0.0	1999 11 14	704	0.1+	0.0
1992 01 09	691	0.4+	0.4−	1994 09 03	809	0.5+	1.2+	1999 11 14	704	0.1+	0.0
1992 02 01	691	0.1−	0.4+	1994 09 03	809	0.1−	1.2+	1999 11 14	704	0.3+	0.0
1992 02 01	691	0.8−	0.6+	1994 09 03	809	0.5−	1.2+	1999 11 14	704	0.5+	0.6+
1992 02 01	691	0.4−	0.3+	1994 09 04	809	(1.0+	2.5+)	1999 11 14	704	0.5+	0.6+
1992 02 04	675	0.1+	0.7−	1994 09 04	809	(0.7+	2.5+)	1999 11 16	704	0.0	0.2+
1993 03 21	809	0.1−	1.1+	1994 09 04	809	(1.1+	2.8+)	1999 11 16	704	0.0	0.1−
1993 03 22	809	1.3−	0.3+	1994 09 09	691	0.1−	0.3+	1999 11 16	704	0.0	0.3−
1993 03 22	809	1.3+	0.5+	1994 09 09	691	0.0	0.2+	1999 11 16	704	0.4+	0.3−
1993 03 26	809	0.1−	0.3+	1994 09 09	691	0.5−	0.2+	1999 11 16	704	0.3−	0.0
1993 04 21	413	(2.6+	5.3+)	1997 04 04	566	0.4+	0.2−	1999 12 07	704	0.3−	0.2+
1994 07 12	801	0.3−	0.8−	1997 04 04	566	0.2−	0.3−	1999 12 07	704	0.0	0.4+
1994 07 12	801	0.1+	0.4−	1997 04 04	566	0.2+	0.3−	1999 12 07	704	0.3−	0.6+
1994 07 13	801	0.4−	0.5−	1998 06 24	704	0.2+	1.4+	1999 12 07	704	0.1+	0.7+
1994 07 13	801	0.3−	0.4−	1998 06 24	704	(1.3+	2.2+)	1999 12 07	704	0.3+	0.6+
1994 08 07	801	0.3+	0.2−	1998 06 24	704	(1.2+	3.0+)				
1994 08 07	801	0.7+	0.3−	1998 06 24	704	1.1−	0.7−				

(12705)* 1990 TJ = 1978 UP = 1982 UR₁ = 1986 UK₂

Discovered 1990 Oct. 12 by R. H. McNaught at Siding Spring.

Id. R. Nagata (*MPC* 17451), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	48.21415		(2000.0)	<i>P</i>		<i>Q</i>
<i>n</i>	0.24499044	ω	349.78891	+0.69261490	−0.71780368	
<i>a</i>	2.5295113	Ω	56.33088	+0.66765787	+0.60072788	
<i>e</i>	0.0651713	<i>i</i>	4.89460	+0.27297906	+0.35197142	
<i>P</i>	4.02	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1978 10 28	688	0.6−	1.0+	1998 09 18	704	0.0	0.0	1998 10 19	699	0.5−	0.2+
1978 10 28	688	(6.4+	1.3−)	1998 09 18	704	0.2+	1.0−	1998 10 19	699	0.7+	0.6+
1982 10 16	046	(4.0+	2.1−)	1998 09 18	704	1.3+	0.7−	1998 10 19	699	0.3+	0.5+
1982 10 16	046	(2.8+	1.4−)	1998 09 18	704	1.2−	0.7−	1998 10 28	704	0.3+	0.3+
1982 10 20	046	0.7−	0.8−	1998 09 19	699	0.5−	0.3−	1998 10 28	704	0.1−	0.4+
1982 10 20	046	(4.6+	0.8+)	1998 09 19	699	0.7−	0.1−	1998 10 28	704	0.6+	0.1+
1982 10 21	046	0.5+	1.2−	1998 09 19	699	0.1−	0.2−	1998 10 28	704	0.9−	0.7+
1982 10 21	046	(2.6+	0.1−)	1998 09 22	699	0.7−	0.3−	1998 10 28	704	0.4−	0.4+
1986 10 27	010	(21.0−	2.4−)	1998 09 22	699	0.6−	0.4−	1998 10 29	704	0.2+	0.0
1986 10 27	010	(13.5−	3.0−)	1998 09 22	699	0.1−	0.5−	1998 10 29	704	0.4+	0.8+
1986 10 27	010	(13.0−	2.5−)	1998 09 24	699	0.0	0.3+	1998 10 29	704	0.5−	0.5+
1990 10 12	413	1.0−	0.1+	1998 09 24	699	0.3+	0.3+	1998 10 29	704	0.5+	1.1+
1990 10 12	413	1.3+	0.9+	1998 09 24	699	0.4+	0.4+	1998 10 29	704	0.3+	1.5+
1990 10 13	413	1.6+	1.1+	1998 09 26	704	0.1−	0.1−	1998 12 08	699	0.3+	0.5−
1990 10 16	413	0.9+	0.3+	1998 09 26	704	0.2−	0.9−	1998 12 08	699	0.3−	0.1−
1990 10 28	413	0.1−	0.0	1998 09 26	704	0.5+	0.3−	1998 12 08	699	0.1+	0.5−
1992 02 27	033	0.3−	1.4−	1998 09 26	704	0.8+	0.3+	1998 12 15	699	0.7−	0.0
1992 02 27	033	0.1+	0.4−	1998 09 26	704	0.0	0.5−	1998 12 15	699	0.5+	0.0
1992 02 28	033	0.3−	0.3−	1998 09 27	704	0.1−	0.3+	1998 12 15	699	0.5+	0.2−
1992 03 01	809	(2.3−	1.2−)	1998 09 27	704	0.4−	0.1−	1999 01 09	910	0.9−	0.1+
1992 04 04	809	1.7−	0.1−	1998 09 27	704	0.5−	0.3−	1999 01 09	910	1.0−	0.1−
1994 10 08	801	0.8+	1.6−	1998 09 27	704	0.1−	0.6−	1999 01 09	910	1.1−	0.2−
1994 10 08	801	0.0	0.6−	1998 09 27	704	0.8−	0.3−	1999 01 14	910	0.8−	0.2−
1994 10 26	400	0.0	0.2+	1998 10 14	704	0.6+	0.1−	1999 01 14	910	1.0−	0.2+
1994 10 26	400	(3.9+	1.5−)	1998 10 14	704	0.9+	0.2+	1999 01 14	910	0.8−	0.2+
1994 11 07	675	0.3−	0.5+	1998 10 14	704	0.3+	0.0	1999 11 16	704	0.3+	0.0
1994 11 07	675	0.5−	0.4−	1998 10 14	704	1.1+	0.7−	1999 11 16	704	0.2−	0.1+
1994 11 08	801	0.1−	0.3+	1998 10 14	704	0.1+	1.5+	1999 11 16	704	1.0+	0.5−
1994 11 08	801	0.3−	0.3+	1998 10 15	704	0.5+	0.2−	1999 11 16	704	0.0	0.3+
1998 09 17	699	0.6−	0.2+	1998 10 15	704	0.4+	0.8−	1999 12 06	704	(2.8−	1.3+)
1998 09 17	699	0.1−	0.2+	1998 10 15	704	0.3−	0.8−	1999 12 06	704	0.3+	0.1−
1998 09 17	699	0.5−	0.2+	1998 10 15	704	0.3+	0.4−	1999 12 06	704	0.4+	0.2+
1998 09 18	704	0.2+	0.2+	1998 10 15	704	0.5+	1.4−				

(12706)* 1990 TE₁ = 2546 T-3

Discovered 1990 Oct. 15 by T. Seki at Geisei.

Id. H. Kaneda (*MPC* 17452)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	37.57731		(2000.0)	<i>P</i>		<i>Q</i>
<i>n</i>	0.22959132	ω	343.13439	+0.99648550	−0.03255958	
<i>a</i>	2.6413892	Ω	19.23451	+0.07195378	+0.80444593	
<i>e</i>	0.2993694	<i>i</i>	13.54890	−0.04288714	+0.59313288	
<i>P</i>	4.29	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1971 03 24	675	0.6+	0.4+

1990 10 16	372	1.2-	2.0+	1997 04 30	691	0.4-	0.1-	1999 12 13	704	0.1-	0.5-
1990 10 17	372	0.8-	0.4-	1997 05 03	691	1.5-	0.3-	1999 12 13	704	0.1+	0.8-
1990 10 26	372	2.1-	1.2+	1997 05 03	691	1.0-	0.2-	1999 12 13	704	0.1-	0.7-

(12707)* 1990 UK = 1997 GV₂₃

Discovered 1990 Oct. 20 by T. Urata at the Nihondaira Observatory.

Id. G. V. Williams (*MPC* 29612)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	28.22856		(2000.0)		P		Q
<i>n</i>	0.23218585	ω	337.85760		+0.86715644		-0.45114708
<i>a</i>	2.6216752	Ω	50.71621		+0.48797606		+0.68494139
<i>e</i>	0.1103512	<i>i</i>	15.81649		+0.09959461		+0.57212027
<i>P</i>	4.24	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1990 10 20	385	0.5+	0.6+	1997 04 07	704	0.6+	0.8+	1998 09 21	704	(3.3-	0.8+)
1990 10 20	385	0.1-	1.4+	1997 04 08	809	(2.1-	2.5+)	1998 09 21	704	(1.0-	2.8-)
1990 10 21	385	(2.4+	2.5+)	1997 04 08	809	1.8-	1.5+	1998 09 21	704	0.4-	1.8-
1990 10 21	385	1.2-	1.2+	1997 04 08	809	(1.0-	2.1+)	1999 11 20	385	0.1+	0.1-
1990 10 26	385	1.7-	1.2+	1997 04 30	704	0.6+	0.3+	1999 11 20	385	0.1+	0.4-
1990 10 26	385	(0.8-	2.3+)	1997 04 30	704	0.5+	0.5+	1999 11 20	385	0.2+	0.3-
1990 11 10	889	(1.4-	2.4+)	1997 04 30	704	0.5+	0.5+	1999 12 03	699	0.5+	0.0
1990 11 10	889	0.5+	1.0-	1997 04 30	704	0.3+	0.4+	1999 12 03	699	0.6+	0.9+
1990 11 22	385	1.1-	1.4+	1997 04 30	704	0.4+	0.4+	1999 12 03	699	0.6+	0.1-
1990 11 22	385	1.2-	1.4+	1997 05 05	704	0.9+	0.2+	1999 12 13	704	0.4-	0.5-
1997 04 06	704	0.1-	0.0	1997 05 05	704	0.8+	0.3+	1999 12 13	704	0.2-	0.1-
1997 04 06	704	0.1+	0.3+	1997 05 05	704	0.8+	0.2+	1999 12 13	704	0.3-	0.2-
1997 04 07	809	(0.0	3.5+)	1997 05 05	704	1.0+	0.2+	1999 12 13	704	0.4-	0.2-
1997 04 07	809	(0.3-	3.0+)	1997 05 25	385	(2.3-	0.5+)	1999 12 13	704	0.6-	0.2-
1997 04 07	704	0.1-	0.0	1997 05 25	385	0.9-	0.0				
1997 04 07	809	(0.6+	2.9+)	1998 09 21	704	0.8+	0.2-				

(12708)* 1990 UB₄ = 1987 BS₃ = 1994 PH₃₁

Discovered 1990 Oct. 16 by E. W. Elst at the European Southern

Observatory.

Id. B. G. Marsden (*MPC* 24564), G. V. Williams (*MPC* 34491), A. Milani (*ibid.*),A. Doppler (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	323.02950		(2000.0)		P		Q
<i>n</i>	0.21834041	ω	240.20167		+0.40695531		-0.91327027
<i>a</i>	2.7313664	Ω	185.87168		+0.88706161		+0.39983064
<i>e</i>	0.1298810	<i>i</i>	10.14651		+0.21796577		+0.07792862
<i>P</i>	4.51	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1987 01 30	010	1.0+	0.7+	1997 04 09	809	0.1+	1.3-	1999 10 19	704	0.7-	0.2-
1987 01 30	010	0.4+	2.1+	1997 04 09	809	0.7-	0.3-	1999 10 19	704	0.7-	0.1-
1987 01 31	010	0.7+	1.7+	1997 04 09	809	1.4-	1.3-	1999 10 19	704	0.4-	0.3-
1990 10 16	809	0.0	1.5-	1997 04 10	809	(3.2+	3.0+)	1999 10 19	704	0.6-	0.4-
1990 10 16	809	(0.7-	2.7-)	1997 04 10	809	(1.9+	2.2+)	1999 10 19	704	0.7-	0.7-
1990 10 16	809	(2.0-	2.3-)	1997 04 10	809	(1.2+	2.5+)	1999 11 05	704	0.4-	0.6-
1990 10 20	809	(0.4+	3.6-)	1998 06 25	704	0.7+	0.2+	1999 11 05	704	0.1-	0.3-
1990 10 20	809	(0.0	2.4-)	1998 06 25	704	1.0-	0.5+	1999 11 05	704	0.2+	0.9-
1990 10 20	809	(0.8+	2.3-)	1998 06 25	704	1.4+	0.2-	1999 11 05	704	0.5-	0.5-
1990 10 24	809	0.1+	1.7-	1999 10 02	703	0.3-	0.4-	1999 11 05	704	0.3-	0.8-
1990 10 24	809	(0.7-	2.1-)	1999 10 02	703	0.3-	0.5-	1999 11 13	699	0.1-	0.3+
1990 10 24	809	1.6-	1.8-	1999 10 02	703	0.5-	0.1-	1999 11 13	699	0.1-	1.0+
1994 08 12	809	1.0-	0.4-	1999 10 02	703	0.2-	0.4-	1999 11 13	699	0.7+	0.3+
1994 08 12	809	1.4-	0.2-	1999 10 07	704	0.4+	1.3+	1999 12 03	704	1.8+	0.7-
1994 08 12	809	1.3-	0.2+	1999 10 07	704	(1.3-	2.5+)	1999 12 03	704	0.8+	1.7-
1994 08 13	809	1.3+	1.6+	1999 10 07	704	0.8-	1.5+	1999 12 03	704	0.9+	0.2-
1994 08 13	809	0.9+	1.6+	1999 10 09	704	0.3+	0.6+	1999 12 03	704	1.2+	1.4-
1994 08 13	809	1.4+	1.1+	1999 10 09	704	0.4+	0.3+	1999 12 08	699	0.3+	1.2+
1994 09 05	809	(0.8+	3.1+)	1999 10 09	704	0.1+	0.4+	1999 12 08	699	0.1+	1.3+

1994 09 05	809	(1.1+	3.4+)	1999 10 09	704	0.4+	0.5+	1999 12 08	699	0.2-	0.4+
1994 09 05	809	(0.0	2.8+)	1999 10 09	704	0.2+	1.0+				

(12709)* 1990 VN₄ = 1997 MT

Discovered 1990 Nov. 15 by E. W. Elst at the European Southern

Observatory.

Id. G. V. Williams (*MPC* 30273)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	245.16340		(2000.0)		P		Q
<i>n</i>	0.22994795	ω	350.61842		-0.95735100		+0.27276193
<i>a</i>	2.6386575	Ω	205.83095		-0.24887980		-0.94603520
<i>e</i>	0.1174855	<i>i</i>	12.63236		-0.14675796		-0.17498096
<i>P</i>	4.29	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1990 11 15	809	0.9+	0.2-	1998 08 27	699	0.4+	0.3-	1998 10 15	704	0.1+	0.8-
1990 11 15	809	0.4-	0.3-	1998 08 27	699	0.1+	0.0	1998 10 15	704	0.1+	0.2-
1990 11 15	809	0.9-	0.5-	1998 09 14	704	0.1+	0.1-	1998 10 15	120	1.2-	0.0
1990 11 17	809	(3.6+	0.8+)	1998 09 14	704	0.9+	0.3-	1998 10 15	120	0.4+	0.2-
1990 11 17	809	0.3-	0.8-	1998 09 14	704	1.4+	0.7-	1998 10 28	704	0.4+	0.3-
1990 11 17	809	0.1-	0.6-	1998 09 18	704	0.4+	0.7+	1998 10 28	704	0.8+	0.7-
1990 11 21	809	0.1+	0.7-	1998 09 18	704	0.6+	0.5+	1998 10 28	704	0.0	0.2-
1990 11 21	809	0.5+	0.8+	1998 09 18	704	0.1+	0.0	1998 10 28	704	0.5-	0.5-
1990 11 21	809	0.4+	0.5+	1998 09 18	704	0.5-	0.6+	1998 10 28	704	1.0+	1.0-
1997 06 28	683	0.6-	1.1+	1998 09 18	704	0.4-	1.0-	1998 10 29	704	1.6-	0.0
1997 06 28	683	0.1-	0.6+	1998 09 25	704	(0.3+	3.1+)	1998 10 29	704	1.0-	0.8+
1997 06 28	683	0.2+	0.4+	1998 09 25	704	1.8-	0.8+	1998 10 29	704	0.3-	0.1-
1997 06 29	683	0.2+	0.1-	1998 09 25	704	0.5-	1.1+	1998 10 29	704	0.6-	0.5-
1997 06 29	683	0.2-	0.1-	1998 09 25	704	1.1-	1.7+	1998 10 29	704	0.1-	1.0+
1997 06 29	683	0.3+	0.1-	1998 09 25	704	1.3+	0.7+	1998 11 11	699	0.3-	0.5+
1997 07 03	568	0.6-	0.1+	1998 09 26	704	0.6+	0.5+	1998 11 11	699	0.5+	1.2+
1997 07 03	568	0.6-	0.0	1998 09 26	704	1.5+	0.3-	1998 11 11	699	0.7-	1.0+
1997 07 03	568	1.5-	0.2+	1998 09 26	704	0.5+	0.8-	1998 12 08	699	1.1-	0.1-
1997 07 04	568	0.3+	0.0	1998 09 26	704	0.3+	0.5-	1998 12 08	699	0.2-	0.8+
1997 07 04	568	0.3+	0.1-	1998 09 26	704	0.1+	0.3-	1998 12 08	699	0.7+	0.6-
1997 07 13	683	0.0	0.3-	1998 09 27	704	0.0	0.4+	1999 10 10	704	0.2-	0.2-
1997 07 13	683	0.6-	0.4-	1998 09 27	704	0.7+	0.4+	1999 10 10	704	0.0	0.3+
1997 09 04	683	0.6+	0.0	1998 09 27	704	0.9+	0.3+	1999 10 10	704	0.1+	0.5+
1997 09 04	683	0.3-	0.3-	1998 09 27	704	0.4+	0.0	1999 10 20	704	1.1-	1.4+
1997 09 27	683	0.4+	0.3+	1998 09 27	704	0.3+	0.0	1999 10 20	704	0.3-	0.5+
1997 09 27	683	0.9+	0.3+	1998 10 14	704	0.2-	0.3+	1999 10 20	704	0.7+	0.6+
1997 10 03	683	0.6-	0.8+	1998 10 14	704	0.5-	1.6-	1999 10 20	704	0.8+	0.2+
1997 10 03	683	1.2+	1.2+	1998 10 14	704	1.2-	0.1-	1999 10 20	704	0.1-	0.6+
1997 10 03	683	1.1+	0.7+	1998 10 14	704	1.0-	1.8-	1999 12 05	704	0.3+	1.3+
1997 10 03	683	0.2+	0.5-	1998 10 14	704	0.2-	0.9-	1999 12 05	704	0.7+	0.5+
1997 10 04	683	0.3+	0.7+	1998 10 15	704	0.0	1.3+	1999 12 05	704	0.4+	0.1+
1997 10 04	683	0.7+	0.8+	1998 10 15	704	0.7-	1.7-	1999 12 05	704	0.2-	0.0
1998 08 27	699	0.1+	0.4+	1998 10 15	704	0.3-	0.0	1999 12 05	704	0.1-	0.4+

(12710)* 1990 VQ₅ = 1992 FG₁

Discovered 1990 Nov. 15 by E. W. Elst at the European Southern

Observatory.

Id. S. Nakano (*MPC* 20022)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	249.48428		(2000.0)		P		Q
<i>n</i>	0.23637587	ω	74.73813		-0.87396928		+0.47325873
<i>a</i>	2.5906016	Ω	133.36347		-0.48342171		-0.82330843
<i>e</i>	0.0629758	<i>i</i>	8.74008		-0.04981118		-0.31335189
<i>P</i>	4.17	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1990 11 15	809	0.3+	1.7+	1992 03 24	399	0.9+	0.2+	1998 11 13	704	1

1999 DEC. 22

M.P.C. 37041

1990 11 15	809	0.2+	1.8+	1996 02 14	098	1.5+	1.0-	1999 10 10	704	0.6+	0.4+
1990 11 15	809	(2.9+	0.7+)	1996 02 15	098	0.4-	0.0	1999 10 10	704	0.6-	0.2-
1990 11 17	809	0.0	0.8-	1996 02 15	098	0.2+	0.7-	1999 10 10	704	1.6-	0.1-
1990 11 17	809	0.5-	0.0	1996 02 24	098	0.8-	0.8+	1999 10 10	704	0.5-	0.4+
1990 11 17	809	0.7-	1.0+	1996 02 24	098	0.1-	0.7+	1999 11 17	704	0.0	0.1+
1990 11 17	809	1.4+	0.5+	1998 10 16	704	0.5+	0.2+	1999 11 17	704	0.3+	0.2-
1990 11 17	809	0.2+	0.3-	1998 10 16	704	0.2-	0.1+	1999 11 17	704	0.2-	1.1+
1990 11 17	809	0.5+	1.7-	1998 10 16	704	0.8-	0.1+	1999 11 17	704	0.9-	0.1-
1990 11 21	809	1.2+	1.9-	1998 10 16	704	0.5+	0.5+	1999 11 17	704	0.8+	1.4+
1990 11 21	809	1.0+	0.9-	1998 10 16	704	0.5+	0.4+	1999 12 07	704	0.6-	0.3-
1990 11 21	809	0.2+	0.9-	1998 10 20	699	0.1-	0.3+	1999 12 07	704	0.6+	1.2-
1990 11 23	809	0.6+	0.2-	1998 10 20	699	0.3-	0.1+	1999 12 07	704	0.4+	0.1-
1990 11 23	809	0.8-	0.8-	1998 10 20	699	0.4+	0.1-	1999 12 07	704	0.2+	0.4+
1990 11 23	809	1.5-	0.9-	1998 11 13	704	0.2+	1.0+				
1992 03 24	399	1.0+	0.6+	1998 11 13	704	0.5-	0.2-				

(12711)* 1991 BB

Discovered 1991 Jan. 19 by J. Mueller at Palomar.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		113.96788		(2000.0)		P		Q	
<i>n</i>		0.76279549	ω	322.81784		-0.09141290		+0.82085973	
<i>a</i>		1.1863076	Ω	295.04040		-0.69640010		-0.45737152	
<i>e</i>		0.2723379	<i>i</i>	38.48081		-0.71180797		+0.34205349	
<i>P</i>		1.29	<i>H</i>	16.0		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1991 01 12	675	1.1-	1.2+	1994 12 19	413	0.1+	0.8+	1996 01 01	897	0.8+	0.6+
1991 01 12	675	0.2-	1.3+	1994 12 19	413	0.7-	0.2+	1996 01 01	587	0.4+	0.3-
1991 01 16	675	0.2+	1.5-	1994 12 19	413	0.6-	0.3+	1996 01 01	587	0.3+	0.8-
1991 01 16	675	(2.1+	2.2-)	1994 12 19	413	0.0	0.8+	1996 01 01	587	0.6+	0.7-
1991 01 19	675	0.3+	0.4+	1995 01 12	413	0.3-	0.4-	1996 01 12	658	0.3-	1.1+
1991 01 19	675	(4.3+	5.0+)	1995 01 12	413	0.4-	0.4-	1996 01 12	658	0.5+	0.4+
1991 01 20	675	0.8-	0.9+	1995 01 13	413	0.4-	0.7-	1996 01 12	658	0.2-	0.8+
1991 01 20	675	(2.2+	3.0+)	1995 01 13	413	0.3-	0.6-	1996 01 16	587	0.2+	0.9-
1991 01 22	675	(2.6+	1.9-)	1995 01 13	413	0.4-	0.7-	1996 01 16	587	0.4+	0.7-
1991 01 27	413	1.5+	1.9+	1995 01 13	413	0.9-	0.4-	1996 01 17	118	0.3+	0.1+
1991 01 28	413	1.6-	0.5+	1995 01 15	413	0.3-	0.1-	1996 01 17	118	0.4+	0.1-
1991 02 06	474	0.6+	0.4-	1995 01 15	413	0.3-	0.2-	1996 01 21	118	0.3+	0.4+
1991 02 06	474	0.6+	0.6-	1995 02 01	413	0.6+	0.5+	1996 01 21	118	0.3+	0.3+
1991 02 07	675	1.7-	1.7-	1995 02 01	413	0.5+	0.8+	1996 01 30	118	0.6+	0.1-
1991 02 08	675	1.8-	1.3-	1995 02 02	413	1.0+	1.0+	1996 01 30	118	0.6+	0.0
1991 02 09	801	0.3-	0.6-	1995 02 02	413	1.4+	0.4+	1996 02 28	118	0.4+	0.0
1991 02 09	801	0.3-	0.7-	1995 02 21	413	0.4-	0.9+	1996 02 28	118	0.4+	0.1-
1991 02 10	801	0.4-	0.1-	1995 02 21	413	0.3-	1.0+	1996 03 01	658	1.2-	0.2+
1991 02 10	801	0.4-	0.2-	1995 03 21	413	0.7+	0.6+	1996 03 01	658	1.2-	0.5+
1991 02 21	413	1.3+	0.3+	1995 03 22	413	0.6+	0.2+	1996 03 01	658	1.1-	0.6+
1991 03 12	474	0.8-	0.1+	1995 03 22	413	0.9+	0.1+	1996 03 07	118	0.8-	0.6+
1991 03 12	474	0.9-	0.8+	1995 06 08	413	0.2-	0.1-	1996 03 08	118	0.2+	0.3+
1991 03 20	413	0.6+	0.1+	1995 06 08	413	0.0	0.2-	1996 03 23	658	0.9-	0.3+
1991 03 21	413	0.2+	0.2+	1995 06 30	658	0.1-	0.4-	1996 03 23	658	0.9-	0.2+
1991 03 21	413	0.2+	0.1+	1995 06 30	658	0.4-	0.2-	1996 03 23	658	0.7-	0.2+
1991 04 02	413	1.0-	1.7-	1995 06 30	658	0.7-	0.6-	1996 03 28	413	0.1-	0.3-
1991 04 06	413	0.2-	1.4+	1995 09 29	540	1.2-	1.1-	1996 03 28	413	0.0	0.3-
1991 04 18	413	0.3-	0.9+	1995 09 29	540	0.5-	0.1-	1996 09 25	658	1.2-	0.0
1991 05 05	413	0.8-	0.5-	1995 09 29	540	0.3-	0.2-	1996 10 12	118	1.2-	1.5-
1991 05 13	413	0.5-	0.3-	1995 10 22	540	0.3+	1.0-	1996 10 12	118	1.5-	1.3-
1991 07 18	657	0.2+	0.0	1995 10 22	540	0.8-	0.1-	1996 10 24	118	1.1+	0.6-
1991 07 18	657	(0.8-	3.7+)	1995 10 22	540	0.5+	0.1-	1996 10 24	118	0.8+	0.8-
1991 08 20	657	1.2+	0.5+	Y 1995 10 26	540	0.1+	0.8-	1996 10 25	118	0.3+	1.3-
1991 08 20	657	0.4-	0.3+	Y 1995 10 26	540	0.1-	0.6-	1996 10 25	118	0.3+	1.3-
1991 08 20	657	0.4-	0.4+	Y 1995 10 26	540	0.0	0.3-	1996 10 25	118	0.2+	0.9-
1991 08 23	657	0.1+	0.0	Y 1995 11 30	711	0.0	0.3+	1996 11 09	118	0.6+	0.6-
1991 08 23	657	0.9+	0.2-	Y 1995 11 30	711	0.5+	0.2+	1996 11 09	118	0.4+	0.1-
1991 09 04	657	0.3+	0.0	1995 12 05	595	0.6-	1.1+	1999 11 13	595	0.2+	0.4+
1991 09 04	657	0.3+	0.0	1995 12 05	595	0.4-	0.7+	1999 11 13	595	0.5+	0.8+
1992 01 08	801	0.9+	0.0	1995 12 05	595	0.1-	0.1-	1999 11 13	595	0.3+	0.5+
1992 01 08	801	0.7+	0.1-	1995 12 08	595	0.7+	0.0	1999 12 03	118	0.3+	0.0

1994 11 08	360	0.1+	0.8+	1995 12 08	595	0.2+	0.2-	1999 12 03	118	0.2+	0.1-
1994 11 08	360	0.8+	0.9+	1995 12 17	360	0.5+	0.8+	1999 12 13	704	0.1+	0.3-
1994 11 08	360	0.3+	0.3+	1995 12 17	360	0.4+	0.1+	1999 12 13	704	0.0	0.3-
1994 12 02	557	0.4+	0.2-	1995 12 17	360	0.4+	0.5+	1999 12 13	704	0.2-	0.3-
1994 12 02	557	0.1+	0.2-	1995 12 23	658	0.3-	0.2+	1999 12 13	704	0.1-	0.2-
1994 12 02	557	0.1+	0.9-	1995 12 23	658	0.4-	0.0	1999 12 13	704	0.6-	0.2-
1994 12 05	360	0.2-	0.5-	1995 12 23	658	0.3-	0.1+	1999 12 13	670	0.5+	0.0
1994 12 05	360	0.3-	0.6-	1996 01 01	897	0.8+	0.5+	1999 12 13	670	0.2-	1.1-
1994 12 05	360	0.3-	0.5-	1996 01 01	897	0.1+	0.0				

(12712)* 1991 EY₃ = 1993 RX₁₀

Discovered 1991 Mar. 12 by H. Debehogne at the European Southern

Observatory.

Id. B. G. Marsden (*MPC* 24104)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		229.01275		(2000.0)		P		Q	
<i>n</i>		0.20366435	ω	240.17803		-0.95476359		+0.29694255	
<i>a</i>		2.8610539	Ω	317.09052		-0.26415692		-0.87142622	
<i>e</i>		0.1330539	<i>i</i>	1.33497		-0.13655622		-0.39043753	
<i>P</i>		4.84	<i>H</i>	13.7		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 03 12	809	0.8-	0.1-	1996 02 21	709	0.0	1.0+	1998 09 27	704	1.0+	0.4+
1991 03 12	809	0.4-	0.1+	1996 03 20	709	0.3+	0.4+	1998 09 27	704	0.4-	0.4-
1991 03 12	809	0.0	0.1-	1996 03 20	709	0.3+	0.5+	1998 09 27	704	1.9+	1.2-
1991 03 14	809	0.3-	0.7-	1996 03 20	709	0.2+	0.4+	1998 10 14	699	1.3-	1.4-
1991 03 14	809	0.3-	0.7-	1996 03 20	709	0.3+	0.6+	1998 10 14	699	0.4+	1.0-
1991 03 14	809	0.3-	0.9-	1996 03 20	709	0.3+	0.7+	1998 10 14	699	0.5-	0.6+
1991 03 16	809	0.4+	0.3-	1996 03 20	709	0.3+	0.5+	1998 10 15	704	1.1+	0.6+
1991 03 16	809	0.1+	0.4-	1996 03 20	709	0.4+	0.4+	1998 10 15	704	0.5+	0.1+
1991 03 16	809	0.2+	0.3-	1996 04 07	689	0.2-	1.0-	1998 10 15	704	(2.8+	1.5-)
1993 09 14	809	(2.8+	1.8+)	1998 09 14	704	0.3-	0.0	1998 10 15	704	1.0+	0.7-
1993 09 14	809	(2.1+	1.6+)	1998 09 14	704	1.7+	0.3-	1999 11 03	704	0.1+	0.1+
1993 09 14	809	1.2+	0.8+	1998 09 14	704	1.2+	1.2-	1999 11 03	704	0.6-	0.2-
1993 09 15	691	0.1-	0.3-	1998 09 18	704	0.3-	0.5+	1999 11 03	704	0.3+	0.9+
1993 09 15	691	0.4-	0.2-	1998 09 18	704	0.4-	0.4+	1999 11 03	704	0.3-	0.1-
1993 09 15	691	0.7-	0.3-	1998 09 18	704	0.2+	0.3+	1999 11 16	704	0.4-	0.7+
1993 09 19	809	0.4-	2.0+	1998 09 18	704	0.6-	0.1-	1999 11 16	704	0.1-	0.8+
1993 09 19	809	0.8-	1.5+	1998 09 18	704	0.2-	0.3+	1999 11 16	704	0.1+	0.1-
1993 09 19	809	0.0	0.4+	1998 09 26	704	1.0-	0.7+	1999 11 16	704	0.3+	0.4-
1996 02 15	566	(4.0+	2.3+)	1998 09 26	704	1.7-	0.7-	1999 11 16	704	0.6-	0.6+
1996 02 15	566	(3.4+	2.4+)	1998 09 26	704	0.3-	0.3+	1999 12 07	704	0.2+	0.2-
1996 02 15	566	(3.4+	2.3+)	1998 09 26	704	1.3-	0.5+	1999 12 07	704	0.4+	0.6-
1996 02 21	709	0.6+	0.1+	1998 09 26	704	1.8-	1.4+	1999 12 07	704	0.6+	0.2-

1985 03 22	688	(3.6− 2.2+)	1998 09 27	704	1.9− 0.8+	1999 01 13	699	0.3− 0.1+
1985 03 22	688	0.4+ 0.6+	1998 09 27	704	1.0− 0.6+	1999 10 16	704	0.2− 0.4−
1987 09 18	095	(6.1− 5.6+)	1998 09 27	704	1.7− 0.8+	1999 10 16	704	0.3+ 0.5−
1987 10 02	095	0.5− 0.7+	1998 09 27	704	1.3− 0.3+	1999 10 16	704	0.6+ 1.0−
1991 03 22	809	0.3− 0.8−	1998 09 27	699	0.3+ 0.5+	1999 10 16	704	0.9+ 1.5−
1991 03 22	809	0.2− 0.8−	1998 09 27	704	1.3− 0.1−	1999 10 16	704	1.1+ 1.3−
1991 03 22	809	0.2− 0.4−	1998 09 27	699	0.3− 0.6+	1999 12 08	849	0.4− 1.9+
1991 03 23	809	0.5− 0.3+	1998 09 27	699	0.5+ 0.4+	1999 12 08	849	0.4− 1.5+
1991 03 23	809	0.3− 0.3+	1998 10 12	699	0.0 0.0	1999 12 08	849	(0.7− 2.3+)
1991 03 23	809	0.1− 0.4+	1998 10 12	699	0.0 0.2−	1999 12 13	704	0.3− 0.3+
1991 03 24	809	0.9+ 0.2−	1998 10 12	699	0.1− 0.0	1999 12 13	704	0.2− 0.5+
1991 03 24	809	1.1+ 0.2+	1998 11 25	699	0.8+ 0.0	1999 12 13	704	0.3− 0.3+
1991 03 24	809	1.3+ 0.2+	1998 11 25	699	0.1− 0.1+	1999 12 13	704	0.3− 0.2+
1991 03 25	809	0.6− 0.6+	1998 11 25	699	0.0 0.2−	1999 12 13	704	0.4− 0.2+
1991 03 25	809	0.6− 0.4+	1998 12 08	704	0.4− 0.7−			

(12714)* 1991 GX₁ = 1990 EY₁

Discovered 1991 Apr. 15 by C. S. Shoemaker at Palomar.

Id. G. V. Williams (*MPC* 18440)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	356.47121		(2000.0)	P	Q
<i>n</i>	0.08333327	ω	160.92934	−0.17466048	−0.97391093
<i>a</i>	5.1910724	Ω	298.90012	+0.88050721	−0.08863391
<i>e</i>	0.0373425	<i>i</i>	9.52590	+0.44068216	−0.20890557
<i>P</i>	11.83	<i>H</i>	10.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1990 02 24	809	0.9− 0.2+	1991 06 06	675	1.7− 0.2−	1998 12 17	704	0.5− 1.2−
1990 02 24	809	1.6− 0.1+	1991 06 06	675	1.7− 0.4−	1999 10 12	704	0.1+ 1.3+
1990 02 24	809	(2.3− 0.0)	1991 06 07	675	0.2+ 1.5−	1999 10 12	704	0.1+ 1.0+
1990 03 02	809	1.2+ 1.0−	1991 06 07	675	(0.3− 2.4−)	1999 10 12	704	0.4+ 1.1+
1990 03 02	809	1.0+ 0.9−	1996 09 10	809	(2.3+ 2.1−)	1999 10 12	704	0.7+ 0.3+
1990 03 02	809	0.9+ 0.9−	1996 09 11	809	1.0+ 1.1−	1999 10 12	704	0.8+ 0.2+
1990 03 04	809	0.8− 1.2−	1996 10 11	809	0.6+ 0.9−	1999 10 22	704	0.5− 0.5+
1990 03 04	809	1.0− 1.2−	1996 10 15	691	0.3+ 0.7−	1999 10 22	704	0.9− 0.5+
1990 03 04	809	1.7− 1.1−	1996 10 15	691	0.2+ 0.8−	1999 10 22	704	0.4+ 0.7+
1991 04 15	675	(1.7+ 2.7−)	1998 11 10	704	0.7− 1.7−	1999 10 22	704	0.0 1.0+
1991 04 15	675	0.4+ 1.4−	1998 11 10	704	(2.1+ 1.0−)	1999 10 22	704	0.7+ 0.2+
1991 04 19	675	0.8+ 0.8−	1998 11 10	704	0.4+ 0.3−	1999 12 07	704	1.0+ 0.4+
1991 04 19	675	0.8+ 0.8−	1998 11 10	704	1.3− 0.4+	1999 12 07	704	1.1+ 0.1+
1991 05 14	675	0.0 1.3+	1998 12 17	704	0.9+ 0.6−	1999 12 07	704	0.3− 0.1−
1991 05 16	675	0.3− 0.9+	1998 12 17	704	0.7+ 0.7−	1999 12 07	704	0.6+ 0.7+
1991 05 16	675	0.1+ 1.0+	1998 12 17	704	0.9+ 1.3−	1999 12 07	704	1.1− 0.4+
1991 05 18	675	0.1+ 1.0+	1998 12 17	704	0.5− 1.4−			

(12715)* 1991 GR₂ = 1991 FG₄ = 1971 TY₁

Discovered 1991 Apr. 8 by E. W. Elst at the European Southern Observatory.

Id. S. Nakano (d, *MPC* 19821; *MPC* 21793)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	43.77396		(2000.0)	P	Q
<i>n</i>	0.28232183	ω	295.15221	+0.69100235	+0.72274787
<i>a</i>	2.3012991	Ω	18.57434	−0.64852590	+0.62737596
<i>e</i>	0.1881099	<i>i</i>	2.21285	−0.31926464	+0.28988777
<i>P</i>	3.49	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1971 10 12	095	0.9− 1.9+	1998 03 29	704	0.4+ 0.3+	1999 10 11	106	0.2− 0.2−
1991 03 23	809	0.2+ 0.2−	1998 03 29	704	0.1+ 0.3+	1999 10 11	106	0.0 0.1+
1991 03 23	809	0.2+ 0.3−	1998 03 29	704	0.1− 0.8+	1999 10 11	106	0.5+ 0.4+
1991 03 23	809	0.4+ 0.2−	1998 03 29	704	0.8− 0.6+	1999 10 21	704	0.2− 0.2+
1991 03 25	809	0.4− 0.4+	1998 03 29	704	0.3+ 0.3−	1999 10 21	704	0.3− 0.0
1991 03 25	809	0.0 0.4+	1998 04 01	704	0.1+ 0.1+	1999 10 21	704	0.3− 0.2+
1991 03 25	809	0.2+ 0.1+	1998 04 01	704	0.3+ 0.5+	1999 10 21	704	0.0 0.2+
1991 04 08	809	0.0 0.3+	1998 04 01	704	0.4− 0.7+	1999 10 21	704	0.1− 0.2+
1991 04 08	809	2.0− 1.5−	1998 04 01	704	0.1+ 0.5+	1999 11 03	699	0.4+ 0.3+

1991 04 08	809	(3.8− 2.0−)	1998 04 01	704	0.6+ 1.4+	1999 11 03	699	0.1+ 0.4+
1991 04 10	809	2.0− 0.9−	1998 04 18	704	0.4− 0.1−	1999 11 03	699	0.2− 0.7+
1991 04 10	809	0.8− 1.8−	1998 04 18	704	0.9− 0.1+	1999 11 04	704	0.1+ 0.4−
1991 04 10	809	1.7− 1.7−	1998 04 18	704	0.6− 0.0	1999 11 04	704	0.2+ 0.2−
1991 04 15	675	1.3+ 1.5−	1998 04 18	704	0.5− 1.1−	1999 11 04	704	0.1+ 1.0−
1991 04 15	675	0.7+ 0.7−	1998 04 18	704	(2.7− 0.2+)	1999 11 04	704	0.2+ 0.8−
1991 04 19	809	0.2+ 0.2+	1998 04 20	704	0.0 0.0	1999 11 11	703	0.2− 0.5+
1991 04 19	809	0.2+ 0.4−	1998 04 20	704	0.4+ 0.0	1999 11 11	703	0.4− 0.2+
1991 04 19	809	1.6− 0.1+	1998 04 20	704	0.3+ 0.2+	1999 11 11	703	0.6− 0.1+
1992 11 01	372	(2.4+ 0.5+)	1998 04 20	704	0.4+ 0.4+	1999 11 11	703	0.2− 0.3+
1992 11 01	372	1.6+ 0.3+	1998 04 20	704	0.8− 0.2−	1999 11 14	704	0.1+ 0.1−
1998 03 02	910	0.5+ 0.2+	1998 04 22	704	0.2+ 0.1−	1999 11 14	704	0.4+ 0.2−
1998 03 02	910	0.6+ 0.3+	1998 04 22	704	0.4+ 0.0	1999 11 14	704	0.0 0.7−
1998 03 02	910	0.6+ 0.3+	1998 04 22	704	0.3− 0.0	1999 11 14	704	0.2− 0.1+
1998 03 03	910	0.5+ 0.2+	1998 04 22	704	0.2− 0.8+	1999 11 14	704	0.9+ 0.7−
1998 03 03	910	0.7+ 0.1+	1998 04 22	704	0.8− 0.8+	1999 11 16	704	0.2+ 0.6−
1998 03 03	910	0.6+ 0.3+	1998 05 01	699	0.4+ 0.1+	1999 11 16	704	0.1+ 0.1−
1998 03 20	704	0.2+ 0.0	1998 05 01	699	0.7+ 0.2+	1999 11 16	704	0.0 0.0
1998 03 20	704	0.4+ 0.7+	1998 05 01	699	0.4− 0.2+	1999 11 16	704	0.1− 0.0
1998 03 20	704	0.2− 0.9+	1998 05 16	704	1.0+ 0.1−	1999 11 16	704	0.4− 0.1+
1998 03 20	704	0.1− 0.5+	1998 05 16	704	0.1− 0.4−	1999 12 04	703	0.1− 1.0+
1998 03 20	704	0.8− 0.8+	1998 05 16	704	0.9+ 0.9+	1999 12 04	699	0.3+ 0.4+
1998 03 22	704	0.6− 0.1−	1998 05 16	704	0.8+ 0.5−	1999 12 04	703	0.0 0.3+
1998 03 22	704	0.0 0.6−	1998 05 16	704	(1.4− 2.3−)	1999 12 04	703	0.0 0.1+
1998 03 22	704	0.4+ 0.2−	1999 09 07	120	0.5− 0.3−	1999 12 04	699	0.0 0.9+
1998 03 22	704	0.4− 0.9−	1999 09 07	120	0.3− 0.5+	1999 12 04	703	0.1+ 0.3+
1998 03 22	704	0.1+ 0.5−	1999 09 07	120	1.1− 1.7+	1999 12 04	699	0.4+ 0.5+
1998 03 22	360	0.6+ 0.1+	1999 10 03	704	0.9+ 0.7−	1999 12 06	704	0.3+ 0.1−
1998 03 22	360	0.4+ 0.3+	1999 10 03	704	0.8+ 0.2−	1999 12 06	704	0.1+ 0.0
1998 03 22	360	0.4+ 0.3+	1999 10 03	704	1.4− 0.2−	1999 12 06	704	0.1+ 0.2−
1998 03 24	704	0.7+ 0.7−	1999 10 06	704	1.0+ 0.2−	1999 12 06	704	0.3− 0.6+
1998 03 24	704	0.4− 0.1−	1999 10 06	704	0.5+ 0.5−	1999 12 06	704	0.1+ 0.5+
1998 03 24	704	0.2− 0.5+	1999 10 06	704	0.6+ 0.6−	1999 12 07	704	0.3+ 0.0
1998 03 24	704	0.0 0.9+	1999 10 06	704	0.2+ 0.7−	1999 12 07	704	0.4− 0.4−
1998 03 24	704	0.4− 1.0+	1999 10 06	704	1.2− 0.7−	1999 12 07	704	0.3+ 1.2−
1998 03 24	699	1.2− 0.3−	1999 10 07	704	1.1+ 0.5−	1999 12 07	704	0.2− 1.0−
1998 03 24	699	0.2+ 0.0	1999 10 07	704	1.9− 0.9−	1999 12 07	704	0.4− 0.7−
1998 03 24	699	0.7+ 0.4−	1999 10 07	704	0.2− 0.5−	1999 12 12	703	0.1− 0.9+
1998 03 25	704	0.2− 0.6−	1999 10 10	704	0.0 0.3−	1999 12 12	703	0.2− 0.7+
1998 03 25	704	0.4+ 0.4+	1999 10 10	704	0.1− 0.1−	1999 12 12	703	0.1+ 0.6+
1998 03 25	704	0.3+ 0.6−	1999 10 10	704	0.0 0.3−	1999 12 12	703	0.2− 0.2+
1998 03 25	704	1.5+ 0.9−	1999 10 10	704	0.1+ 0.1+			
1998 03 25	704	0.7− 0.1−	1999 10 10	704	0.0 0.1−			

(12716)* 1991 GD₈ = 1998 QC₆₉

Discovered 1991 Apr. 8 by E. W. Elst at the European Southern Observatory.

Id. E. Bowell (*MPC* 32924), A. Gnädig (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	336.80056		(2000.0)	P	Q
<i>n</i>	0.18437079	ω	208.43421	+0.38870681	−0.91574827
<i>a</i>	3.0573229	Ω	218.93605	+0.87298462	+0.40129770
<i>e</i>	0.0457564	<i>i</i>	9.29892	+0.29462665	+0.01911187
<i>P</i>	5.35	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1991 04 08	809	1.1+ 1.5+	1998 08 24	704	0.2− 0.5+	1999 11 04	704	0.1− 0.2−
1991 04 08	809	0.5− 1.0+	1998 08 27	704	0.1− 0.4+	1999 11 04	704	0.5+ 0.8+
1991 04 08	809	0.2− 0.2+	1998 08 27	704	0.3− 0.6+	1999 11 04	704	0.2− 0.3+
1991 04 10	809	1.0+ 0.7+	1998 08 27	704	0.3− 0.9+	1999 11 10	699	1.4+ 0.1−
1991 04 10	809	0.1− 0.8+	1998 08 27	704	0.2+ 0.6+	1999 11 10	699	0.5− 0.3−

1999 DEC. 22

M.P.C. 37043

1996 03 15	566	0.2−	0.2+	1999 10 21	704	0.6+	0.6−	1999 11 17	704	0.0	0.5+
1996 03 15	566	0.7+	0.4+	1999 10 21	704	0.3+	0.7−	1999 11 17	704	0.1−	0.6+
1998 08 02	699	0.1−	1.0+	1999 10 21	704	0.4−	1.0−	1999 11 17	704	0.0	0.6+
1998 08 02	699	0.7−	0.6+	1999 10 30	703	0.5−	0.1+	1999 11 17	704	0.9−	0.6+
1998 08 02	699	0.1+	1.0−	1999 10 30	703	0.6−	0.5+	1999 12 06	704	0.6+	0.6−
1998 08 24	704	0.2+	1.1−	1999 10 30	703	1.6+	0.4−	1999 12 06	704	0.5−	0.4−
1998 08 24	704	0.1+	0.3+	1999 10 30	703	0.8+	0.6+	1999 12 06	704	(2.7+	3.3−)
1998 08 24	704	0.2−	0.6+	1999 11 04	704	0.1−	0.5+				
1998 08 24	704	0.3+	0.7−	1999 11 04	704	0.2+	0.1+				

(12717)* 1991 HK = 1998 QJ₇

Discovered 1991 Apr. 16 by A. Sugie at the Dync Astronomical Observatory.

Id. G. V. Williams (*MPC* 32447)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	180.05050	(2000.0)	P	Q	
<i>n</i>	0.29861367	ω	54.65983	−0.73257654	+0.68042887
<i>a</i>	2.2168157	Ω	168.17884	−0.65033889	−0.69156083
<i>e</i>	0.1640152	<i>i</i>	5.22589	−0.20097497	−0.24240496
<i>P</i>	3.30	<i>H</i>	14.8	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1991 04 16	402	(1.9+	2.0+)	1995 09 17	691	0.4−	0.0	1998 08 23	704	1.6+	1.6+
1991 04 16	402	0.4+	0.2+	1995 09 17	691	0.6−	0.3−	1998 08 23	704	0.1−	0.1+
1991 04 16	372	(1.3−	2.7−)	1995 09 18	809	0.7+	0.5−	1998 08 23	704	1.2−	0.1−
1991 04 16	372	(7.6−	0.4−)	1995 09 19	809	0.5+	1.1−	1999 11 04	704	1.6−	0.0
1991 04 21	402	(0.0	2.1−)	1995 09 19	809	0.2+	1.1−	1999 11 04	704	0.6+	0.7−
1991 04 21	402	0.5−	1.3−	1995 09 20	809	0.2+	1.5−	1999 11 04	704	0.1+	0.3+
1991 05 16	675	0.3−	0.1−	1995 09 22	809	(2.6−	0.4−)	1999 11 04	704	0.5+	0.6+
1991 05 16	675	0.8−	0.1−	1995 09 22	809	0.2+	1.8−	1999 11 16	703	0.2−	0.0
1991 05 17	675	0.1+	0.9−	1995 09 23	809	1.3+	0.3−	1999 11 16	703	1.2−	0.3−
1991 05 17	675	0.5+	0.2−	1995 09 24	809	0.2+	0.2+	1999 11 16	703	0.7−	0.1+
1995 08 24	809	(2.6−	1.6−)	1998 08 17	704	(0.5+	2.6−)	1999 11 16	703	0.9−	0.2−
1995 08 25	809	0.3−	1.0+	1998 08 17	704	1.2−	0.2−	1999 12 06	704	0.5+	0.1−
1995 08 25	809	(3.0−	2.4−)	1998 08 17	704	0.3−	0.1−	1999 12 06	704	0.4+	0.1+
1995 08 26	809	0.0	0.8+	1998 08 17	704	0.7+	0.6−	1999 12 06	704	0.7+	0.1+
1995 09 01	809	0.8+	0.0	1998 08 23	704	1.0+	1.4+	1999 12 06	704	0.8+	0.1+
1995 09 17	691	1.3−	0.3−	1998 08 23	704	1.0−	1.3+	1999 12 06	704	0.7+	0.2+

(12718)* 1991 LF₁ = 1991 KW₂ = 1992 YD₁

Discovered 1991 June 6 by E. W. Elst at the European Southern Observatory.

Id. S. Nakano (d, *MPC* 20606), B. G. Marsden (*MPC* 21577)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Marsden			
<i>M</i>	53.33148	(2000.0)	P	Q	
<i>n</i>	0.28805432	ω	268.38500	+0.99512369	+0.05897213
<i>a</i>	2.2706653	Ω	88.22911	−0.02264565	+0.91676980
<i>e</i>	0.1730738	<i>i</i>	4.53694	−0.09600006	+0.39503850
<i>P</i>	3.42	<i>H</i>	14.5	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1991 05 18	809	(2.5−	0.0)	1995 09 21	400	0.6+	0.9+	1999 11 16	704	0.1+	0.8−
1991 05 18	809	(4.2−	0.0)	1995 09 21	400	0.5−	0.2−	1999 11 16	704	0.1−	0.5−
1991 05 18	809	(4.3−	0.4+)	1995 10 23	801	0.1+	0.1+	1999 11 16	704	0.0	0.5−
1991 06 06	809	(2.1+	0.2+)	1995 10 23	801	0.1−	0.2−	1999 12 03	699	0.6+	0.9+
1991 06 06	809	0.9+	0.1−	1995 10 25	801	0.1−	0.4−	1999 12 03	699	0.5−	0.2+
1991 06 06	809	0.9+	1.2+	1995 10 25	801	0.1−	0.3−	1999 12 03	699	0.7−	0.1+
1991 06 08	809	1.1−	0.9−	1999 10 22	704	0.4+	0.5+	1999 12 07	704	0.3+	0.1−
1991 06 08	809	0.1−	0.1+	1999 10 22	704	0.2+	0.2+	1999 12 07	704	1.0+	0.3+
1991 06 08	809	0.4−	0.2+	1999 10 22	704	1.1+	0.5+	1999 12 07	704	0.4+	0.4−
1992 12 18	010	1.0+	0.3+	1999 10 22	704	1.0+	1.0−	1999 12 07	704	0.9−	0.9−
1992 12 19	010	0.1+	0.6+	1999 10 22	704	0.5+	0.9−	1999 12 08	704	0.4−	0.4−
1992 12 19	010	0.1+	0.7−	1999 11 12	703	0.1−	0.1+	1999 12 08	704	0.0	0.7−
1992 12 19	010	0.2+	0.9+	1999 11 12	703	0.7−	0.9+	1999 12 08	704	0.2−	0.2+
1992 12 19	010	0.7−	0.6+	1999 11 12	703	0.3−	0.1+	1999 12 08	704	0.7−	0.7+
1992 12 20	010	0.9−	0.2+	1999 11 12	703	0.5−	0.5+	1999 12 08	704	0.8−	0.5−

1995 09 20	400	0.5−	0.3+	1999 11 16	704	0.7+	0.2+
1995 09 20	400	0.5+	0.3−	1999 11 16	704	0.6+	0.1−

(12719)* 1991 LP₂ = 1998 KN₆₅

Discovered 1991 June 6 by E. W. Elst at the European Southern Observatory.

Id. S. Nakano (*MPC* 32447)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Nakano			
<i>M</i>	94.54152	(2000.0)	P	Q	
<i>n</i>	0.28279362	ω	194.11721	+0.39508410	+0.91800182
<i>a</i>	2.2987389	Ω	99.16311	−0.83942668	+0.37596025
<i>e</i>	0.1491948	<i>i</i>	1.99505	−0.37319084	+0.12620048
<i>P</i>	3.49	<i>H</i>	14.6	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1991 05 18	809	0.4−	2.1−	1998 06 03	704	0.7+	1.1−	1999 11 12	704	0.1+	0.1+
1991 05 18	809	0.4−	0.9−	1998 06 03	704	0.4−	0.1+	1999 11 12	704	0.3+	0.3+
1991 05 18	809	0.1−	0.9−	1998 06 03	704	0.6−	0.2−	1999 11 17	704	0.4−	0.4−
1991 06 06	809	1.5+	0.9+	1998 06 24	704	1.1−	1.1−	1999 11 17	704	0.3+	0.3−
1991 06 06	809	0.4−	1.5+	1998 06 24	704	1.3+	0.7−	1999 11 17	704	0.1+	0.4+
1991 06 06	809	0.4+	0.7+	1998 06 24	704	0.2+	0.4−	1999 11 17	704	0.7+	0.9+
1991 06 08	809	0.2+	0.6+	1998 06 24	704	0.5+	0.6−	1999 11 17	704	(0.8−	2.4+)
1991 06 08	809	0.0	1.1+	1998 06 24	704	0.1+	0.8−	1999 11 27	120	(2.5+	0.7−)
1991 06 08	809	0.2−	1.5+	1998 06 26	704	0.1−	0.3−	1999 11 27	120	1.1−	0.1−
1997 02 04	566	0.2+	0.0	1998 06 26	704	1.2+	0.0	1999 11 28	691	0.1+	0.0
1997 02 04	566	0.3+	0.3−	1998 06 26	704	1.5−	0.3−	1999 11 28	691	0.2+	0.0
1997 02 04	566	0.2+	0.1−	1998 06 26	704	1.4−	0.4+	1999 11 28	691	0.1+	0.1−
1997 02 06	327	0.5−	0.0	1999 11 03	704	0.6+	0.1+	1999 12 03	691	0.0	0.0
1997 02 06	327	0.3+	0.1−	1999 11 03	704	0.2−	0.3+	1999 12 03	691	0.9+	0.4−
1997 02 06	327	0.8−	0.1+	1999 11 03	704	0.0	0.0	1999 12 03	691	0.0	0.2−
1998 05 22	704	1.3+	0.1−	1999 11 03	704	0.3−	0.4−	1999 12 07	704	0.2+	0.1−
1998 05 22	704	0.7−	0.7+	1999 11 08	120	0.5−	0.3−	1999 12 07	704	0.3−	0.0
1998 05 22	704	0.2+	0.1−	1999 11 08	120	0.1+	1.5+	1999 12 07	704	0.1+	0.4−
1998 05 22	704	0.5−	1.5−	1999 11 09	704	0.8−	1.6−	1999 12 07	704	0.2−	0.4−
1998 05 24	704	0.4+	0.9−	1999 11 09	704	0.1+	0.9−	1999 12 07	704	0.3+	0.5−
1998 05 24	704	0.3+	0.6−	1999 11 09	704	0.2−	0.7−	1999 12 08	704	0.3+	0.3−
1998 05 24	704	0.3+	0.3−	1999 11 09	704	0.3+	1.0−	1999 12 08	704	0.4−	0.2−
1998 05 24	704	0.7+	0.1+	1999 11 12	704	0.3+	0.4+	1999 12 08	704	0.2+	0.7−
1998 06 03	704	0.7−	0.1−	1999 11 12	704	0.1+	0.7+	1999 12 08	704	0.0	0.6−
1998 06 03	704	0.9−	0.5+	1999 11 12	704	0.5+	0.2+	1999 12 08	704	0.5−	0.7−

(12720)* 1991 NU₃ = 1995 RE

Discovered 1991 July 6 by H. Debehogne at the European Southern

Observatory.

Id. S. Nakano (*MPC* 25730), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	346.10288	(2000.0)	P	Q	
<i>n</i>	0.26022845	ω	96.03805	+0.91851299	−0.38367342
<i>a</i>	2.4297758	Ω	286.55452	+0.31175094	+0.85138208
<i>e</i>	0.1796961	<i>i</i>	5.72048	+0.24319796	+0.35769158
<i>P</i>	3.79	<i>H</i>	13.8	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1991 07 06	809	1.1+	0.2+	1998 05 24	704	1.2−	0.3−	1999 10 19	699	0.3−	0.9+
1991 07 06	809	1.2+	0.1+	1998 06 16	704	1.1+	0.4−	1999 10 19	699	0.3−	0.3+
1991 07 06	809	1.1+	0.3+	1998 06 16	704	1.6+	0.2−	1999 10 19	699	0.1−	0.7+
1991 07 08	809	0.5−	0.2−	1998 06 16	704	0.4+	0.8+	1999 10 28	703	0.2+	0.2+
1991 07 08	809	0.3+	0.1−	1998 06 16	704	1.0−	0.1−	1999 10 28	703	0.2−	0.1−
1991 07 10	809	1.0−	0.2+	1998 06 16	704	0.8−	0.9−	1999 10 28	703	0.2−	0.2−
1991 07 10	809	0.5−	0.0	1999 07 23	704	0.1+	1.0+	1999 10 28	703	0.1−	0.1−
1991 07 10	809	0.1−	0.1−	1999 07 23	704	0.7+	0.9+	1999 11 03	699	0.3−	0.1+
1995 09 03	358	0.4−	0.5−	1999 07 23	704	0.5+	0.9+	1999 11 03	699	0.3−	0.1+
1995 09 03	358	0.4+	0.3+	1999 07 23	704	0.1−	0.8+	1999 11 03	699	0.0	0.4+
1995 09 04	358	0.1−	0.1−	1999 07 23	704	0.1−	0.7+	1999 11 03	704	(1.8−	2.5−)
1995 09 04	358	0.2−	0.3+	1999 10 03	704	1.1+	0.7+	1999 11 03	704	(0.7−	2.4−)
1995 09 11	358	0.4+	0.4+	1999 10 03	704	0.3−	0.4−	1999 11 03	704	0.5+	1.0−

1995 09 11	358	0.1−	0.7+	1999 10 03	704	0.2−	0.3−	1999 11 03	704	0.7+	1.0−
1995 09 12	358	0.5+	0.4+	1999 10 03	704	0.2−	0.0	1999 11 03	704	0.4+	1.2−
1995 09 12	358	0.2+	0.8−	1999 10 03	704	0.4−	0.6+	1999 12 03	699	0.2−	0.5+
1995 09 17	358	0.4+	0.6−	1999 10 12	704	0.1+	0.3−	1999 12 03	699	0.4−	0.4+
1995 09 17	358	0.8−	0.1−	1999 10 12	704	0.0	0.3−	1999 12 03	699	0.3−	0.3+
1995 09 21	399	1.1−	1.3−	1999 10 12	704	0.2−	0.1+	1999 12 08	704	0.8−	1.0+
1995 09 21	399	0.3−	1.2−	1999 10 12	704	0.3−	0.1−	1999 12 08	704	0.5+	0.9+
1998 05 23	704	0.2+	1.0−	1999 10 12	704	0.3−	0.1−	1999 12 08	704	0.2−	0.0
1998 05 23	704	0.1−	1.2+	1999 10 13	611	0.3+	0.1−	1999 12 08	704	0.1+	0.4+
1998 05 23	704	0.2+	0.8+	1999 10 13	611	0.3+	0.2−	1999 12 08	704	0.8+	1.2−
1998 05 23	704	0.3+	0.0	1999 10 13	611	0.5+	0.3−	1999 12 12	703	0.5−	0.3+
1998 05 23	704	(0.7+	3.3+)	1999 10 13	611	0.2+	0.2−	1999 12 12	703	0.2+	0.1−
1998 05 24	704	0.1−	0.7+	1999 10 19	636	0.4+	0.0	1999 12 12	703	0.1+	0.0
1998 05 24	704	0.9−	0.5+	1999 10 19	636	0.4−	0.1+	1999 12 12	703	0.1−	0.2+
1998 05 24	704	0.2+	0.6+	1999 10 19	636	0.1−	0.1+				

(12721)* 1991 PB = 1984 SH₈ = 1990 DV₄ = 1995 WK₄₃

Discovered 1991 Aug. 3 by S. Otomo at Kiyosato.

Id. S. Nakano (*MPC* 30655), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Nakano			
<i>M</i>	75.40488		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.27562268	ω	182.11990	+0.88564541	+0.46382241		
<i>a</i>	2.3384392	Ω	150.21345	−0.42537824	+0.82968300		
<i>e</i>	0.2465801	<i>i</i>	2.58243	−0.18624062	+0.31063627		
<i>P</i>	3.58	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1984 09 21	010	0.6−	0.0	1991 08 31	894	0.6+	0.2−	1998 06 26	704	0.5−	1.0+
1990 02 28	809	0.4+	1.5+	1991 08 31	894	0.3−	0.4−	1998 06 26	704	0.1+	0.0
1990 02 28	809	0.6+	1.1+	1991 09 04	809	0.2−	0.5−	1998 06 26	704	0.3+	0.8+
1990 02 28	809	0.9+	0.8+	1991 09 04	809	0.1−	0.0	1998 06 26	704	0.3+	0.0
1990 03 01	809	(8.9+ 20.1−)		1991 09 04	809	0.6+	0.1+	1998 07 01	758	0.5−	0.2+
1990 03 01	809	(9.2+ 20.4−)		1991 09 05	809	0.4−	0.8−	1998 07 01	758	0.9−	0.1+
1990 03 01	809	(9.6+ 20.6−)		1991 09 05	809	0.4−	0.2−	1998 07 02	758	0.4+	1.1−
1991 08 03	809	0.8+	0.9+	1991 09 05	809	1.6−	0.3−	1998 07 02	758	0.3+	1.0−
1991 08 03	809	0.7−	0.1+	1991 09 06	809	0.8+	0.5+	1998 07 02	758	0.1−	0.7−
1991 08 03	809	0.9−	1.2+	1991 09 06	809	0.3−	1.0+	1999 10 10	704	0.3−	0.1−
1991 08 03	894	0.2+	0.3+	1991 09 06	809	0.8−	1.1+	1999 10 10	704	0.2+	0.9−
1991 08 03	894	0.4−	0.3+	1991 09 07	809	2.1−	2.0−	1999 10 10	704	0.2+	0.6+
1991 08 04	809	0.9+	0.2+	1991 09 07	809	(2.7− 2.0−)		1999 10 10	704	0.3−	0.9+
1991 08 05	809	1.1+	1.8+	1995 10 26	033	0.0	0.9+	1999 10 21	704	0.6+	0.4+
1991 08 05	809	0.6+	1.8+	1995 10 26	033	0.5−	1.4+	1999 10 21	704	1.0+	0.6+
1991 08 05	675	(3.1+ 0.7−)		1995 11 25	399	0.5−	1.1+	1999 10 21	704	0.5+	0.5−
1991 08 05	809	0.0	1.7+	1995 11 25	399	0.3−	0.1+	1999 10 21	704	0.5+	0.7−
1991 08 05	675	(2.7+ 1.3−)		1995 12 22	691	0.5+	0.2+	1999 12 07	704	0.2−	2.0+
1991 08 07	675	(2.6+ 0.1−)		1995 12 22	691	0.4+	0.1+	1999 12 07	704	0.2−	0.5+
1991 08 07	675	1.7+	0.7−	1995 12 22	691	0.5+	0.2+	1999 12 07	704	0.0	0.4+
1991 08 07	894	0.7+	1.4−	1998 06 24	704	0.4+	0.5+	1999 12 07	704	0.5−	0.5+
1991 08 07	894	1.9−	1.8−	1998 06 24	704	0.0	0.5+	1999 12 08	704	0.0	0.3+
1991 08 15	894	0.2+	0.3−	1998 06 24	704	0.5+	1.1+	1999 12 08	704	0.1+	0.3+
1991 08 15	894	0.4+	0.4+	1998 06 24	704	0.7−	0.8+	1999 12 08	704	0.4−	0.7−
1991 08 15	894	0.7+	0.6−	1998 06 24	704	0.2+	0.9+	1999 12 08	704	0.7−	0.1+
1991 08 17	894	0.5+	0.3−	1998 06 26	704	0.4−	0.7+				

(12722)* 1991 PT₁ = 1987 HB₂

Discovered 1991 Aug. 10 by E. W. Elst at the European Southern

Observatory.

Id. G. V. Williams (*MPC* 18829)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	172.64761		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.28054564	ω	38.60269	−0.64315334	+0.76565106		
<i>a</i>	2.3110022	Ω	191.38560	−0.71621538	−0.60680421		
<i>e</i>	0.1456800	<i>i</i>	3.33945	−0.27090461	−0.21346454		
<i>P</i>	3.51	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1987 04 28	046	0.7+	1.3−	1991 09 13	675	1.0+	1.2+	1998 08 23	704	(4.4− 0.3−)
1987 04 28	046	1.6−	0.5−	1991 09 13	675	(2.5− 3.0+)		1999 11 04	704	0.5− 0.4−
1987 04 29	046	0.9+	2.3+	1995 09 19	691	0.1−	0.2−	1999 11 04	704	0.8− 0.1+
1987 04 29	046	0.3+	0.2−	1995 09 19	691	0.2−	0.2−	1999 11 04	704	0.2+ 0.3−
1988 10 07	675	0.1−	0.8−	1995 09 19	691	0.4−	0.4−	1999 11 04	704	0.8− 0.7−
1988 10 13	675	0.3+	0.5−	1995 09 24	691	0.3−	0.3−	1999 11 04	704	0.8− 0.3−
1988 10 13	675	1.1+	0.5+	1995 09 24	691	0.1−	0.4−	1999 11 15	704	0.2− 0.0
1991 08 05	675	0.5+	1.3−	1995 09 24	691	0.2−	0.3−	1999 11 15	704	0.1− 0.2+
1991 08 05	675	0.0	1.1−	1995 10 27	557	0.3+	0.4+	1999 11 15	704	0.5− 0.5−
1991 08 08	675	0.6−	0.8−	1995 10 27	557	0.1−	0.4+	1999 11 15	704	0.3− 0.3−
1991 08 08	675	0.1+	1.1−	1997 01 28	689	0.3−	0.5+	1999 11 17	704	0.7+ 0.3−
1991 08 10	809	(2.3− 0.1−)		1998 08 17	704	0.1−	0.3+	1999 11 17	704	0.8− 0.7−
1991 08 10	809	(2.6− 0.1−)		1998 08 17	704	0.0	0.6+	1999 11 17	704	0.0 0.7+
1991 08 10	809	0.9−	0.5+	1998 08 17	704	0.9+	1.7+	1999 11 29	120	0.6+ 0.6+
1991 08 14	809	0.3−	1.0+	1998 08 17	704	0.0	0.7+	1999 11 29	120	0.7+ 0.3−
1991 08 14	809	1.1−	0.9+	1998 08 17	704	0.3−	1.1−	1999 11 30	120	0.7− 0.1+
1991 08 14	809	0.1−	1.1+	1998 08 23	704	0.8+	1.3−	1999 11 30	120	0.9+ 0.5+
1991 09 08	691	0.2+	0.1+	1998 08 23	704	1.0−	0.3+	1999 12 06	704	0.5− 1.5+
1991 09 08	691	0.2+	0.4−	1998 08 23	704	1.5−	0.6+	1999 12 06	704	1.6+ 0.5+
1991 09 08	691	0.3+	0.1+	1998 08 23	704	1.7+	0.1+	1999 12 06	704	1.2+ 1.6+

(12723)* 1991 PD₁₀ = 1993 BU₂

Discovered 1991 Aug. 7 by H. E. Holt at Palomar.

Id. S. Nakano (*MPC* 32224), A. Gnädig (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Nakano			
<i>M</i>	321.19125		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.27020500	ω	116.63760	+0.01732508	−0.99810433		
<i>a</i>	2.3695932	Ω	332.17754	+0.86646792	+0.04446131		
<i>e</i>	0.0398273	<i>i</i>	7.26912	+0.49893205	−0.04255502		
<i>P</i>	3.65	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1991 08 07	675	0.4−	1.5−	1993 01 24	400	0.5−	1.2−	1999 10 05	704	0.5− 0.5−
1991 08 07	675	0.6−	0.0	1993 01 24	400	0.6−	1.5−	1999 10 05	704	0.2− 0.6−
1991 08 08	675	0.4+	0.2+	1998 06 24	699	0.5+	0.8+	1999 10 05	704	0.3+ 0.4+
1991 08 08	675	1.1−	0.5−	1998 06 24	699	0.8+	0.7+	1999 10 14	704	0.2+ 0.1−
1991 08 10	675	0.1+	0.3−	1998 06 24	699	0.9+	0.6+	1999 10 14	704	0.1+ 0.1+
1991 09 10	675	1.1−	0.5+	1998 08 17	704	0.2−	0.4+	1999 10 14	704	0.1+ 0.0
1991 09 10	675	(2.5− 2.5−)		1998 08 17	704	1.3+	0.5−	1999 10 14	704	0.0 0.1+
1991 09 16	675	0.2+	0.0	1998 08 17	704	1.4+	0.3−	1999 10 14	704	0.1+ 0.2+
1991 09 16	675	0.3+	0.8+	1998 08 17	704	0.1−	1.9−	1999 12 05	715	0.5+ 1.6+
1991 09 17	675	0.7+	0.9−	1998 08 17	704	1.4+	1.4−	1999 12 05	715	1.3− 0.3+
1991 09 17	675	1.3+	0.4+	1998 08 21	566	0.9−	1.4−	1999 12 12	704	0.1− 0.4+
1991 09 30	691	0.3−	1.1+	1998 08 21	566	1.9−	0.6−	1999 12 12	704	0.0 0.2−
1991 09 30	691	0.4−	0.8+	1998 08 21	566	1.3−	1.0−	1999 12 12	704	0.2+ 0.5−
1991 09 30	691	0.3−	1.1+	1999 10 05	704	0.1+	1.0−	1999 12 12	704	0.4+ 0.6−
1993 01 23	400	(4.2+ 1.2−)		1999 10 05	704	0.5−	0.1+	1999 12 12	704	0.6+ 1.3−

(12724)* 1991 PZ₁₄ = 1991 RU₆ = 1998 FH₂₂

Discovered 1991 Aug. 6 by H. E. Holt at Palomar.

Id. S. Nakano (d, *MPC* 22572), G. V. Williams (*MPC* 31532)

1999 DEC. 22

M.P.C. 37045

1991 09 03	413	1.0+	0.1+	1998 04 19	688	0.2-	0.4+	1999 10 02	704	0.7+	0.3+
1991 09 04	413	0.3+	0.4+	1998 04 19	688	0.1-	0.2+	1999 10 02	704	0.3+	0.1-
1995 11 16	691	0.2-	0.1-	1998 04 19	688	0.3-	0.3+	1999 10 02	704	0.5+	0.7-
1995 11 16	691	0.1-	0.5-	1998 04 29	566	0.3+	0.4-	1999 10 08	704	0.5-	1.6+
1998 03 03	704	0.1-	0.0	1998 04 29	566	0.1-	0.4-	1999 10 08	704	0.8+	0.7+
1998 03 03	704	0.5-	0.6+	1998 04 29	566	0.4-	0.5-	1999 10 08	704	1.8+	0.3+
1998 03 03	704	0.4-	0.2-	1999 07 23	704	0.8-	0.6+	1999 10 08	704	0.9+	0.8-
1998 03 03	704	0.6-	0.0	1999 07 23	704	0.1+	0.2+	1999 10 08	704	(0.8+	2.3-)
1998 03 03	704	0.4-	0.0	1999 07 23	704	0.1-	0.6+	1999 10 13	704	1.8-	1.7+
1998 03 04	704	(3.3-	0.5-)	1999 07 23	704	1.1-	0.4+	1999 10 13	704	0.3+	0.7+
1998 03 04	704	(3.3-	0.8-)	1999 09 07	704	0.5-	0.3-	1999 10 13	704	1.0+	1.8+
1998 03 04	704	(3.0-	0.4+)	1999 09 07	704	0.4-	0.0	1999 10 13	704	0.2-	0.8+
1998 03 04	704	(3.3-	0.2+)	1999 09 07	704	0.4-	0.1-	1999 10 13	704	0.9+	0.0
1998 03 04	704	(3.0-	0.1-)	1999 09 07	704	0.1-	0.2+	1999 10 15	704	0.8-	0.5+
1998 03 20	704	0.1+	0.5+	1999 09 07	704	0.4-	0.1+	1999 10 15	704	0.5-	0.1-
1998 03 20	704	0.0	0.2+	1999 09 09	704	0.6-	0.2-	1999 10 15	704	0.3-	0.2+
1998 03 20	704	0.1-	0.9+	1999 09 09	704	0.2-	0.4+	1999 10 15	704	0.0	0.0
1998 03 20	704	0.1+	0.6+	1999 09 09	704	0.0	0.1+	1999 10 15	704	0.4+	0.3-
1998 03 20	704	0.4+	1.2+	1999 09 09	704	0.1-	0.5+	1999 11 08	704	0.5+	0.5-
1998 03 22	704	0.2+	0.2+	1999 09 09	704	0.4+	0.7+	1999 11 08	704	0.3+	0.7-
1998 03 22	704	0.6+	0.9+	1999 09 11	106	0.7-	0.6+	1999 11 08	704	0.3+	0.2-
1998 03 22	704	0.3+	0.6+	1999 09 11	106	0.1+	0.6+	1999 11 08	704	0.1+	0.0
1998 03 22	704	0.4+	1.5+	1999 09 11	106	0.1-	0.4+	1999 12 07	699	0.4-	0.2-
1998 03 22	704	0.2+	1.4+	1999 09 14	704	0.4-	0.1+	1999 12 07	699	0.2-	0.3+
1998 03 24	566	1.7+	0.6-	1999 09 14	704	0.3-	0.2-	1999 12 07	699	0.4-	0.0
1998 03 24	566	1.3+	0.5-	1999 09 14	704	0.2-	0.3-	1999 12 09	703	1.4-	1.3+
1998 03 24	566	1.6+	0.9-	1999 09 14	704	0.3-	0.1-	1999 12 09	703	0.4-	0.3-
1998 04 04	699	0.3+	0.3+	1999 09 14	704	0.7-	0.0	1999 12 09	703	0.3-	0.6+
1998 04 04	699	0.0	0.3+	1999 09 29	704	0.7+	0.7+	1999 12 09	703	0.2-	1.1+

(12725)* 1991 PP₁₆ = 1995 UU₈

Discovered 1991 Aug. 7 by H. E. Holt at Palomar.

Id. S. Nakano (*MPC* 26169)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	55.28771										
			(2000.0)		P		Q				
<i>n</i>	0.26625693	ω	190.01398		+0.94881788		+0.31265081				
<i>a</i>	2.3929600	Ω	151.64195		-0.28287121		+0.90416486				
<i>e</i>	0.1558644	<i>i</i>	5.39465		-0.14045823		+0.29109342				
<i>P</i>	3.70	<i>H</i>	13.5		<i>G</i>	0.15	<i>U</i>		<i>I</i>		

Residuals in seconds of arc

1990 04 01	675	0.4-	0.5-	1991 09 17	675	0.6+	0.8-	1998 06 26	704	0.5-	0.9+
1990 04 01	675	0.4-	1.3-	1991 09 17	095	0.8-	0.1+	1999 10 10	704	0.7+	0.4+
1991 08 07	675	0.1+	0.3-	1991 09 17	095	0.4-	0.1-	1999 10 10	704	0.5+	0.5+
1991 08 08	675	0.1+	1.2-	1995 10 27	399	0.7-	1.0-	1999 10 10	704	0.7+	0.6+
1991 09 06	511	0.6-	1.8+	1995 10 27	399	0.9+	1.6-	1999 10 10	704	0.8+	0.5+
1991 09 06	511	1.6+	1.1+	1995 10 28	399	1.5-	1.1-	1999 10 21	704	0.4+	0.1+
1991 09 07	511	0.8+	0.7-	1995 10 28	399	(0.8-	2.7-)	1999 10 21	704	0.7+	0.1-
1991 09 07	511	1.8+	1.1-	1998 06 24	704	0.5-	0.1-	1999 10 21	704	0.5+	0.3-
1991 09 13	675	0.7-	0.5+	1998 06 24	704	0.9+	0.3+	1999 10 21	704	0.1-	0.1+
1991 09 13	675	1.8-	0.3+	1998 06 24	704	0.5-	1.2-	1999 12 06	704	0.2-	0.1+
1991 09 15	675	0.3+	0.3-	1998 06 24	704	0.5+	0.5-	1999 12 06	704	0.3-	0.6+
1991 09 15	675	0.1+	0.4-	1998 06 26	704	0.3+	0.1+	1999 12 06	704	0.7-	0.3-
1991 09 16	675	0.2-	1.3+	1998 06 26	704	(1.0-	2.4-)	1999 12 06	704	0.3-	0.3+
1991 09 16	675	0.2-	1.3+	1998 06 26	704	0.1-	0.2-	1999 12 06	704	0.1+	0.6+
1991 09 17	675	0.2+	1.4-	1998 06 26	704	0.2-	1.5+				

(12726)* 1991 PQ₁₆ = 1997 EV₅₈

Discovered 1991 Aug. 7 by H. E. Holt at Palomar.

Id. A. Gnädig (*MPC* 32224)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	20.92249										
			(2000.0)		P		Q				
<i>n</i>	0.27065942	ω	229.26793		+0.77426907		-0.63244378				
<i>a</i>	2.3669402	Ω	169.89064		+0.61278032		+0.74019418				
<i>e</i>	0.0864913	<i>i</i>	7.48111		+0.15813820		+0.22831436				
<i>P</i>	3.64	<i>H</i>	13.5		<i>G</i>	0.15	<i>U</i>		<i>I</i>		

Residuals in seconds of arc

1991 08 07	675	1.4+	1.9-	1997 03 11	809	1.5-	2.0-	1999 10 10	704	0.3-	0.1+
1991 08 08	675	1.6+	0.6-	1997 03 11	809	1.3-	1.5-	1999 10 10	704	0.2-	0.1+
1991 09 06	511	1.0-	1.0-	1998 07 16	699	0.0	0.0	1999 10 10	704	0.0	0.2+
1991 09 06	511	(0.6-	2.1-)	1998 07 16	699	0.4-	0.3+	1999 10 10	704	0.2-	0.1+
1991 09 07	511	(0.2-	2.2+)	1998 07 16	699	0.2-	0.3+	1999 10 20	704	0.4+	0.4-
1991 09 07	511	1.2-	0.3+	1998 08 17	704	1.2+	0.5+	1999 10 20	704	0.0	0.2-
1991 09 13	675	0.6+	0.1-	1998 08 17	704	1.5-	0.9-	1999 10 20	704	0.3+	0.2-
1991 09 13	675	1.1-	1.3-	1998 08 17	704	0.3+	0.2+	1999 10 20	704	0.2+	0.1-
1991 09 16	675	1.0+	0.2+	1998 08 17	704	0.3+	0.1+	1999 10 20	704	1.0-	0.4+
1991 09 16	675	0.3+	0.2+	1998 08 17	704	0.2+	0.9+	1999 12 05	704	1.4+	0.8+
1997 03 10	809	0.7+	0.6+	1998 10 19	699	0.1-	1.4+	1999 12 05	704	(0.5-	3.0+)
1997 03 10	809	1.0+	1.2+	1998 10 19	699	1.0-	0.1-	1999 12 05	704	0.1-	0.2+
1997 03 10	809	1.1+	1.1+	1998 10 19	699	0.4+	0.6+	1999 12 05	704	0.1+	0.0
1997 03 11	809	0.9-	1.6-	1999 10 10	704	0.3-	0.3-	1999 12 05	704	0.5-	0.7-

(12727)* 1991 PB₂₀ = 1995 WO₂ = 1998 SW₁₄

Discovered 1991 Aug. 14 by E. W. Elst at the European Southern

Observatory.

Id. B. G. Marsden (*MPC* 32660)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	348.06451										
			(2000.0)		P		Q				
<i>n</i>	0.28779659	ω	344.65495		-0.22308953		-0.97057173				
<i>a</i>	2.2720207	Ω	118.16290		+0.90483732		-0.24078359				
<i>e</i>	0.0859720	<i>i</i>	5.90327		+0.36262995		+0.00371065				
<i>P</i>	3.42	<i>H</i>	14.0		<i>G</i>	0.15	<i>U</i>		<i>I</i>		

Residuals in seconds of arc

1991 08 14	809	(3.6+	0.4-)	1998 08 23	704	0.2-	0.4+	1998 11 11	699	0.3-	0.1+
1991 08 14	809	(3.1+	0.1-)	1998 08 23	704	1.1-	1.8+	1998 11 11	699	0.8+	0.4-
1991 08 14	809	(3.1+	0.3+)	1998 08 23	704	0.3-	0.1-	1998 11 11	699	0.4-	0.6+
1991 09 04	809	1.4-	1.4+	1998 08 23	704	0.9-	0.8-	1998 12 08	704	1.3+	1.9-
1991 09 04	809	1.1-	1.7+	1998 08 23	704	0.6-	0.3-	1998 12 08	704	0.9+	1.6+
1991 09 04	809	(1.5-	2.4+)	1998 09 14	704	0.2+	0.3-	1998 12 08	704	1.7-	0.7+
1991 09 07	809	1.7+	1.2+	1998 09 14	704	0.2-	0.2+	1998 12 08	704	1.8-	0.3+
1991 09 07	809	0.1-	0.5-	1998 09 14	704	0.1-	0.5+	1999 11 13	699	0.7+	0.2-
1991 09 07	809	0.3+	0.5-	1998 09 14	704	0.2-	0.2-	1999 11 13	699	0.5+	0.3-
1995 11 16	399	0.1+	0.4-	1998 09 18	704	(2.1+	0.1-)	1999 11 13	699	0.3+	0.1-
1995 11 16	399	(2.7+	1.5-)	1998 09 18	704	1.6+	0.1-	1999 12 05	704	0.1+	0.4-
1995 11 17	399	0.4-	0.9-	1998 09 18	704	1.2+	0.7+	1999 12 05	704	0.3+	0.0
1995 11 17	399	0.0	0.5+	1998 09 18	704	1.0+	0.5+	1999 12 05	704	0.4+	1.1+
1998 06 29	704	1.6-	0.7-	1998 09 18	704	1.9+	1.0+	1999 12 05	704	0.0	0.1-
1998 06 29	704	1.3-	0.9+	1998 09 23	046	0.6+	0.7-	1999 12 05	704	0.3-	0.1+
1998 06 29	704	1.2-	0.3-	1998 09 23	046	0.8+	0.7-	1999 12 09	699	0.5-	1.8+
1998 06 29	704	(3.3-	0.2-)	1998 09 23	046	0.8+	0.8-	1999 12 09	699	0.1-	1.7+
1998 08 18	566	0.8-	0.0	1998 09 24	046	0.3+	0.5-	1999 12 09	699	0.5+	1.4+
1998 08 18	566	1.0-	0.1-	1998 09 24	046	0.5+	0.7-				
1998 08 18	566	1.0-	0.2+	1998 09 24	046	0.5+	0.6-				

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	12.67409		(2000.0)	P	Q
<i>n</i>	0.24351185	ω	337.68531	+0.84082764	+0.53910344
<i>a</i>	2.5397403	Ω	349.28190	-0.44858062	+0.64356355
<i>e</i>	0.1286569	<i>i</i>	15.19579	-0.30295925	+0.54331707
<i>P</i>	4.05	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1987 09 26	095	0.9-	0.2-	1999 08 12	699	0.0	0.5+	1999 10 02	704	0.1-	0.1-
1991 09 05	033	1.1-	0.1+	1999 08 12	699	0.4-	0.7+	1999 10 02	704	0.0	0.3-
1991 09 05	033	0.9-	0.5-	1999 08 12	699	0.2-	0.8+	1999 10 02	704	0.2+	0.1+
1991 09 10	402	1.6+	1.7+	1999 08 22	703	0.3-	0.4+	1999 10 02	704	0.4+	0.3-
1991 09 10	402	1.8+	1.2-	1999 08 22	703	0.2-	0.5+	1999 10 02	704	0.3+	0.0
1991 09 11	402	0.3+	0.6+	1999 08 22	703	0.2+	0.1-	1999 10 07	704	0.2-	0.2-
1991 09 11	402	0.1+	0.0	1999 08 22	703	0.7+	0.4+	1999 10 07	704	0.4-	0.2-
1991 09 13	675	0.7+	0.7-	1999 08 22	699	0.5-	0.4+	1999 10 07	704	0.8-	0.4+
1991 09 13	675	0.8+	0.7-	1999 08 22	699	0.3-	0.7+	1999 10 07	704	0.6-	0.2+
1991 09 15	675	0.1-	0.4-	1999 08 22	699	0.2+	0.3+	1999 10 07	704	0.9-	0.2-
1991 09 15	675	0.9+	0.6-	1999 08 23	699	0.6+	0.0	1999 10 09	704	0.2-	0.1+
1991 09 17	675	0.7-	0.4+	1999 08 23	699	0.4-	0.3+	1999 10 09	704	0.3-	0.2-
1991 09 17	675	1.2-	0.3-	1999 08 23	699	0.0	0.0	1999 10 09	704	0.3-	0.1+
1995 08 31	411	0.5-	0.8-	1999 09 07	704	0.1-	0.1-	1999 10 09	704	0.1-	0.0
1995 08 31	411	0.4+	1.9-	1999 09 07	704	0.2-	0.2-	1999 10 09	704	0.3-	0.0
1995 09 01	411	0.6+	0.2-	1999 09 07	704	0.3-	0.3-	1999 10 15	699	0.6-	0.4+
1995 09 01	411	0.0	0.3-	1999 09 07	704	0.3-	0.3-	1999 10 15	699	0.4-	0.4+
1995 09 01	411	0.2+	0.7-	1999 09 07	704	0.7-	0.0	1999 10 15	699	0.5-	0.1+
1995 09 17	411	0.5+	0.1-	1999 09 09	704	0.6-	0.5-	1999 10 30	703	0.0	0.2-
1995 09 17	411	0.4-	0.1+	1999 09 09	704	0.2-	0.2+	1999 10 30	703	0.0	0.4-
1995 09 20	400	0.3+	0.1-	1999 09 09	704	0.0	0.2+	1999 10 30	703	0.4-	0.0
1995 09 20	400	0.9+	0.3+	1999 09 09	704	0.0	0.2+	1999 10 30	703	0.2+	0.2-
1995 09 21	400	1.2+	0.3+	1999 09 09	704	0.0	0.2+	1999 10 30	699	0.1+	0.3+
1995 09 21	400	0.0	1.0+	1999 09 11	699	0.2-	0.4+	1999 10 30	699	0.0	0.3+
1998 03 31	704	(2.6+	0.3+)	1999 09 11	699	0.3-	0.3+	1999 10 30	699	0.1+	0.1+
1998 03 31	704	1.8-	0.3-	1999 09 11	699	0.1-	0.6+	1999 11 01	703	0.2-	0.0
1998 03 31	704	1.4+	0.1+	1999 09 12	106	0.4-	0.5+	1999 11 01	703	0.6-	0.1+
1998 03 31	704	(3.3+	3.5-)	1999 09 12	106	0.8+	0.6-	1999 11 01	703	0.1-	0.2+
1998 04 01	704	0.4-	0.2-	1999 09 13	106	0.2-	0.3+	1999 11 01	703	0.3-	0.0
1998 04 01	704	0.4+	0.0	1999 09 14	704	0.1-	0.2+	1999 12 05	704	0.2+	0.6-
1998 04 01	704	0.4-	0.3-	1999 09 14	704	0.1+	0.2+	1999 12 05	704	0.3+	0.0
1998 04 01	704	0.2+	0.5-	1999 09 14	704	0.0	0.1+	1999 12 05	704	0.9+	1.3-
1998 04 01	704	0.3-	0.5-	1999 09 14	704	0.0	0.0	1999 12 05	704	1.4+	0.1-
1999 07 16	704	0.3-	0.3-	1999 09 14	704	0.4+	0.0	1999 12 05	704	0.9+	0.6+
1999 07 16	704	0.9+	0.6-	1999 09 29	703	0.2-	0.2-	1999 12 06	704	0.0	0.1-
1999 07 16	704	0.5+	0.2-	1999 09 29	703	0.0	0.4+	1999 12 06	704	0.5+	0.3-
1999 07 16	704	0.8+	0.8-	1999 09 29	703	0.1-	0.2+	1999 12 06	704	0.0	0.5-
1999 07 16	704	1.3+	0.2-	1999 09 29	703	0.0	0.4-	1999 12 06	704	0.0	0.0

(12729)* 1991 RL₇ = 1998 QO₆₅

Discovered 1991 Sept. 13 by F. Börngen and L. D. Schmadel at Tautenburg.

Id. G. V. Williams (*MPC* 32448)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	89.07486		(2000.0)	P	Q
<i>n</i>	0.26435793	ω	117.11219	+0.86636770	+0.48666284
<i>a</i>	2.4044061	Ω	214.10414	-0.49890684	+0.83337479
<i>e</i>	0.0463886	<i>i</i>	11.53276	-0.02233781	+0.26200331
<i>P</i>	3.73	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1983 06 14	413	0.5-	1.7+	1998 08 24	704	0.6+	0.9-	1998 11 17	699	0.7-	0.6+
1983 06 14	413	0.4-	1.7+	1998 08 24	704	0.5-	1.7+	1999 10 10	704	0.3-	0.5-
1991 09 10	033	0.3-	0.3+	1998 08 24	704	0.6+	1.3+	1999 10 10	704	0.2-	0.4-
1991 09 11	033	0.7+	0.5+	1998 08 24	704	0.3-	0.6-	1999 10 10	704	0.6-	0.4-
1991 09 13	033	0.8-	0.9+	1998 08 27	704	0.0	0.5-	1999 10 10	704	0.1-	0.7-
1991 09 13	033	0.2+	1.5+	1998 08 27	704	0.2+	0.5-	1999 10 10	704	0.3+	0.9-
1991 09 14	033	0.1-	0.6+	1998 08 27	704	0.4+	1.3-	1999 10 20	704	0.4+	0.7-
1991 09 15	033	(0.2+	2.5+)	1998 08 27	704	0.2-	0.9-	1999 10 20	704	1.2-	0.7+

1991 10 07	675	0.5+	0.5-	1998 08 27	704	0.3+	1.2-	1999 10 20	704	0.5-	0.2-
1991 10 07	675	0.2-	0.0	1998 09 17	699	0.3-	0.1-	1999 10 20	704	0.6+	0.3+
1998 06 23	699	0.2+	0.4-	1998 09 17	699	0.3-	0.0	1999 12 05	704	0.2-	0.1+
1998 06 23	699	0.0	0.9-	1998 09 17	699	0.1-	0.1-	1999 12 05	704	0.2+	0.1-
1998 06 23	699	0.2+	0.6-	1998 11 17	699	0.4-	0.3+	1999 12 05	704	0.8+	0.1-
1998 08 24	704	0.8+	0.3+	1998 11 17	699	0.4+	1.0-	1999 12 05	704	0.2-	0.7+

(12730)* 1991 RU₈ = 1997 EW₃₅

Discovered 1991 Sept. 11 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 29614)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	87.17118		(2000.0)	P	Q
<i>n</i>	0.26557316	ω	299.82695	+0.55713539	+0.83041839
<i>a</i>	2.3970657	Ω	4.03330	-0.74997571	+0.50436968
<i>e</i>	0.1943569	<i>i</i>	1.90350	-0.35656218	+0.23667812
<i>P</i>	3.71	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1991 09 11	675	1.2+	0.4-	1997 03 05	704	0.7+	0.0	1999 11 14	704	0.4-	0.0
1991 09 11	675	0.9+	0.3-	1997 03 06	704	0.1+	0.1+	1999 11 16	704	1.1+	1.0-
1991 09 14	675	0.6+	0.3+	1997 03 06	704	0.1-	0.5-	1999 11 16	704	0.4+	0.1-
1991 09 14	675	0.2-	0.7+	1998 06 26	704	0.3+	0.6+	1999 11 16	704	0.1-	0.0
1991 09 17	675	1.9-	1.1-	1998 06 26	704	0.6+	0.4+	1999 11 16	704	0.7+	0.4+
1991 09 17	675	0.9-	0.9-	1998 06 26	704	0.4+	1.2-	1999 12 05	703	0.0	0.4-
1991 10 06	691	0.6+	0.1+	1998 06 26	704	1.0+	0.5-	1999 12 05	703	0.2-	0.3-
1991 10 06	691	0.4+	0.3+	1998 06 26	704	1.5-	1.5-	1999 12 05	703	0.3-	0.3+
1991 10 06	691	0.3+	0.2+	1999 11 03	704	0.7-	1.3+	1999 12 05	703	0.2-	0.3+
1994 05 02	691	0.1-	0.5+	1999 11 03	704	0.2-	0.3+	1999 12 07	704	0.4-	0.2-
1994 05 02	691	0.1-	0.3+	1999 11 03	704	(2.4-	0.1-)	1999 12 07	704	0.2-	0.0
1994 05 02	691	1.8-	0.0	1999 11 14	704	0.0	0.3-	1999 12 07	704	1.0-	0.4-
1997 03 04	704	0.3+	1.7-	1999 11 14	704	0.7-	0.1-	1999 12 07	704	0.2+	0.9-
1997 03 04	704	0.5+	0.5-	1999 11 14	704	0.4-	0.3-				
1997 03 05	704	0.9+	0.9-	1999 11 14	704	0.2-	0.1-				

(12731)* 1991 RW₁₂ = 1953 PK₁ = 1976 SO₉ = 1998 MG₂₆

Discovered 1991 Sept. 10 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 32225)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	95.51134		(2000.0)	P	Q
<i>n</i>	0.26134204	ω	104.18303	+0.37721096	+0.92608313
<i>a</i>	2.4228686	Ω	187.99569	-0.87282643	+0.35221680
<i>e</i>	0.0478308	<i>i</i>	3.73096	-0.30965451	+0.13532687
<i>P</i>	3.77	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1953 08 15	675	0.7-	0.1-	1999 10 15	704	1.0-	1.2-	1999 11 15	704	0.1-	0.7+
1953 08 15	675	0.6+	0.7+	1999 10 21	704	0.3+	0.1-	1999 11 15	704	0.1+	1.1+
1976 09 29	095	(4.3+	0.2-)	1999 10 21	704	0.0	0.4-	1999 11 15	704	0.0	1.1+
1991 09 10	675	0.3+	0.3-	1999 10 21	704	0.3+	0.4+	1999 11 17	704	0.3+	0.3+
1991 09 10	675	(2.5-	0.2-)	1999 10 21	704	0.8+	0.4+	1999 11 17	704	1.0+	0.0
1991 09 11	675	0.4+	0.2-	1999 10 21	704	0.7+	0.5-	1999 11 17	704	1.2+	0.5+
1991 09 11	675	(1.6-	2.6-)	1999 10 30	703	0.4-	0.2+	1999 11 17	704	1.0+	0.1+
1991 09 15	675	0.4-	0.9-	1999 10 30	703	0.1+	0.6+	1999 11 19	699	0.1-	0.8-
1991 09 15	675	0.3+	1.8-	1999 10 30	703	1.0-	1.2-	1999 11 19	699	0.0	0.9+
1998 05 29	704	0.6-	1.3-	1999 10 30	703	0.7+	0.2-	1999 11 19	699	0.4-	0.7+
1998 05 29	704	1.0-	1.0+	1999 11 01	691	0.0	0.2-	1999 12 04	703	0.4-	0.6+
1998 05 29	704	1.9-	1.8+	1999 11 01	691	0.1+	0.3-	1999 12 04	703	0.4-	0.5+
1998 06 24	704	1.2+	0.6+	1999 11 01	691	0.0	0.2-	1999 12 04	703	0.3-	0.5+
1998 06 24	704	0.8+	0.2+	1999 11 04	704	0.4-	0.0	1999 12 04	703	1.0-	0.7+
1998 06 24	704	0.4+	0.2+	1999 11 04	704	0.4+	0.6-	1999 12 05	703	0.3-	0.5+
1998 06 24	704	0.1-	1.4+	1999 11 04	704	0.6-	0.4-	1999 12 05	703	0.8-	0.4+
1998 06 26	704	0.8+	0.4+	1999 11 04	704	0.8-	0.8+	1999 12 05	703	0.3-	0.0
1998 06 26	704	0.6+	0.6-	1999 11 04	704	0.5-	0.4-	1999 12 05	703	0.2+	0.0
1998 06 26	704	0.9-	0.3-	1999 11 10	699	0.2-	0.9+	1999 12 06	704	0.1+	1.0-
1998 06 26	704	0.1+	0.7+	1999 11 10	699	0.2-	0.8+	1999 12 06	704	0.5-	0.0

1999 10 15	704	0.1−	0.7−	1999 11 10	699	0.1+	0.7+	1999 12 06	704	1.0+	0.5−
1999 10 15	704	0.8+	0.1+	1999 11 15	704	0.1−	0.6+	1999 12 06	704	0.1−	0.4−
1999 10 15	704	0.2+	0.8−	1999 11 15	704	0.2−	0.9+	1999 12 06	704	0.4+	0.4−

(12732)* 1991 TN = 1995 WE₁₉

Discovered 1991 Oct. 1 by R. H. McNaught at Siding Spring.

Id. G. V. Williams (*MPC* 26399)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	223.71907		(2000.0)	P	Q
<i>n</i>	0.27354639	ω	113.30585	−0.86020543	+0.50066275
<i>a</i>	2.3502572	Ω	96.86213	−0.49623148	−0.77806662
<i>e</i>	0.1098531	<i>i</i>	5.59909	−0.11747741	−0.37940630
<i>P</i>	3.60	<i>H</i>	14.1	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1991 09 12	675	0.6+	1.0−	1998 08 26	809	1.0+	0.8+	1998 10 15	704	1.0−	2.0−
1991 09 12	675	1.6+	0.2−	1998 09 13	699	0.5+	0.8+	1998 10 15	704	0.0	0.5+
1991 10 01	413	0.1+	0.4−	1998 09 13	699	(0.5−	2.2+)	1998 10 15	704	0.5+	0.9−
1991 10 02	413	1.4−	0.7+	1998 09 13	699	0.9+	0.4+	1999 11 08	120	(3.2+	0.6+)
1991 10 15	413	0.3−	0.5−	1998 09 18	704	0.3−	0.3−	1999 11 08	120	1.5+	0.4+
1994 08 06	675	0.1−	0.3+	1998 09 18	704	0.7+	0.3−	1999 11 08	120	1.4+	0.2−
1994 08 06	675	0.3+	0.6−	1998 09 18	704	0.1−	0.1+	1999 12 07	704	0.1−	0.2+
1995 11 17	691	0.2+	0.4−	1998 09 18	704	(1.6+	2.8−)	1999 12 07	704	0.6−	0.4+
1995 11 17	691	0.2+	0.3−	1998 09 18	704	1.0−	0.0	1999 12 07	704	0.2+	0.3+
1995 11 17	691	0.4+	0.3−	1998 09 27	699	0.4+	0.3−	1999 12 07	704	0.5−	0.6+
1995 11 22	691	0.2−	0.2−	1998 09 27	699	0.4−	0.1+	1999 12 07	704	0.3−	1.0+
1995 11 22	691	0.2+	0.3−	1998 09 27	699	0.4+	0.1−	1999 12 08	704	1.2−	0.6+
1995 11 22	691	0.3+	0.5−	1998 09 27	699	0.2+	0.5−	1999 12 08	704	0.2−	0.3+
1998 08 25	809	0.9−	0.9+	1998 09 27	699	1.4−	0.2+	1999 12 08	704	0.3+	0.2+
1998 08 25	809	1.4−	1.3+	1998 09 27	699	0.1−	0.1−	1999 12 08	704	0.1−	0.3−
1998 08 25	809	1.5−	0.3+	1998 10 12	699	1.2+	0.0	1999 12 08	704	0.3+	0.3−
1998 08 26	809	0.7+	0.7+	1998 10 12	699	0.5−	0.3+				
1998 08 26	809	0.4+	0.9+	1998 10 12	699	0.5+	0.1+				

(12733)* 1991 TV₁ = 1987 UO₉ = 1987 YW₃

Discovered 1991 Oct. 13 by S. Otomo at Kiyosato.

Id. S. Nakano (*MPC* 19509)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	335.84556		(2000.0)	P	Q
<i>n</i>	0.24310343	ω	329.77171	+0.92223634	−0.36890617
<i>a</i>	2.5425841	Ω	52.33005	+0.37751139	+0.79461815
<i>e</i>	0.3094058	<i>i</i>	8.40563	+0.08345827	+0.48217240
<i>P</i>	4.05	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1987 10 28	095	(1.9−	3.6−)	1997 02 13	711	1.0−	0.4+	1999 09 30	704	0.4+	0.6−
1987 12 23	010	0.8+	0.6+	1997 02 13	711	0.3−	0.1−	1999 09 30	704	0.0	0.4−
1987 12 23	010	0.3−	0.7+	1998 04 22	704	1.1+	0.4−	1999 09 30	704	0.5−	0.6−
1991 10 13	894	0.9+	0.1+	1998 04 22	704	0.4+	2.1−	1999 10 08	106	0.4−	0.5−
1991 10 13	894	0.4−	1.9−	1998 04 22	704	0.3−	0.1+	1999 10 08	106	0.4−	0.9+
1991 10 15	894	1.7−	0.2+	1998 04 22	704	0.2+	1.3−	1999 10 08	106	0.2+	0.4+
1991 10 15	894	1.1−	0.4+	1998 04 22	704	(5.4−	0.9−)	1999 10 11	699	0.6−	0.7+
1991 10 28	894	0.4−	1.5−	1998 05 01	704	2.0−	1.0+	1999 10 11	699	0.2−	1.1+
1991 10 28	894	0.1−	1.6−	1998 05 01	704	0.3+	1.1−	1999 10 11	699	0.0	0.9+
1991 11 04	894	0.9+	1.0−	1998 05 01	704	(2.4+	3.2−)	1999 10 29	699	0.4+	1.0+
1991 11 04	894	0.7+	0.5−	1998 05 01	704	0.3+	0.8−	1999 10 29	699	0.2+	1.2+
1991 11 05	894	1.4+	0.5−	1998 05 01	704	(3.1−	2.7−)	1999 10 29	699	0.3+	1.3+
1991 11 05	894	1.2+	0.7−	1998 05 18	699	0.6+	0.4+	1999 11 08	704	0.2−	0.7+
1991 11 11	894	0.7+	1.1−	1998 05 18	699	0.4+	0.8−	1999 11 08	699	0.8−	0.6+
1991 11 11	894	1.2+	0.1+	1998 05 18	699	0.3+	0.4+	1999 11 08	704	0.2−	0.9+
1995 10 14	367	0.2−	0.1−	1998 05 22	704	0.5+	0.7+	1999 11 08	699	0.2−	0.3+
1995 10 14	367	0.4+	0.2+	1998 05 22	704	1.7−	1.6+	1999 11 08	704	0.1+	0.7+
1995 10 17	367	0.5−	0.8+	1998 05 22	704	0.5+	0.7−	1999 11 08	704	0.0	0.3+
1995 10 17	367	0.3−	0.6+	1998 05 22	704	1.2−	1.2−	1999 11 08	699	0.4−	0.1+
1995 10 25	801	1.2+	0.3+	1999 09 13	704	0.7+	0.4−	1999 11 08	704	0.8+	0.7+

1995 10 25	801	1.0+	0.6+	1999 09 13	704	0.6+	0.2−	1999 11 28	699	0.6−	0.5+
1995 10 26	118	0.3−	0.9−	1999 09 13	704	0.2−	0.1−	1999 11 28	699	0.5−	0.6+
1995 10 27	801	0.1−	0.8−	1999 09 13	704	0.2+	0.4−	1999 11 28	699	0.4−	0.6+
1995 10 27	801	0.2−	0.8−	1999 09 13	704	0.3+	0.5−	1999 12 02	704	0.2−	0.0
1995 11 18	801	0.5−	0.4−	1999 09 13	704	0.2−	0.3−	1999 12 02	704	0.3−	0.4+
1995 11 18	801	0.5−	0.8−	1999 09 13	704	1.0−	0.3−	1999 12 02	704	0.1−	0.0
1995 11 21	118	0.2−	0.4+	1999 09 13	704	0.6−	0.7−	1999 12 02	704	0.1−	0.2−
1995 11 22	801	0.2−	0.1+	1999 09 30	704	0.4+	0.7−				
1995 11 22	801	0.3+	0.2+	1999 09 30	704	0.6+	1.0−				

(12734)* 1991 UF₃ = 1970 EG₁ = 1993 HM₈

Discovered 1991 Oct. 29 by A. Takahashi and K. Watanabe at Kitami.

Id. G. V. Williams (*MPC* 30273)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	351.17147		(2000.0)	P	Q
<i>n</i>	0.26226986	ω	50.61615	+0.00076672	−0.98884801
<i>a</i>	2.4171511	Ω	40.11263	+0.83165545	−0.08206700
<i>e</i>	0.1899501	<i>i</i>	13.36461	+0.55529147	+0.12427641
<i>P</i>	3.76	<i>H</i>	13.5	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1970 03 13	095	0.3−	0.3−	1993 04 29	691	0.0	0.0	1998 09 21	704	1.0−	1.6+
1991 10 17	675	0.3−	0.0	1993 05 25	691	0.4+	0.0	1999 11 11	699	0.1+	1.5+
1991 10 29	400	0.9+	0.0	1993 05 25	691	0.3+	0.4+	1999 11 11	699	0.4+	0.2−
1991 10 29	400	1.1+	0.5+	1996 04 21	566	0.1+	0.9−	1999 11 11	699	0.3+	0.5+
1991 11 02	400	0.4+	0.2+	1996 04 21	566	0.6−	0.6−	1999 12 07	703	0.3+	0.6+
1991 11 02	400	1.0+	0.8−	1996 04 21	566	0.1−	0.7−	1999 12 07	703	0.7+	0.6+
1991 11 26	400	1.8−	0.1−	1998 09 21	704	0.7+	0.9−	1999 12 07	703	0.4+	0.9+
1991 11 26	400	0.3−	0.9−	1998 09 21	704	0.2−	1.1+	1999 12 07	703	0.6+	1.0+
1993 04 29	691	0.0	0.1+	1998 09 21	704	0.5−	0.5+				
1993 04 29	691	0.1−	0.1+	1998 09 21	704	0.4−	0.0				

(12735)* 1991 VV₁ = 1994 LH₁

Discovered 1991 Nov. 4 by Y. Kushida and O. Muramatsu at the Yatsugatake

South Base Observatory.

Id. K. Ichikawa (*MPC* 28299)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	42.83133		(2000.0)	P	Q
<i>n</i>	0.25722008	ω	124.87193	+0.97777964	+0.11713001
<i>a</i>	2.4486844	Ω	229.06997	−0.15869355	+0.95547113
<i>e</i>	0.2274001	<i>i</i>	13.30434	+0.13697929	+0.27084217
<i>P</i>	3.83	<i>H</i>	13.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1991 11 04	896	0.4−	1.2+	1998 06 03	704	1.1−	0.4−	1999 10 10	704	0.3+	0.2−
1991 11 04	896	0.6+	0.4+	1998 06 03	704	1.2−	0.2−	1999 10 10	704	(1.2+	3.2−)
1991 11 10	896	0.8−	0.3−	1998 06 03	704	0.7−	1.5−	1999 10 10	704	0.3+	0.7−
1991 11 10	896	0.6+	0.9−	1998 06 03	704	0.8+	1.8−	1999 10 10	704	1.0+	1.1−
1991 11 17	896	(0.2+	3.1−)	1998 06 19	704	(4.4−	0.1+)	1999 10 20	704	0.5−	1.0−
1994 06 09	675	(2.8+	1.0+)	1998 06 19	704	0.5−	0.7+	1999 10 20	704	0.3−	0.8−
1994 06 09	675	1.1+	0.1−	1998 06 19	704	0.0	0.9+	1999 10 20	704	0.2−	0.4−
1994 06 12	675	0.1+	1.8+	1998 06 19	704	0.5−	0.5+	1999 10 20	704	0.9−	0.6−
1994 06 12	675	1.2−	1.3+	1998 06 19	704	0.3+	0.0	1999 10 20	704	0.5−	0.6−
1998 05 23	704	0.5−	0.4−	1998 06 25	704	1.1+	1.2+	1999 12 05	704	0.0	0.4−
1998 05 23	704	(3.0−	0.6+)	1998 06 25	704	0.5+	0.5−	1999 12 05	704	0.2−	0.4−
1998 05 23	704	0.6−	0.8−	1998 06 25	704	0.9+	1.0−	1999 12 05	704	0.4−	0.5−
1998 05 23	704	0.8+	1.7−	1998 06 25	704	0.7+	0.7−	1999 12 05	704	0.1+	0.1+
1998 06 03	704	0.9+	1.1−	1998 06 25	704	0.1+	0.8−	1999 12 05	704	0.1−	0.1−

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
M	51.46545			(2000.0)		P		Q			
n	0.27631435			ω	4.91989	+0.29529707		−0.87649344			
a	2.3345352			Ω	68.32264	+0.86201826		+0.07282620			
e	0.1972637			i	24.15109	+0.41197593		+0.47587351			
P	3.57 <th>H</th> <td>13.8</td> <th>G</th> <td>0.15<th>U</th><td colspan="3">2</td></td>			H	13.8	G	0.15 <th>U</th> <td colspan="3">2</td>	U	2		
Residuals in seconds of arc											
1976 06 04	413	0.3+	0.5−	1991 12 08	675	1.5+	0.2+	1998 11 13	704	0.1−	0.2+
1976 06 04	413	0.1−	0.9−	1991 12 08	675	1.1+	0.9+	1998 12 08	704	0.3−	0.6−
1989 03 05	675	0.9−	1.2+	1991 12 14	894	0.3−	0.0	1998 12 08	704	0.7−	0.4−
1989 03 05	675	0.0	0.0	1991 12 14	894	1.2−	1.0+	1998 12 08	704	1.4−	0.1−
1989 03 09	675	0.4−	0.8+	1991 12 31	675	0.4−	0.8−	1998 12 08	704	0.0	0.0
1989 03 09	675	2.2+	0.8−	1991 12 31	675	0.6+	0.6+	1998 12 08	704	1.3−	0.6−
1989 03 30	675	0.1+	0.6+	1992 01 07	033	0.2+	0.1−	1999 01 11	704	0.6+	0.9+
1989 03 30	675	0.5+	0.3+	1992 01 07	033	0.3−	0.6+	1999 01 11	704	0.5+	1.7+
1991 11 13	894	0.8−	1.2−	1992 01 09	675	0.5−	1.5−	1999 01 11	704	0.6+	0.9+
1991 11 13	894	0.8−	1.0−	1992 01 09	675	0.0	1.8−	1999 01 11	704	0.1−	0.7+
1991 11 14	894	0.5−	0.6+	1992 01 10	675	0.9+	0.1+	1999 01 11	704	0.3+	0.1−
1991 12 02	675	0.1−	0.9−	1992 01 10	675	(2.5+	0.7−)	1999 02 02	699	1.8−	0.6+
1991 12 02	675	0.8+	0.5−	1998 11 13	704	0.0	0.8+	1999 02 02	699	1.7+	0.4−
1991 12 04	675	1.9+	0.1−	1998 11 13	704	0.6−	0.9+	1999 02 02	699	(0.6+	3.2+)
1991 12 07	894	0.2+	0.4−	1998 11 13	704	0.0	0.4+				
1991 12 07	894	0.9+	0.6−	1998 11 13	704	1.1−	1.0+				

(12737)* 1991 VW₄ = 1996 BS₄

Discovered 1991 Nov. 10 by S. Otomo at Kiyosato.

Id. B. G. Marsden (*MPC* 26741)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Marsden						
<i>M</i>	103.17318		(2000.0)	P			Q				
<i>n</i>	0.26948988	ω	235.90086	+0.89656055			+0.42345924				
<i>a</i>	2.3737833	Ω	98.74183	−0.35064948			+0.85770712				
<i>e</i>	0.1551550	<i>i</i>	7.54922	−0.27059956			+0.29158322				
<i>P</i>	3.66	<i>H</i>	13.5	<i>G</i>	0.15		<i>U</i>	1			
Residuals in seconds of arc											
1991 11 02	809	0.2−	0.7+	1994 07 09	809	0.3+	0.3−	1998 09 24	704	0.7−	1.0−
1991 11 02	809	0.3−	0.4+	1994 07 09	809	0.8+	0.1+	1998 09 24	704	0.5+	1.8−
1991 11 02	809	(3.1−	0.1+)	1996 01 16	098	1.0−	0.0	1998 09 24	704	0.7−	0.6−
1991 11 06	809	0.3−	0.6+	1996 01 16	098	1.6−	0.4−	1998 09 24	704	1.3−	0.3+
1991 11 06	809	0.9−	0.2+	1996 01 17	098	0.9−	0.6−	1999 11 08	120	0.3−	0.1+
1991 11 06	809	(2.5−	0.1+)	1996 01 17	098	1.1−	0.9−	1999 11 08	120	0.1+	0.6−
1991 11 09	809	1.1+	0.7+	1996 01 19	098	0.5−	1.9−	1999 11 10	703	0.8+	0.7+
1991 11 09	809	0.0	0.0	1996 01 19	098	1.6−	1.7−	1999 11 10	703	0.5+	0.4+
1991 11 09	809	1.0−	0.2−	1998 09 21	704	0.0	0.7−	1999 11 10	703	0.3+	1.2+
1991 11 10	894	1.0+	0.4−	1998 09 21	704	0.3+	0.5+	1999 11 10	703	0.4+	0.4+
1991 11 10	894	0.9+	0.7−	1998 09 21	704	0.3−	0.4+	1999 11 16	704	0.1+	0.4−
1991 11 12	809	1.7+	0.2−	1998 09 21	704	0.6+	1.3+	1999 11 16	704	0.2+	0.1−
1991 11 12	809	0.8−	0.0	1998 09 21	704	1.3+	0.8+	1999 11 16	704	1.0+	0.5−
1991 11 12	809	0.3−	0.2−	1998 09 22	699	0.5+	0.7+	1999 11 16	704	0.3+	1.0−
1991 11 15	894	(0.5−	2.7−)	1998 09 22	699	0.5+	0.7+	1999 11 16	704	0.7+	0.6−
1991 11 15	894	1.2+	1.1−	1998 09 22	699	0.3−	0.5+	1999 12 04	703	0.3+	0.9+
1991 12 07	894	(0.2−	4.1−)	1998 09 24	704	0.0	0.3−	1999 12 04	703	0.2+	0.6+
1991 12 07	894	1.2+	0.6−	1998 09 24	704	0.6−	0.2−	1999 12 04	703	0.8+	1.1+
1994 07 08	809	1.3−	0.7−	1998 09 24	704	0.3+	0.0	1999 12 04	703	0.2+	0.5+
1994 07 08	809	0.5−	0.8−	1998 09 24	704	0.5−	1.1+	1999 12 09	699	0.6+	0.0
1994 07 08	809	0.4+	0.9−	1998 09 24	704	0.7−	0.5+	1999 12 09	699	0.6+	0.2−
1994 07 09	809	0.3−	0.3−	1998 09 24	704	0.3+	0.3−	1999 12 09	699	0.6+	0.4+

(12738)* 1992 AL = 1978 SF = 1988 CE₁

Discovered 1992 Jan. 4 by T. Hioki and S. Hayakawa at Okutama.

Id. T. Kobayashi (*MPC* 19686)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Nakano					
M	355.43452		(2000.0)	P			Q				
n	0.24297167	ω	273.31839	+0.53471354			−0.83373633				
a	2.5435032	Ω	143.26273	+0.83750057			+0.50115068				
e	0.2851772	i	13.31089	+0.11257984			+0.23180105				
P	4.06	H	13.4	G	0.15		U	2			
Residuals in seconds of arc											
1978 09 27	809	0.5+	1.2−	1992 01 27	877	(2.4−	0.5+)	1996 03 24	801	0.6+ 0.1−	
1978 09 28	809	0.1+	0.1−	1992 01 27	894	1.0−	2.0−	1999 10 19	704	0.0 0.7−	
1978 09 29	809	0.6−	0.7−	1992 01 27	894	0.7−	0.5+	1999 10 19	704	0.0 0.7−	
1988 02 11	675	(12.8+	1.3+)	1992 02 02	385	1.3−	0.8+	1999 10 19	704	(2.4+ 0.6−)	
1988 02 14	675	(5.7+ 1.1+)		1992 02 02	385	1.9−	0.7+	1999 10 19	704	0.2− 0.5−	
1992 01 04	877	(3.4+ 1.8−)		1992 02 04	877	0.7+ 0.2+		1999 10 19	704	0.1− 0.5−	
1992 01 04	877	0.0 0.6+		1992 02 04	877	0.1− 1.0+		1999 11 03	703	0.3− 2.0+	
1992 01 07	877	(0.7− 2.7−)		1992 02 08	877	1.3+ 0.3+		1999 11 03	703	0.7+ 1.1+	
1992 01 07	877	(1.7+ 2.5−)		1992 02 08	877	(2.9− 2.3+)		1999 11 03	703	1.7− 1.0+	
1992 01 14	877	1.2+ 0.5+		1992 02 24	877	0.8+ 1.6−		1999 11 03	703	0.2+ 0.8−	
1992 01 14	877	(2.6− 0.5−)		1992 02 24	877	1.7+ 1.2−		1999 12 13	703	0.3+ 0.2−	
1992 01 26	894	0.5+ 0.0		1996 03 21	801	0.2+ 0.1+		1999 12 13	703	0.5+ 0.3−	
1992 01 26	894	1.2− 0.7−		1996 03 21	801	0.2+ 0.1+		1999 12 13	703	0.3+ 0.2−	
1992 01 27	877	0.1+ 0.8−		1996 03 24	801	1.1− 0.0		1999 12 13	703	0.0 0.2−	

(12739)* 1992 DY₇ = 1997 GB₂₂ = 1997 JJ₄

Discovered 1992 Feb. 29 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. G. V. Williams (*MPC* 29616, d, *MPC* 30079)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
<i>M</i>	144.71017		(2000.0)	P		Q					
<i>n</i>	0.21986547	ω	185.25356	−0.16260956		+0.98530279					
<i>a</i>	2.7187214	Ω	75.39557	−0.90329052		−0.12732268					
<i>e</i>	0.0319331	<i>i</i>	3.09884	−0.39701935		−0.11387426					
<i>P</i>	4.48	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	1				
Residuals in seconds of arc											
1992 02 29	809	0.2−	0.1−	1997 05 01	704	0.6+	0.1+	1999 11 09	704	0.6−	0.1−
1992 03 03	809	0.5−	0.8+	1997 05 08	327	0.3−	0.3−	1999 11 09	704	1.3−	0.6−
1992 03 07	809	0.2+	1.2+	1997 05 08	327	0.7−	0.5−	1999 11 09	704	0.7−	0.5−
1992 04 06	809	1.1+	0.4−	1997 05 08	327	0.3−	1.0−	1999 11 12	704	0.0	0.4−
1997 04 06	704	0.1−	1.3+	1998 08 17	704	0.4+	0.6+	1999 11 12	704	0.4+	0.1−
1997 04 06	704	0.6−	0.5+	1998 08 17	704	0.8−	0.8+	1999 11 12	704	0.3−	0.3−
1997 04 07	809	0.6−	1.7+	1998 08 17	704	0.1+	1.1+	1999 11 12	704	0.2−	0.1−
1997 04 07	809	(1.5−	2.6+)	1998 08 17	704	1.6−	0.1+	1999 11 12	704	0.2−	0.3+
1997 04 07	809	(1.1−	2.5+)	1998 08 23	704	0.2+	0.7−	1999 11 27	120	0.3+	0.0
1997 04 08	809	(0.7+	3.8+)	1998 08 23	704	0.2+	1.4−	1999 11 27	120	0.8+	0.8+
1997 04 08	809	(0.2−	4.0+)	1998 08 23	704	0.7+	0.7+	1999 12 05	120	0.1+	0.7+
1997 04 08	809	(1.4−	4.3+)	1998 08 23	704	1.1+	0.0	1999 12 05	120	0.4−	1.1+
1997 04 08	704	0.6+	0.2−	1998 08 23	704	1.0+	0.1−	1999 12 07	704	0.0	0.8+
1997 04 08	704	0.6−	0.1+	1998 09 14	704	0.4−	0.5+	1999 12 07	704	0.1+	0.7+
1997 04 30	704	0.6+	0.3+	1998 09 14	704	0.7−	0.5+	1999 12 07	704	0.1−	0.7+
1997 04 30	704	0.0	0.3+	1998 09 14	704	1.2+	0.5−	1999 12 07	704	0.1+	0.5+
1997 04 30	704	0.1+	0.8+	1998 09 14	704	0.8−	1.1+	1999 12 07	704	0.2−	0.1+
1997 04 30	704	0.3+	0.6+	1998 09 14	704	0.9−	1.2+	1999 12 08	704	0.0	0.4+
1997 04 30	704	0.2+	1.3+	1998 09 18	704	0.7+	0.6−	1999 12 08	704	0.1−	0.4+
1997 05 01	704	0.7+	0.5+	1998 09 18	704	0.9−	1.2+	1999 12 08	704	0.2+	0.4+
1997 05 01	704	0.5+	0.1−	1998 09 18	704	0.3−	0.1+	1999 12 08	704	0.3+	0.3+
1997 05 01	704	0.5+	0.3+	1998 09 18	704	1.2−	0.4+	1999 12 08	704	0.8+	0.5+
1997 05 01	704	1.0+	0.0	1999 11 09	704	0.1−	0.2−				

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
M	342.67896		(2000.0)		P		Q				
n	0.23935390	ω	318.62862	−0.23319293	−0.95935271						
a	2.5690687	Ω	144.00510	+0.94808715	−0.26064133						
e	0.0511570	i	15.69082	+0.21622168	+0.10820576						
P	4.12 <th>H</th> <td>12.5<th>G</th><td>0.15<th>U</th><td>2</td><td colspan="3"></td></td></td>	H	12.5 <th>G</th> <td>0.15<th>U</th><td>2</td><td colspan="3"></td></td>	G	0.15 <th>U</th> <td>2</td> <td colspan="3"></td>	U	2				
Residuals in seconds of arc											
1977 08 18	095	0.1+	0.5−	1998 06 25	426	0.1−	0.6−	1998 10 12	423	0.3−	0.8+
1992 03 02	809	0.1−	0.1+	1998 06 29	704	1.1−	0.1+	1998 10 16	704	0.1+	1.3+
1992 03 05	809	0.9−	1.0+	1998 06 29	704	1.9−	0.0	1998 10 16	704	0.4+	0.6+
1992 03 07	809	0.9−	0.5+	1998 06 29	704	0.5+	0.0	1998 10 16	704	1.2+	0.1+
1992 04 01	095	0.2+	0.4−	1998 06 29	704	0.9−	0.0	1998 10 16	704	0.4+	1.4+
1992 04 04	809	(2.6−	1.7−)	1998 06 29	704	1.4−	0.1−	1998 10 16	704	1.5+	0.4+
1995 12 31	691	0.9−	0.8−	1998 09 21	704	0.0	0.0	1999 10 19	704	0.6−	0.2−
1995 12 31	691	1.0−	0.9−	1998 09 21	704	0.1−	1.0−	1999 10 19	704	0.5+	0.8−
1995 12 31	691	1.0−	0.8−	1998 09 21	704	0.4−	0.6+	1999 10 19	704	0.2+	0.5−
1996 02 16	010	0.4+	0.0	1998 09 21	704	0.2+	1.9−	1999 10 19	704	0.1+	1.0−
1996 02 16	010	0.0	1.4+	1998 09 21	704	0.1−	0.6−	1999 10 19	704	0.1+	0.8−
1996 02 16	010	0.8+	1.6+	1998 09 27	423	0.8+	0.4−	1999 11 15	699	0.3−	0.9+
1996 02 17	010	1.4+	0.7−	1998 09 28	423	0.1−	0.7−	1999 11 15	699	0.7+	0.5+
1996 02 17	010	1.3+	0.0	1998 09 28	423	0.0	0.4−	1999 11 15	699	0.6+	1.0+
1996 02 17	010	1.6+	0.4+	1998 09 28	423	0.5+	0.4−	1999 12 05	704	(3.5−	0.1+
1998 06 22	426	0.3−	0.4−	1998 10 11	423	0.2+	1.0+	1999 12 05	704	1.7−	0.6−
1998 06 22	426	0.1−	0.5−	1998 10 11	423	0.1+	1.0+	1999 12 05	704	1.8−	1.6−
1998 06 22	426	0.6−	0.2−	1998 10 11	423	0.4−	0.6+	1999 12 05	704	0.4+	0.1+
1998 06 25	426	0.3−	0.5−	1998 10 12	423	0.1+	1.0+				
1998 06 25	426	0.3−	0.8−	1998 10 12	423	0.2+	0.9+				

(12741)* 1992 EU₃₀ = 1997 JH₁₁

Discovered 1992 Mar. 1 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. M. E. Sansaturio (*MPC* 34497), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Williams						
M	266.68458		(2000.0)		P		Q				
n	0.22281749	ω	257.20072		−0.78055928		−0.62375622				
a	2.6946552	Ω	244.19338		+0.58960446		−0.71307997				
e	0.0365343	i	2.59029		+0.20759041		−0.32007052				
P	4.42	H	14.1	G	0.15	U	1				
Residuals in seconds of arc											
1992 03 01	809	1.0+	1.2+	1998 08 23	699	0.3+	0.6+	1999 11 16	704	0.2−	0.1+
1992 03 03	809	0.7+	0.5+	1998 08 23	699	0.4+	1.2+	1999 11 16	704	0.6−	0.5+
1992 03 09	809	0.2−	0.3−	1999 11 03	704	1.0+	1.7+	1999 11 16	704	0.4+	0.1+
1992 04 07	809	1.0−	0.3+	1999 11 03	704	0.1−	1.2−	1999 11 16	704	0.3+	0.5+
1994 10 09	691	(9.4−	3.1−)	1999 11 03	704	0.2−	0.5−	1999 11 16	704	0.4+	0.8+
1997 05 14	595	0.2−	0.6−	1999 11 09	704	0.2+	0.0	1999 12 07	704	0.7+	0.2+
1997 05 14	595	0.3+	0.4+	1999 11 09	704	0.3−	0.4+	1999 12 07	704	0.2−	0.4−
1997 05 15	595	0.2−	0.4−	1999 11 09	704	0.2−	0.0	1999 12 07	704	0.0	0.4−
1997 05 15	595	(1.6−	3.5−)	1999 11 09	704	0.1−	0.2+	1999 12 07	704	0.2+	0.2+
1998 08 17	704	0.2+	0.9−	1999 11 09	704	0.3+	0.7+	1999 12 07	704	0.7−	0.5−
1998 08 17	704	0.1−	0.0	1999 11 12	704	0.3+	0.4+	1999 12 08	704	0.0	0.6−
1998 08 17	704	0.9+	0.8+	1999 11 12	704	0.0	0.1−	1999 12 08	704	0.1−	0.5−
1998 08 17	704	1.3−	0.4−	1999 11 12	704	0.6+	0.1+	1999 12 08	704	0.1−	0.5−
1998 08 17	704	(5.0−	1.9−)	1999 11 12	704	0.2−	0.7+	1999 12 08	704	0.4+	1.1−
1998 08 23	699	0.7−	0.4−	1999 11 12	704	0.4−	0.6+	1999 12 08	704	0.2−	1.5−

(12742)* 1992 OF₁ = 1948 PV = 1970 NH = 1981 ND = 1982 VZ₁₂

Discovered 1992 July 26 by E. W. Elst at Caussols.

Id. T. Kobayashi (*MPC* 24107)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Williams						
<i>M</i>	68.76793		(2000.0)		P		Q				
<i>n</i>	0.18001306	ω	230.98138		+0.98860838		+0.06060890				
<i>a</i>	3.1064668	Ω	125.12145		−0.01616225		+0.95279363				
<i>e</i>	0.2292278	<i>i</i>	9.69679		−0.14964041		+0.29750773				
<i>P</i>	5.48	<i>H</i>	12.3	<i>G</i>	0.15	<i>U</i>	1				
Residuals in seconds of arc (or two decimals in units of degrees)											
1948 08 12	094(0.03+	0.00+)	X	1998 10 16	704	1.3+	0.1+	1999 12 07	704	1.5+	1.2+
1970 07 14	095	0.2+	0.3+	1998 10 16	704	0.8+	0.2−	1999 12 07	704	0.6+	1.0−
1981 07 02	805	(0.1+	9.6−)	1998 10 16	704	0.5+	0.7+	1999 12 07	704	0.7+	0.0
1981 07 02	805	0.8+	0.9+	1998 10 16	704	0.4+	0.1+	1999 12 07	704	0.5+	0.1+
1982 11 14	095	0.4−	0.2+	1998 10 16	704	0.7+	0.0	1999 12 07	704	1.1+	0.0
1982 12 21	095	1.0−	1.8+	1998 10 18	699	0.4+	0.4−	1999 12 07	704	0.7+	1.3+
1992 07 21	809	0.2+	0.2+	1998 10 18	699	0.3+	0.2−	1999 12 07	704	0.6−	0.1−
1992 07 21	809	0.5+	0.2+	1998 10 18	699	0.1+	0.1−	1999 12 07	704	0.6+	1.1−
1992 07 21	809	1.2+	0.4+	1998 11 13	704	(3.6+	0.0)	1999 12 07	704	0.4+	0.3+
1992 07 22	809	0.1−	0.7+	1998 11 13	704	(3.3+	0.2+)	1999 12 07	704	0.2+	1.2+
1992 07 22	809	0.1+	0.8+	1998 11 13	704	(5.4−	3.2−)	1999 12 07	704	1.1+	0.7−
1992 07 22	809	0.3+	1.0+	1998 11 13	704	(4.4−	1.2−)	1999 12 07	704	0.4−	1.6+
1992 07 22	809	1.1−	0.2+	1998 12 08	704	0.1−	2.0−	1999 12 07	704	0.7−	0.6+
1992 07 22	809	0.7−	0.1+	1998 12 08	704	0.9+	0.0	1999 12 07	704	1.9−	0.2−
1992 07 22	809	0.1−	0.3+	1998 12 08	704	1.8−	1.0+	1999 12 07	704	0.6+	0.5−
1992 07 26	010	0.4−	0.2−	1998 12 08	704	0.6+	1.2+	1999 12 07	704	0.5+	1.1−
1992 07 26	010	0.6+	0.4+	1998 12 08	704	1.3+	0.0	1999 12 07	704	0.4+	0.4−
1992 07 26	010	0.2−	0.8+	1999 10 10	704	0.2−	0.3−	1999 12 07	704	0.2+	0.6+
1992 07 26	010	0.9−	0.2+	1999 10 10	704	0.5−	0.5−	1999 12 07	704	0.5+	1.7−
1992 07 27	010	0.7−	0.4−	1999 10 10	704	1.0−	0.3+	1999 12 07	704	0.4+	0.0
1998 09 20	138	0.9−	0.2+	1999 10 10	704	0.8−	0.0	1999 12 07	704	0.1−	0.1+
1998 09 20	138	0.6−	0.1+	1999 10 21	704	0.7−	0.2−	1999 12 07	704	0.1−	0.0
1998 09 20	138	0.8−	0.1+	1999 10 21	704	0.6+	0.3+	1999 12 07	704	0.3+	0.2+
1998 09 21	699	0.4−	0.6+	1999 10 21	704	0.6−	0.2−	1999 12 07	704	0.0	0.6+
1998 09 21	699	0.9−	0.7+	1999 11 04	699	0.8−	0.3−	1999 12 07	704	0.0	0.2+
1998 09 21	699	0.5−	1.0+	1999 11 04	699	0.6−	0.0	1999 12 07	704	0.4−	0.1+
1998 09 24	012	0.0	0.0	1999 11 04	699	0.2−	0.9−	1999 12 07	704	0.7−	0.3+
1998 09 24	012	0.1+	0.1−	1999 12 05	699	0.3+	1.0+	1999 12 07	704	0.5−	0.3+
1998 09 24	012	0.3+	0.1−	1999 12 05	699	1.4−	0.7+	1999 12 07	704	1.5−	1.0+
1998 10 13	423	0.2−	0.4−	1999 12 05	699	0.2+	0.3+	1999 12 08	704	1.1+	0.6−
1998 10 13	423	0.3+	0.9−	1999 12 06	704	1.1+	1.0−	1999 12 08	704	0.6+	0.1−
1998 10 13	423	0.3−	0.7−	1999 12 06	704	0.8+	0.5+	1999 12 08	704	0.4−	0.7−
1998 10 14	423	0.2+	0.6−	1999 12 06	704	1.1+	1.3+	1999 12 08	704	0.7−	1.2+
1998 10 14	423	0.2−	0.8−	1999 12 06	704	0.1+	0.6+				
1998 10 14	423	0.3−	1.0−	1999 12 06	704	1.3−	1.1+				

(12743)* 1992 PL₂ = 1981 RE₂ = 1982 VQ₂

Discovered 1992 Aug. 2 by H. E. Holt at Palomar.

Id. T. B. Spahr (*MPC* 30657)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
M	200.88595		(2000.0)			P		Q			
n	0.17276521		ω	264.92855		−0.87791987		+0.36190875			
a	3.1927520		Ω	295.98261		−0.16415262		−0.84255863			
e	0.0564614		i	20.41045		−0.44978953		−0.39889473			
P	5.70 <th>H</th> <td colspan="2">12.0</td> <th>G</th> <td colspan="2">0.15</td> <th>U</th> <td colspan="2">1</td>		H	12.0		G	0.15		U	1	
Residuals in seconds of arc											
1981 09 07	095	2.2−	1.3+	1998 08 24	704	0.8+	0.9−	1998 12 09	704	0.7−	0.1−
1982 11 14	381	0.3+	0.0	1998 08 24	704	0.9+	0.3−	1998 12 09	704	0.9−	1.8−
1982 11 14	381	0.9+	0.7+	1998 08 24	704	0.1−	0.3−	1998 12 09	704	1.1+	1.9+
1992 07 31	675	0.5+	1.4−	1998 08 24	704	0.4+	0.7−	1998 12 09	704	0.1−	0.2+
1992 07 31	675	0.6−	0.2−	1998 08 27	704	0.2−	0.5−	1999 10 18	704	0.4+	0.1+
1992 08 02	675	0.2+	0.2−	1998 08 27	704	0.5−	0.5+	1999 10 18	704	0.4−	0.0
1992 08 02	675	0.4+	0.1+	1998 08 27	704	0.1+	0.5+	1999 10 18	704	0.4−	0.1+
1992 08 06	675	0.1+	0.1−	1998 08 27	704	0.7−	0.6−	1999 10 18	704	0.1−	0.0
1992 08 06	675	0.3−	0.4−	1998 08 27	704	0.9−	0.6+	1999 10 18	704	0.3+	0.2−
1992 08 23	675	0.2−	0.7+	1998 09 19	704	0.5+	0.3−	1999 10 31	704	0.3+	0.8−
1992 08 23	675	0.1−	0.5+	1998 09 19	704	0.7+	0.7−	1999 10 31	704	0.9+	0.3−

1998 06 20	688	0.3−	0.2+	1998 09 19	704	0.6−	0.8−	1999 10 31	704	0.1+	0.3−
1998 06 20	688	0.5−	0.1+	1998 09 19	704	1.1+	0.1−	1999 10 31	704	0.5+	0.4−
1998 06 20	688	0.6−	0.2+	1998 09 19	704	0.5+	0.2−	1999 10 31	704	0.1+	0.8−
1998 08 19	704	0.9+	0.8+	1998 09 23	704	0.4−	0.5+	1999 12 13	704	0.5−	0.3−
1998 08 19	704	1.3+	0.1+	1998 09 23	704	0.5−	1.1+	1999 12 13	704	0.6−	0.4+
1998 08 19	704	0.3−	0.5+	1998 09 23	704	0.7−	0.1−	1999 12 13	704	0.1−	0.6+
1998 08 19	704	0.7+	0.4+	1998 09 23	704	0.3−	0.4+	1999 12 13	704	1.3−	0.5−
1998 08 24	704	0.1+	0.4−	1998 09 23	704	0.7+	0.1+	1999 12 13	704	0.7−	0.5+

(12744)* 1992 SQ = 1976 YY₁

Discovered 1992 Sept. 26 by A. Sugie at the Dynic Astronomical Observatory.

Id. G. V. Williams (*MPC* 21587)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30283014	ω	108.80227	+0.94798783	−0.31369987		
<i>a</i>	2.1961904	Ω	269.50841	+0.26793703	+0.87794136		
<i>e</i>	0.1310310	<i>i</i>	3.09318	+0.17183951	+0.36167853		
<i>P</i>	3.25	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 12 16	095	0.3−	1.6−	1995 10 16	118	0.2−	0.4−	1998 06 26	704	0.3−	0.5+
1976 12 18	095	0.2+	2.4−	1995 10 18	118	1.4+	0.0	1999 10 22	704	0.7−	1.1+
1976 12 20	095	0.1−	1.1−	1995 10 21	118	0.8+	0.7−	1999 10 22	704	0.6+	0.3−
1992 09 26	402	(2.4+	1.2−)	1995 10 22	118	0.0	0.4−	1999 10 22	704	0.2+	0.7−
1992 09 26	402	0.6+	0.8+	1995 10 26	118	0.5−	0.3+	1999 10 22	704	0.4−	0.6−
1992 09 27	402	(2.4+	0.4−)	1995 10 27	118	0.9−	0.1+	1999 10 22	704	0.5+	0.6−
1992 09 27	402	0.2−	0.5+	1998 06 24	704	0.0	1.2−	1999 11 17	704	0.6−	0.8−
1992 10 02	402	0.4−	0.8−	1998 06 24	704	1.5−	0.2−	1999 11 17	704	0.6−	0.4+
1992 10 02	402	0.6+	1.0+	1998 06 24	704	1.3+	1.8+	1999 11 17	704	0.9+	0.3+
1992 12 13	010	(2.3−	1.0−)	1998 06 24	704	1.0+	1.9−	1999 11 17	704	0.0	0.6+
1992 12 14	010	(2.5−	1.0−)	1998 06 26	704	0.1+	1.8−	1999 12 05	699	0.4+	1.3+
1995 08 14	292	0.1−	0.6+	1998 06 26	704	0.7+	0.4−	1999 12 05	699	0.5+	1.4+
1995 08 14	292	1.9−	0.5+	1998 06 26	704	(1.5−	3.0−)	1999 12 05	699	0.2+	1.8+
1995 10 14	118	0.5−	0.0	1998 06 26	704	0.2+	0.9+				

(12745)* 1992 UL₂ = 1979 SA₁₁ = 1979 WO₅

Discovered 1992 Oct. 21 by Y. Mizuno and T. Furuta at Kani.

Id. K. Ichikawa (*MPC* 21273)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30372018	ω	65.54788	+0.92898301	−0.36837137		
<i>a</i>	2.1918977	Ω	316.04355	+0.31805358	+0.84420648		
<i>e</i>	0.1749079	<i>i</i>	2.96964	+0.18929470	+0.38938150		
<i>P</i>	3.25	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 09 24	095	1.4−	0.2+	1997 02 08	566	0.2+	0.4+	1999 12 06	704	0.3+	0.2−
1979 11 17	095	0.8+	1.0+	1997 02 08	566	0.4+	0.3+	1999 12 06	704	0.4+	0.3+
1992 10 20	675	0.0	0.5+	1997 02 08	566	0.7+	0.4+	1999 12 06	704	0.5+	1.1+
1992 10 20	675	0.5−	0.2+	1998 06 24	704	0.3+	0.1−	1999 12 06	704	0.8+	0.1−
1992 10 21	403	(3.5−	1.4−)Y	1998 06 24	704	0.8+	0.1−	1999 12 07	704	0.0	0.0
1992 10 21	403	(2.8−	0.3−)Y	1998 06 24	704	0.4−	0.1−	1999 12 07	704	0.1−	0.3−
1992 10 22	675	0.6+	0.4+	1998 06 24	704	0.8+	0.7+	1999 12 07	704	0.2−	0.4−
1992 10 22	675	0.4+	1.0+	1998 06 24	704	1.8−	1.7+	1999 12 07	704	0.4−	0.2−
1992 10 26	403	0.5+	0.3+	1999 11 16	704	0.1+	0.1+	1999 12 07	704	0.1+	0.5−
1992 10 26	403	0.8+	0.6+	1999 11 16	704	0.1+	0.4−	1999 12 09	699	0.2+	1.2+
1992 10 26	565	0.4−	0.8−	1999 11 16	704	0.3−	0.7−	1999 12 09	699	0.0	1.1+
1992 10 26	565	0.8−	1.4−	1999 11 16	704	0.4−	0.0	1999 12 09	699	1.6−	0.5+
1992 11 01	403	0.1+	0.5−	1999 11 16	704	0.2+	0.3−				
1992 11 01	403	0.5−	0.0	1999 12 06	704	0.1+	0.5+				

(12746)* 1992 WC₁ = 1955 UB₁ = 1975 RC = 1995 YT₂₅

Discovered 1992 Nov. 16 by M. Yanai and K. Watanabe at Kitami.

Id. K. Ichikawa (*MPC* 27914)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29436075	ω	81.19326	+0.96973847	+0.22999320		
<i>a</i>	2.2381170	Ω	265.47968	−0.24354766	+0.88780744		
<i>e</i>	0.1911446	<i>i</i>	4.71347	−0.01708334	+0.39862397		
<i>P</i>	3.35	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1955 10 20	760	0.1+	0.9−	1995 12 20	704	0.0	0.1+	1999 10 12	704	0.3−	0.4−
1955 10 20	760	(1.8+	4.6+)	1995 12 20	704	0.2+	0.5−	1999 10 12	704	0.1+	0.2−
1975 09 05	049	(1.0−	5.2−)Y	1995 12 20	704	0.5−	1.2+	1999 10 12	704	0.2+	0.1−
1975 09 05	049	(5.3−	6.0−)Y	1995 12 20	704	0.7−	0.1+	1999 10 12	704	0.5+	0.0
1975 09 05	049	(1.0−	9.2−)Y	1995 12 22	704	0.3−	0.9+	1999 10 12	704	0.8+	0.1−
1975 09 06	049	(0.1−	15.2−)Y	1995 12 22	704	0.3−	0.5−	1999 10 22	704	1.2−	0.2−
1992 11 16	400	0.1−	0.1−	1995 12 22	704	0.7+	1.0+	1999 10 22	704	0.3−	0.3+
1992 11 16	400	1.6+	0.6−	1998 05 24	704	0.2+	0.5+	1999 10 22	704	0.2−	0.1−
1992 11 17	400	1.6+	0.2+	1998 05 24	704	0.9+	0.8+	1999 10 22	704	0.4−	0.8+
1992 11 17	400	1.0−	0.5+	1998 05 24	704	0.1−	0.9−	1999 10 22	704	0.2−	0.4+
1992 11 21	400	0.2−	1.2+	1998 05 24	704	1.1−	1.2−	1999 12 07	704	0.9+	0.2−
1992 11 21	400	0.2−	0.8+	1998 06 24	704	0.3−	0.5+	1999 12 07	704	0.1+	0.3−
1992 11 25	675	(0.7−	3.2−)	1998 06 24	704	0.9−	0.4+	1999 12 07	704	0.2+	0.3+
1992 11 25	675	0.9−	1.9−	1998 06 24	704	0.3−	0.4+	1999 12 07	704	0.0	0.3+
1992 11 28	675	0.3+	0.8−	1998 06 24	704	0.3+	0.7+	1999 12 07	704	0.2+	0.6+
1992 11 28	675	0.4−	0.7−	1998 06 24	704	0.8+	0.7+	1999 12 08	704	0.1−	0.5+
1994 04 05	675	0.9+	0.2−	1998 06 26	704	0.2−	0.5+	1999 12 08	704	0.2−	0.3+
1994 04 05	675	1.0+	0.3−	1998 06 26	704	0.3−	0.8+	1999 12 08	704	0.3−	0.7+
1995 12 19	704	0.1+	0.3+	1998 06 26	704	0.4−	1.3+	1999 12 08	704	0.1−	0.9+
1995 12 19	704	0.3+	1.7+	1998 06 26	704	(2.3+	0.5+)	1999 12 08	704	0.5−	1.6+
1995 12 19	704	0.2+	0.5+	1998 06 26	704	(1.8−	2.8+)				
1995 12 19	704	0.6−	0.7+	1998 07 12	689	0.6+	1.2−				

(12747)* 1992 YN₂ = 1997 JY

Discovered 1992 Dec. 18 by E. W. Elst at Caussols.

Id. G. V. Williams (*MPC* 29917)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28242558	ω	84.00702	−0.94190747	−0.33357348		
<i>a</i>	2.3007355	Ω	76.50214	+0.28998946	−0.86659937		
<i>e</i>	0.1391108	<i>i</i>	2.31223	+0.16945922	−0.37112566		
<i>P</i>	3.49	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1992 12 18	010	0.6−	0.2+	1997 05 10	540	0.2+	0.2−	1998 09 25	704	0.9+	1.0+
1992 12 19	010	0.9−	0.2+	1997 05 10	540	0.3−	0.1−	1998 09 27	704	(1.3+	2.3−)
1992 12 19	010	1.0−	0.1+	1997 05 11	540	0.0	0.5−	1998 09 27	704	1.8−	0.1+
1992 12 19	010	1.0+	0.6+	1997 05 11	540	0.5−	0.1−	1998 09 27	704	1.1−	0.5−
1992 12 19	010	0.2+	0.9+	1997 05 11	540	0.3−	0.6−	1998 09 27	704	0.9−	0.2+
1992 12 20	010	0.2−	0.3+	1998 08 17	704	1.6−	0.1+	1998 09 27	704	0.0	0.4−
1993 01 16	010	0.8+	1.3−	1998 08 17	704	1.1+	0.1+	1998 11 19	910	0.6−	0.3−
1993 01 16	010	0.1−	1.8−	1998 08 17	704	0.0	0.6+	1998 11 19	910	0.8−	0.7−
1993 01 16	010	0.8−	1.7−	1998 08 17	704	1.8−	0.8−	1998 11 19	910	1.1−	0.6−
1993 01 17	010	0.2+	1.3−	1998 08 17	704	0.3+	0.2+	1999 10 12	704	0.7−	0.0
1993 01 17	010	0.1−	0.8−	1998 08 23	704	1.1+	0.7+	1999 10 12	704	0.8−	0.1+
1993 01 17	010	1.8+	0.7−	1998 08 23	704	1.4+	0.5+	1999 10 12	704	1.1−	0.2+
1997 05 02	540	0.2+	0.2+	1998 08 23	704	(2.8−	1.1−)	1999 10 12	704	0.3−	0.5+
1997 05 02	540	0.4+	0.4+	1998 09 18	704	1.6+	1.1−	1999 10 22	704	0.8+	0.3+
1997 05 02	540	0.0	0.2+	1998 09 18	704	0.5−	0.6+	1999 10 22	704	0.5+	0.6+
1997 05 03	540	0.1+	0.1+	1998 09 18	704	1.0+	0.9−	1999 10 22	704	1.1+	0.6+
1997 05 03	540	0.7−	0.1+	1998 09 18	704	(2.2+	2.1+)	1999 12 07	704	1.1+	1.0+
1997 05 03	540	0.3+	0.2+	1998 09 18	704	1.5+	0.6+	1999 12 07	704	0.4+	0.2+
1997 05 04	540	0.0	0.2−	1998 09 25	704	0.4+	1.6−	1999 12 07	704	0.4−	0.5+
1997 05 04	540	0.0	0.2−	1998 09 25	704	(0.7+	2.1−)	1999 12 07	704	0.2−	0.8+
1997 05 04	540	0.3+	0.3+	1998 09 25	704	0.5+	0.4−	1999 12 07	704	0.2−	0.7+
1997 05 10	540	0.1−	0.3+	1998 09 25	704	(0.7+	2.8−)				

(12748)* 1993 BP₃ = 1951 PR = 1995 SW₅₄

Discovered 1993 Jan. 30 by A. Natori and T. Urata at JCPM Yakiimo Station.

Id. E. Bowell (*MPC* 27310), T. B. Spahr (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>		Williams			
309.27289		(2000.0)							
<i>n</i>	0.26948819	ω	136.04191	-0.27205272	-0.93726421				
<i>a</i>	2.3737932	Ω	327.82457	+0.73047224	-0.05367475				
<i>e</i>	0.1897127	<i>i</i>	24.16562	+0.62641649	-0.34446311				
<i>P</i>	3.66	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc									
1951 08 11	675	0.9-	1.2-	1995 09 27	693	0.8+	1.4-	1999 10 20	704
1951 08 11	675	1.5+	0.8+	1995 09 27	693	0.7+	0.3-	1999 10 20	385
1993 01 23	675	0.1-	1.3+	1995 09 30	693	0.4-	0.2-	1999 10 20	385
1993 01 23	675	0.2-	0.2+	1997 03 10	689	0.1-	0.6-	1999 10 30	704
1993 01 30	885	1.7-	0.8-	1999 09 28	704	0.9+	1.0-	1999 10 30	704
1993 01 30	885	1.0-	0.9-	1999 09 28	704	0.0	1.2-	1999 10 30	704
1993 01 31	885	0.1+	0.9-	1999 09 28	704	0.1+	0.2+	1999 10 30	704
1993 01 31	885	0.0	0.2+	1999 09 28	704	1.1-	0.1+	1999 10 30	704
1993 02 01	885	1.5+	0.1-	1999 10 09	888	0.4+	0.3+	1999 11 18	385
1993 02 01	885	0.5-	0.6+	1999 10 09	888	0.8+	0.1-	1999 11 18	385
1993 02 13	885	0.6+	1.6+	1999 10 09	888	0.3+	0.1-	1999 11 18	385
1993 02 13	885	0.7-	0.7-	1999 10 20	704	0.2-	0.1+	1999 11 20	385
1993 03 02	885	0.3+	0.5-	1999 10 20	704	0.2-	0.1+	1999 11 20	385
1993 03 21	885	0.0	0.4-	1999 10 20	704	0.5-	0.6+	1999 11 28	886
1993 03 21	885	0.0	0.5-	1999 10 20	704	0.4-	0.5+	1999 11 28	886

(12749)* 1993 CB = 1998 SS₉

Discovered 1993 Feb. 2 by T. Seki at Geisei.

Id. G. V. Williams (*MPC* 32929)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>		Williams			
251.64728		(2000.0)							
<i>n</i>	0.27549165	ω	69.64320	-0.90584171	+0.41830038				
<i>a</i>	2.3391806	Ω	135.01453	-0.41533258	-0.84590435				
<i>e</i>	0.1313090	<i>i</i>	5.43030	-0.08336457	-0.33086345				
<i>P</i>	3.58	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	2		
Residuals in seconds of arc									
1993 02 02	372	1.4-	1.1+	1998 09 24	699	0.3+	0.4+	1998 10 28	704
1993 02 02	372	0.3+	0.4+	1998 09 24	699	0.8+	0.8+	1998 10 28	704
1993 02 04	372	(0.1-	2.6-)	1998 09 24	699	0.9+	0.4+	1998 10 28	704
1993 02 04	372	0.1+	1.4+	1998 09 25	327	0.4-	0.1+	1998 10 29	704
1993 02 15	399	(3.7+	0.3+)	1998 09 25	327	0.5-	0.1+	1998 10 29	704
1993 02 15	399	(4.1+	2.1+)	1998 09 25	327	0.2-	0.0	1998 10 29	704
1993 02 21	399	0.2+	0.4-	1998 09 26	704	0.2-	0.1+	1998 10 29	704
1993 02 21	399	0.8+	1.6+	1998 09 26	704	0.8-	0.8+	1998 10 29	704
1993 06 17	691	0.6+	0.8-	1998 09 26	704	0.3+	0.8+	1999 11 17	704
1993 06 17	691	0.6+	0.6-	1998 09 26	704	0.0	0.8+	1999 11 17	704
1993 06 17	691	0.6+	1.0-	1998 09 26	704	0.1-	1.6+	1999 11 17	704
1997 07 12	691	0.2-	0.1+	1998 09 27	704	0.2+	0.8-	1999 11 17	704
1997 07 12	691	0.1-	0.0	1998 09 27	704	0.2+	1.3-	1998 12 06	704
1997 07 12	691	0.2-	0.5+	1998 09 27	704	0.3+	0.2-	1999 12 06	704
1998 09 17	699	1.4+	0.2+	1998 09 27	704	(0.3-	3.0-)	1999 12 06	704
1998 09 17	699	0.6+	0.7-	1998 10 17	327	1.1-	0.9-	1999 12 06	704
1998 09 17	699	0.0	1.5+	1998 10 17	327	0.9-	0.6-	1999 12 06	704
1998 09 17	327	1.8+	0.3-	1998 10 17	327	0.8-	0.2-	1999 12 07	704
1998 09 17	327	(2.6+	0.5-)	1998 10 19	327	0.9-	0.1+	1999 12 07	704
1998 09 17	327	0.6+	0.5-	1998 10 19	327	0.9-	0.5-	1999 12 07	704
1998 09 20	327	(3.1-	1.7+)	1998 10 19	327	0.6-	0.2+	1999 12 07	704
1998 09 20	327	(2.8-	1.5+)	1998 10 28	704	0.5-	0.8-	1999 12 07	704
1998 09 20	327	(3.2-	1.4+)	1998 10 28	704	0.6-	1.5-		

(12750)* 1993 DJ₁ = 1989 EY₁₁ = 1993 BF₁₄ = 1998 KG₆₀

Discovered 1993 Feb. 18 by E. W. Elst at Haute Provence.

Id. G. V. Williams (d, *MPC* 25032; *MPC* 32228)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>		Williams			
78.42952		(2000.0)							
<i>n</i>	0.23749402	ω	127.49953	-0.01040446	+0.98764737				
<i>a</i>	2.5824640	Ω	141.00716	-0.97784196	+0.02264416				
<i>e</i>	0.0452771	<i>i</i>	14.38737	-0.20908574	-0.15504809				
<i>P</i>	4.15	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	2		
Residuals in seconds of arc									
1989 03 03	808	0.5-	0.3-	1993 02 22	010	0.3-	1.3-	1999 09 08	703
1989 03 03	808	0.8+	1.3+	1993 02 23	010	0.0	0.4-	1999 09 08	703
1993 01 23	809	(0.0	2.7+)	1998 05 23	704	0.4-	0.1-	1999 09 11	699
1993 01 28	010	(1.3+	3.4+)	1998 05 23	704	1.3+	0.4+	1999 09 11	699
1993 01 28	010	(0.1+	4.1+)	1998 05 23	704	0.2+	0.1-	1999 09 11	699
1993 01 28	010	(1.0+	3.7+)	1998 05 23	704	0.6+	1.5+	1999 09 13	704
1993 01 28	809	(0.3+	2.3+)	1998 05 26	704	0.0	0.3-	1999 09 13	704
1993 01 28	809	1.0-	1.9+	1998 05 26	704	0.2+	0.3+	1999 09 13	704
1993 02 17	511	0.8-	0.6+	1998 05 26	704	0.3+	0.3+	1999 09 13	704
1993 02 18	511	0.3+	1.2-	1998 05 26	704	0.3+	0.5-	1999 09 13	704
1993 02 18	511	(6.0+	7.6-)	1998 05 26	704	0.7+	0.8+	1999 09 17	106
1993 02 18	511	1.0-	1.6-	1998 06 03	704	0.7-	0.3-	1999 09 17	106
1993 02 18	511	(3.4-	1.0+)	1998 06 03	704	0.8-	0.4-	1999 09 30	704
1993 02 19	511	(3.2-	1.5-)	1998 06 03	704	0.4-	0.5+	1999 09 30	704
1993 02 19	511	(2.6-	2.0+)	1998 06 03	704	0.6-	0.7-	1999 09 30	704
1993 02 19	511	(9.1-	1.7-)	1998 06 03	704	1.0-	0.7-	1999 09 30	704
1993 02 19	511	(2.8-	0.4+)	1998 07 31	699	0.8+	1.3-	1999 09 30	704
1993 02 20	511	(4.5-	3.7-)	1998 07 31	699	1.0-	1.5-	1999 12 03	704
1993 02 20	010	1.3+	1.6-	1998 07 31	699	0.1+	1.6-	1999 12 03	704
1993 02 20	010	1.0+	1.7-	1999 09 08	703	0.3+	0.2+	1999 12 03	704
1993 02 20	010	(1.1+	2.1-)	1999 09 08	703	0.0	0.2-	1999 12 03	704

(12751)* 1993 EU = 1998 SW₆₃

Discovered 1993 Mar. 15 by K. Endate and K. Watanabe at Kitami.

Id. B. G. Marsden (*MPC* 32929)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	242.76715		(2000.0)		P		Q	
n	0.26967802	ω	135.97545		-0.77702437		+0.62710966	
a	2.3726791	Ω	82.94091		-0.59163856		-0.69804003	
e	0.1674524	i	3.14612		-0.21493472		-0.34564954	
P	3.65	H	13.4		G	0.15	U	2
Residuals in seconds of arc								
1993 03 15	400 (2.3+	1.3-)	1998 09 21	809 (0.3+	2.5-)	1998 11 11	704 0.0	0.7+
1993 03 15	400 1.9+	0.9+	1998 10 11	699 0.0	0.7+	1998 11 11	704 0.6+	0.2+
1993 03 17	809 (2.4-	0.3+)	1998 10 11	699 1.1+	0.6+	1998 11 11	704 0.8-	0.3-
1993 03 18	809 0.6-	0.2+	1998 10 11	699 0.1+	0.7+	1998 11 11	704 0.2-	0.8-
1993 03 19	691 0.8-	0.1+	1998 10 14	704 0.9-	0.8+	1999 10 22	704 0.6-	0.7-
1993 03 19	691 0.9-	0.1+	1998 10 14	704 (2.3+	0.9-)	1999 10 22	704 0.2+	0.3-
1993 03 19	691 0.7-	0.1-	1998 10 14	704 0.3+	0.3+	1999 10 22	704 0.6-	0.2-
1993 03 20	400 1.0+	0.6+	1998 10 14	704 (1.5+	2.1-)	1999 10 22	704 0.5-	0.7-
1993 03 20	400 0.4-	1.7-	1998 10 15	704 2.0+	0.7-	1999 10 22	704 0.5+	0.2-
1993 03 23	809 0.5-	0.5+	1998 10 15	704 0.9+	0.7+	1999 11 16	704 0.0	0.1+
1993 03 29	400 0.2-	1.6-	1998 10 15	704 0.4-	1.0+	1999 11 16	704 0.8+	0.0
1993 03 29	400 0.3+	0.2-	1998 10 15	704 (2.4+	1.0-)	1999 11 16	704 0.3-	0.6-
1993 04 16	400 0.3+	1.4+	1998 10 28	704 0.2+	0.5-	1999 11 16	704 0.7+	0.3-
1993 04 16	400 0.9+	0.0	1998 10 28	704 0.1+	0.7-	1999 11 16	704 0.6+	0.1-
1993 04 16	413 (2.7+	1.5-)	1998 10 28	704 1.6+	0.8-	1999 12 07	704 0.6-	0.4-
1996 01 16	566 0.2+	0.4+	1998 10 28	704 0.4+	0.3+	1999 12 07	704 1.0-	1.7-
1996 01 16	566 0.1-	0.1+	1998 10 29	704 0.1+	0.4-	1999 12 07	704 0.3+	0.0
1996 01 16	566 0.3-	0.4+	1998 10 29	704 1.1-	0.5+	1999 12 07	704 1.0-	0.1-
1998 09 18	699 0.7-	0.5+	1998 10 29	704 0.3+	0.4+	1999 12 07	704 0.4+	0.1+
1998 09 18	699 0.4+	0.9+	1998 10 29	704 1.1-	0.3+	1999 12 08	703 0.2-	0.9+
1998 09 18	699 0.4+	0.2+	1998 10 29	704 0.3-	0.5-	1999 12 08	703 0.5+	0.6+

1998 09 20	809	0.9–	1.4–	1998 11 10	704	0.1–	0.4+	1999 12 08	703	0.1+	0.4+
1998 09 20	809	1.3–	1.8–	1998 11 10	704	0.3+	0.5+	1999 12 08	703	0.2+	0.1–
1998 09 20	809	0.8–	2.0–	1998 11 10	704	0.2–	0.5–	1999 12 09	699	0.1+	0.1–
1998 09 21	809	(0.2+	2.1–)	1998 11 10	704	0.3+	1.2+	1999 12 09	699	0.0	0.5+
1998 09 21	809	0.2+	2.0–	1998 11 11	704	1.0–	1.3+	1999 12 09	699	0.1+	0.7+

(12752)* 1993 FR₃₅ = 1989 EO₉ = 1997 GE₃₈

Discovered 1993 Mar. 19 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. G. V. Williams (*MPC* 29919)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	308.59716		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.26018948	ω	313.91510	-0.41961234	-0.90750960
a	2.4300184	Ω	160.87059	+0.84834293	-0.39943743
e	0.1260622	i	3.28122	+0.32286182	-0.12990791
P	3.79	H	15.0	G 0.15	U 1

Residuals in seconds of arc

1989 03 05	033	0.0	0.8+	1997 04 30	704	(2.1+	0.4+)	1998 08 17	704	1.7–	0.2–
1989 03 05	033	0.2–	0.2+	1997 04 30	704	0.7+	0.4+	1998 08 17	704	(2.5–	0.4+)
1993 03 19	809	0.0	0.1+	1997 04 30	704	0.5–	0.3+	1999 11 04	704	0.0	1.1+
1993 03 20	809	0.4–	0.2–	1997 04 30	704	1.1+	0.3+	1999 11 04	704	0.2–	0.0
1993 03 24	809	1.0–	0.6+	1997 05 07	566	0.2–	0.2–	1999 11 04	704	0.2+	0.2+
1993 04 18	413	(6.0–	1.9–)	1997 05 07	566	1.2–	0.5–	1999 11 04	704	0.7–	0.5–
1995 11 30	691	0.3+	0.2+	1997 05 07	566	0.1–	0.4–	1999 11 04	704	0.2–	0.4+
1995 11 30	691	0.8+	0.2+	1998 07 26	809	0.1+	0.1+	1999 12 08	704	0.5–	0.0
1995 11 30	691	1.3+	0.4+	1998 07 26	809	0.6–	0.6+	1999 12 08	704	0.5–	0.5+
1997 04 11	704	0.6+	0.3+	1998 07 26	809	0.7–	0.7+	1999 12 08	704	0.2+	0.4–
1997 04 11	704	1.2+	0.8–	1998 08 17	704	0.5+	0.1–				
1997 04 30	704	1.7+	0.5+	1998 08 17	704	(0.3+	3.2–)				

(12753)* 1993 HE = 1984 AH₁

Discovered 1993 Apr. 18 by C. S. Shoemaker at Palomar.

Id. A. Gnädig (*MPC* 34846)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	176.53783		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.23137287	ω	110.31163	−0.88102161	+0.39888484
a	2.6278128	Ω	93.91383	−0.46963188	−0.80220311
e	0.1465816	i	14.77006	+0.05698097	−0.44425338
P	4.26	H	12.5	G 0.15	U 2

Residuals in seconds of arc

1949 11 25	675	0.1–	0.9–	1998 07 04	699	0.7+	0.1–	1999 10 07	703	0.1–	0.2+
1949 11 25	675	0.7–	1.0+	1998 07 04	699	0.8+	0.1–	1999 10 07	703	0.2–	0.0
1984 01 08	688	0.9+	0.2–	1999 09 14	704	0.8+	0.1+	1999 10 07	703	0.1–	0.2–
1984 01 08	688	1.4+	2.1–	1999 09 14	704	0.1+	1.3–	1999 10 07	703	0.5–	0.4–
1993 04 18	675	0.7–	0.4+	1999 09 14	704	0.4+	1.0–	1999 10 13	699	0.5+	0.7+
1993 04 18	675	0.6–	0.0	1999 09 14	704	0.8+	0.8–	1999 10 13	699	0.2+	0.7+
1993 04 20	675	0.4+	0.3+	1999 09 14	704	0.6–	0.6–	1999 10 13	699	0.1–	0.8+
1993 05 23	675	0.0	0.8–	1999 10 02	704	0.2+	0.1–	1999 12 02	704	1.2–	0.5–
1993 05 24	675	0.0	0.4–	1999 10 02	704	0.1+	0.2+	1999 12 02	704	0.7–	0.7–
1993 05 24	675	0.7–	0.4+	1999 10 02	704	0.2+	0.0	1999 12 02	704	0.6–	0.4–
1993 05 26	675	0.9–	1.2–	1999 10 02	704	0.6+	0.1–	1999 12 02	704	1.0–	0.4–
1998 07 04	699	0.8+	0.9–	1999 10 02	704	0.2+	0.2+				

(12754)* 1993 LF₂ = 1962 XY = 1992 DA₁

Discovered 1993 June 15 by H. E. Holt at Palomar.

Id. K. Kinoshita (*MPC* 25531)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	54.47010		(2000.0)	P	Q
n	0.21309719	ω	237.69008	+0.87058485	+0.45858457
a	2.7759879	Ω	94.45896	−0.36947855	+0.84861023
e	0.1577460	i	10.30085	−0.32491171	+0.26374397
P	4.63	H	12.5	G 0.15	U 1

Residuals in seconds of arc

1962 12 03	760	0.9–	0.6+	1998 06 17	426	0.3–	0.2–	1998 08 20	566	0.2–	0.3–
1962 12 03	760	0.6+	0.7+	1998 06 24	704	0.2–	0.7+	1998 08 20	566	0.6–	0.2–
1992 02 27	372	0.9+	1.0–	1998 06 24	704	0.2+	0.6+	1999 11 04	704	0.0	0.2–
1992 02 27	372	1.0+	0.2–	1998 06 24	704	0.1+	0.3+	1999 11 04	704	0.4–	0.2–
1992 03 03	372	(0.7–	5.0+)	1998 06 24	704	0.3+	0.9–	1999 11 04	704	0.3–	0.3–
1992 03 03	372	(0.9+	2.1+)	1998 06 24	704	0.4–	0.4+	1999 11 04	704	0.2–	0.0
1993 05 27	010	0.1+	1.2+	1998 06 26	704	0.4+	0.1+	1999 11 04	704	0.4–	0.1–
1993 05 27	010	0.3+	1.7+	1998 06 26	704	0.0	0.5–	1999 11 17	704	0.2–	0.4–
1993 05 28	010	1.3–	1.5+	1998 06 26	704	(0.7–	2.2+)	1999 11 17	704	0.2–	0.6–
1993 05 29	010	1.0–	1.0+	1998 06 26	704	0.6–	0.5+	1999 11 17	704	0.5–	0.2–
1993 05 29	010	(2.1–	1.5+)	1998 06 28	809	(2.9+	0.7+)	1999 11 17	704	0.4–	1.0–
1993 05 29	010	1.4–	0.8+	1998 06 28	809	(2.4+	0.7+)	1999 11 17	704	0.1+	1.0–
1993 06 15	675	0.1+	1.6–	1998 06 28	809	(2.3+	0.2+)	1999 12 03	699	0.5+	0.8+
1993 06 15	675	0.1–	1.6–	1998 07 01	809	(2.3+	1.6+)	1999 12 03	699	0.2–	0.6+
1993 06 16	675	0.5+	1.6–	1998 07 01	809	(2.2+	1.3+)	1999 12 03	699	0.5+	0.2+
1998 06 16	426	0.1+	0.4–	1998 07 01	809	(3.2+	1.5+)	1999 12 06	704	0.1–	0.2+
1998 06 16	426	0.4+	0.0	1998 07 03	699	0.3+	0.1–	1999 12 06	704	0.2+	0.2+
1998 06 16	426	0.0	0.0	1998 07 03	699	0.8+	0.5+	1999 12 06	704	0.0	0.4+
1998 06 17	426	0.0	0.0	1998 07 03	699	0.4+	0.6+	1999 12 06	704	0.2+	0.3+
1998 06 17	426	0.1–	0.2–	1998 08 20	566	1.2+	0.6–	1999 12 06	704	0.2+	0.6+

(12755)* 1993 OS₁₀ = 1989 RQ

Discovered 1993 July 20 by E. W. Elst at the European Southern Observatory.

Id. K. Ichikawa (*MPC* 23676)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	97.51884		(2000.0)	P	Q
n	0.21913838	ω	51.31263	+0.82138539	+0.56605737
a	2.7247318	Ω	274.10460	−0.54268754	+0.73780961
e	0.0245750	i	4.02642	−0.17554565	+0.36771732
P	4.50	H	13.5	G 0.15	U 1

Residuals in seconds of arc

1989 09 03	511	0.5+	0.7–	1998 09 09	120	0.4+	0.5+	1998 09 27	699	1.5+	0.1+
1989 09 03	511	0.7–	0.3+	1998 09 09	120	0.5+	0.7+	1998 09 27	704	0.0	0.3–
1989 09 04	511	1.1–	0.2+	1998 09 09	120	1.2+	0.4–	1998 09 27	699	0.8+	0.2+
1989 09 04	511	1.6+	0.7–	1998 09 14	704	0.5+	0.0	1998 09 27	704	0.6–	0.3–
1989 09 05	511	0.1+	0.1–	1998 09 14	704	0.1+	0.7+	1998 09 27	699	1.1+	0.2+
1993 07 13	809	0.8+	0.4+	1998 09 14	704	0.6+	0.4+	1998 09 27	704	0.8–	0.4–
1993 07 13	809	0.1–	0.2–	1998 09 14	704	0.5–	0.8+	1998 09 27	704	0.1+	0.1–
1993 07 13	809	0.4+	0.1–	1998 09 16	699	0.0	0.3+	1998 09 27	704	0.2–	0.9+
1993 07 20	809	0.1+	0.8+	1998 09 16	699	0.2+	0.2+	1998 10 11	699	0.6–	0.7+
1993 07 20	809	0.7–	1.4+	1998 09 16	699	0.6–	0.1+	1998 10 11	699	0.1–	0.3+
1993 07 20	809	0.3–	1.4+	1998 09 18	704	0.0	0.0	1998 10 11	699	0.1–	0.1–
1993 07 24	809	0.7–	1.5–	1998 09 18	704	0.5–	0.8+	1998 10 15	327	0.2–	0.6–
1998 08 17	704	0.6+	0.5–	1998 09 18	704	0.0	1.7+	1998 10 15	327	0.3+	0.3–
1998 08 17	704	0.4–	0.5–	1998 09 18	704	0.8+	1.3+	1998 10 15	327	0.9–	0.4–
1998 08 17	704	1.2+	1.3–	1998 09 18	704	0.2–	1.1+	1999 10 12	704	0.6+	0.4–
1998 08 17	704	0.6+	0.6–	1998 09 24	120	0.0	0.4+	1999 10 12	704	0.4–	0.3+
1998 08 17	704	0.6–	0.1–	1998 09 24	120	0.0	0.2+	1999 10 12	704	0.3+	0.4+
1998 08 23	120	(0.0	2.2–)	1998 09 24	120	0.4+	0.9+	1999 10 22	704	0.3+	1.3–
1998 08 23	120	1.8–	0.4+	1998 09 24	120	0.6–	0.5+	1999 10 22	704	0.4–	0.1–
1998 08 23	704	0.8–	0.4+	1998 09 24	120	0.2–	0.2+	1999 10 22	704	0.1–	0.8–
1998 08 23	704	(2.5–	2.1–)	1998 09 25	704	0.1+	0.2–	1999 10 22	704	1.2+	0.9+
1998 08 23	704	0.7+	1.7–	1998 09 25	704	0.2+	0.1–	1999 10 22	704	0.9+	0.2+
1998 08 23	704	0.4–	1.4–	1998 09 25	699	0.3–	0.4–	1999 12 07	704	0.9–	1.0–
1998 08 23	704	1.3–	0.9–	1998 09 25	704	0.0	0.6–	1999 12 07	704	0.3+	0.0

1998 08 29	120	0.3-	1.3-	1998 09 25	699	0.1+	0.1+	1999 12 07	704	0.4-	0.9+
1998 08 29	120	0.6-	0.2-	1998 09 25	699	0.2-	0.4+	1999 12 07	704	0.4-	0.7+
1998 08 29	120	1.3-	1.3-	1998 09 25	704	0.4+	0.5-	1999 12 07	704	0.2-	1.3+
1998 09 09	120	0.1+	0.1-	1998 09 25	704	1.0+	0.2-				

(12756)* 1993 QE₁ = 1979 DZ = 1989 RX₅

Discovered 1993 Aug. 19 by E. F. Helin at Palomar.

Id. T. B. Spahr (*MPC* 30451)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	150.14725		(2000.0)	P	Q
n	0.22995730	ω	191.61383	+0.71396013	+0.66854013
a	2.6385859	Ω	124.38537	-0.62052243	+0.74182932
e	0.1635024	i	14.60720	-0.32436529	+0.05237696
P	4.29	H	12.7	G 0.15	U 1

Residuals in seconds of arc

1979 02 25	033	0.0	0.3+	1998 11 13	704	0.4-	0.3-	1999 11 04	703	0.5+	0.1-
1979 02 25	033	0.2+	0.3-	1998 11 28	120	0.1-	0.4+	1999 11 04	703	0.3-	0.5+
1989 09 04	413	0.5-	0.0	1998 11 28	120	0.8-	0.0	1999 11 04	703	0.3+	0.1-
1993 08 15	675	0.5-	0.2+	1998 12 15	704	0.7-	0.1-	1999 11 04	703	0.5+	0.3+
1993 08 15	675	0.3-	0.8+	1998 12 15	704	0.3+	0.3-	1999 11 16	704	0.3+	0.2-
1993 08 17	675	0.6-	0.2-	1998 12 15	704	0.5-	1.3-	1999 11 16	704	0.7+	0.5-
1993 08 17	675	0.7-	0.6+	1998 12 15	704	0.0	0.2+	1999 11 16	704	0.1-	0.4+
1993 08 19	675	0.1+	1.4+	1998 12 22	704	0.3-	0.8+	1999 11 16	704	0.0	0.1+
1993 08 19	675	(0.7-	2.6+)	1998 12 22	704	0.6+	0.1-	1999 11 16	704	0.4-	0.8+
1993 08 22	675	(0.3+	2.5+)	1998 12 22	704	0.4+	0.1-	1999 11 17	704	1.1-	0.5+
1993 08 22	675	(2.1+	5.5+)	1998 12 22	704	0.2-	0.3+	1999 11 17	704	0.9-	0.6-
1993 09 14	675	0.8+	1.3-	1999 01 07	704	(1.5+	2.2-)	1999 11 17	704	0.5+	0.1+
1993 09 14	675	(0.9-	2.1-)	1999 01 07	704	(2.3+	0.4+)	1999 11 17	704	0.7+	0.4-
1993 09 16	675	1.4+	0.7-	1999 01 07	704	0.9+	0.7+	1999 11 17	704	0.2+	0.6-
1993 09 16	675	(2.5+	1.5-)	1999 01 07	704	0.5+	1.8+	1999 12 04	703	0.4-	0.2+
1998 11 13	704	1.3+	0.8-	1999 01 07	704	(1.5-	2.3+)	1999 12 04	703	0.1-	0.2+
1998 11 13	704	0.3-	0.6-	1999 01 13	699	0.1-	0.2-	1999 12 04	703	0.1+	0.7+
1998 11 13	704	0.0	0.2+	1999 01 13	699	0.8+	0.4-	1999 12 04	703	0.4-	0.4+
1998 11 13	704	0.3-	0.3+	1999 01 13	699	0.4-	0.3-				

(12757)* 1993 RY₁₁ = 1978 QM₁ = 1992 LQ₂ = 1998 RE₅₅

Discovered 1993 Sept. 14 by H. Debehogne and E. W. Elst at the European

Southern Observatory.

Id. G. V. Williams (*MPC* 32932)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	86.82499		(2000.0)	P	Q
n	0.19840412	ω	110.63783	+0.88232781	+0.47047926
a	2.9114025	Ω	221.29930	-0.43834747	+0.81214915
e	0.0831509	i	1.05223	-0.17131588	+0.34505511
P	4.97	H	13.1	G 0.15	U 1

Residuals in seconds of arc

1978 08 31	095	0.8-	1.6+	1998 09 14	704	0.1+	0.3+	1998 10 14	704	1.5-	0.5-
1992 06 03	809	0.0	1.6-	1998 09 16	699	0.9+	0.7+	1998 10 15	704	0.2+	0.8+
1992 06 03	809	0.5+	1.9-	1998 09 16	699	0.2+	0.0	1998 10 15	704	0.6+	0.6+
1992 06 03	809	0.6-	0.9-	1998 09 16	699	0.5+	0.1+	1998 10 15	704	0.0	1.1+
1993 09 14	809	(3.4+	2.4+)	1998 09 18	704	0.8+	0.3+	1998 10 15	704	1.0-	1.1+
1993 09 14	809	(3.3+	2.5+)	1998 09 18	704	0.8-	0.1+	1998 10 15	704	0.7-	1.2+
1993 09 14	809	(3.1+	2.5+)	1998 09 18	704	0.8+	0.2+	1998 12 08	704	0.0	0.4-
1993 09 19	809	(2.6+	0.9+)	1998 09 18	704	0.7+	0.2+	1998 12 08	704	1.2-	0.6+
1993 09 19	809	(2.6+	0.6+)	1998 09 18	704	0.0	0.5-	1998 12 08	704	0.3-	0.4+
1993 09 19	809	1.9+	0.5+	1998 09 26	704	0.3+	0.1-	1998 12 08	704	0.3+	0.1+
1993 09 20	691	0.7-	0.2-	1998 09 26	704	0.4+	0.1-	1998 12 08	704	(1.9-	2.1+)
1993 09 20	691	0.4-	0.1-	1998 09 26	704	0.8-	0.8-	1998 12 09	704	0.7-	0.8-
1993 09 20	691	0.1-	0.2-	1998 09 26	704	0.9+	0.6-	1998 12 09	704	(2.1-	3.4+)
1993 10 10	675	0.2-	0.1+	1998 09 26	704	0.7+	0.3-	1998 12 09	704	1.1-	1.4-
1993 10 10	675	0.3+	1.2-	1998 09 27	704	0.5+	0.0	1998 12 09	704	1.0-	0.6+
1996 03 11	691	0.3-	0.3+	1998 09 27	704	0.4-	1.3+	1999 10 12	704	0.3-	0.2+
1996 03 11	691	0.4-	0.2+	1998 09 27	704	0.5-	0.4+	1999 10 12	704	0.3+	0.2+

1996 03 11	691	0.3-	0.3+	1998 09 27	704	0.1-	0.1-	1999 10 12	704	0.4-	0.1+
1998 06 29	704	0.5+	1.4+	1998 09 27	704	0.5-	0.3-	1999 10 12	704	0.4-	0.2+
1998 06 29	704	(1.9+	2.2-)	1998 09 29	327	0.9-	0.1-	1999 12 07	704	0.1+	0.7-
1998 06 29	704	(3.5+	1.3-)	1998 09 29	327	1.4-	0.0	1999 12 07	704	0.6+	0.1-
1998 06 29	704	(2.8+	0.4-)	1998 09 29	327	(3.0-	0.1+)	1999 12 07	704	0.1+	0.2-
1998 09 14	704	0.3-	0.0	1998 09 29	120	0.2-	0.0	1999 12 07	704	0.1+	0.5-
1998 09 14	704	0.1+	0.9-	1998 09 29	120	0.6+	0.2+	1999 12 08	704	0.5+	0.8-
1998 09 14	704	0.4+	1.2-	1998 10 14	704	0.1-	1.4-	1999 12 08	704	0.3+	0.5-
1998 09 14	704	0.3+	0.9-	1998 10 14	704	0.2+	0.7-	1999 12 08	704	0.0	0.9-
1998 09 14	704	0.3+	0.5-	1998 10 14	704	0.1+	0.8-	1999 12 08	704	0.5+	0.3-
1998 09 14	704	0.9+	0.4+	1998 10 14	704	0.9+	1.2-	1999 12 08	704	0.6-	0.6-

(12758)* 1993 SM₃ = 1987 QW₅

Discovered 1993 Sept. 22 by O. A. Naranjo at Mérida.

Id. S. Nakano (*MPC* 22817)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

M	15.59783		(2000.0)	P	Q
n	0.17797793	ω	246.84403	+0.90019724	-0.43498326
a	3.1301028	Ω	138.93193	+0.41025413	+0.83101997
e	0.1897099	i	1.81825	+0.14607014	+0.34669204
P	5.54	H	13.7	G 0.15	U 1

Residuals in seconds of arc

1987 08 28	809	0.2+	0.5+	1993 10 13	675	0.5-	0.4-	1998 08 23	704	(3.2-	2.5+)
1987 08 28	809	0.2-	0.7+	1993 10 20	809	0.1-	0.7-	1998 08 27	699	0.3+	0.3-
1987 08 28	809	0.4-	0.8+	1993 10 20	809	0.0	0.9-	1998 08 27	699	0.8+	0.1-
1987 08 29	809	0.1+	1.2-	1993 10 20	809	0.5-	0.8-	1998 08 27	699	0.4+	0.2+
1987 08 29	809	0.0	0.8-	1993 11 09	372	0.5-	1.6-	1998 09 19	691	1.5-	0.6+
1987 08 29	809	0.3-	1.5-	1993 11 09	372	(4.1-	0.7-)	1998 09 19	691	1.3-	0.5+
1993 09 22	303	1.8-	0.2-	1993 11 13	372	2.1+	0.7-	1998 09 19	691	1.4-	0.4+
1993 09 22	303	0.7-	0.9+	1993 11 13	372	1.9-	0.5-	1999 11 15	704	0.4+	0.5+
1993 09 22	303	0.0	0.3+	1995 02 03	411	0.1+	0.5-	1999 11 15	704	2.1-	0.2-
1993 09 23	303	(2.0+	2.4+)	1995 02 03	411	0.6+	0.1+	1999 11 15	704	1.1-	0.3+
1993 10 09	809	1.5+	0.9+	1998 08 17	704	0.1+	0.5-	1999 12 07	704	0.1+	1.7+
1993 10 09	809	0.9+	0.9+	1998 08 17	704	0.2+	0.4-	1999 12 07	704	0.2-	0.0
1993 10 09	809	0.8+	1.1+	1998 08 17	704	0.4+	0.1-	1999 12 07	704	0.1+	0.3+
1993 10 10	675	0.2-	0.7-	1998 08 17	704	0.5+	0.5+	1999 12 07	704	0.2+	0.5+
1993 10 10	675	0.3+	0.2+	1998 08 17	704	0.5-	0.4-	1999 12 08	704	0.6-	0.1+
1993 10 11	809	1.1+	0.2+	1998 08 23	704	0.4+	0.3-	1999 12 08	704	0.3+	0.4-
1993 10 11	809	1.2+	0.4+	1998 08 23	704	1.0+	0.6+	1999 12 08	704	0.4+	0.4-
1993 10 11	809	0.2+	0.7+	1998 08 23	704	0.0	1.1+	1999 12 08	704	0.5+	0.3-
1993 10 13	675	0.3-	0.1-	1998 08 23	704	(0.9-	3.3+)	1999 12 08	704	0.3+	0.7-

(12759)* 1993 TL₁₈ = 1987 SP₂₈ = 1990 FH₄ = 1996 FD₁₂

Discovered 1993 Oct. 9 by E. W. Elst at the European Southern Observatory.

Id. A. Gnädig (*MPC* 32934)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	252.12433		(2000.0)	P	Q
n	0.16994903	ω	98.82804	-0.76152666	-0.64579429
a	3.2279261	Ω	40.97333	+0.55678530	-0.69528631
e	0.0807795	i	4.81306	+0.33176389	-0.31547848
P	5.80	H	13.0	G 0.15	U 1

Residuals in seconds of arc

1987 09 24	095	0.2-	1.2-	1999 10 07	704	0.4-	0.8-	1999 11 09	704	0.2+	0.9-
1990 03 25	413	0.3-	0.2+	1999 10 10	704	0.0	0.1-	1999 11 09	704	0.3+	1.4-
1990 03 25	413	0.4+	0.4-	1999 10 10	704	0.6-	0.2+	1999 11 09	704	0.4+	1.5-
1993 10 09	809	(2.8+	0.2+)	1999 10 10	704	0.1+	0.3+	1999 11 12	704	0.4+	0.1-
1993 10 09	809	(3.1+	0.5+)	1999 10 10	704	0.1-	0.1+	1999 11 12	704	0.3+	0.2-
1993 10 09	809	(2.7+	0.9+)	1999 10 10	704	0.2-	0.5+	1999 11 12	704	0.2+	0.1-
1993 10 11	809	(3.9+	0.7+)	1999 10 15	704	0.5-	0.3+	1999 11 12	704	0.3+	0.4-
1993 10 11	809	(4.2+	1.3+)	1999 10 15	704	0.2-	0.4+	1999 11 12	704	0.3+	0.5-
1993 10 11	809	(3.1+	1.4+)	1999 10 15	704	0.2-	0.3-	1999 11 16	704	0.4+	0.2+
1993 10 20	809	1.5+	0.9-	1999 10 15	704	0.2-	0.3-	1999 11 16	704	0.8+	0.3+
1993 10 20	809	0.3+	0.9-	1999 10 15	704	0.4-	0.5-	1999 11 16	704	0.3+	0.3+

1993 10 20	809	0.6+	0.8-	1999 10 16	711	0.7+	0.1-	1999 11 16	704	0.3+	0.3+
1996 03 22	691	0.2+	0.3-	1999 10 16	711	0.5+	0.3-	1999 11 16	704	0.0	0.7+
1996 03 22	691	0.1+	0.1-	1999 10 20	704	0.2+	0.2-	1999 12 04	703	0.2-	0.5+
1996 03 26	691	0.3+	0.0	1999 10 20	704	0.2+	0.5-	1999 12 04	703	0.3+	0.7+
1996 03 26	691	0.1-	0.1-	1999 10 20	704	0.1+	0.5+	1999 12 04	703	0.5-	1.1+
1996 03 26	691	0.4-	0.2-	1999 10 20	704	0.3-	0.3+	1999 12 04	703	0.5-	0.9+
1998 08 23	704	0.4-	0.0	1999 10 20	704	0.0	0.7+	1999 12 04	699	0.1+	1.0+
1998 08 23	704	0.9-	0.3-	1999 10 29	703	1.3-	0.1-	1999 12 04	699	0.2-	1.6+
1998 08 23	704	0.0	0.4+	1999 10 29	703	0.6-	0.2+	1999 12 04	699	0.3-	1.1+
1998 08 23	704	0.3+	1.1+	1999 10 29	703	0.1+	0.3+	1999 12 06	704	0.4+	0.0
1998 08 23	704	0.1+	0.7-	1999 10 29	703	0.3-	0.7+	1999 12 06	704	0.1+	1.0-
1998 09 17	699	0.1+	0.8+	1999 11 03	699	0.2+	0.6+	1999 12 06	704	1.9-	0.8-
1998 09 17	699	0.3+	0.8+	1999 11 03	699	0.5-	0.0	1999 12 07	704	0.2+	0.3+
1998 09 17	699	0.1-	0.1-	1999 11 03	699	0.3+	1.0+	1999 12 07	704	0.0	0.1+
1999 10 05	704	0.1-	0.3-	1999 11 04	704	0.1-	0.2-	1999 12 07	704	0.1-	0.2-
1999 10 05	704	0.2-	0.0	1999 11 04	704	0.2+	0.2-	1999 12 07	704	0.3+	0.3+
1999 10 05	704	0.0	0.1-	1999 11 04	704	0.1-	0.1+	1999 12 07	704	0.6-	0.9-
1999 10 05	704	0.1+	0.3-	1999 11 04	704	0.0	0.0	1999 12 12	703	0.4-	0.7+
1999 10 05	704	0.6-	0.2-	1999 11 04	691	0.3+	0.0	1999 12 12	703	0.7-	0.5+
1999 10 07	704	1.0+	1.9-	1999 11 04	704	0.0	0.2-	1999 12 12	703	0.6-	0.9+
1999 10 07	704	1.0+	0.6-	1999 11 04	691	0.2+	0.2+	1999 12 12	703	0.6-	0.1+
1999 10 07	704	0.4+	0.1-	1999 11 04	691	0.1+	0.0				
1999 10 07	704	0.2+	0.2+	1999 11 09	704	0.3+	0.7-				

(12760)* 1993 TX₂₆ = 1980 FC₃ = 1997 NP₄

Discovered 1993 Oct. 9 by E. W. Elst at the European Southern Observatory.
Id. A. Doppler (*MPC* 31538), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	69.38168	(2000.0)		P	Q		
<i>n</i>	0.18508017	ω	155.25911	+0.93622558	+0.35116969		
<i>a</i>	3.0495058	Ω	184.24312	-0.34417971	+0.90909617		
<i>e</i>	0.1022864	<i>i</i>	9.89076	-0.07086606	+0.22410711		
<i>P</i>	5.33	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1980 03 16	809	0.9-	0.5+	1997 07 08	910	0.6+	0.0	1998 09 25	704	0.5+	0.7-
1980 03 16	809	0.4-	0.3-	1997 07 08	910	0.5+	0.1-	1998 09 25	704	0.8-	1.1-
1980 03 16	809	0.6-	1.8-	1997 07 08	910	0.6+	0.1+	1998 09 25	704	0.5+	0.4-
1980 03 16	809	0.3+	0.6-	1997 07 09	910	0.7+	0.1+	1998 09 25	704	0.1-	1.1-
1980 03 17	809	0.6-	0.6-	1997 07 09	910	0.7+	0.0	1998 09 25	704	0.9-	1.2-
1980 03 17	809	0.9-	0.5-	1997 07 09	910	0.4+	0.4+	1998 09 27	704	0.5-	0.9-
1980 03 17	809	0.7-	0.3-	1998 08 17	704	0.5+	1.0-	1998 09 27	704	0.4-	0.1-
1980 03 17	809	0.5-	1.6-	1998 08 17	704	0.2-	0.3-	1998 09 27	704	0.2-	0.3-
1993 10 09	809	0.7+	0.9+	1998 08 17	704	0.3-	0.7-	1998 09 27	704	0.6-	0.1+
1993 10 09	809	1.3+	0.1+	1998 08 17	704	1.0-	0.5+	1998 09 27	704	0.5-	0.0
1993 10 09	809	0.9+	0.8+	1998 08 17	704	0.1-	1.3+	1999 10 10	704	0.6+	0.2-
1993 10 11	809	(2.4+	0.8-)	1998 08 23	704	0.9+	1.3+	1999 10 10	704	0.4-	0.0
1993 10 11	809	1.5+	0.8-	1998 08 23	704	1.2-	1.4+	1999 10 10	704	0.4-	0.2-
1993 10 11	809	1.5+	0.9-	1998 08 23	704	0.7+	0.2-	1999 10 10	704	0.2+	0.2-
1993 10 20	809	(3.0+	0.5+)	1998 08 23	704	0.2+	1.0-	1999 10 10	704	0.2+	0.1+
1993 10 20	809	(2.3+	0.9-)	1998 08 23	704	1.1-	0.1+	1999 11 05	704	0.6+	0.8+
1993 10 20	809	1.1+	0.4-	1998 09 14	704	0.6-	0.2-	1999 11 05	704	0.4-	0.8+
1997 04 16	704	(2.2+	0.7-)	1998 09 14	704	0.8-	0.1+	1999 11 05	704	0.2+	0.2+
1997 04 16	704	1.5+	0.7-	1998 09 14	704	0.3-	0.0	1999 11 05	704	0.0	0.1+
1997 07 01	691	0.4-	0.1+	1998 09 14	704	0.2+	1.6-	1999 11 05	704	0.1-	0.1-
1997 07 01	691	0.3-	0.3+	1998 09 18	704	0.4+	0.2-	1999 12 05	704	0.5-	0.6-
1997 07 01	691	0.5-	0.2+	1998 09 18	704	0.6-	0.6+	1999 12 05	704	0.4+	0.5+
1997 07 07	910	0.3+	0.1-	1998 09 18	704	1.3+	0.1-	1999 12 05	704	0.5-	1.1+
1997 07 07	910	0.2+	0.1+	1998 09 18	704	1.0-	0.2-	1999 12 05	704	0.1+	0.3+
1997 07 07	910	0.3+	0.0	1998 09 18	704	0.2-	0.0	1999 12 05	704	0.1-	0.8-

(12761)* 1993 TP₃₈ = 1991 JG₂

Discovered 1993 Oct. 9 by E. W. Elst at the European Southern Observatory.
Id. S. Nakano (*MPC* 32232)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Nakano			
<i>M</i>	199.59786	(2000.0)		P	Q		
<i>n</i>	0.17999798	ω	21.48140	-0.84626130	+0.52925725		
<i>a</i>	3.1066402	Ω	191.10062	-0.52324747	-0.84723216		
<i>e</i>	0.0508089	<i>i</i>	18.49077	-0.10026912	-0.04565553		
<i>P</i>	5.48	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 05 08	413	1.8-	1.1+	1998 09 14	704	0.7+	0.3-	1998 09 27	704	0.4-	0.5+
1991 05 08	413	0.1-	0.9-	1998 09 14	704	0.4+	0.1+	1998 10 14	704	0.2-	2.0-
1991 05 18	413	1.5-	0.7+	1998 09 14	704	1.3+	0.5+	1998 10 14	704	1.0-	0.6+
1991 05 18	413	0.4+	0.5-	1998 09 16	699	0.2-	1.0+	1998 10 14	704	1.7-	1.8+
1993 10 09	809	1.0+	0.2-	1998 09 16	699	0.0	0.6+	1998 10 15	704	0.2+	1.6-
1993 10 09	809	0.6+	1.4+	1998 09 16	699	0.3-	0.7+	1998 10 15	704	0.5+	0.6+
1993 10 09	809	0.6+	0.5+	1998 09 18	704	1.2+	0.8+	1998 10 15	704	0.9-	0.9+
1993 10 11	809	0.4+	0.7-	1998 09 18	704	0.0	1.0-	1998 10 15	704	0.2-	0.8+
1993 10 11	809	0.2-	1.0-	1998 09 18	704	0.9+	1.6+	1999 11 06	704	0.3+	0.5+
1993 10 11	809	0.1+	0.7-	1998 09 18	704	0.0	0.1-	1999 11 06	704	1.0-	0.1-
1993 10 21	809	0.3+	0.7-	1998 09 18	704	0.9+	1.9-	1999 11 06	704	0.0	0.7-
1993 10 21	809	0.4+	1.1-	1998 09 26	704	0.7+	0.2+	1999 11 06	704	1.0+	1.1-
1993 10 21	809	0.2-	0.5-	1998 09 26	704	0.8-	0.8-	1999 12 03	704	1.3-	0.5-
1996 03 18	566	1.0+	0.2-	1998 09 26	704	0.7+	0.5-	1999 12 03	704	1.1-	0.8+
1996 03 18	566	0.7+	0.4-	1998 09 26	704	0.2+	0.2-	1999 12 03	704	0.6-	0.2-
1996 03 18	566	1.2+	0.5-	1998 09 26	704	0.6-	0.2-	1999 12 03	704	1.3-	0.7+
1996 04 22	566	(2.7+	3.8-)	1998 09 27	704	0.2-	0.3+	1999 12 03	704	0.6-	0.0
1996 04 22	566	(3.1+	3.4-)	1998 09 27	704	0.9+	0.1+	1999 12 05	699	0.7+	0.7+
1996 04 22	566	(2.7+	3.4-)	1998 09 27	704	2.1-	1.3+	1999 12 05	699	0.1-	0.2+
1998 09 14	704	1.1+	1.9-	1998 09 27	704	0.7-	0.4-	1999 12 05	699	0.3+	1.6+

(12762)* 1993 UE₁

Discovered 1993 Oct. 26 at Farra d'Isonzo.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	32.26417	(2000.0)		P	Q		
<i>n</i>	0.17497580	ω	311.03811	+0.98176964	+0.03803110		
<i>a</i>	3.1658043	Ω	47.67948	+0.07005715	+0.83839705		
<i>e</i>	0.1844460	<i>i</i>	14.58827	-0.17669286	+0.54373157		
<i>P</i>	5.63	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1993 10 09	809	(2.9+	0.4-)	1993 11 16	595	0.6+	0.2-	1997 05 14	595	(2.9+	0.6+)
1993 10 09	809	(2.1+	0.1+)	1993 11 16	595	1.0+	0.2+	1997 05 15	595	0.7+	1.0+
1993 10 09	809	(3.0+	0.2+)	1993 11 16	595	1.0+	0.2-	1997 05 15	595	0.9-	0.4+
1993 10 11	809	(3.4+	0.1-)	1993 12 03	595	0.1-	0.9+	1999 10 13	704	0.5+	0.8-
1993 10 11	809	(3.5+	0.3+)	1993 12 03	595	0.1-	1.3+	1999 10 13	704	0.1-	0.2+
1993 10 11	809	(2.8+	0.1+)	1993 12 16	595	0.2+	0.2-	1999 10 13	704	0.5+	0.4-
1993 10 21	809	(3.6+	1.8+)	1993 12 16	595	0.5+	0.6+	1999 10 13	704	0.0	0.1+
1993 10 21	809	(2.4+	2.0+)	1994 01 12	595	0.3+	0.6+	1999 10 13	704	0.3+	0.4+
1993 10 21	809	(2.9+	2.3+)	1994 01 12	595	0.2-	0.1-	1999 10 15	704	0.6+	0.7-
1993 10 26	595	0.5-	0.1-	1995 01 03	595	0.3+	1.0+	1999 10 15	704	1.0+	1.6-
1993 10 26	595	0.4-	0.2-	1995 01 04	595	0.1+	0.8+	1999 10 15	704	0.1-	1.6-
1993 10 26	595	0.7+	0.2-	1995 01 04	595	1.6+	0.3-	1999 10 15	704	0.1-	0.5-
1993 10 27	595	0.7-	1.2-	1995 01 05	595	0.2+	0.0	1999 12 07	703	0.4-	0.5+

1999 DEC. 22

M.P.C. 37055

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	66.43267	(2000.0)	P	Q
<i>n</i>	0.18468769	ω 167.90367	+0.97918869	+0.20294866
<i>a</i>	3.0538246	Ω 180.39255	-0.19745560	+0.95133257
<i>e</i>	0.1043796	<i>i</i> 9.75379	-0.04691261	+0.23190124
<i>P</i>	5.34	<i>H</i> 13.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1982 09 16	095	0.4+	1.2+	1998 08 23	704	0.4+	0.2-	1998 09 26	704	0.3-	1.1-
1993 10 09	809	0.9+	0.4+	1998 08 23	704	0.8+	0.1+	1998 09 27	704	0.3-	0.2-
1993 10 09	809	1.1-	0.2-	1998 08 23	704	0.1-	1.6-	1998 09 27	704	0.2-	0.1-
1993 10 09	809	1.6-	0.5-	1998 08 23	704	0.6-	1.0-	1998 09 27	704	0.7-	0.3-
1993 10 11	809	(2.7+ 2.5+)		1998 09 14	704	0.2+	0.6-	1998 09 27	704	0.3+	0.4-
1993 10 11	809	(1.4+ 2.2+)		1998 09 14	704	0.4+	0.3+	1998 09 27	704	0.5-	0.6-
1993 10 11	809	(2.0+ 2.7+)		1998 09 14	704	0.5+	0.1+	1998 10 12	910	0.7+	0.9+
1993 10 17	033	0.7+	0.4-	1998 09 14	691	0.1-	0.1-	1998 10 12	910	0.7+	0.8+
1993 10 18	033	0.5-	0.6-	1998 09 14	704	0.1+	0.3+	1998 10 12	910	0.6+	0.9+
1993 10 19	675	(2.1+ 2.7-)		1998 09 14	704	0.1-	1.0+	1998 10 15	704	1.2+	1.0+
1993 10 19	675	(0.6+ 2.2-)		1998 09 14	691	0.4-	0.4-	1998 10 15	704	0.4-	0.5-
1993 10 20	675	1.3+	0.8-	1998 09 14	691	0.1-	0.4-	1998 10 15	704	0.2-	1.1+
1993 10 21	809	(4.0+ 2.1+)		1998 09 16	699	0.5+	0.1+	1998 10 10	704	0.3-	0.3-
1993 10 21	809	(3.4+ 2.1+)		1998 09 16	699	0.4-	0.3-	1998 10 10	704	0.7+	1.2-
1993 10 21	809	(3.3+ 2.3+)		1998 09 16	699	0.1+	0.7-	1998 10 10	704	0.5+	0.2-
1993 11 11	033	0.4-	1.0+	1998 09 18	704	1.2+	0.8-	1998 10 10	704	0.1+	0.1-
1993 11 11	033	0.8-	0.5+	1998 09 18	704	0.8-	0.6+	1998 10 10	704	0.5-	0.3-
1993 11 12	033	0.4-	0.6+	1998 09 18	704	0.6-	0.1-	1998 10 20	704	0.9+	1.3-
1996 04 19	566	0.3-	0.5-	1998 09 18	704	0.5-	0.2-	1998 10 20	704	0.5-	0.0
1996 04 19	566	0.3-	0.0	1998 09 18	704	1.1-	0.1+	1998 10 20	704	0.3-	0.2-
1996 04 19	566	0.3-	1.2-	1998 09 25	699	0.4+	0.2+	1998 10 20	704	0.3-	0.1-
1998 08 23	704	0.3-	1.2+	1998 09 25	699	0.6-	0.7+	1998 10 20	704	0.2+	0.6+
1998 08 23	704	0.3+	0.6-	1998 09 25	699	0.2+	0.6+	1998 12 05	704	0.1+	0.2-
1998 08 23	704	0.4-	1.1+	1998 09 26	704	0.3-	0.3+	1998 12 05	704	0.4+	0.6+
1998 08 23	704	1.4+	0.7-	1998 09 26	704	0.1-	0.3-	1998 12 05	704	0.1-	0.4+
1998 08 23	704	0.1-	0.6-	1998 09 26	704	0.1-	0.2-	1998 12 05	704	0.4+	0.3+
1998 08 23	704	0.5+	0.7-	1998 09 26	704	0.1+	0.7-				

(12764)* 1993 VA₂ = 1996 GT₃ = 1998 VB₇

Discovered 1993 Nov. 11 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 33486)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	97.48258	(2000.0)	P	Q
<i>n</i>	0.18489200	ω 289.51463	+0.86184947	+0.49095971
<i>a</i>	3.0515744	Ω 41.35278	-0.36235009	+0.77153651
<i>e</i>	0.0944004	<i>i</i> 11.09816	-0.35484912	+0.40458618
<i>P</i>	5.33	<i>H</i> 12.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1993 11 11	399	0.6-	0.4-	1998 10 28	704	1.1+	0.1-	1998 11 25	699	0.2-	0.2+
1993 11 11	399	0.8-	0.8+	1998 10 28	704	0.5-	0.4+	1998 11 25	699	0.4+	0.1+
1993 11 16	399	1.3+	1.0+	1998 10 28	704	0.4-	0.6-	1998 12 08	699	0.2+	0.5-
1993 11 16	399	1.4+	1.2+	1998 10 29	704	0.1+	0.5-	1998 12 08	699	0.4+	0.4-
1993 11 22	399	1.7-	1.7-	1998 10 29	704	0.5+	0.4-	1998 12 08	699	0.3-	1.3-
1993 11 22	399	(3.5- 0.7-)		1998 10 29	704	0.2+	0.8-	1999 09 18	703	0.8+	1.0+
1996 04 09	691	0.1+	0.2-	1998 10 29	704	0.3-	0.8-	1999 09 18	703	0.4-	0.4+
1996 04 09	691	0.1+	0.4-	1998 10 29	704	0.4-	1.4-	1999 09 18	703	0.8+	0.2+
1996 04 09	691	0.0	0.2-	1998 11 10	704	0.2-	0.0	1999 09 18	703	1.3-	0.1-
1996 04 15	691	0.6-	0.4-	1998 11 10	704	0.0	0.6+	1999 12 03	699	0.6-	0.2+
1996 04 15	691	0.7-	0.5-	1998 11 10	704	0.4+	0.3+	1999 12 03	699	0.7+	0.2+
1996 04 15	691	0.4-	0.4-	1998 11 10	704	2.1-	1.4-	1999 12 03	699	0.1-	0.9+
1998 09 24	699	0.2+	0.3+	1998 11 11	704	1.1+	0.8+	1999 12 12	704	0.2-	0.4-
1998 09 24	699	0.4+	0.9+	1998 11 11	704	0.5+	0.5+	1999 12 12	704	0.0	0.3-
1998 09 24	699	0.0	0.7+	1998 11 11	704	0.1-	0.8+	1999 12 12	704	0.2-	0.5-
1998 10 28	704	1.0+	0.7-	1998 11 11	704	0.2+	0.4+	1999 12 12	704	0.3+	0.3-
1998 10 28	704	0.1+	0.2-	1998 11 25	699	0.3-	0.0	1999 12 12	704	0.2+	0.4-

(12765)* 1993 VA₃ = 1996 GY₁ = 1998 SK₆₆

Discovered 1993 Nov. 11 by S. Ueda and H. Kaneda at Kushiro.

Id. G. V. Williams (*MPC* 33238)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	95.57534	(2000.0)	P	Q
<i>n</i>	0.18808129	ω 283.29041	+0.91033727	+0.38719547
<i>a</i>	3.0169792	Ω 54.11927	-0.27401588	+0.82856330
<i>e</i>	0.1259624	<i>i</i> 10.39328	-0.31016342	+0.40442864
<i>P</i>	5.24	<i>H</i> 12.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1993 11 11	399	1.2-	0.2+	1998 10 29	704	0.7-	0.6-	1999 01 01	327	0.3-	0.2-
1993 11 11	399	0.4-	1.0+	1998 10 29	704	0.5+	0.6-	1999 01 01	327	0.2+	0.3+
1993 11 16	399	1.7+	0.5+	1998 10 29	704	0.3-	0.5-	1999 10 13	704	0.2-	0.6+
1993 11 16	399	(4.0+ 0.6-)		1998 11 10	704	0.4-	0.4+	1999 10 13	704	0.4-	0.6-
1993 11 22	399	(0.9- 2.1+)		1998 11 10	704	0.9-	0.3+	1999 10 13	704	0.7-	0.6-
1993 11 22	399	1.3-	1.1+	1998 11 10	704	0.7-	0.4+	1999 10 13	704	1.0-	1.3-
1996 04 13	399	0.3+	0.9+	1998 11 10	704	1.4-	0.1+	1999 11 05	699	0.2-	0.3+
1996 04 13	399	0.4+	0.3+	1998 11 11	704	0.2-	0.9-	1999 11 05	699	0.7+	0.1+
1996 04 14	399	(3.2- 0.3-)		1998 11 11	704	1.8+	1.3-	1999 11 05	699	0.5+	0.3-
1996 04 14	399	(3.0- 0.3-)		1998 11 11	704	(2.2+ 2.1-)		1999 11 16	703	0.6-	0.2+
1998 09 18	699	0.0	0.0	1998 11 11	704	(2.1+ 1.5-)		1999 11 16	703	0.6+	0.1+
1998 09 18	699	0.1+	0.3+	1998 11 11	704	(2.1+ 1.6-)		1999 11 16	703	0.1-	0.0
1998 09 18	699	0.0	0.6+	1998 11 14	699	0.5+	0.5+	1999 11 16	703	0.6+	0.2+
1998 09 20	809	1.9+	0.5+	1998 11 14	699	1.1+	0.5+	1999 12 03	699	0.7-	0.1-
1998 09 20	809	0.7+	0.7+	1998 11 14	699	0.0	0.1-	1999 12 03	699	0.4-	0.4+
1998 09 20	809	0.1-	0.5+	1998 11 23	699	0.4-	0.1+	1999 12 03	699	0.5-	0.6+
1998 09 21	809	(1.4+ 2.4-)		1998 11 23	699	0.0	0.1-	1999 12 12	704	0.0	0.2-
1998 09 21	809	(0.8+ 2.2-)		1998 11 23	699	0.0	0.2-	1999 12 12	704	0.1+	0.2-
1998 09 21	809	(0.3+ 2.6-)		1998 12 11	699	0.2+	0.0	1999 12 12	704	0.1+	0.1-
1998 10 11	699	(2.6+ 0.1-)		1998 12 11	699	0.6+	0.2+	1999 12 12	704	0.4+	0.0
1998 10 11	699	0.8+	0.2+	1998 12 11	699	0.1+	0.4+	1999 12 12	704	0.1+	0.2-
1998 10 11	699	0.2+	0.0	1998 12 17	327	0.3+	0.5+	1999 12 13	704	0.2+	0.7-
1998 10 28	704	0.2-	0.6-	1998 12 17	327	0.1+	0.2+	1999 12 13	704	0.4+	0.5-
1998 10 28	704	1.1-	1.5-	1998 12 17	327	0.1+	0.3+	1999 12 13	704	0.2+	0.2-
1998 10 28	704	0.3-	1.1-	1998 12 23	327	0.1+	0.3+	1999 12 13	704	0.2-	0.3-
1998 10 28	704	0.6-	0.4-	1998 12 23	327	0.1-	0.3+	1999 12 13	704	0.2+	0.3+
1998 10 29	704	0.5-	0.2-	1998 12 23	327	0.0	0.6+				
1998 10 29	704	0.7-	0.2+	1999 01 01	327	0.4+	0.1-				

(12766)* 1993 VV₄ = 1996 JP

Discovered 1993 Nov. 9 by E. W. Elst at Caussols.

Id. K. Ichikawa (*MPC* 27447)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	31.68332	(2000.0)	P	Q
<i>n</i>	0.18622528	ω 339.53734	+0.44564335	-0.87933275
<i>a</i>	3.0369918	Ω 83.67826	+0.84303667	+0.34915026
<i>e</i>	0.0459150	<i>i</i> 9.72293	+0.30114975	+0.32383330
<i>P</i>	5.29	<i>H</i> 12.6	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1993 11 09	010	1.7+	1.0-	1998 10 12	699	0.4-	1.0+	1998 11 11	704	0.4-	0.0
1993 11 09	010	1.2+	1.2-	1998 10 14	704	0.3-	0.6+	1998 11 19	699	0.2+	0.9+
1993 11 10	010	1.1+	0.1-	1998 10 14	704	0.4+	0.7-	1998 11 19	699	0.5+	0.6+
1993 11 10	010	0.5+	0.4-	1998 10 14	704	1.4-	0.8-	1998 11 19	699	0.2-	1.0+
1993 11 10	010	1.0+	1.0-	1998 10 14	704	1.7-	0.8-	1998 12 11	699	0.1-	0.8+
1993 11 11	033	1.5-	0.5+	1998 10 15	704	0.2+	0.1-	1998 12 11	699	0.9-	1.1+
1993 11 12	033	1.7-	0.2+	1998 10 15	704	0.2-	1.7-	1998 12 11	699	1.3-	0.4+
1993 11 12	033	0.7-	0.6+	1998 10 15	704	1.8-	1.2+	1999 10 07	703	0.0	0.5-
1993 11 13	033	0.6-	0.1+	1998 10 15	704	1.2+	0.4-	1999 10 07	703	0.3-	0.5+
1993 12 05	408	0.8+	0.2+	1998 10 15	704	0.1+	0.2-	1999 10 07	703	0.2+	0.3-
1993 12 05	408	0.8+	0.6-	1998 10 18	809	(3.0+	0.7-)	1999 10 07	703	0.4-	0.4-
1996 05 12	367	0.2+	0.0	1998 10 18	809	(3.0+	1.1-)	1999 10 07	703	0.0	0.3-
1996 05 12	367	0.1+	0.1-	1998 10 18	809	1.9+	0.4-	1999 10 07	703	0.5-	0.1-
1996 05 12	367	0.1+	0.0	1998 10 19	809	1.8+	0.8-	1999 10 07	703	0.3+	0.1-

1996 05 12	900	0.2-	0.4+	1998 10 19	809	0.9+	1.2-	1999 10 07	703	0.7-	0.3+
1996 05 12	900	0.2-	0.3+	1998 10 19	809	1.1+	1.3-	1999 11 16	704	0.2-	0.2+
1996 05 13	900	0.2-	0.9+	1998 11 08	758	0.1+	1.0+	1999 11 16	704	0.6-	0.3+
1996 05 13	900	0.2-	1.9+	1998 11 08	758	0.4-	0.5+	1999 11 16	704	0.4-	0.4+
1996 05 14	867	0.3+	0.5+	1998 11 08	758	0.1-	1.0+	1999 11 16	704	0.4-	0.6+
1996 05 14	867	0.4+	0.6+	1998 11 10	704	0.5-	0.2-	1999 11 16	704	0.6-	1.2+
1996 05 14	867	0.3+	0.5+	1998 11 10	704	0.1+	0.0	1999 12 08	704	0.1-	1.3-
1996 05 22	566	0.1+	0.8-	1998 11 10	704	0.0	0.6+	1999 12 08	704	1.7+	0.3-
1996 05 22	566	0.1+	0.7-	1998 11 10	704	0.2+	0.1+	1999 12 08	704	0.7+	0.3-
1996 05 22	566	0.1-	0.8-	1998 11 10	704	0.4-	0.8+	1999 12 08	704	0.8+	1.3+
1998 10 12	699	0.2-	0.8+	1998 11 11	704	0.8-	0.3+				
1998 10 12	699	0.6-	0.9+	1998 11 11	704	0.3+	0.0				

(12767)* 1994 AS = 1981 UB₂ = 1997 TX₂₄

Discovered 1994 Jan. 4 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 31237)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		255.04887		(2000.0)		P		Q	
<i>n</i>		0.17980225	ω	202.04152		-0.59033455		+0.80698750	
<i>a</i>		3.1088943	Ω	31.78471		-0.73576314		-0.52953578	
<i>e</i>		0.1632053	<i>i</i>	1.80839		-0.33190016		-0.26146325	
<i>P</i>		5.48	<i>H</i>	13.0		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1981 10 30	381	0.8+	1.0+	1996 08 13	566	0.1+	0.3+	1998 12 14	704	0.9-	2.1-
1981 10 30	381	0.7+	0.6+	1996 08 13	566	0.4+	0.0	1998 12 14	704	(2.6-	0.4-)
1991 09 08	691	0.8-	0.3-	1996 08 13	566	0.2-	0.1-	1998 12 14	704	0.2-	0.0
1991 09 08	691	0.8-	0.4+	1997 08 02	910	0.1-	0.2-	1998 12 14	704	1.7-	1.6-
1991 09 08	691	0.8-	0.1+	1997 08 02	910	0.6-	0.0	1998 12 17	704	0.4-	0.4-
1992 11 26	691	1.2-	0.2+	1997 08 02	910	0.6-	0.3-	1998 12 17	704	0.4-	0.9-
1992 11 26	691	1.6-	0.2+	1997 10 04	358	0.9-	1.7+	1998 12 17	704	0.8-	2.0-
1994 01 04	411	0.0	1.1-	1997 10 04	358	0.0	1.6-	1998 12 17	704	0.9+	1.9-
1994 01 04	411	0.3+	1.2+	1997 10 05	358	1.6+	1.4+	1999 11 16	704	0.5+	0.5-
1994 01 04	411	0.6-	0.1+	1997 10 05	358	(2.9+	1.8+)	1999 11 16	704	1.5+	0.1-
1994 01 07	411	0.7-	2.0+	1997 10 08	376	0.1-	0.9+	1999 11 16	704	1.0+	0.0
1994 01 07	411	0.4+	0.7+	1997 10 08	376	0.0	0.8+	1999 12 04	703	0.5+	0.4+
1994 01 07	411	0.6+	1.4+	1997 10 10	376	0.7+	0.1-	1999 12 04	703	0.6-	0.0
1994 01 14	411	0.5+	0.7-	1997 10 10	376	0.2+	0.1+	1999 12 04	703	0.3-	0.5+
1994 01 14	411	0.3+	0.5-	1997 10 30	704	0.4+	0.4+	1999 12 04	703	0.9+	0.5+
1994 01 14	411	0.8+	0.1+	1997 10 30	704	0.5-	0.3+	1999 12 06	704	0.3+	0.0
1995 03 27	691	0.4-	0.1+	1997 10 30	704	0.9+	0.6+	1999 12 06	704	0.8-	0.8+
1995 03 27	691	0.1-	0.6+	1997 10 30	704	1.4+	0.1+	1999 12 06	704	0.7+	0.5+
1995 03 27	691	0.4-	0.2+	1997 10 30	704	0.4+	0.2+	1999 12 06	704	1.2+	0.9+

(12768)* 1994 EQ₁ = 1982 VK = 1989 YF₈

Discovered 1994 Mar. 10 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 23530)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		272.55031		(2000.0)		P		Q	
<i>n</i>		0.28883749	ω	295.65012		-0.33422887		-0.94246518	
<i>a</i>		2.2665589	Ω	173.86259		+0.88679364		-0.31702033	
<i>e</i>		0.1100664	<i>i</i>	3.80916		+0.31919916		-0.10610135	
<i>P</i>		3.41	<i>H</i>	13.7		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1982 11 11	046	1.1-	0.9+	1999 10 07	704	0.3+	1.1-	1999 11 03	703	0.6-	0.4+
1982 11 11	046	0.7+	2.3-	1999 10 07	704	0.2+	0.6+	1999 11 03	703	0.7-	0.1+
1989 12 25	033	0.4+	0.3-	1999 10 10	704	0.9+	0.5+	1999 11 05	704	0.4-	0.3-
1989 12 25	033	0.2-	0.3+	1999 10 10	704	0.9+	0.4+	1999 11 05	704	0.3-	0.1+
1989 12 26	033	1.1+	0.1+	1999 10 10	704	0.9+	0.6+	1999 11 05	704	0.1+	0.2+
1994 03 10	411	0.7+	1.4+	1999 10 10	704	1.0+	0.5+	1999 11 05	704	0.1-	0.5+
1994 03 10	411	0.5+	0.2+	1999 10 10	704	0.4+	0.9+	1999 11 05	704	0.0	0.2+
1994 03 14	675	0.6+	0.7-	1999 10 14	120	0.0	0.3+	1999 11 14	699	0.4-	0.3+
1994 03 14	675	1.1-	0.5+	1999 10 15	120	0.4-	1.2-	1999 11 14	699	0.0	0.1+
1994 03 15	411	0.0	0.6-	1999 10 15	704	0.6-	0.0	1999 11 14	699	0.3-	0.2+

1994 03 15	411	0.3-	0.1+	1999 10 15	704	0.2+	0.3-	1999 11 15	704	0.2+	0.4-
1994 03 15	411	0.0	0.1-	1999 10 15	704	0.2-	0.4-	1999 11 15	704	0.1+	0.8-
1994 04 03	411	0.3-	1.0-	1999 10 15	704	0.1-	0.4-	1999 11 15	704	0.0	1.0-
1994 04 03	411	0.1+	0.6+	1999 10 15	704	0.1+	0.5-	1999 11 15	704	0.1-	0.7-
1994 04 03	411	0.1+	0.2+	1999 10 15	120	0.2-	0.4-	1999 11 15	704	0.1-	0.9-
1996 12 07	411	0.8-	0.3+	1999 10 15	120	0.8-	0.8-	1999 11 17	704	0.1-	0.6+
1996 12 07	411	0.1-	0.6-	1999 10 19	704	0.1+	0.2-	1999 11 17	704	0.3+	0.1-
1999 10 07	106	0.1-	0.2+	1999 10 19	704	0.1+	0.0	1999 11 17	704	0.2-	0.2+
1999 10 07	106	0.2+	0.2-	1999 10 19	704	0.1-	0.1-	1999 11 17	704	0.7+	0.5+
1999 10 07	106	0.2-	0.6+	1999 10 19	704	0.3-	0.2-	1999 11 17	704	0.0	0.3+
1999 10 07	704	1.3+	0.8+	1999 10 19	704	0.1-	0.3-	1999 12 02	699	0.4-	0.8+
1999 10 07	704	0.5-	1.4+	1999 11 03	703	0.4-	0.0	1999 12 02	699	0.6-	0.1+
1999 10 07	704	0.9+	0.1-	1999 11 03	703	0.3-	0.2+	1999 12 02	699	0.7-	0.8+

(12769)* 1994 FF = 1953 DF = 1997 AO₁₄

Discovered 1994 Mar. 18 by K. Endate and K. Watanabe at Kitami.

Id. S. Nakano (*MPC* 28852; unpublished)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		194.57958		(2000.0)		P		Q	
<i>n</i>		0.28995065	ω	79.66876		-0.87229145		+0.48214709	
<i>a</i>		2.2607541	Ω	129.10664		-0.47960604		-0.81110354	
<i>e</i>		0.1352090	<i>i</i>	6.02866		-0.09531873		-0.33112721	
<i>P</i>		3.40	<i>H</i>	13.7		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1953 02 17	210	(40.9+	7.1-)X	1998 05 27	699	0.4-	0.2-	1998 08 23	704	0.5+	0.4-
1994 03 14	675	0.4+	0.4-	1998 05 27	699	0.0	0.3+	1999 10 20	704	0.5+	0.4-
1994 03 14	675	0.6-	0.0	1998 06 02	699	0.0	0.1-	1999 10 20	704	0.2+	0.5-
1994 03 14	400	(1.6-	3.3+)	1998 06 02	699	0.0	0.5-	1999 10 20	704	0.0	0.5-
1994 03 14	400	(0.3-	2.6-)	1998 06 02	699	0.6-	0.7-	1999 10 20	704	0.4-	0.1-
1994 03 18	400	1.1-	0.0	1998 07 02	699	0.4+	0.6+	1999 10 20	704	0.4-	0.2-
1994 03 18	400	(1.5+	3.5-)	1998 07 02	699	0.1-	0.2+	1999 11 04	704	0.1+	0.1+
1994 03 31	400	0.1+	0.6+	1998 07 02	699	0.6-	0.7+	1999 11 04	704	0.2-	0.1-
1994 03 31	400	0.8+	0.1-	1998 08 17	704	0.4+	1.2+	1999 11 04	704	0.4+	0.1+
1997 01 08	358	0.1+	0.0	1998 08 17	704	0.1-	0.2-	1999 11 04	704	0.6+	0.1+
1997 01 08	358	0.1-	1.3+	1998 08 17	704	0.2-	0.3+	1999 11 04	704	0.0	0.2-
1997 01 09	358	0.1+	0.0	1998 08 17	704	0.3-	0.7-	1999 12 03	699	0.2+	0.0
1997 01 09	358	0.2+	0.7-	1998 08 17	704	1.0+	1.4-	1999 12 03	699	0.4+	0.2+
1997 01 10	566	0.0	0.2+	1998 08 19	566	0.6-	0.5-	1999 12 03	699	0.1-	0.5+
1997 01 10	566	0.3-	0.3+	1998 08 19	566	0.2-	0.4-	1999 12 06	704	0.2-	0.3+
1997 01 10	566	0.2-	0.0	1998 08 19	566	0.1+	0.2-	1999 12 06	704	0.1-	0.1+
1997 02 02	399	1.5+	0.9-	1998 08 23	704	0.3-	0.6+	1999 12 06	704	0.5-	0.1+
1997 02 02	399	0.5-	1.3-	1998 08 23	704	0.6-	1.0+	1999 12 06	704	0.5-	0.1+
1998 05 27	699	0.1-	1.0-	1998 08 23	704	1.9+	0.2+	1999 12 06	704	0.8-	0.0

(12770)* 1994 GF = 1995 TO₂

Discovered 1994 Apr. 3 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 25961)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		228.74792		(2000.0)		P		Q	
<i>n</i>		0.30435948	ω	101.65266		-0.87544984		+0.47946643	
<i>a</i>		2.1888273	Ω	107.02343		-0.46450935		-0.79994883	
<i>e</i>		0.0583617	<i>i</i>	3.64709		-0.13348649		-0.36082380	
<i>P</i>		3.24	<i>H</i>	14.7		<i>G</i>	0.15	<i>U</i>	1

1999 DEC. 22

M.P.C. 37057

1994 04 14	675	1.9−	1.6+	1995 10 26	104	1.3−	0.9+	1998 09 25	704	0.8−	1.2−
1994 04 14	411	1.9+	0.4+	1995 10 26	104	1.3−	0.8+	1998 09 25	704	(0.1+	2.0−)
1994 04 14	411	1.2+	0.1+	1995 11 18	104	(2.3+	0.5+)	1998 09 25	704	(2.2+	2.5−)
1994 04 14	411	0.8+	0.3−	1995 11 18	104	1.3+	0.4+	1998 09 25	704	(0.6+	2.4−)
1994 04 15	675	1.4−	0.5+	1995 11 18	104	0.1+	0.3+	1998 09 27	704	0.1+	1.4−
1994 04 15	675	1.6−	0.8−	1995 11 20	104	0.4−	0.0	1998 09 27	704	(2.2+	1.1−)
1994 04 17	411	1.9+	0.5+	1995 11 20	104	0.9+	1.6+	1998 09 27	704	1.4+	0.1−
1994 04 17	411	1.4+	0.1+	1995 11 20	104	(1.7+	4.7+)	1998 09 27	704	(3.3+	1.6−)
1994 04 17	411	1.6+	1.0+	1998 08 17	704	0.3+	0.0	1998 09 27	704	0.6−	1.5−
1995 10 15	104	1.2+	2.0+	1998 08 17	704	1.0+	0.5+	1999 10 21	704	0.3−	0.5−
1995 10 15	104	(0.7+	2.2+)	1998 08 17	704	1.0−	0.8+	1999 10 21	704	1.1+	0.1−
1995 10 15	104	0.3+	1.8+	1998 08 17	704	0.2−	0.2+	1999 10 21	704	0.1−	0.3+
1995 10 15	104	0.0	1.2+	1998 08 17	704	0.2−	0.8−	1999 11 16	704	0.3−	0.4−
1995 10 15	104	0.5−	1.4+	1998 08 23	704	1.3+	1.4−	1999 11 16	704	0.3+	1.1−
1995 10 16	104	0.2−	0.1+	1998 08 23	704	(2.3+	1.8+)	1999 11 16	704	0.0	0.5+
1995 10 16	104	0.3+	0.4−	1998 08 23	704	0.8+	0.1−	1999 11 16	704	0.2−	0.9+
1995 10 16	104	0.3−	0.1−	1998 08 23	704	0.7+	0.3+	1999 11 17	327	0.5+	0.8+
1995 10 17	104	0.9+	0.2+	1998 08 23	704	1.6−	1.3+	1999 11 17	327	0.7−	0.6+
1995 10 17	104	0.3+	0.3−	1998 09 14	704	0.1−	0.5+	1999 11 17	327	0.4+	1.0+
1995 10 17	104	0.1+	0.3+	1998 09 14	704	0.7−	0.8+	1999 11 20	327	0.1+	0.1+
1995 10 18	104	0.6+	0.6−	1998 09 14	704	0.6−	1.5+	1999 11 20	327	0.3−	0.1−
1995 10 18	104	0.0	0.0	1998 09 14	704	(0.5−	2.1+)	1999 11 20	327	0.6+	0.2+
1995 10 18	104	0.5−	0.8+	1998 09 14	704	(0.3−	2.3+)	1999 12 05	699	0.1−	0.8+
1995 10 23	104	0.1+	1.7−	1998 09 16	699	0.0	1.0+	1999 12 05	699	0.2+	0.5+
1995 10 23	104	0.9+	0.5−	1998 09 16	699	0.4−	0.7+	1999 12 05	699	0.3−	0.4+
1995 10 23	104	0.3+	0.5+	1998 09 16	699	0.6−	0.0				

(12771)* 1994 GA₁ = 1974 HD₃ = 1995 WH₆

Discovered 1994 Apr. 5 by K. Endate and K. Watanabe at Kitami.

Id. S. Nakano (*MPC* 26174, *MPC* 29104)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	139.05249		(2000.0)	P	Nakano	Q
<i>n</i>	0.29387040	ω	206.86361	+0.38353611	+0.91971550	
<i>a</i>	2.2406059	Ω	85.78821	−0.83149759	+0.38338172	
<i>e</i>	0.1639345	<i>i</i>	4.82042	−0.40188532	+0.08450951	
<i>P</i>	3.35	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1974 04 25	805	0.8+	0.6+	1998 06 29	704	1.0+	1.1+	1998 10 09	689	0.5+	0.3−
1988 09 10	675	0.4+	0.0	1998 06 29	704	0.8−	0.6−	1998 10 13	704	(2.3+	1.0+)
1988 09 10	675	0.6−	0.8−	1998 06 29	704	0.9−	1.9+	1998 10 13	704	0.0	0.1−
1994 04 05	400	1.8−	1.4+	1998 06 29	704	0.1−	0.0	1998 10 13	704	0.0	1.2−
1994 04 05	400	0.1+	1.0+	1998 09 21	704	0.6+	0.5+	1999 11 16	704	0.0	0.2+
1994 04 08	400	1.7−	1.2−	1998 09 21	704	0.1+	1.3+	1999 11 16	704	1.0+	1.4−
1994 04 08	400	0.9+	1.2+	1998 09 21	704	0.5+	1.3+	1999 11 16	704	0.1+	0.8+
1994 04 15	400	0.1+	2.1−	1998 09 21	704	0.1+	0.3+	1999 11 16	704	1.1+	0.5+
1994 04 15	400	0.7+	0.2+	1998 09 21	704	0.9−	0.2+	1999 12 07	704	0.1+	0.2−
1994 05 05	400	(3.4+	0.2−)	1998 09 22	699	0.0	0.1+	1999 12 07	704	0.5−	0.5−
1994 05 05	400	(5.2+	8.2−)	1998 09 22	699	0.3+	0.3+	1999 12 07	704	0.2+	0.1+
1995 11 16	399	(6.3−	0.7+)	1998 09 22	699	0.0	0.2+	1999 12 07	704	0.1−	0.9+
1995 11 16	399	(3.5−	0.1+)	1998 09 27	704	0.1−	0.6−	1999 12 07	704	0.2−	0.9+
1995 11 17	399	(2.8−	0.9+)	1998 09 27	704	0.3+	0.2−	1999 12 08	704	0.3−	0.9−
1995 11 17	399	1.8−	0.6+	1998 09 27	704	1.0−	0.5−	1999 12 08	704	0.5−	0.1+
1997 02 01	411	0.0	1.1−	1998 09 27	704	1.0+	1.7−	1999 12 08	704	0.8+	0.8+
1997 02 01	411	0.8+	0.7−	1998 09 27	704	0.1+	0.6−	1999 12 08	704	0.2−	0.4+

(12772)* 1994 GM₁ = 1988 XE₄ = 1991 PN₂₉

Discovered 1994 Apr. 14 by T. Kobayashi at Oizumi.

Id. K. Ichikawa (*MPC* 23678)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	91.58937		(2000.0)	P	Q
<i>n</i>	0.27863280	ω	228.73672	+0.75837988	+0.64660871
<i>a</i>	2.3215670	Ω	90.80901	−0.57075179	+0.71967238
<i>e</i>	0.1239551	<i>i</i>	4.71561	−0.31480525	+0.25292061
<i>P</i>	3.54	<i>H</i>	13.5	<i>G</i>	0.15

Residuals in seconds of arc

1988 12 07	054	1.1+	0.5−	1994 05 08	411	0.6+	0.1+	1999 10 22	704	0.2−	0.3+
1988 12 07	054	0.3+	0.8−	1994 05 08	411	0.5−	1.0−	1999 10 22	704	0.4−	0.1+
1991 08 11	809	0.7+	0.4−	1994 05 08	411	0.6−	0.4−	1999 10 22	704	0.2−	0.3+
1991 08 11	809	0.8+	0.7−	1995 11 09	411	1.4−	0.7−	1999 10 22	704	0.4−	0.0
1991 08 11	809	0.8+	0.5−	1995 11 09	411	0.7−	0.4−	1999 12 07	704	0.4+	0.9−
1994 04 14	411	0.3−	0.2−	1995 11 10	411	1.2−	0.4−	1999 12 07	704	0.1+	0.6+
1994 04 14	411	0.4−	1.1+	1995 11 10	411	0.6−	0.8−	1999 12 07	704	0.4+	0.1−
1994 04 17	411	0.7−	0.6+	1998 07 16	699	1.0−	1.4+	1999 12 07	704	0.1+	0.4+
1994 04 17	411	0.8−	0.8−	1998 07 16	699	0.4−	1.3+	1999 12 07	704	0.5+	0.8+
1994 04 17	411	0.9−	0.1−	1998 07 16	699	0.6−	1.5+	1999 12 08	704	0.4+	0.3−
1994 04 19	411	0.6+	0.3+	1998 08 17	704	0.6−	1.3+	1999 12 08	704	0.6+	0.1−
1994 04 19	411	0.1+	0.7−	1998 08 17	704	0.9+	0.6−	1999 12 08	704	0.8+	0.6−
1994 04 19	411	1.1−	1.1−	1998 08 17	704	0.9+	2.0−	1999 12 08	704	1.0+	0.3−
1994 05 06	411	0.4+	0.3−	1998 08 17	704	0.9+	0.6−	1999 12 08	704	0.7+	0.8−
1994 05 06	411	0.2+	0.4−	1998 08 17	704	0.3+	1.2−				
1994 05 06	411	0.1−	0.2+	1999 10 22	704	0.6−	0.3+				

(12773)* 1994 PJ₁₀ = 1990 VC₈

Discovered 1994 Aug. 10 by E. W. Elst at the European Southern

Observatory.

Id. B. G. Marsden (*MPC* 24748)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden

<i>M</i>	359.87111		(2000.0)	P	Q
<i>n</i>	0.21852959	ω	92.47299	+0.94931237	−0.31336326
<i>a</i>	2.7297898	Ω	285.78987	+0.27723969	+0.87171130
<i>e</i>	0.0931158	<i>i</i>	1.47015	+0.14813569	+0.37672652
<i>P</i>	4.51	<i>H</i>	13.8	<i>G</i>	0.15

Residuals in seconds of arc

1990 10 22	675	0.1−	1.2+	1997 03 11	809	(2.5+	3.4+)	1999 12 04	703	0.0	0.3−
1990 11 11	675	1.6−	0.9+	1997 03 11	809	(4.0+	3.2+)	1999 12 04	703	0.1−	0.1+
1990 11 11	675	0.5−	1.0−	1997 03 11	809	(3.1+	3.3+)	1999 12 04	703	0.9−	0.9+
1990 11 13	675	0.6+	0.6−	1997 03 12	809	(5.2+	3.4+)	1999 12 04	703	0.9−	0.4+
1990 11 13	675	1.3+	0.5+	1997 03 12	809	(4.2+	3.0+)	1999 12 04	699	0.1+	0.4+
1994 08 10	809	0.1+	0.8−	1997 03 12	809	(4.7+	3.3+)	1999 12 04	699	0.2+	0.4+
1994 08 10	809	0.3−	1.1−	1997 05 05	691	0.0	0.1+	1999 12 04	699	0.4−	0.4+
1994 08 10	809	0.3−	0.9−	1997 05 05	691	0.3−	0.3−	1999 12 06	704	0.4−	0.2+
1994 08 11	809	0.9−	0.5−	1997 05 05	691	0.1−	0.7−	1999 12 06	704	0.5−	0.4−
1994 08 11	809	1.2−	0.2+	1999 11 12	145	(0.8+	2.8+)	1999 12 06	704	0.3+	0.3−
1994 08 11	809	0.2−	0.3+	1999 11 12	145	0.3+	1.4+	1999 12 06	704	0.0	0.0
1994 09 03	809	0.9+	0.6+	1999 11 12	145	0.7+	0.4+	1999 12 06	704	0.4−	0.0
1994 09 03	809	0.7+	0.4+	1999 11 12	145	1.0+	1.2−	1999 12 07	704	0.1−	0.5+
1994 09 03	809	1.1+	0.0	1999 11 15	145	0.3+	1.2−	1999 12 07	704	0.2+	0.4−
1994 09 04	809	0.3+	0.0	1999 11 15	145	0.8+	1.2−	1999 12 07	704	0.3−	0.0
1994 09 04	809	0.2+	0.8+	1999 11 15	145	0.1−	0.7−	1999 12 07	704	0.2+	0.9−
1994 09 04	809	0.4−	0.6+	1999 11 15	145	1.3+	0.3−	1999 12 07	704	1.1−	0.2+

(12774)* 1994 PH₂₂ = 1981 UA₂₅ = 1981 UO₂₀ = 1996 DK₅

Discovered 1994 Aug. 12 by E. W. Elst at the European Southern

Observatory.

Id. G. V. Williams (d, *MPC* 20484; *MPC* 26905)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	356.79474		(2000.0)	P	Q
<i>n</i>	0.22215656	ω	241.24471	+0.68512129	-0.72835123
<i>a</i>	2.6999970	Ω	165.49453	+0.68226618	+0.63651499
<i>e</i>	0.2046476	<i>i</i>	2.43575	+0.25518951	+0.25367924
<i>P</i>	4.44	<i>H</i>	14.9	<i>G</i>	0.15

Residuals in seconds of arc

1981 10 25	675	0.6+	0.3+	1994 09 06	809	1.4+	1.1+	1999 11 15	704	0.6+	0.4+
1981 10 26	675	0.8-	0.2+	1994 09 30	675	1.0-	1.2-	1999 11 15	704	0.5+	0.2+
1981 10 28	095	(4.0+	1.7+)	1996 02 16	010	0.8-	0.3+	1999 11 17	704	0.6+	0.3-
1994 08 12	809	2.0+	1.3+	1996 02 16	010	0.2+	0.3-	1999 11 17	704	0.1-	0.2+
1994 08 12	809	0.7+	1.2+	1996 02 16	010	0.5+	0.2-	1999 11 17	704	0.1+	0.5+
1994 08 12	809	(1.4+	2.2+)	1996 02 17	010	(1.1-	2.9-)	1999 11 17	704	0.1+	0.2-
1994 08 13	809	0.8-	0.2-	1996 02 17	010	(1.6-	3.5-)	1999 11 17	704	0.2+	0.5+
1994 08 13	809	1.2-	0.3-	1996 02 17	010	(0.6-	2.5-)	1999 12 08	704	0.4-	0.2-
1994 08 13	809	0.6-	0.1-	1999 10 22	704	0.3-	0.1-	1999 12 08	704	0.0	0.1+
1994 09 05	809	0.3-	1.2-	1999 10 22	704	0.8-	0.8+	1999 12 08	704	0.3-	0.5-
1994 09 05	809	0.9-	1.0-	1999 10 22	704	1.0+	0.7+	1999 12 08	704	0.5+	0.5-
1994 09 05	809	1.7-	1.7-	1999 10 22	704	0.6-	0.4-	1999 12 08	704	1.7-	0.7-
1994 09 06	809	1.8+	0.7+	1999 11 15	704	0.6+	0.3-				
1994 09 06	809	0.9+	0.6+	1999 11 15	704	0.1+	0.1-				

(12775)* 1994 PX₂₂ = 1996 GE₁₇

Discovered 1994 Aug. 12 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 27448)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	318.83107		(2000.0)	P	Q
<i>n</i>	0.22837067	ω	327.05001	-0.22187121	-0.97401692
<i>a</i>	2.6507931	Ω	135.72166	+0.90810483	-0.22337828
<i>e</i>	0.2400495	<i>i</i>	3.73130	+0.35513206	-0.03732533
<i>P</i>	4.32	<i>H</i>	14.8	<i>G</i>	0.15

Residuals in seconds of arc

1994 08 12	809	(2.3+	0.2-)	1996 04 09	327	0.4+	1.0+	1999 10 10	704	0.9-	0.6-
1994 08 12	809	0.9+	0.3-	1996 04 11	327	0.0	0.6+	1999 10 10	704	0.6-	0.7+
1994 08 12	809	(2.2+	0.4-)	1996 04 11	327	0.4+	0.4+	1999 10 10	704	1.4-	0.5+
1994 08 13	809	1.3+	1.2-	1996 04 11	327	0.3-	0.5+	1999 11 17	704	0.5+	0.2-
1994 08 13	809	0.5+	0.5-	1996 05 10	327	0.3-	0.6+	1999 11 17	704	0.2+	0.3-
1994 08 13	809	0.3+	0.5-	1996 05 10	327	0.8+	0.6+	1999 11 17	704	0.5+	0.2+
1994 09 05	809	0.1-	1.4+	1996 05 10	327	0.1+	0.1+	1999 11 17	704	0.2+	0.1+
1994 09 05	809	0.0	1.0+	1996 05 11	327	0.3-	0.2+	1999 11 17	704	0.4-	0.0
1994 09 05	809	1.6-	1.8+	1996 05 11	327	0.4+	0.3+	1999 12 08	704	0.0	0.2+
1994 09 06	809	0.0	0.6+	1996 05 11	327	0.4-	0.2-	1999 12 08	704	0.2+	0.1-
1994 09 06	809	0.4-	0.4+	1998 09 28	691	0.1-	0.4+	1999 12 08	704	0.2+	0.2-
1994 09 06	809	1.6-	0.4+	1998 09 28	691	0.0	0.5+	1999 12 08	704	0.3+	0.3+
1996 04 09	327	0.1+	0.2+	1998 09 28	691	0.5-	0.5+	1999 12 08	704	0.1+	0.4+
1996 04 09	327	0.1+	0.6+	1999 10 10	704	0.5+	0.8-				

(12776)* 1994 PT₃₁ = 1997 GH₁₅

Discovered 1994 Aug. 12 by E. W. Elst at the European Southern Observatory.

Id. S. Nakano (*MPC* 32237)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	152.25786		(2000.0)	P	Q
<i>n</i>	0.24033305	ω	44.03619	-0.25958560	+0.96519059
<i>a</i>	2.5620861	Ω	210.95935	-0.90233019	-0.25421175
<i>e</i>	0.0535400	<i>i</i>	3.56366	-0.34411559	-0.06151025
<i>P</i>	4.10	<i>H</i>	14.5	<i>G</i>	0.15

Residuals in seconds of arc

1994 08 12	809	1.5+	0.5-	1997 04 05	704	0.3-	0.5-	1999 11 03	704	0.9-	0.1-
1994 08 12	809	1.6+	0.9-	1997 04 05	704	0.2-	0.5+	1999 11 15	704	0.1+	0.4-

1994 08 12	809	0.2-	0.9-	1997 04 05	704	1.2+	0.3-	1999 11 15	704	0.0	0.4+
1994 08 13	809	1.7+	0.7-	1997 04 06	704	0.4-	0.3+	1999 11 15	704	0.2+	0.2-
1994 08 13	809	0.6+	0.8-	1997 04 06	704	1.2-	1.3+	1999 11 15	704	0.0	0.4+
1994 08 13	809	0.5+	1.0-	1997 04 07	704	0.2-	0.3+	1999 11 15	704	0.6-	0.2-
1994 09 05	809	1.1+	0.5-	1997 04 07	704	0.5-	0.6+	1999 11 17	704	0.4+	0.1-
1994 09 05	809	0.7+	0.7-	1998 07 26	699	0.3-	0.5+	1999 11 17	704	0.3-	0.6-
1994 09 05	809	0.1-	1.4-	1998 07 26	699	0.6-	0.7-	1999 11 17	704	0.4+	0.2-
1994 09 06	809	2.1-	0.2+	1998 07 26	699	0.7+	0.0	1999 11 17	704	0.1+	0.4+
1994 09 06	809	0.9-	0.2-	1998 08 17	704	0.0	0.6+	1999 12 07	704	0.2-	0.7+
1994 09 06	809	1.4-	0.5-	1998 08 17	704	1.2-	1.3-	1999 12 07	704	0.4+	0.5-
1997 03 11	809	0.0	0.5-	1998 08 17	704	0.1+	1.0+	1999 12 07	704	0.0	0.4-
1997 03 11	809	0.1+	0.7-	1998 08 30	699	0.7-	0.4+	1999 12 07	704	0.1+	0.3+
1997 03 11	809	0.1-	1.1-	1998 08 30	699	1.0-	1.3+	1999 12 07	704	0.3+	0.0
1997 03 13	809	(3.8-	1.0-)	1998 08 30	699	0.1+	1.0+	1999 12 08	704	0.0	0.1+
1997 03 13	809	0.9+	1.4-	1998 09 10	910	0.4+	1.1+	1999 12 08	704	0.4+	0.2-
1997 03 13	809	(2.8-	1.8-)	1998 09 11	910	0.3+	1.1+	1999 12 08	704	0.4+	0.7+
1997 04 03	704	0.2+	0.7-	1998 09 11	910	0.3+	0.9+	1999 12 08	704	0.0	0.1-
1997 04 03	704	0.1+	0.2+	1999 11 03	704	0.5-	0.2+	1999 12 08	704	0.2-	0.5-
1997 04 05	704	0.3-	0.5-	1999 11 03	704	0.3-	0.4-				

(12777)* 1994 QA₁ = 1997 MK₂

Discovered 1994 Aug. 27 at Pleiade Observatory, Verona.

Id. K. Ichikawa (*MPC* 30760)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	323.77234		(2000.0)	P	Q
<i>n</i>	0.23569198	ω	304.34246	-0.10162143	-0.99434001
<i>a</i>	2.5956104	Ω	151.44224	+0.93270810	-0.10606879
<i>e</i>	0.1817445	<i>i</i>	3.71817	+0.34601832	-0.00611246
<i>P</i>	4.18	<i>H</i>	14.6	<i>G</i>	0.15

Residuals in seconds of arc

1994 08 10	809	(1.9-	2.5-)	1994 09 05	809	1.1+	0.4+	1997 07 01	910	0.7-	0.4-
1994 08 10	809	(2.1-	3.1-)	1994 09 05	809	1.5+	1.0+	1997 07 01	910	0.6-	0.1-
1994 08 10	809	(2.6-	3.6-)	1994 09 06	809	(3.9+	3.7+)	1998 09 20	691	0.5+	0.7+
1994 08 11	809	(0.8-	2.7-)	1994 09 06	809	(3.9+	3.3+)	1998 09 20	691	0.6-	1.3+
1994 08 11	809	0.5-	2.0-	1994 09 06	809	(4.7+	3.9+)	1998 09 20	691	(0.2+	3.1+)
1994 08 11	809	(0.1-	2.2-)	1994 09 09	112	1.2-	1.0-	1999 10 10	704	0.5-	0.2+
1994 08 27	112	0.2-	0.4+	1994 09 09	112	0.5+	1.1-	1999 10 10	704	0.1+	0.5-
1994 08 27	112	0.3+	0.3+	1994 09 09	112	0.9-	0.5-	1999 10 10	704	(1.4+	2.2-)
1994 08 27	112	0.5-	1.2+	1994 09 09	112	0.3-	0.1-	1999 10 10	704	0.7-	0.7-
1994 09 01	691	0.8-	0.5-	1997 06 08	809	0.4+	0.1-	1999 10 10	704	0.6-	1.0-
1994 09 01	691	0.9-	0.0	1997 06 08	809	0.7-	0.5-	1999 11 17	704	1.0+	0.4+
1994 09 01	691	0.0	1.4+	1997 06 08	809	0.7-	0.5-	1999 11 17	704	1.2+	0.2+
1994 09 03	809	0.1-	0.0	1997 06 09	809	1.5+	0.9-	1999 11 17	704	0.1+	0.0
1994 09 03	809	0.9-	0.2-	1997 06 09	809	1.0+	0.7-	1999 11 17	704	0.5+	0.0
1994 09 03	809	0.6+	0.7-	1997 06 09	809	0.6+	0.3-	1999 11 17	704	0.6-	0.1-
1994 09 04	809	0.6+	0.4+	1997 06 30	910	0.4-	0.1-	1999 12 08	704	0.1+	0.0
1994 09 04	809	0.5+	0.9-	1997 06 30	910	0.7-	0.1+	1999 12 08	704	0.4+	0.5-
1994 09 04	809	0.4+	0.6-	1997 06 30	910	0.6-	0.3-	1999 12 08	704	0.0	1.8-
1994 09 05	809	1.7+	0.2+	1997 07 01	910	0.7-	0.7-	1999 12 08	704	1.3-	0.4-

(12778)* 1994 VJ₁ = 1985 YU₁ = 1997 JD₁₆

Discovered 1994 Nov. 4 by T. Kobayashi at Oizumi.

Id. B. G. Marsden (*MPC* 30081)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	67.43955		(2000.0)	P	Q
<i>n</i>	0.21468674	ω	267.03951	+0.97711607	+0.18029271
<i>a</i>	2.7622686	Ω	82.55429	-0.11973215	+0.90476962
<i>e</i>	0.0846513	<i>i</i>	6.53590	-0.17580787	+0.38585810
<i>P</i>	4.59	<i>H</i>	13.4	<i>G</i>	0.15

Residuals in seconds of arc

1985 12 17	010	(6.9+	7.5-)	1997 05 03	809	1.4+	0.1+	1999 10 12	704	0.3-	0.1-
1985 12 17	010	(9.3+	5.6-)	1997 05 04	809	1.0+	0.3+	1999 10 12	704	0.7-	0.1+
1994 11 04	411	0.0	0.1-	1997 05 04	809	0.0	0.4+	1999 10 12	704	0.1+	0.0

1999 DEC. 22

M.P.C. 37059

1994 11 04	411	0.6−	0.1−	1997 05 04	809	0.4+	1.2+	1999 10 12	704	0.3+	0.5+
1994 11 08	411	0.5+	0.2−	1997 05 05	691	0.8−	0.4+	1999 10 22	704	0.3−	0.6+
1994 11 08	411	0.0	0.1−	1997 05 05	691	0.9−	0.4+	1999 10 22	704	0.0	0.2−
1994 11 10	411	0.2+	0.8−	1997 05 05	691	0.8−	0.4+	1999 10 22	704	0.0	0.6−
1994 11 10	411	0.3−	0.3−	1998 09 21	704	0.1−	0.5−	1999 10 22	704	0.1+	0.1−
1994 11 27	411	0.9+	1.0+	1998 09 21	704	0.7−	0.9+	1999 10 22	704	0.9+	0.7+
1994 11 27	411	0.5−	0.6−	1998 09 21	704	0.2−	0.7+	1999 12 07	704	0.4+	0.7+
1996 01 15	691	0.3+	0.7+	1998 09 21	704	0.1−	0.2+	1999 12 07	704	0.2−	0.4+
1996 01 15	691	0.6+	0.5+	1998 09 21	704	0.0	1.4+	1999 12 07	704	0.1−	1.0+
1996 01 15	691	0.5+	0.7+	1998 09 22	699	0.5+	0.6+	1999 12 07	704	0.1−	0.8+
1997 05 03	809	(0.5+ 2.3+)		1998 09 22	699	0.8−	0.5+	1999 12 07	704	0.4−	0.2+
1997 05 03	809	0.6+	0.5+	1998 09 22	699	0.1−	0.8+				

(12779)* 1994 YA₁

Discovered 1994 Dec. 28 by T. Kobayashi at Oizumi.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

M	14.54212		(2000.0)		P		Q
n	0.20934239	ω	315.05054		+0.28028750		−0.95719100
a	2.8090831	Ω	118.54645		+0.90221265		+0.23697763
e	0.1831778	i	4.71978		+0.32779758		+0.16621372
P	4.71	H	13.9	G	0.15	U	1

Residuals in seconds of arc

1994 12 28	411	0.1+	0.3+	1996 04 21	118	0.9−	0.2+	1998 09 27	704	0.2+	0.2−
1994 12 28	411	1.5+	0.3+	1996 05 09	411	0.0	0.1+	1998 09 27	704	0.2+	0.7+
1994 12 29	411	0.9−	0.2−	1996 05 09	411	0.5−	0.8−	1998 09 27	704	1.1+	0.0
1994 12 29	411	0.8−	0.7−	1996 05 18	691	1.4+	0.2+	1998 09 27	704	0.1+	0.1+
1995 01 05	411	0.9−	0.0	1996 05 18	691	1.3+	0.0	1998 09 27	704	(2.2+ 0.1+)	
1995 01 05	411	1.3−	0.6+	1996 05 18	691	1.3+	0.0	1998 10 14	704	0.0	0.2−
1995 01 10	411	0.3+	0.3+	1998 08 27	809	(2.0− 5.1−)		1998 10 14	704	0.7+	0.1+
1995 01 10	411	0.1+	0.6+	1998 08 27	809	(2.9− 6.4−)		1998 10 14	704	0.1+	1.5−
1995 01 19	411	0.2−	0.1+	1998 08 27	809	(2.5− 5.3−)		1998 10 14	704	0.8+	1.1−
1995 01 19	411	0.5−	0.1+	1998 09 14	704	0.9−	0.2+	1998 10 14	704	1.2+	1.5−
1995 02 01	411	0.3+	0.2−	1998 09 14	704	0.8−	0.3−	1998 10 15	704	0.5−	0.6−
1995 02 01	411	0.0	0.8−	1998 09 14	704	0.3−	0.4−	1998 10 15	704	0.4−	0.0
1995 03 05	801	1.7+	0.3+	1998 09 17	699	0.1−	0.3+	1998 10 15	704	1.7−	1.0−
1995 03 05	801	0.4+	0.3+	1998 09 17	699	0.1+	0.4+	1998 10 15	704	0.6+	1.1−
1995 03 27	801	0.6+	0.6+	1998 09 17	699	0.7−	0.6+	1998 10 15	704	0.1−	0.1−
1995 03 27	801	0.4+	0.3+	1998 09 18	704	0.2−	1.2+	1998 10 17	699	0.3+	0.2+
1995 03 29	801	0.0	0.5−	1998 09 18	704	1.3−	1.4+	1998 10 17	699	0.2−	1.3+
1995 03 29	801	0.2+	0.2−	1998 09 18	704	0.2−	1.3+	1998 10 17	699	0.2+	0.4+
1996 03 18	801	1.4+	0.1+	1998 09 18	704	(1.6− 2.4+)		1999 11 16	704	0.2−	0.2+
1996 03 18	801	1.2+	0.4−	1998 09 18	704	(3.1− 1.2+)		1999 11 16	704	0.0	0.1+
1996 04 15	801	0.9−	0.2−	1998 09 24	699	0.1−	0.2+	1999 11 16	704	0.0	1.0−
1996 04 15	801	0.6−	0.1+	1998 09 24	699	0.4+	0.8+	1999 11 16	704	0.3−	1.0−
1996 04 18	801	0.8−	0.5−	1998 09 24	699	0.5+	0.6+	1999 11 16	704	0.2−	0.1−
1996 04 18	801	1.4−	0.2−	1998 09 26	704	0.0	0.2−	1999 12 04	703	1.0−	0.2+
1996 04 19	118	1.0−	0.1−	1998 09 26	704	0.9+	1.1−	1999 12 04	703	0.9+	0.1−
1996 04 20	118	0.8−	0.1+	1998 09 26	704	0.7+	0.6−	1999 12 04	703	0.6−	0.1+
1996 04 20	118	0.1+	0.1+	1998 09 26	704	0.0	0.4+	1999 12 04	703	0.9+	0.5+
1996 04 20	118	0.2+	0.2+	1998 09 26	704	0.3−	1.1−				

(12780)* 1995 CE₁ = 1993 TU₁₀

Discovered 1995 Feb. 9 by D. di Cicco at Sudbury.

Id. B. G. Marsden (*MPC* 24907)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden

M	301.34417		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$
n	0.17569342	ω	124.28302		−0.36224437		−0.93181090
a	3.1571779	Ω	346.89810		+0.81918303		−0.30674430
e	0.1169434	i	5.70323		+0.44465513		−0.19400097
P	5.61	H	14.0	G	0.15	U	1

Residuals in seconds of arc

1993 10 15	691	0.1+	0.4+	1995 02 15	817	0.2−	0.4+	1998 09 29	691	0.5−	0.3−
1993 10 15	691	1.1+	0.9+	1995 02 15	817	0.3−	0.3−	1998 09 29	691	0.3−	0.3−

1993 10 15	691	0.1−	0.7−	1995 02 15	817	1.7−	0.2+	1998 09 29	691	0.4−	0.4−
1993 10 16	691	0.1+	0.1−	1995 02 18	817	0.5+	0.5+	1999 10 13	704	1.6+	0.0
1993 10 16	691	0.3+	0.4−	1995 02 18	817	1.4−	1.1+	1999 10 13	704	1.5+	0.1−
1993 10 16	691	0.4+	0.1+	1995 02 27	817	0.4−	0.0	1999 10 13	704	1.1+	0.7−
1993 11 10	691	0.6−	0.7−	1995 02 27	817	0.0	0.2−	1999 10 13	704	1.0+	0.2−
1993 11 10	691	0.6−	0.0	1995 03 27	817	0.3+	0.8−	1999 10 13	704	0.1+	0.6−
1993 11 10	691	0.3−	0.4−	1995 03 27	817	1.1+	1.5+	1999 12 05	699	0.4+	1.4+
1995 02 09	817	1.2−	0.7−	1998 08 17	704	1.1+	1.1−	1999 12 05	699	0.5−	0.9+
1995 02 09	817	0.3+	0.6−	1998 08 17	704	0.0	0.5+	1999 12 05	699	0.8−	1.4+
1995 02 09	817	0.2−	1.3−	1998 08 17	704	1.1−	0.2+	1999 12 07	703	1.2−	0.1−
1995 02 09	817	1.0−	0.9−	1998 08 17	704	(2.3− 1.0+)		1999 12 07	703	0.6−	0.3−
1995 02 09	817	0.1+	0.6−	1998 08 17	704	(5.1− 1.7+)		1999 12 07	703	0.4−	0.4+
1995 02 09	817	1.2+	1.6−	1998 09 20	691	0.5+	0.0	1999 12 07	703	1.0−	0.2−
1995 02 09	817	0.1+	0.1+	1998 09 20	691	0.4+	0.3−	1999 12 13	703	0.5−	0.2+
1995 02 10	817	1.1+	0.2−	1998 09 20	691	0.5+	0.2−	1999 12 13	703	0.3−	0.1+
1995 02 10	817	0.1−	0.2+	1998 09 21	691	0.7+	0.2−	1999 12 13	703	0.7−	0.2+
1995 02 10	817	0.7+	0.1+	1998 09 21	691	0.2+	0.3−	1999 12 13	703	0.0	0.0
1995 02 10	817	0.2+	0.8−	1998 09 21	691	0.3+	0.4−				

(12781)* 1995 EA₈ = 1998 SK₁₄₃ = 1998 SO₁₁₁

Discovered 1995 Mar. 12 by L. Šarounová at Ondřejov.

Id. G. V. Williams (*MPC* 32944)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	7.43110		(2000.0)		P		Q
n	0.19018051	ω	283.99058		+0.04925817		−0.99878068
a	2.9947371	Ω	163.18495		+0.92069572		+0.04413170
e	0.2030640	i	0.65067		+0.38716021		+0.02212583
P	5.18	H	14.4	G	0.15	U	1

Residuals in seconds of arc

1995 03 12	557	0.4+	0.4−	1997 07 12	557	0.8−	0.5+	1998 10 12	691	0.3−	0.3−
1995 03 12	557	0.4+	0.3−	1997 07 13	557	0.2−	0.2+	1998 10 12	691	0.3−	0.3−
1995 03 12	557	0.6+	0.5−	1997 07 13	557	0.7+	0.1−	1998 10 13	120	0.3+	0.4+
1995 03 12	557	0.3−	0.2+	1998 08 27	327	0.4−	0.6+	1998 10 13	120	0.2−	0.3−
1995 03 20	557	0.2+	0.8−	1998 08 27	327	0.2−	0.5+	1998 10 17	691	1.1−	0.2−
1995 03 20	557	0.0	0.2−	1998 08 27	327	0.5−	0.3+	1998 10 17	691	1.1−	0.4−
1995 03 20	557	0.3+	0.2+	1998 09 17	327	1.7+	0.1+	1998 10 17	691	1.4−	0.8−
1995 03 20	557	0.2+	0.6+	1998 09 17	327	1.0+	0.2−	1998 10 26	120	1.1−	0.0
1995 03 23	557	0.1+	0.3+	1998 09 17	327	0.6+	0.2+	1998 10 26	120	0.7+	1.4+
1995 03 23	557	0.7−	0.3+	1998 09 24	120	0.5+	0.8−	1998 10 26	120	0.5+	1.7+
1995 03 24	557	0.4−	0.0	1998 09 24	120	(3.0−	0.1+)	1998 10 26	120	0.9+	0.5+
1995 03 24	557	0.0	0.1−	1998 09 24	120	0.0	0.2+	1998 11 21	557	0.2−	0.7−
1995 03 24	557	0.3+	0.2+	1998 09 26	704	0.2+	0.3−	1998 11 21	557	0.7−	0.1+
1995 04 08	557	2.0−	1.2+	1998 09 26	704	0.4+	0.0	1999 10 18	557	0.0	0.2+
1995 04 08	557	0.1+	0.0	1998 09 26	704	0.2−	0.2+	1999 10 18	557	0.1+	0.1−
1995 04 21	557	0.6+	0.2+	1998 09 26	704	0.7−	1.1+	1999 10 18	557	0.6−	0.1+
1995 04 21	557	0.2+	0.2+	1998 09 26	704	0.1−	0.5+	1999 10 18	557	0.7−	0.2−
1995 04 22	557	0.3+	0.3+	1998 09 27	704	0.2+	0.4+	1999 11 15	557	0.4+	0.6−
1995 04 22	557	0.4+	0.8+	1998 09 27	704	1.2+	0.5+	1999 11 15	557	0.2+	0.6−
1995 04 22	557	0.1+	1.0+	1998 09 27	704	0.2+	0.0	1999 12 06	557	0.0	0.1+
1995 04 23	557	0.0	0.6+	1998 09 27	704	1.2−	0.8+	1999 12 06	557	0.1−	0.1+
1995 04 23	557	0.8+	0.6+	1998 09 27	704	0.1+	0.7−	1999 12 06	557	0.0	0.0
1995 04 23	557	0.4+	0.8+	1998 10 12	691	0.2−	0.2−				

Residuals in seconds of arc

1984 03 29	413	1.1-	0.6+	1998 09 27	704	0.1-	0.1-	1998 11 10	704	1.3+	1.6-
1984 03 29	413	0.7+	0.2+	1998 09 27	704	0.4-	1.0+	1998 11 10	704	0.3+	1.2-
1987 10 23	095	0.4+	0.3-	1998 09 27	704	0.9-	0.6+	1998 11 11	704	0.7+	0.4+
1995 02 24	033	0.0	0.8-	1998 09 27	704	0.5-	0.3+	1998 11 11	704	0.7+	0.8+
1995 03 05	033	0.3+	0.4-	1998 09 27	704	0.5-	0.6+	1998 11 11	704	0.3-	0.5+
1995 03 05	033	0.6+	0.0	1998 10 20	699	0.7+	0.6+	1998 11 11	704	0.1-	0.3+
1995 03 07	033	1.4-	0.3-	1998 10 20	699	0.6+	0.6+	1998 11 11	704	0.1-	0.4-
1995 03 23	033	1.0+	0.4-	1998 10 20	699	0.4+	0.6+	1999 10 20	704	0.8+	0.1-
1995 03 24	033	0.3-	0.2+	1998 10 28	704	0.2-	0.2+	1999 10 20	704	0.5-	0.6-
1998 09 19	888	0.2-	0.1+	1998 10 28	704	0.9-	0.2-	1999 10 20	704	0.3-	0.2+
1998 09 19	888	0.4+	0.6-	1998 10 28	704	0.8-	0.5-	1999 10 20	704	1.0-	0.7+
1998 09 19	888	0.3+	1.2-	1998 10 28	704	0.4-	0.5-	1999 11 10	699	0.3+	0.9+
1998 09 24	699	0.4+	1.0+	1998 10 28	704	0.0	0.0	1999 11 10	699	0.4+	0.5+
1998 09 24	699	0.1+	0.4+	1998 10 29	704	0.0	0.6-	1999 11 10	699	0.5-	1.0-
1998 09 24	699	0.2-	0.3+	1998 10 29	704	0.5-	0.3-	1999 11 17	704	0.0	0.9+
1998 09 26	704	0.1+	0.6+	1998 10 29	704	0.1+	0.3-	1999 11 17	704	0.6+	0.2-
1998 09 26	704	0.1-	0.4+	1998 10 29	704	0.6-	0.8-	1999 11 17	704	0.0	0.5+
1998 09 26	704	0.4-	0.6-	1998 10 29	704	0.9-	1.5-	1999 11 17	704	0.6-	0.0
1998 09 26	704	0.5-	0.6+	1998 11 10	704	1.1+	0.7-	1999 11 17	704	0.6+	0.0
1998 09 26	704	0.6-	0.9+	1998 11 10	704	1.8+	0.1-				

(12783)* 1995 GV = 1971 HE

Discovered 1995 Apr. 7 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 32239)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	70.64629		(2000.0)	P	Q		
n	0.28735224	ω	52.61331	-0.41664993	+0.90898214		
a	2.2743624	Ω	192.78090	-0.85079427	-0.39471908		
e	0.1105012	i	3.21887	-0.32023733	-0.13397132		
P	3.43	H	14.2	G	0.15	U	1

Residuals in seconds of arc

1971 04 20	095	0.4-	1.8-	1995 07 04	817	1.0+	0.6-	1999 09 09	704	0.0	0.2-
1995 04 07	411	1.1-	0.3+	1995 07 04	817	0.9+	0.1-	1999 09 09	704	0.2-	0.1-
1995 04 07	411	0.5-	1.2+	1995 07 04	817	0.6+	0.4-	1999 09 09	704	0.5+	0.2+
1995 04 10	411	0.6-	0.1-	1998 04 20	688	0.1+	0.3-	1999 09 09	704	0.6+	0.2+
1995 04 10	411	0.2+	0.8-	1998 04 20	688	0.1-	0.4-	1999 09 09	704	0.6+	0.4+
1995 04 10	411	0.3-	0.1+	1998 04 20	688	0.3+	0.4-	1999 09 09	704	0.2+	1.1+
1995 04 12	411	0.6-	0.5-	1999 08 09	106	0.9-	0.1+	1999 09 13	704	0.4+	0.9-
1995 04 12	411	0.2+	0.1+	1999 08 09	106	0.0	0.2+	1999 09 13	704	0.3+	0.0
1995 04 12	411	0.3+	0.5-	1999 08 09	106	0.7-	0.2+	1999 09 13	704	0.4+	0.1+
1995 04 19	411	0.1+	0.0	1999 09 05	699	0.7-	0.5+	1999 09 13	704	0.6+	0.1-
1995 04 19	411	1.4-	1.6+	1999 09 05	699	0.4-	0.6+	1999 09 13	704	0.2-	0.3-
1995 04 24	033	0.4+	0.7+	1999 09 05	699	0.6-	0.6+	1999 09 30	704	(2.3+	0.4-)
1995 04 24	033	0.9-	0.8+	1999 09 07	704	0.1+	0.3-	1999 09 30	704	0.1+	0.1-
1995 04 26	411	1.1-	0.0	1999 09 07	704	0.3+	0.1-	1999 09 30	704	1.4+	1.1-
1995 04 26	411	0.8+	0.4+	1999 09 07	704	0.0	0.5-	1999 09 30	704	0.4-	1.9-
1995 04 27	399	(2.6-	1.2-)	1999 09 07	704	0.0	0.1+	1999 10 16	704	0.5-	0.5+
1995 04 27	399	1.6-	0.7-	1999 09 07	704	0.3+	0.1+	1999 10 16	704	0.7+	0.9+
1995 05 05	010	(1.6+	2.2-)	1999 09 08	704	0.4-	0.2-	1999 10 16	704	0.7-	0.7-
1995 05 05	010	0.2+	0.3-	1999 09 08	704	0.3-	0.2+	1999 10 16	704	1.0+	0.2-
1995 05 05	010	0.5+	0.6-	1999 09 08	704	0.3-	0.6-	1999 12 09	703	(0.6-	4.9+)
1995 05 08	010	1.4+	0.1-	1999 09 08	704	0.2-	0.2+	1999 12 09	703	0.4-	0.7-
1995 05 08	010	(1.0+	2.0+)	1999 09 09	704	0.2+	0.0	1999 12 09	703	1.2-	1.4+
1995 05 08	010	(3.1+	0.4+)	1999 09 09	704	0.1+	0.2+	1999 12 09	703	(2.5-	1.1+)
1995 06 18	817	1.1+	0.5+	1999 09 09	704	0.1+	0.3-				
1995 06 18	817	1.1+	0.4+	1999 09 09	704	0.2+	0.2-				

(12784)* 1995 QE₃ = 1998 KK₁₃

Discovered 1995 Aug. 31 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 31968)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

$\dot{M}$	38.15073		(2000.0)	P	Q
n	0.26946554	ω	11.61602	+0.91082955	+0.41239631
a	2.3739263	Ω	324.01180	-0.38111281	+0.82354477
e	0.2298964	i	1.74126	-0.15856404	+0.38949108
P	3.66	H	14.6	G 0.15	U 1

Residuals in seconds of arc

1995 08 31	411	0.8+	0.1-	1995 11 18	801	0.1-	0.0	1998 05 24	704	(1.5+	2.0-)
1995 08 31	411	0.4+	0.5+	1995 11 22	801	0.4+	0.3-	1998 05 24	704	0.4-	0.6-
1995 09 01	411	0.9-	1.0-	1995 11 22	801	0.4+	0.1+	1998 05 24	704	0.6+	1.7-
1995 09 01	411	0.0	1.2-	1995 12 17	327	0.5-	0.3+	1999 11 03	704	0.6+	0.0
1995 09 01	411	0.5-	0.6-	1995 12 17	327	0.2+	0.1-	1999 11 03	704	0.4+	0.1+
1995 09 06	557	0.2-	0.2-	1995 12 17	327	0.2+	0.2+	1999 11 03	704	1.1+	0.4-
1995 09 06	557	0.3-	0.1-	1995 12 18	327	0.4-	0.8+	1999 11 03	704	0.2+	0.1+
1995 09 06	557	0.1+	0.4-	1995 12 18	327	0.0	0.6+	1999 11 14	704	0.0	0.5-
1995 09 06	557	0.2+	0.4-	1995 12 18	327	0.1+	0.4+	1999 11 14	704	0.2-	0.4-
1995 09 06	557	0.1-	0.3-	1997 02 07	566	0.2-	0.0	1999 11 14	704	0.1-	0.5-
1995 09 12	557	0.1+	0.4+	1997 02 07	566	0.2-	0.0	1999 11 14	704	0.6+	1.1-
1995 09 12	557	0.2+	0.1+	1997 02 07	566	0.5+	0.3-	1999 11 14	704	0.5-	0.9-
1995 09 12	557	0.4+	0.0	1998 04 22	704	0.3-	0.1-	1999 11 16	704	0.2+	0.5-
1995 09 17	557	1.8+	0.9+	1998 04 22	704	0.3+	0.0	1999 11 16	704	0.6+	0.1-
1995 09 17	557	1.7+	0.9+	1998 04 22	704	0.3-	0.6+	1999 11 16	704	0.2-	0.5-
1995 09 17	411	1.4-	1.0+	1998 04 22	704	(3.4-	0.2-)	1999 11 16	704	0.5-	0.1-
1995 09 17	411	1.5-	0.6-	1998 04 25	699	0.1+	0.3-	1999 11 16	704	0.1-	0.2-
1995 09 21	411	0.0	0.8-	1998 04 25	699	0.1+	0.6+	1999 11 27	596	0.5-	0.8-
1995 09 21	411	0.3+	0.0	1998 04 25	699	0.1-	0.4+	1999 11 27	596	0.7-	0.8-
1995 09 28	411	0.9+	0.3+	1998 05 01	704	0.1-	0.7+	1999 11 27	596	0.3-	0.9-
1995 09 28	411	0.3+	0.2+	1998 05 01	704	0.0	0.1-	1999 11 29	560	0.1-	0.0
1995 09 28	411	0.0	0.2-	1998 05 01	704	0.2+	0.8-	1999 11 29	560	0.1-	0.2+
1995 10 13	411	0.5-	0.8-	1998 05 01	704	0.7-	0.8-	1999 11 29	560	0.1+	0.2+
1995 10 13	411	1.1-	0.2-	1998 05 22	704	0.9-	0.1-	1999 12 07	704	0.1+	0.1-
1995 10 13	411	0.5+	0.1+	1998 05 22	704	1.5+	0.5-	1999 12 07	704	0.1-	0.5-
1995 10 24	801	0.2-	0.2-	1998 05 22	704	0.0	0.0	1999 12 07	704	0.2+	0.1+
1995 10 24	801	0.2-	0.1-	1998 05 22	704	0.8-	0.8-	1999 12 07	704	0.0	0.2+
1995 10 27	801	0.3-	0.3-	1998 05 22	704	0.2-	1.8-	1999 12 07	704	0.2+	0.2+
1995 10 27	801	0.1-	0.5-	1998 05 24	704	0.4+	0.8-				
1995 11 18	801	0.4-	0.2+	1998 05 24	704	1.9-	1.4-				

(12785)* 1995 ST = 1997 AR₁₈

Discovered 1995 Sept. 19 by S. P. Laurie at Church Stretton.

Id. G. V. Williams (*MPC* 28857)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	159.57173		(2000.0)	P	Q
n	0.28358002	ω	261.52826	-0.48138410	+0.87537370
a	2.2944872	Ω	339.51117	-0.74567616	-0.43575023
e	0.0807591	i	7.32248	-0.46069124	-0.20938629
P	3.48	H	14.0	G 0.15	U 1

Residuals in seconds of arc

1995 08 22	691	0.1+	0.4+	1995 10 28	966	2.0-	0.8-	1998 08 17	704	0.1-	0.7-
1995 08 22	691	0.3+	0.2+	1997 01 13	966	0.1-	0.1+	1998 08 17	704	0.1+	1.7+
1995 08 22	691	0.2+	0.2+	1997 01 13	966	0.6-	1.2+	1998 08 17	704	0.5-	0.6-
1995 08 28	691	0.0	0.3+	1997 01 14	966	0.3+	0.4+	1999 10 14	704	0.7+	0.7-
1995 08 28	691	0.1-	0.3+	1997 01 15	966	0.2-	0.1+	1999 10 14	704	0.0	0.8-
1995 09 19	966	0.3-	0.4+	1997 01 15	966	0.3+	0.4+	1999 10 14	704	0.0	0.9-
1995 09 20	966	0.4+	0.3+	1997 02 03	966	1.7+	0.3+	1999 10 14	704	0.4+	1.3-
1995 09 20	966	0.1-	0.2+	1997 02 03	966	1.4+	0.5-	1999 10 14	704	0.3+	1.6-
1995 09 20	966	0.3+	0.2+	1997 03 09	966	0.0	0.5+	1999 12 07	703	0.4-	0.5+
1995 09 20	966	0.1-	0.3+	1997 03 10	966	0.2-	0.1-	1999 12 07	703	0.6-	0.8+
1995 09 24	966	0.3-	0.3+	1997 03 30	966	1.0-	0.2-	1999 12 07	703	1.0-	0.5-
1995 09 25	966	0.0	0.7+	1997 03 30	966	0.9-	0.5+	1999 12 07	703	0.6-	0.5+
1995 09 28	966	0.5-	0.2-	1997 03 30	966	0.0	0.3-	1999 12 12	704	1.2-	0.4-
1995 09 28	966	0.8+	0.2+	1998 08 17	704	0.7+	1.0+	1999 12 12	704	1.2+	0.2+
1995 10 27	966	0.3-	0.3-	1998 08 17	704	0.3-	1.0-	1999 12 12	704	1.6+	0.6+

1999 DEC. 22

M.P.C. 37061

(12786)* 1995 SU = 1983 CO₅ = 1991 PM₂₇ = 1997 AS₁₈

Discovered 1995 Sept. 19 by S. P. Laurie at Church Stretton.

Id. G. V. Williams (*MPC* 28857)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	162.84304	(2000.0)	P		Q	
<i>n</i>	0.27886722	ω	273.95005	−0.60937966	+0.79071461	
<i>a</i>	2.3202658	Ω	318.31894	−0.68804213	−0.56405335	
<i>e</i>	0.0834493	<i>i</i>	5.05035	−0.39402342	−0.23793746	
<i>P</i>	3.53	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1983 02 14	381	1.5+	0.7+	1997 01 14	966	1.4−	0.4+	1997 03 30	966	0.1+	0.2+
1991 08 05	809	(0.9+ 2.5−)		1997 01 14	966	0.1−	0.1+	1998 06 26	704	0.5−	0.6−
1991 08 05	809	(0.6− 2.7−)		1997 01 30	098	1.0−	0.8−	1998 06 26	704	0.8+	1.3+
1991 08 05	809	0.0	1.9−	1997 01 30	098	1.7−	0.2+	1998 06 26	704	0.5+	0.3+
1995 09 19	966	0.5−	0.0	1997 01 31	098	0.5−	0.6+	1998 06 26	704	0.7+	0.5−
1995 09 20	966	0.4+	0.0	1997 01 31	098	0.9+	1.0+	1998 07 03	699	0.3−	0.7+
1995 09 20	966	0.6−	0.1−	1997 02 02	966	1.3+	1.4−	1998 07 03	699	0.1+	0.4+
1995 09 21	966	0.1+	0.6−	1997 02 03	966	0.3+	0.4−	1998 07 03	699	0.5−	0.5+
1995 09 24	966	0.0	1.0−	1997 02 07	691	0.7−	0.1+	1999 10 14	704	0.6+	0.0
1995 09 25	966	1.2+	0.8+	1997 02 07	691	0.8−	0.3−	1999 10 14	704	0.1+	0.8−
1995 09 25	966	0.3−	0.3−	1997 02 07	691	0.8−	0.3−	1999 10 14	704	0.1+	0.5−
1995 09 27	966	(2.1− 1.2+)		1997 02 13	966	0.0	0.3−	1999 10 14	704	0.4+	0.6+
1995 09 28	966	(2.5− 0.7+)		1997 02 14	966	0.7−	0.2−	1999 10 14	704	0.2+	0.9+
1995 09 28	966	1.0−	0.4+	1997 02 14	691	0.4−	0.4−	1999 12 07	703	0.3+	0.7+
1995 10 27	966	0.5−	0.8−	1997 02 14	691	0.6−	0.4−	1999 12 07	703	0.3+	0.6+
1995 10 27	966	0.3−	0.8−	1997 02 14	691	0.6−	0.4−	1999 12 07	703	0.5+	0.8+
1997 01 13	966	0.3+	0.2+	1997 03 05	966	0.5+	0.4+	1999 12 07	703	0.4+	0.8+
1997 01 14	966	1.3+	0.6−	1997 03 06	966	0.3−	0.8−				
1997 01 14	966	1.0+	0.2+	1997 03 30	966	0.6+	1.0+				

(12787)* 1995 SR₃ = 1944 QH = 1978 QM₂ = 1997 AU₂₂

Discovered 1995 Sept. 20 by K. Endate and K. Watanabe at Kitami.

Id. G. V. Williams (*MPC* 29109)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	62.82199	(2000.0)	P		Q	
<i>n</i>	0.29073584	ω	17.07521	+0.96914735	+0.23996989	
<i>a</i>	2.2566818	Ω	328.86660	−0.23694785	+0.84414863	
<i>e</i>	0.1781213	<i>i</i>	6.24957	−0.06789059	+0.47940333	
<i>P</i>	3.39	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1944 08 18	078	(68.6− 30.3+)	X	1997 02 07	327	1.0−	0.3−	1999 10 13	704	0.0	0.6−
1978 08 31	095	(2.5− 3.2+)		1997 02 07	327	0.4−	0.3−	1999 10 13	704	0.5−	0.1−
1978 09 05	095	0.5+	0.9+	1997 02 07	327	1.2−	0.5−	1999 10 13	704	0.1−	0.2+
1995 09 20	400	0.3+	0.4−	1997 02 14	327	1.0+	0.3+	1999 11 05	699	0.1−	0.4−
1995 09 20	400	0.6+	0.3−	1997 02 14	327	0.0	0.2+	1999 11 05	699	0.1−	1.7−
1995 09 21	400	0.3−	0.3+	1997 02 14	327	0.0	0.2+	1999 11 05	699	0.9−	0.3−
1995 09 21	400	0.1−	0.1+	1997 02 18	327	1.1+	0.8−	1999 11 12	703	0.3−	0.7+
1995 09 30	400	0.4+	0.4+	1997 02 18	327	0.1−	0.7−	1999 11 12	703	0.1+	0.1−
1995 09 30	400	0.6−	0.7−	1997 02 18	327	0.8+	0.5−	1999 11 12	703	0.2+	0.4−
1997 01 11	327	0.6−	0.4−	1999 09 18	703	0.8−	0.9+	1999 11 12	703	0.5+	0.3+
1997 01 11	327	0.8−	0.1−	1999 09 18	703	0.2−	0.1−	1999 12 03	699	0.8+	0.4+
1997 01 11	327	1.0−	0.3−	1999 09 18	703	0.1+	0.8+	1999 12 03	699	0.7+	0.7+
1997 01 18	327	0.2+	0.6+	1999 09 18	703	0.9+	0.5+	1999 12 03	699	0.3−	0.5+
1997 01 18	327	0.1+	0.2+	1999 10 13	704	0.3+	0.1+				
1997 01 18	327	0.1+	0.0	1999 10 13	704	0.0	0.1+				

(12788)* 1995 SZ₃ = 1959 TE = 1977 RS₄ = 1977 TE₄

Discovered 1995 Sept. 22 by T. Okuni at Nanyo.

Id. S. Nakano (*MPC* 26177)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	26.61561	(2000.0)	P		Q	
<i>n</i>	0.27420786	ω	170.13736	+0.97479795	−0.21927473	
<i>a</i>	2.3464760	Ω	202.65621	+0.19672722	+0.93174186	
<i>e</i>	0.2399742	<i>i</i>	6.12197	+0.10520155	+0.28944031	
<i>P</i>	3.59	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1959 10 01	024	0.4−	2.1−	1995 10 24	033	0.5−	0.7+	1998 06 24	704	0.3−	1.1+
1977 09 09	095	0.7+	0.4+	1995 10 24	033	1.0−	0.5+	1999 10 10	704	0.1+	0.0
1977 10 06	095	1.0+	1.3+	1995 10 25	033	0.1−	0.4+	1999 10 10	704	0.6−	0.1+
1995 09 22	358	2.0+	0.4−	1995 10 27	399	0.3−	0.8+	1999 10 10	704	0.1+	0.7+
1995 09 22	358	1.3+	0.9−	1995 10 27	399	0.8−	0.0	1999 10 10	704	0.5+	0.2+
1995 09 26	358	0.8−	0.1+	1997 05 08	688	0.2+	0.0	1999 10 10	704	0.2−	0.8+
1995 09 26	358	0.5+	0.1+	1997 05 08	688	0.1−	0.5+	1999 10 21	704	0.3+	1.2+
1995 10 01	691	0.1−	0.7+	1997 05 08	688	0.8+	0.0	1999 10 21	704	0.5+	0.8+
1995 10 01	691	0.5−	0.5+	1997 05 08	688	0.6+	0.3+	1999 10 21	704	0.0	0.8+
1995 10 01	691	0.2−	0.5+	1998 05 24	704	0.5+	1.2+	1999 10 21	704	0.2−	1.0+
1995 10 03	358	0.1+	1.2−	1998 05 24	704	0.2+	1.2+	1999 10 21	704	0.1−	0.7+
1995 10 03	358	0.5−	1.2+	1998 05 24	704	0.9−	0.9+	1999 12 06	704	0.7+	0.1+
1995 10 20	010	(2.0− 2.5−)		1998 05 24	704	1.7+	0.6−	1999 12 06	704	0.5−	0.1+
1995 10 20	010	(1.8− 3.1−)		1998 06 24	704	0.9−	0.2+	1999 12 06	704	0.9+	0.4+
1995 10 20	010	(1.5− 3.7−)		1998 06 24	704	0.5−	0.2−	1999 12 06	704	0.0	0.0
1995 10 21	399	0.8−	1.0−	1998 06 24	704	0.1−	1.4+	1999 12 06	704	1.2−	0.9−
1995 10 21	399	0.3+	0.0	1998 06 24	704	0.2−	0.6+				

(12789)* 1995 TX

Discovered 1995 Oct. 14 by C. W. Hergenrother at Kitt Peak.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	209.54764	(2000.0)	P		Q	
<i>n</i>	0.27933211	ω	263.93502	−0.81006122	+0.48821434	
<i>a</i>	2.3176907	Ω	304.82485	−0.24247098	−0.78316464	
<i>e</i>	0.1581368	<i>i</i>	23.30175	−0.53386202	−0.38509727	
<i>P</i>	3.53	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1995 10 14	695	0.7+	0.7−	1997 02 01	696	0.2−	0.3−	1998 08 27	704	1.2+	0.4−
1995 10 14	695	0.6+	0.5−	1997 02 01	696	0.2−	0.2−	1998 08 27	704	0.1+	1.8+
1995 10 15	695	0.7+	0.1−	1997 02 01	696	0.1−	0.2−	1998 09 19	699	0.9+	0.2+
1995 10 15	695	0.6+	0.3−	1998 06 29	704	0.3+	1.3+	1998 09 19	699	1.0+	0.2−
1995 10 16	695	0.1−	0.5+	1998 06 29	704	(1.2+ 2.1+)		1998 09 19	699	0.2+	0.6+
1995 10 16	695	0.1−	0.1+	1998 06 29	704	0.1+	0.3−	1999 09 28	704	0.2+	0.7+
1995 10 28	658	1.1−	0.2+	1998 06 29	704	0.4−	0.2−	1999 09 28	704	1.3+	0.5+
1995 10 28	658	1.1−	0.3+	1998 06 29	704	0.5−	0.8+	1999 09 28	704	0.1+	0.2+
1995 10 28	658	1.1−	0.3+	1998 07 26	683	0.4−	0.9−	1999 09 28	704	0.4+	0.2+
1995 12 23	693	0.4+	0.3+	1998 07 26	683	0.6+	1.2−	1999 09 28	704	0.0	0.6+
1995 12 23	693	0.4+	0.3+	1998 07 26	683	0.1+	0.9−	1999 10 31	704	0.0	0.1−
1995 12 23	693	0.5+	0.3+	1998 07 27	683	0.3−	0.3−	1999 10 31	704	0.3−	0.2+
1996 02 02	658	0.0	0.5+	1998 07 27	683	0.2−	0.3−	1999 10 31	704	0.3−	0.4−
1996 02 02	658	0.1−	0.5+	1998 07 27	683	0.3−	0.2−	1999 10 31	704	0.4−	0.3−
1996 02 02	658	0.8−	0.0	1998 08 24	704	0.3−	0.8−	1999 10 31	704	0.9−	0.1+
1996 02 03	658	0.9−	0.6+	1998 08 24	704	0.7−	0.0	1999 12 04	652	0.7−	0.2−
1996 02 03	658	0.1−	0.5+	1998 08 24	704	0.5−	0.5+	1999 12 04	652	0.1+	1.1−
1996 02 03	658	0.3−	0.6+	1998 08 24	704	0.6−	0.2−	1999 12 04	652	0.5+	0.3−
1996 12 16	696	0.2−	0.2−	1998 08 24	704	0.4−	0.2−	1999 12 04	652	0.2−	0.9−
1996 12 16	696	0.1−	0.2−	1998 08 27	704	0.5+	0.8−	1999 12 04	652	0.6+	0.1−
1996 12 16	696	0.2−	0.2−	1998 08 27	704	1.3+	0.1−	1999 12 04	652	0.2−	0.4−

(12790)* 1995 UT₂ = 1979 HL₆ = 1997 EW₃₃

Discovered 1995 Oct. 24 at Kleť.

Id. A. Doppler (*MPC* 34512)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	152.69154		(2000.0)	P	Q
<i>n</i>	0.26546180	ω	139.72123	-0.49966510	+0.86300909
<i>a</i>	2.3977360	Ω	100.18011	-0.81293596	-0.43749381
<i>e</i>	0.0810116	<i>i</i>	4.34090	-0.29911523	-0.25261528
<i>P</i>	3.71	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1979 04 30	095	0.5+	1.9+	1998 07 16	699	0.7+	1.3+	1999 11 17	704	0.1+	0.1+
1995 10 20	691	0.1-	0.2+	1998 07 16	699	1.3-	1.3+	1999 11 17	704	0.4+	1.4-
1995 10 20	691	0.1-	0.2+	1999 10 19	046	0.1-	1.2+	1999 11 17	704	1.7+	0.1-
1995 10 20	691	0.1-	0.2+	1999 10 19	046	0.1-	0.0	1999 11 17	704	0.0	0.9-
1995 10 24	046	1.1+	0.2+	1999 10 19	046	0.5+	0.1-	1999 11 17	704	0.0	0.2-
1995 10 24	046	0.9+	0.5-	1999 10 19	046	0.4+	0.7+	1999 11 29	046	0.0	0.4+
1995 10 24	046	1.0+	0.1+	1999 11 01	046	0.6-	0.3+	1999 11 29	046	0.3-	0.3+
1995 10 24	046	1.3+	0.4+	1999 11 01	046	0.3-	0.6+	1999 11 29	046	0.3-	0.0
1995 10 25	046	0.7-	0.8-	1999 11 01	046	0.2-	0.5+	1999 11 30	046	0.2-	0.2+
1995 10 25	046	0.8-	0.2-	1999 11 01	046	0.3-	0.7+	1999 11 30	046	0.1-	0.4+
1995 10 25	046	0.9-	0.2-	1999 11 04	704	0.3-	0.2-	1999 11 30	046	0.2-	0.3+
1995 10 25	046	0.7-	0.1-	1999 11 04	704	1.0+	1.2+	1999 12 04	703	0.9-	0.3-
1995 10 25	046	0.7-	0.5-	1999 11 04	704	0.5+	0.5+	1999 12 04	703	0.7-	0.4+
1995 10 26	046	0.2-	0.2+	1999 11 04	704	0.4+	0.9+	1999 12 04	703	0.7-	0.6+
1995 10 26	046	0.3+	0.1+	1999 11 15	704	0.3-	0.4-	1999 12 04	703	1.1-	0.9+
1995 10 26	046	0.4+	0.8+	1999 11 15	704	0.5+	0.0	1999 12 05	703	0.1+	0.2+
1997 03 04	704	0.1-	0.5-	1999 11 15	704	0.1-	0.4-	1999 12 05	703	0.4-	0.6+
1997 03 04	704	0.5-	0.2-	1999 11 15	704	0.1+	0.7-	1999 12 05	703	0.3-	0.5+
1997 03 05	704	0.8+	0.3-	1999 11 15	704	0.3-	0.5-	1999 12 05	703	0.6-	0.6-
1997 03 05	704	0.1+	1.0+	1999 11 15	704	0.2+	0.1-	1999 12 07	704	0.3+	0.5-
1998 07 01	809	0.2-	0.9-	1999 11 15	704	0.4-	0.1-	1999 12 07	704	0.1-	0.2-
1998 07 01	809	0.2+	1.0-	1999 11 15	704	0.3+	0.2-	1999 12 07	704	0.0	0.9-
1998 07 01	809	0.2-	0.8-	1999 11 15	704	0.2+	0.1-	1999 12 07	704	0.2+	0.6-
1998 07 16	699	0.7+	0.5+	1999 11 15	704	0.6+	1.0-				

(12791)* 1995 UN₄ = 1987 SG₂₁

Discovered 1995 Oct. 20 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 26180)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	47.01282		(2000.0)	P	Q
<i>n</i>	0.25353143	ω	95.42164	+0.90242188	+0.42308199
<i>a</i>	2.4723778	Ω	239.57208	-0.42317916	+0.83483304
<i>e</i>	0.1668043	<i>i</i>	5.42119	-0.08095766	+0.35221503
<i>P</i>	3.89	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1987 09 18	095	1.1-	1.1-	1998 06 16	104	0.6-	0.1-	1999 11 12	704	0.1+	0.1-
1987 09 26	095	1.2+	1.2-	1998 06 24	704	0.4-	0.0	1999 11 12	704	0.1+	0.0
1995 10 20	411	0.3+	1.2+	1998 06 24	704	0.2+	0.5-	1999 11 12	704	0.4+	0.1+
1995 10 20	411	0.9-	0.0	1998 06 24	704	0.3-	0.4-	1999 11 17	704	0.1+	0.3+
1995 10 25	411	0.3+	1.5+	1998 06 24	704	0.0	0.0	1999 11 17	704	0.4-	0.2-
1995 10 25	411	1.1+	1.2+	1998 06 24	704	0.1+	0.2-	1999 11 17	704	0.2-	0.1+
1995 11 02	411	0.9+	1.0+	1998 06 26	704	0.4-	0.2+	1999 11 17	704	0.6-	0.2-
1995 11 02	411	1.2+	0.0	1998 06 26	704	0.5+	0.2+	1999 11 17	704	0.1+	0.4-
1995 11 20	691	0.3-	0.2+	1998 06 26	704	0.4+	0.3+	1999 11 26	120	0.2-	0.9-
1995 11 20	691	0.5-	0.6+	1998 06 26	704	0.5+	0.4+	1999 11 26	120	0.1+	0.4-
1995 11 20	691	0.3-	0.1-	1998 06 26	704	0.4-	0.1+	1999 11 28	120	1.9+	1.0+
1995 12 18	691	0.0	1.4+	1999 11 03	704	0.2-	0.2+	1999 11 28	120	1.5+	0.7+
1995 12 18	691	0.3-	0.0	1999 11 03	704	0.5-	0.3+	1999 12 07	704	0.0	0.1-
1995 12 18	691	0.4-	0.2-	1999 11 03	704	0.6-	0.5-	1999 12 07	704	0.3+	0.1-
1996 01 13	691	0.1+	0.4-	1999 11 03	704	0.1+	0.7-	1999 12 07	704	0.7+	0.7-
1996 01 13	691	0.2-	0.1+	1999 11 09	704	0.4-	0.0	1999 12 07	704	0.1-	0.7-
1996 01 13	691	0.1+	0.2+	1999 11 09	704	0.5-	0.1-	1999 12 07	704	0.0	0.6-
1998 05 22	704	0.5-	0.0	1999 11 09	704	0.5-	0.1+	1999 12 08	704	0.3-	0.1+
1998 05 22	704	0.7+	0.4+	1999 11 09	704	0.7-	0.0	1999 12 08	704	0.1+	0.3-
1998 05 22	704	(2.5-	0.3+)	1999 11 09	704	1.0-	0.0	1999 12 08	704	0.0	0.2-
1998 05 22	704	0.9+	0.1+	1999 11 12	704	0.4-	0.1-	1999 12 08	704	0.0	0.4-
1998 06 16	104	0.6-	0.1-	1999 11 12	704	0.2-	0.2-	1999 12 08	704	0.0	0.3-

(12792)* 1995 UL₆ = 1972 RD₄ = 1976 SQ₅ = 1991 RX₉ = 3160 T-1

Discovered 1995 Oct. 27 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 26181), S. Nakano (*ibid.*), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	50.78668		(2000.0)	P	Q
<i>n</i>	0.26090595	ω	353.99849	+0.90053408	+0.43458845
<i>a</i>	2.4255676	Ω	340.22638	-0.39728181	+0.81025443
<i>e</i>	0.1893066	<i>i</i>	2.21687	-0.17665088	+0.39321831
<i>P</i>	3.78	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1971 03 25	675	0.7+	1.5-	1995 11 02	411	0.0	0.1-	1999 11 03	704	0.9+	0.2+
1971 03 26	675	0.6-	0.3-	1995 11 02	411	0.1+	0.1-	1999 11 14	704	0.2-	0.5-
1971 03 26	675	0.1-	1.9-	1995 11 11	411	0.5-	0.4+	1999 11 14	704	0.5-	0.2-
1971 03 27	675	0.7+	0.7-	1995 11 11	411	0.5-	0.0	1999 11 14	704	0.6-	0.4+
1971 04 02	675	(2.5-	2.0-)	1997 02 03	691	0.8-	0.1-	1999 11 14	704	0.8-	0.4-
1972 09 04	095	1.1-	0.8-	1997 02 03	691	0.2-	0.1-	1999 11 14	704	0.1-	0.1+
1976 09 24	095	0.0	0.4+	1997 02 07	691	0.4-	0.1+	1999 12 05	703	1.5-	1.3+
1991 09 10	675	0.3-	1.4-	1997 02 07	691	0.9-	0.1-	1999 12 05	703	0.2-	0.7+
1991 09 10	675	0.3+	0.4-	1997 02 07	691	0.7-	0.2+	1999 12 05	703	0.2-	0.3+
1991 09 17	675	0.9+	1.4-	1998 05 24	704	0.7-	1.2+	1999 12 05	703	0.3-	0.8+
1991 09 17	675	1.6+	0.4+	1998 05 24	704	0.4-	1.0-	1999 12 07	704	0.5+	1.0-
1995 10 27	411	0.4+	0.3+	1998 05 24	704	0.9+	0.6-	1999 12 07	704	0.6+	0.7-
1995 10 27	411	0.4+	0.1+	1999 11 03	704	0.5+	0.2-	1999 12 07	704	0.7+	0.4-
1995 10 29	411	1.3+	0.2-	1999 11 03	704	0.1-	0.3+	1999 12 07	704	0.8+	0.6-
1995 10 29	411	0.7-	0.6-	1999 11 03	704	0.1+	0.3-	1999 12 07	704	0.5+	0.0

(12793)* 1995 UP₈ = 1988 TL₂ = 1997 BJ₉

Discovered 1995 Oct. 30 by T. Okuni at Nanyo.

Id. S. Nakano (*MPC* 29304; unpublished), G. V. Williams (*MPC* 29304; unpublished)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	141.92136		(2000.0)	P	Q
<i>n</i>	0.29011966	ω	290.89963	+0.27781407	+0.96062241
<i>a</i>	2.2598760	Ω	355.22215	-0.85810272	+0.24586967
<i>e</i>	0.1391594	<i>i</i>	3.36684	-0.43183223	+0.12943218
<i>P</i>	3.40	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1988 10 04	046	(3.1-	3.1-)	1997 03 08	098	0.8-	0.1-	1998 09 18	704	0.7-	1.4-
1988 10 04	046	1.4+	1.3-	1997 03 10	098	(4.1-	1.1-)	1998 09 18	704	0.1+	1.2-
1995 10 25	033	0.2+	0.1+	1997 03 11	098	1.6-	0.9+	1998 09 18	704	0.5+	1.2-
1995 10 25	033	0.3-	0.2-	1997 03 13	098	(3.3-	5.0-)	1998 09 18	704	1.6+	0.4-
1995 10 30	358	0.4-	0.6-	1997 03 13	098	0.5+	0.6-	1998 09 19	691	0.0	0.1-
1995 10 30	358	1.2-	0.9-	1998 08 17	704	0.2-	0.2+	1998 09 19	691	0.1+	0.1-
1995 11 01	358	(2.6+	0.4+)	1998 08 17	704	0.5+	0.1+	1998 09 19	691	0.1-	0.2-
1995 11 01	358	0.6+	1.4+	1998 08 17	704	0.3-	0.7+	1998 09 25	704	0.2+	1.0-
1995 11 03	358	0.3-	1.4+	1998 08 17	704	0.4+	0.8+	1998 09 25	704	0.4-	0.6-
1995 11 03	358	(2.3+	0.1+)	1998 08 17	704	0.4-	0.7+	1998 09 25	691	0.1-	0.1+
1995 11 12	358	1.0-	1.7-	1998 08 23	704	0.5-	0.3-	1998 09 25	704	0.2-	1.2-
1995 11 12	358	(1.3+	3.1+)	1998 08 23	704	1.4-	0.1-	1998 09 25	691	0.2-	0.2+
1995 11 21	358	(2.9+	2.2+)	1998 08 23	704	1.3-	0.4-	1998 09 25	704	0.4+	0.2-
1995 11 21	358	0.7+	0.2+	1998 08 23	704	1.3-	0.6-	1998 09 25	691	0.2-	0.0
1997 01 31	098	1.1-	0.4-	1998 08 23	704	1.9-	0.1-	1998 09 25	704	0.0	0.6-
1997 01 31	098	1.8+	2.1-	1998 08 30	699	1.6+	0.7+	1998 09 27	704	0.1-	0.1-
1997 02 07	098	(1.5-	2.5-)	1998 08 30	699	2.1+	0.8+	1998 09 27	704	0.2-	0.3+
1997 02 07	098	1.4-	1.1-	1998 08 30	699	1.7+	0.0	1998 09 27	704	0.8-	0.2-
1997 02 08	098	1.0-	0.2+	1998 09 13	691	0.9-	0.1+	1998 09 27	704	0.6-	1.3+
1997 02 08	098	0.3-	0.7-	1998 09 13	691	0.8-	0.2+	1998 09 27	704	0.4-	0.7+
1997 02 10	691	0.5+	0.7-	1998 09 13	691	0.8-	0.1+	1999 10 13	704	0.1-	0.3-
1997 02 10	691	0.2+	0.0	1998 09 14	704	0.9+	0.1+	1999 10 13	704	0.3-	1.2-
1997 02 10	691	0.5+	0.2-	1998 09 14	704	0.1+	0.3-	1999 10 13	704	0.6+	0.2-
1997 03 01	358	2.0-	0.0	1998 09 14	704	2.0+	1.7+	1999 12 03	699	1.1+	0.8+
1997 03 01	358	0.4+	0.7-	1998 09 14	704	1.6+	0.5-	1999 12 03	699	0.2-	0.4+
1997 03 03	358	1.0+	0.1+	1998 09 14	704	0.3+	0.9-	1999 12 03	699	0.7+	0.4+

1999 DEC. 22

M.P.C. 37063

1997 03 03	358	(4.0+ 1.0-)	1998 09 14	699	0.3+ 0.2+	1999 12 08	703	1.0+ 0.1-
1997 03 03	098	(6.6- 0.8-)	1998 09 14	699	0.3+ 0.3+	1999 12 08	703	0.5+ 1.5+
1997 03 03	098	0.7- 0.6-	1998 09 14	699	0.2+ 0.1-	1999 12 08	703	0.2- 0.4+
1997 03 07	098	0.1- 0.8-	1998 09 18	704	0.2+ 0.8-	1999 12 08	703	0.0 1.1+

(12794)* 1995 VL = 1978 VD₁₁

Discovered 1995 Nov. 2 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 26183)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	5.64292		(2000.0)		P		Q	
<i>n</i>	0.23004381	ω	285.00308		+0.94838725		+0.25381219	
<i>a</i>	2.6379244	Ω	60.61536		-0.13357929		+0.86345718	
<i>e</i>	0.1721804	<i>i</i>	12.60200		-0.28760771		+0.43591406	
<i>P</i>	4.28	<i>H</i>	14.2		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 11 05	675	1.2- 0.8+	1998 04 20	688	0.0 0.0	1999 09 30	704	0.1+ 0.7-
1978 11 06	675	1.2+ 1.2+	1998 04 22	704	0.3- 0.2+	1999 09 30	704	0.3- 0.1+
1978 11 07	675	0.5+ 0.6+	1998 04 22	704	1.3- 0.6+	1999 09 30	704	0.2- 0.7-
1978 11 08	675	1.7- 0.7+	1998 04 22	704	0.9+ 1.6-	1999 09 30	704	0.5- 0.4+
1995 10 28	327	0.2+ 0.4+	1998 04 22	704	1.1- 1.9-	1999 09 30	704	0.1- 0.1-
1995 10 28	327	0.3+ 0.2+	1998 04 22	704	(6.5- 2.0-)	1999 10 05	699	0.5+ 1.0+
1995 10 28	327	0.3+ 0.1-	1998 05 01	704	0.1- 0.6+	1999 10 05	699	0.1+ 0.6+
1995 11 02	411	0.2+ 0.4-	1998 05 01	704	0.5+ 0.3-	1999 10 05	699	0.3+ 0.0
1995 11 02	411	0.5- 0.7-	1998 05 01	704	0.5- 0.2+	1999 10 16	704	0.1- 0.2+
1995 11 04	411	0.9- 0.2+	1998 05 01	704	0.7+ 0.3+	1999 10 16	704	0.2- 0.2+
1995 11 04	411	0.6- 0.5+	1998 05 01	704	0.4+ 0.1+	1999 10 16	704	0.3- 0.1+
1995 11 11	411	0.3- 0.1-	1998 05 22	704	1.3+ 1.0+	1999 10 16	704	0.2- 0.3+
1995 11 11	411	0.1- 0.1-	1998 05 22	704	0.1+ 1.8+	1999 10 16	704	0.3- 0.6+
1995 11 24	411	0.4+ 0.4+	1998 05 22	704	1.0+ 2.0-	1999 11 04	699	0.5+ 0.0
1995 11 24	411	0.7+ 1.3+	1998 05 22	704	1.1+ 1.3+	1999 11 04	699	0.3+ 0.7-
1998 04 20	691	0.3- 0.3+	1998 05 22	704	0.9+ 0.2-	1999 11 04	699	0.2- 0.4-
1998 04 20	691	0.0 0.3+	1998 05 24	704	0.9- 1.7+	1999 12 09	699	0.6+ 0.6+
1998 04 20	688	0.1- 0.0	1998 05 24	704	0.3+ 0.2+	1999 12 09	699	0.2+ 0.3-
1998 04 20	691	0.1- 0.4+	1998 05 24	704	0.1- 0.9+	1999 12 09	699	1.1- 0.1+
1998 04 20	688	0.1- 0.1-	1998 05 24	704	0.9+ 1.6+			

(12795)* 1995 VA₂

Discovered 1995 Nov. 11 by the Beijing Schmidt CCD Asteroid Program at

Xinglong.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	181.40382		(2000.0)		P		Q	
<i>n</i>	0.24122530	ω	139.14446		-0.93650603		+0.31615191	
<i>a</i>	2.5557644	Ω	59.89906		-0.34964177		-0.80913335	
<i>e</i>	0.0576142	<i>i</i>	10.09696		-0.02659110		-0.49532938	
<i>P</i>	4.09	<i>H</i>	13.7		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1989 03 29	675	0.8+ 2.2+	1997 03 08	327	0.3- 0.2-	1999 10 30	703	0.0 0.2+
1989 04 03	675	0.5+ 0.0	1997 03 08	327	0.3+ 0.1-	1999 11 14	699	0.7+ 0.6-
1989 04 03	675	0.3+ 0.2-	1997 03 08	327	0.8- 0.1-	1999 11 14	699	0.8+ 0.1-
1993 04 15	675	0.5- 0.4-	1997 03 11	327	0.3- 0.4-	1999 11 14	699	1.1- 0.3+
1993 04 15	675	1.6- 0.5+	1997 03 11	327	0.9+ 0.2-	1999 11 15	704	0.3+ 0.1+
1995 11 11	327	0.3- 0.0	1997 03 11	327	0.0 0.3-	1999 11 15	704	0.4- 0.2-
1995 11 11	327	0.1+ 0.4+	1997 05 20	327	0.8- 0.2-	1999 11 15	704	0.1- 0.6+
1995 11 11	327	0.4- 0.3-	1997 05 20	327	0.9+ 0.7-	1999 11 15	704	0.3+ 0.0
1995 11 15	327	0.3- 0.3+	1997 05 20	327	1.4+ 0.1-	1999 11 15	704	0.2- 0.2+
1995 11 15	327	0.8+ 0.2+	1997 05 20	327	0.2+ 0.6-	1999 11 17	704	1.3- 0.3+
1995 11 15	327	0.0 0.6+	1999 10 09	704	0.4+ 0.1-	1999 11 17	704	1.1- 0.3-
1995 11 30	327	0.1- 0.1+	1999 10 09	704	0.4+ 0.2+	1999 11 17	704	0.8- 0.5-
1995 11 30	327	0.2+ 0.7+	1999 10 09	704	0.1- 1.1+	1999 11 17	704	0.9- 0.2+
1995 11 30	327	0.6- 0.3+	1999 10 09	704	0.3- 0.3+	1999 11 17	704	0.8- 1.1+
1995 11 30	327	0.4+ 0.0	1999 10 09	704	0.1- 0.2-	1999 12 05	704	0.5+ 0.1-
1995 11 30	327	0.6+ 0.3-	1999 10 12	699	0.3+ 0.3+	1999 12 05	704	0.5+ 0.2-
1995 11 30	327	0.9+ 0.6-	1999 10 12	699	0.9- 1.0+	1999 12 05	704	0.5+ 0.6-

1995 12 19	691	0.1+ 0.3-	1999 10 12	699	0.4- 0.0	1999 12 05	704	0.1+ 0.4+
1995 12 19	691	0.2+ 0.5-	1999 10 19	704	0.2+ 0.8-	1999 12 05	704	0.0 0.1+
1995 12 19	691	0.5+ 0.3-	1999 10 19	704	0.2+ 0.4-	1999 12 07	704	0.4+ 0.6-
1995 12 26	691	0.2- 0.2-	1999 10 19	704	0.4+ 0.4-	1999 12 07	704	0.7+ 0.1-
1995 12 26	691	0.3- 0.3-	1999 10 19	704	0.7+ 0.6-	1999 12 07	704	0.5+ 0.2+
1995 12 26	691	(2.4- 0.5+)	1999 10 19	704	0.1+ 0.8-	1999 12 07	704	0.3+ 0.1+
1997 03 03	327	0.2- 0.5+	1999 10 30	703	0.3- 0.2+	1999 12 07	704	0.1- 0.4+
1997 03 03	327	0.2+ 0.3+	1999 10 30	703	0.3- 0.2+			
1997 03 03	327	0.0 0.2+	1999 10 30	703	0.6- 0.0			

(12796)* 1995 WF

Discovered 1995 Nov. 16 by A. Nakamura at Kuma Kogen.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	9.09786		(2000.0)		P		Q	
<i>n</i>	0.26755401	ω	162.92050		+0.64699699		-0.74365846	
<i>a</i>	2.3852198	Ω	246.41857		+0.67634906		+0.66171492	
<i>e</i>	0.2063580	<i>i</i>	10.58951		+0.35206086		+0.09542248	
<i>P</i>	3.68	<i>H</i>	15.7		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1995 11 16	360	0.2+ 0.1+	1995 12 15	905	0.3- 0.0	1997 04 07	360	0.1+ 0.0
1995 11 16	360	0.1+ 0.2+	1995 12 15	905	0.6+ 0.1-	1997 04 07	360	0.0 0.5-
1995 11 16	360	0.2+ 0.1+	1995 12 17	360	0.2+ 0.2+	1998 06 17	360	0.1+ 0.7+
1995 11 17	608	0.6+ 0.2-	1995 12 17	360	0.0 0.2+	1998 06 17	360	0.3- 0.2+
1995 11 17	608	0.3+ 0.1-	1995 12 19	905	1.1- 1.2+	1998 06 17	360	0.1+ 0.7+
1995 11 17	360	0.2- 0.3+	1995 12 19	905	0.2+ 0.9-	1998 07 02	360	0.1+ 0.2+
1995 11 17	360	0.0 0.5+	1996 01 12	608	0.2- 1.0-	1998 07 02	360	0.4+ 0.3+
1995 11 17	360	0.0 0.4+	1996 01 12	608	0.4- 1.1-	1998 07 23	360	0.4- 0.2+
1995 11 18	360	0.0 0.3+	1996 01 12	360	0.0 1.5-	1998 07 23	360	0.7- 0.7+
1995 11 18	360	0.2- 0.3+	1996 01 12	360	0.8- 0.7-	1998 07 23	360	0.2- 0.5+
1995 11 18	360	0.2- 0.4+	1996 01 13	608	0.5- 1.3-	1999 11 16	360	0.5+ 0.2+
1995 11 19	608	0.3+ 0.7+	1996 01 13	608	0.4- 1.1-	1999 11 16	360	0.2+ 0.3+
1995 11 19	608	0.3+ 0.7+	1997 03 19	608	0.2- 1.8+	1999 11 16	360	0.2- 0.5+
1995 11 20	608	0.3+ 0.1-	1997 03 19	608	0.2- 1.5+	1999 12 07	360	0.3+ 0.2+
1995 11 20	608	0.2+ 0.2+	1997 03 31	360	0.2+ 0.0	1999 12 07	360	0.6+ 0.1+
1995 11 21	360	0.0 0.2+	1997 03 31	360	0.7+ 0.3-	1999 12 13	703	0.8- 1.4+
1995 11 21	360	0.1+ 0.2+	1997 03 31	360	0.2- 0.1+	1999 12 13	703	0.0 1.4+
1995 11 21	360	0.0 0.2+	1997 04 04	608	0.1- 0.1+	1999 12 13	703	0.7+ 0.3+
1995 12 10	360	0.1+ 0.1+	1997 04 04	608	0.1+ 0.3+	1999 12 13	703	0.1+ 0.0
1995 12 10	360	0.0 0.3+	1997 04 07	360	0.0 0.6-			

(12797)* 1995 WL₄ = 1997 GA₆

Discovered 1995 Nov. 20 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 29627)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	333.10728		(2000.0)		P		Q	
<i>n</i>	0.25451456	ω	305.99642		+0.11375329		-0.99274360	
<i>a</i>	2.4660069	Ω	137.41939		+0.92906800		+0.09238872	
<i>e</i>	0.1508598	<i>i</i>	3.30358		+0.35198416		+0.07697063	
<i>P</i>	3.87	<i>H</i>	14.8		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1993 04 22	691	1.1-	0.5-	1995 12 20	411	0.7+	1.3+	1999 10 10	704	1.4+	0.5+
1993 04 22	691	0.2-	0.3+	1997 04 02	704	1.3+	1.5+	1999 11 04	704	0.1-	0.4-
1995 11 20	411	1.0+	1.1-	1997 04 02	704	0.2-	1.5+	1999 11 04	704	0.0	0.1-
1995 11 20	411	1.6+	0.1-	1997 04 06	704	0.0	0.7+	1999 11 04	704	0.4-	0.1-
1995 11 24	411	0.0	0.4-	1997 04 06	704	1.8+	1.2-	1999 11 04	704	0.2+	0.0
1995 11 24	411	0.7-	0.1-	1998 07 02	691	0.2-	0.6+	1999 11 04	704	0.3-	1.1+
1995 11 28	411	0.3-	0.8+	1998 07 02	691	0.1-	0.5+	1999 12 08	704	0.1-	0.4-
1995 11 28	411	0.9-	0.9+	1998 07 02	691	0.3-	0.1+	1999 12 08	704	0.6-	0.3-
1995 12 01	411	0.8-	0.7+	1998 07 15	691	0.2-	0.2+	1999 12 08	704	0.6-	0.0
1995 12 01	411	0.2-	1.6+	1998 07 15	691	0.3-	0.2+	1999 12 08	704	0.2-	0.0
1995 12 09	411	0.1-	0.7-	1999 10 10	704	0.4+	0.9-	1999 12 08	704	0.5-	0.5-
1995 12 09	411	0.3+	0.4-	1999 10 10	704	0.2+	0.2+				
1995 12 20	411	0.5-	1.2+	1999 10 10	704	1.1+	0.1-				

(12798)* 1995 WZ₄ = 1985 DN₄

Discovered 1995 Nov. 24 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 26410)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	309.60077		(2000.0)		P		Q
<i>n</i>	0.25902144	ω	9.63601		-0.41480058		-0.90784692
<i>a</i>	2.4373183	Ω	104.89125		+0.83054989		-0.40526742
<i>e</i>	0.1383337	<i>i</i>	3.63516		+0.37165488		-0.10757457
<i>P</i>	3.81	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1985 02 20	675	0.4-	0.5+	1996 01 13	691	0.3-	0.4+	1999 10 22	704	0.4+	0.7-
1985 02 23	675	0.7+	0.1+	1996 01 13	691	0.2-	0.4+	1999 10 22	704	0.5-	1.5-
1995 11 24	411	0.5+	1.7+	1997 05 07	704	0.4+	0.1+	1999 10 22	704	0.2-	1.6-
1995 11 24	411	0.4-	1.1+	1997 05 07	704	0.3+	0.3+	1999 11 03	704	0.4+	1.1-
1995 11 25	411	0.0	0.6+	1997 05 07	704	0.3+	0.0	1999 11 03	704	0.3+	0.8-
1995 11 25	411	0.1+	0.4+	1997 05 07	704	1.3-	0.4-	1999 11 03	704	0.5+	0.1-
1995 11 28	411	0.8-	0.6+	1998 08 16	426	0.7-	0.1-	1999 11 03	704	0.2+	0.6-
1995 11 28	411	0.3-	0.6+	1998 08 16	426	0.1-	0.5-	1999 11 03	704	0.5+	0.5-
1995 12 01	411	0.1-	1.1+	1998 08 16	426	0.3+	0.5-	1999 12 07	704	0.3+	0.3-
1995 12 01	411	0.2+	0.2+	1998 08 17	704	0.5-	0.3+	1999 12 07	704	0.0	0.1-
1995 12 18	400	0.0	0.3-	1998 08 17	704	0.9+	0.3-	1999 12 07	704	0.1+	0.2-
1995 12 18	400	1.0-	0.4+	1998 08 17	704	0.7+	0.0	1999 12 07	704	0.4-	0.3+
1995 12 19	400	0.1+	0.3-	1998 08 17	704	0.3-	0.9+	1999 12 07	704	0.3-	0.5+
1995 12 19	400	0.6-	0.5-	1998 08 17	426	0.0	0.0	1999 12 08	704	0.6-	0.6-
1995 12 28	691	0.2+	0.2+	1998 08 17	426	0.6+	0.8-	1999 12 08	704	0.3-	0.9-
1995 12 28	691	0.0	0.1+	1998 08 17	426	0.3-	0.3-	1999 12 08	704	(2.9+	0.6+)
1995 12 28	691	0.1+	0.2+	1999 10 22	704	0.5-	1.4-				
1996 01 13	691	0.3-	0.9+	1999 10 22	704	0.9+	1.5-				

(12799)* 1995 WF₆ = 1994 LJ₄

Discovered 1995 Nov. 26 at Kleť.

Id. B. G. Marsden (*MPC* 26411)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden

<i>M</i>	46.35775		(2000.0)		P		Q
<i>n</i>	0.25898975	ω	231.13436		+0.98411001		+0.17574316
<i>a</i>	2.4375171	Ω	118.73037		-0.15264721		+0.91026058
<i>e</i>	0.1384234	<i>i</i>	1.65557		-0.09069905		+0.37488668
<i>P</i>	3.81	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1994 06 03	809	1.5+	1.2+	1995 12 27	046	0.2+	0.1-	1999 11 15	704	0.1+	0.1-
1994 06 03	809	0.7-	1.5+	1995 12 27	046	0.4+	0.4-	1999 11 15	704	0.2-	0.1-
1994 06 03	809	0.1+	0.3+	1995 12 27	046	0.1+	0.2-	1999 11 15	704	1.4+	0.2-
1994 06 04	809	0.9-	0.2+	1995 12 28	691	0.3+	0.0	1999 11 17	704	0.2+	0.9-
1994 06 04	809	0.3-	0.6+	1995 12 28	691	0.2-	0.0	1999 11 17	704	0.2-	0.3-
1994 06 04	809	0.1+	0.4-	1995 12 28	691	0.1-	0.1+	1999 11 17	704	0.2-	0.4-
1995 11 26	046	0.3+	0.3-	1997 03 06	046	0.5+	0.7+	1999 11 17	704	0.4+	0.3+
1995 11 26	046	0.3+	0.3-	1997 03 06	046	0.4+	0.7+	1999 11 17	704	0.9+	1.0+
1995 11 26	046	0.1+	0.3-	1997 03 06	046	0.3+	0.5+	1999 11 28	046	0.1+	0.2-
1995 11 26	046	0.1+	0.3-	1997 03 07	046	0.0	0.4+	1999 11 28	046	0.0	0.5+
1995 11 27	046	0.4+	0.5-	1997 03 07	046	0.2-	0.3+	1999 11 28	046	0.5-	0.6+
1995 11 27	046	0.3+	0.2-	1997 03 07	046	0.7+	0.3+	1999 11 28	046	0.2-	0.7+
1995 11 27	046	0.3+	0.3-	1997 04 02	046	0.2-	0.4-	1999 11 28	046	0.1-	0.1-
1995 11 27	046	1.0+	0.3-	1997 04 02	046	0.5-	1.1-	1999 11 28	046	0.1+	0.4+
1995 12 08	046	0.9+	0.2+	1997 04 02	046	0.4-	0.7-	1999 11 30	046	0.0	0.8+
1995 12 08	046	0.6+	0.1+	1997 04 07	046	0.7-	1.3-	1999 11 30	046	0.1+	0.6+
1995 12 08	046	0.1+	0.7-	1997 04 07	046	0.6-	0.1-	1999 11 30	046	0.1+	0.5+
1995 12 10	046	0.4-	0.1+	1997 04 07	046	0.4+	0.1-	1999 12 07	704	0.3-	1.2+
1995 12 10	046	1.0-	0.3+	1997 04 07	046	0.8+	0.0	1999 12 07	704	1.1-	0.8+
1995 12 10	046	1.1-	0.2+	1998 07 20	046	0.1+	0.4+	1999 12 07	704	0.0	0.4+
1995 12 17	046	0.0	0.2+	1998 07 20	046	0.4-	0.1+	1999 12 07	704	0.9-	0.2+
1995 12 17	046	0.1-	0.3+	1998 07 20	046	0.4+	0.3-	1999 12 08	704	0.2-	0.3+
1995 12 17	046	0.1+	0.3+	1998 07 21	046	0.2-	1.7+	1999 12 08	704	1.0-	0.8+
1995 12 22	691	0.7-	0.0	1998 07 21	046	0.1+	0.6+	1999 12 08	704	1.0+	1.2+

1995 12 22	691	0.5-	0.2+	1998 07 21	046	0.5+	1.2+	1999 12 08	704	0.6-	0.6+
1995 12 22	691	0.7-	0.0	1999 11 15	704	0.1+	0.1-				

(12800)* 1995 WQ₇ = 1980 TX₁₂ = 1980 UZ₁ = 1991 RE₉

Discovered 1995 Nov. 27 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 26411)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	17.18802		(2000.0)		P		Q
<i>n</i>	0.26591917	ω	44.51260		+0.69091290		-0.72293785
<i>a</i>	2.3949858	Ω	1.78519		+0.65889130		+0.62942874
<i>e</i>	0.1836465	<i>i</i>	0.88692		+0.29749222		+0.28492160
<i>P</i>	3.71	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1980 10 10	095	0.2+	1.8+	1998 08 17	704	0.0	0.4+	1999 11 16	704	0.2+	0.9-
1980 10 17	095	0.5-	0.4+	1998 08 17	704	0.1+	0.3-	1999 11 16	704	0.1-	0.9-
1991 09 11	675	0.5-	0.5-	1998 08 17	704	0.4+	0.2+	1999 12 06	704	1.5-	0.7+
1991 09 11	675	0.1-	0.5-	1999 10 12	704	0.2-	0.0	1999 12 06	704	0.3+	0.6+
1991 09 14	675	0.0	0.4-	1999 10 12	704	0.0	1.3+	1999 12 06	704	1.2+	0.2+
1991 09 14	675	0.2-	0.2-	1999 10 12	704	0.6+	1.4-	1999 12 06	704	1.7+	1.8+
1995 11 27	411	0.9+	0.1-	1999 10 12	704	1.2+	1.1-	1999 12 07	120	0.5-	0.6+
1995 11 27	411	0.1+	0.1-	1999 10 22	704	(1.7-	2.3+)	1999 12 07	120	0.9-	0.0
1995 11 28	411	0.1+	0.1-	1999 10 22	704	0.7+	0.0	1999 12 07	120	1.5-	0.1-
1995 11 28	411	0.1-	0.3-	1999 10 22	704	0.4-	1.1-	1999 12 07	704	0.3-	0.6+
1995 12 01	411	0.3+	0.1+	1999 11 10	699	0.7+	1.0+	1999 12 07	704	0.2+	0.1-
1995 12 01	411	0.3+	0.0	1999 11 10	699	0.2+	0.3+	1999 12 07	704	0.1+	0.1-
1995 12 09	411	0.3-	0.4-	1999 11 10	699	1.5-	0.2+	1999 12 07	704	0.1-	0.4+
1995 12 09	411	0.4-	0.6-	1999 11 16	704	1.0-	0.6-	1999 12 07	704	0.8+	0.3-
1998 08 17	704	0.1+	0.8+	1999 11 16	704	0.2+	0.2+				
1998 08 17	704	0.1+	0.4-	1999 11 16	704	0.6+	0.5-				

(12801)* 1995 XD = 1983 UD₁ = 1987 WK₄ = 1987 XB = 1991 TP₁₃

Discovered 1995 Dec. 2 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 26412)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	8.38571		(2000.0)		P		Q
<i>n</i>	0.25390876	ω	350.87032		+0.57372367		-0.81096289
<i>a</i>	2.4699278	Ω	64.03765		+0.75929205		+0.47405673
<i>e</i>	0.1228926	<i>i</i>	7.33625		+0.30711029		+0.34294229
<i>P</i>	3.88	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1983 10 30	675	0.4-	0.3-	1993 04 17	691	0.4-	0.5-	1999 11 12	703	0.2-	0.7+
1983 11 04	675	0.5+	1.4+	1994 07 09	675	0.5-	0.2-	1999 11 12	703	0.7-	0.8+
1987 11 26	046	0.6+	2.1-	1994 07 09	675	0.3+	0.1+	1999 11 16	704	1.6+	0.2-
1987 11 26	046	(2.7-	0.1+)	1995 12 02	411	0.3-	0.5-	1999 11 16	704	0.9+	0.2+
1987 12 15	567	0.7+	0.9-	1995 12 02	411	0.5+	0.7-	1999 11 16	704	1.8+	1.3-
1987 12 15	567	0.8+	0.1+	1995 12 04	411	1.3-	0.2+	1999 11 16	704	1.4+	1.4-
1991 10 06	033	0.1-	0.2-	1995 12 04	411	0.6-	0.3-	1999 11 16	704	0.5+	0.8-
1991 10 06	033	0.3-	0.2+	1995 12 14	411	1.5-	0.2+	1999 12 08	703	0.0	0.6+
1991 10 08	033	0.4-	0.1-	1995 12 14	411	0.4-	0.6+	1999 12 08	703	0.4-	0.1+
1993 04 17	691	0.2-	0.4-	1999 11 12	703	0.0	0.6+	1999 12 08	703	0.0	1.1+
1993 04 17	691	0.3-	0.7-	1999 11 12	703	0.2-	0.6+	1999 12 08	703	0.1-	0.8+

(12802)* 1995 XD₁

Discovered 1995 Dec. 15 by T. Kobayashi at Oizumi.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

M	334.76698		(2000.0)		P		Q
n	0.26238835	ω	39.12436		-0.24139124		-0.96873976
a	2.4164233	Ω	64.91171		+0.87374170		-0.24261735
e	0.1478059	i	3.62208		+0.42226261		-0.05176966
P	3.76	H	14.5	G	0.15	U	1

1999 DEC. 22

M.P.C. 37065

Residuals in seconds of arc

1995 10 21	327	0.1+	0.4+	1997 07 03	688	0.1-	0.1+	1998 09 25	704	1.3-	0.6+
1995 10 21	327	0.3+	0.4-	1997 07 03	688	0.0	0.2+	1999 10 22	704	0.0	0.3+
1995 10 21	327	0.7+	1.0-	1997 07 03	688	0.0	0.1+	1999 10 22	704	0.5-	0.5+
1995 12 15	411	0.3+	0.2+	1997 07 03	688	0.3+	0.5+	1999 10 22	704	0.1-	1.2+
1995 12 15	411	0.8-	0.4+	1997 07 04	688	0.8+	0.2-	1999 11 16	704	0.3-	1.2-
1995 12 16	411	0.5-	0.6+	1997 07 04	688	0.6-	0.1-	1999 11 16	704	0.0	1.1-
1995 12 16	411	0.6-	0.6+	1997 07 04	688	0.2-	0.6+	1999 11 16	704	0.9-	1.2-
1995 12 22	411	0.1-	0.7+	1997 07 04	688	0.3+	0.7+	1999 11 16	704	0.2-	0.5-
1995 12 22	411	0.4-	0.8+	1998 09 14	704	0.2-	0.4+	1999 11 16	704	0.6+	1.0-
1995 12 30	411	0.0	1.8+	1998 09 14	704	0.3+	0.8+	1999 12 08	704	0.7+	0.3-
1995 12 31	411	(0.9-	3.4+)	1998 09 14	704	0.8+	1.0-	1999 12 08	704	0.4-	0.4-
1995 12 31	411	(0.1-	3.1+)	1998 09 25	704	(2.5+	0.3-)	1999 12 08	704	0.5-	0.4-
1996 01 09	411	0.3-	0.3-	1998 09 25	704	0.8+	0.3+				
1996 01 09	411	1.3+	0.1+	1998 09 25	704	0.1-	1.8-				

(12803)* 1995 YF = 1987 QK₁₁

Discovered 1995 Dec. 17 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 26413)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

M	85.03631		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.26712220	ω	205.55231	+0.89338704	+0.44718081
a	2.3877896	Ω	127.81558	-0.40219888	+0.83911497
e	0.2009541	i	3.15376	-0.20023900	+0.30970209
P	3.69	H	14.3	G 0.15	U 2

Residuals in seconds of arc

1987 08 28	095	0.7+	0.7-	1998 08 17	704	0.3+	0.7+	1998 11 20	699	0.4-	0.4+
1987 08 31	095	0.1+	0.4-	1998 08 17	704	0.8+	1.3-	1998 12 08	704	0.6+	0.1-
1995 12 17	411	0.8-	0.0	1998 08 23	704	1.1-	1.7+	1998 12 08	704	1.6+	0.9-
1995 12 17	411	0.4-	1.1-	1998 08 23	704	0.7-	0.5+	1999 10 21	704	0.8+	0.6-
1995 12 19	411	0.5-	0.1+	1998 08 23	704	1.1-	0.5+	1999 10 21	704	1.2-	0.9+
1995 12 19	411	0.3-	0.7-	1998 08 23	704	0.7-	0.6+	1999 10 21	704	1.8-	0.4+
1995 12 24	411	0.0	0.0	1998 08 27	699	1.3-	0.0	1999 12 05	699	0.9+	0.1-
1995 12 24	411	0.3-	0.0	1998 08 27	699	0.3-	0.6+	1999 12 05	699	0.4-	0.8+
1998 05 27	699	0.3-	0.3-	1998 08 27	699	0.3-	0.1+	1999 12 05	699	1.2+	1.0+
1998 05 27	699	0.4-	1.2+	1998 08 30	699	1.4+	0.1+	1999 12 07	704	0.7+	0.0
1998 05 27	699	0.9-	0.2+	1998 08 30	699	0.1+	0.0	1999 12 07	704	1.0+	0.8+
1998 06 02	699	0.0	0.0	1998 08 30	699	0.2+	0.3+	1999 12 07	704	0.3-	0.3+
1998 06 02	699	1.4+	0.1-	1998 10 21	360	1.3+	0.2+	1999 12 08	704	0.4+	1.2+
1998 06 02	699	0.2-	0.1-	1998 10 21	360	1.2+	0.2-	1999 12 08	704	0.1-	0.2+
1998 08 17	704	0.1-	0.4+	1998 10 21	360	1.6+	0.1-	1999 12 08	704	0.8+	0.0
1998 08 17	704	0.4-	0.5-	1998 11 20	699	0.2-	0.3+	1999 12 08	704	1.1+	0.1+
1998 08 17	704	0.3-	0.4-	1998 11 20	699	0.5-	0.3+				

(12804)* 1995 YJ₃ = 1992 DD₁₄

Discovered 1995 Dec. 27 by T. Kobayashi at Oizumi.

Id. B. G. Marsden (*MPC* 32467)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden

M	277.82191		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.23721241	ω	26.88639	-0.93152080	-0.35706333
a	2.5845074	Ω	132.01737	+0.31470761	-0.88661295
e	0.1934621	i	5.33669	+0.18228582	-0.29397832
P	4.15	H	14.1	G 0.15	U 2

Residuals in seconds of arc

1992 02 25	691	0.8+	0.5-	1996 01 25	411	0.2+	0.3-	1999 10 10	704	0.3+	0.2+
1992 02 25	691	0.6+	0.2-	1996 01 25	411	1.0-	0.5-	1999 10 21	704	0.3+	0.4-
1992 02 25	691	0.1+	0.3-	1996 06 19	704	(1.1+	2.4-)	1999 10 21	704	0.9+	0.3-
1992 02 29	033	0.1-	0.2+	1996 06 19	704	0.9-	1.8-	1999 10 21	704	0.5-	0.1-
1992 02 29	033	0.3+	0.4-	1996 06 19	704	(2.5+	0.7+)	1999 10 21	704	0.4+	0.5+
1992 03 01	033	0.4-	0.2-	1996 06 20	704	1.5+	0.7+	1999 10 21	704	0.2+	0.1+
1995 12 27	411	0.7-	1.2+	1996 06 20	704	0.4-	0.3+	1999 11 17	704	0.2+	0.1-
1995 12 27	411	0.8-	0.5-	1996 06 20	704	0.2-	0.4+	1999 11 17	704	0.2+	0.1-
1995 12 29	411	0.6-	0.2+	1998 09 18	704	0.9-	0.8-	1999 11 17	704	0.2+	0.1-

1995 12 29	411	1.0-	0.5+	1998 09 18	704	0.3-	1.9-	1999 11 17	704	0.1-	0.0
1996 01 01	411	0.6+	0.3+	1998 09 18	704	0.5+	0.1+	1999 11 17	704	0.3-	0.1+
1996 01 01	411	0.6+	0.4-	1998 09 18	704	1.0+	0.5+	1999 12 06	704	0.2+	0.1+
1996 01 02	411	0.4-	0.2-	1999 10 10	704	0.4-	0.3+	1999 12 06	704	0.1+	0.1+
1996 01 02	411	0.3-	0.6+	1999 10 10	704	0.4-	0.0	1999 12 06	704	0.1+	0.2+
1996 01 10	411	0.1+	0.6-	1999 10 10	704	0.6+	0.4+	1999 12 06	704	0.6+	0.2-
1996 01 10	411	0.6-	0.3-	1999 10 10	704	0.1-	0.1+	1999 12 06	704	0.4+	0.2+

(12805)* 1995 YL₂₃ = 4676 T-1

Discovered 1995 Dec. 21 at Haleakala by the JPL Near-Earth Asteroid

Tracking program.

Id. G. V. Williams (*MPC* 32672)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	142.08650		(2000.0)	P	Q		
n	0.26353274	ω	207.03720	-0.02095625	+0.99543398		
a	2.4094227	Ω	61.89042	-0.89713308	+0.02238720		
e	0.1540310	i	6.06039	-0.44126305	-0.09279013		
P	3.74	H	13.9	G	0.15	U	2

Residuals in seconds of arc

1971 05 13	675	0.3+	0.3+	1995 12 25	566	0.7+	0.6-	1999 11 14	704	0.5-	0.4+
1971 05 14	675	0.2-	1.0-	1995 12 25	566	0.4+	0.7-	1999 11 14	704	0.4-	0.2+
1971 05 16	675	0.1-	0.6+	1995 12 25	566	0.5+	0.4-	1999 11 14	704	0.2-	0.3+
1991 11 02	691	0.4-	0.6+	1998 08 19	699	0.2+	0.0	1999 11 16	704	0.5-	1.0+
1991 11 02	691	0.5-	0.4+	1998 08 19	699	0.4-	0.4+	1999 11 16	704	0.1+	0.9+
1991 11 02	691	0.8-	0.2+	1998 08 19	699	0.0	0.7-	1999 11 16	704	0.2+	0.4+
1995 12 21	566	0.3+	0.2-	1998 09 17	699	0.6+	0.7-	1999 11 16	704	0.3-	0.1+
1995 12 21	566	0.1-	0.4-	1998 09 17	699	0.5+	0.1+	1999 12 07	704	0.6+	0.0
1995 12 21	566	0.1+	0.2-	1998 09 17	699	0.3+	0.2+	1999 12 07	704	0.3-	0.2-
1995 12 24	566	0.2+	0.5-	1998 10 17	699	1.0-	0.2-	1999 12 07	704	0.0	0.0
1995 12 24	566	0.5+	0.4-	1998 10 17	699	0.4-	0.3-				
1995 12 24	566	1.1+	0.5-	1998 10 17	699	0.4+	1.0+				

(12806)* 1996 AN = 1998 QL₃₅

Discovered 1996 Jan. 11 by T. Kobayashi at Oizumi.

Id. E. Bowell (*MPC* 32467), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	4.96119		(2000.0)	P	Q
n	0.26030217	ω	6.94714	+0.16983504	-0.98412626
a	2.4293170	Ω	73.28438	+0.90154688	+0.13405840
e	0.1715955	i	3.08201	+0.39795639	+0.11629210
P	3.79	H	13.9	G 0.15	U 1

Residuals in seconds of arc

1993 04 25	691	1.3+	0.4-	1998 08 17	704	0.1-	0.6+	1998 09 25	704	0.6-	1.4-
1993 04 25	691	0.6-	0.2+	1998 08 17	704	0.5-	0.3+	1998 09 25	704	1.3-	1.7-
1993 04 25	691	0.8-	0.1+	1998 08 23	704	0.5+	0.4+	1999 11 11	327	0.5+	0.7+
1996 01 11	411	0.3-	0.3+	1998 08 23	704	0.3+	0.4+	1999 11 11	327	0.5+	0.9+
1996 01 11	411	0.3+	0.3+	1998 08 23	704	0.4+	0.1+	1999 11 11	327	0.2+	0.6+
1996 01 12	399	0.9+	1.0-	1998 08 23	704	0.0	1.0-	1999 11 16	704	0.6-	0.3-
1996 01 12	411	0.0	0.3+	1998 09 14	704	0.2+	0.8-	1999 11 16	704	0.3+	0.4-
1996 01 12	399	0.6+	0.1+	1998 09 14	704	0.9-	0.5-	1999 11 16	704	0.2-	0.3-
1996 01 12	411	0.7+	0.5-	1998 09 14	704	0.1-	0.7+	1999 11 16	704	0.2-	1.2-
1996 01 13	399	1.9-	0.2+	1998 09 14	704	0.2-	0.1-	1999 11 16	704	0.1+	1.9-
1996 01 13	399	1.7-	0.3+	1998 09 14	704	0.2+	0.3+	1999 11 17	327	0.5-	0.2-
1996 01 26	411	0.3+	0.3+	1998 09 16	699	0.5+	0.2+	1999 11 17	327	0.7-	0.3-
1996 01 26	411	0.6+	0.2+	1998 09 16	699	0.6+	0.0	1999 11 17	327	0.8-	0.7-
1996 02 12	411	0.2-	0.2-	1998 09 16	699	0.2+	0.7+	1999 11 17	327	0.8-	0.5-
1996 02 12	411	0.9+	0.6+	1998 09 18	704	0.0	0.2+	1999 12 06	704	0.2+	0.6+
1996 06 20	704	(2.1+	0.4-)	1998 09 18	704	0.4+	0.6-	1999 12 06	704	0.0	0.9+
1996 06 20	704	(2.5-	2.1-)	1998 09 18	704	0.1+	1.3+	1999 12 06	704	1.1+	0.4-
1996 06 20	704	0.3+	1.3+	1998 09 18	704	0.1+	0.4+	1999 12 06	704	0.2+	0.3+
1998 07 31	699	0.4-	1.2+	1998 09 22	699	0.2-	0.0	1999 12 06	704	1.3+	1.3+
1998 07 31	699	0.3-	0.2+	1998 09 22	699	1.2+	0.0	1999 12 09	699	0.4-	1.4+
1998 07 31	699	0.3+	0.2-	1998 09 22	699	0.5+	0.0	1999 12 09	699	1.3+	0.1-

1998 08 17	704	0.9–	0.3+	1998 09 25	704	0.3+	0.3+	1999 12 09	699	1.1–	0.6+
1998 08 17	704	0.0	1.0+	1998 09 25	704	0.2+	0.1–				
1998 08 17	704	0.4–	1.0+	1998 09 25	704	1.2–	1.2–				

(12807)* 1996 AW = 1998 QH₃₂

Discovered 1996 Jan. 11 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 32672)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	345.49767		(2000.0)		P		Q
<i>n</i>	0.24131868	ω	341.20680	+0.14453565			−0.98852839
<i>a</i>	2.5551051	Ω	100.46458	+0.91346415			+0.11627022
<i>e</i>	0.0829406	<i>i</i>	2.55460	+0.38038493			+0.09639950
<i>P</i>	4.08	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1994 06 13	691	1.2–	0.1+	1997 06 08	809	(1.1+	5.2+)	1999 10 22	704	0.2+	0.3–
1994 06 13	691	1.2–	0.1–	1998 08 17	704	0.4+	1.1+	1999 10 22	704	0.1–	0.0
1994 06 13	691	0.7–	0.1–	1998 08 17	704	1.0+	0.8+	1999 10 22	704	0.4+	0.5+
1995 11 18	327	0.8+	0.7–	1998 08 17	704	0.4–	0.9–	1999 11 12	703	0.0	1.5+
1995 11 18	327	0.4+	0.1–	1998 08 17	704	1.4+	1.1–	1999 11 12	703	0.8+	0.4+
1995 11 18	327	0.1–	0.5–	1998 08 17	704	1.5–	0.3+	1999 11 12	703	1.4+	0.6+
1996 01 11	411	0.9–	1.0+	1998 08 23	699	(0.1–	2.5+)	1999 11 12	703	0.4+	1.6–
1996 01 11	411	0.1+	0.5+	1998 08 23	704	1.1–	0.4–	1999 12 07	704	0.3–	0.4+
1996 01 13	411	0.9+	0.0	1998 08 23	704	0.4–	0.4–	1999 12 07	704	0.2–	0.1+
1996 01 13	411	0.6–	0.4+	1998 08 23	699	0.3+	0.2+	1999 12 07	704	0.0	0.1–
1996 01 18	411	0.2+	0.7–	1998 08 23	704	(3.2–	0.4–)	1999 12 07	704	1.1–	0.5+
1996 01 18	411	1.2+	0.4+	1998 08 23	699	0.7+	1.5+	1999 12 08	704	0.6–	0.3+
1997 05 04	809	0.6+	1.1+	1998 09 21	699	0.3–	1.6+	1999 12 08	704	0.3–	0.1+
1997 05 04	809	0.1–	0.4+	1998 09 21	699	0.2–	0.8–	1999 12 08	704	0.8–	0.3+
1997 05 04	809	0.4+	1.6+	1998 09 21	699	1.1+	0.9+	1999 12 08	704	0.8–	0.5+
1997 06 08	809	(2.6+	4.1+)	1999 10 22	704	0.9+	0.5+	1999 12 08	704	0.9–	0.2+
1997 06 08	809	(1.5+	3.8+)	1999 10 22	704	0.6+	0.1–				

(12808)* 1996 AF₁ = 1951 AF₁ = 1966 UZ = 1970 TA = 1988 BR₁

Discovered 1996 Jan. 12 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 26576)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	349.03772		(2000.0)		P		Q
<i>n</i>	0.24147060	ω	292.93318	+0.50788797			−0.85336227
<i>a</i>	2.5540332	Ω	126.01593	+0.83398735			+0.45293972
<i>e</i>	0.2850127	<i>i</i>	8.35776	+0.21567317			+0.25810551
<i>P</i>	4.08	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1951 01 05	711	(0.5+	3.7+)	Y	1996 01 18	411	0.0	0.3–	1999 10 20	704	0.7–	0.0
1951 01 05	711	(4.1–	0.2+)	Y	1996 01 31	411	0.1–	0.0	1999 10 20	704	0.8–	0.3–
1966 10 16	095	(0.3–	3.0+)		1996 01 31	411	0.1–	0.5–	1999 10 20	704	0.6–	0.1–
1966 10 17	095	(2.0–	4.1+)		1998 06 24	704	0.5–	0.1+	1999 12 05	704	1.0+	1.8–
1966 10 19	095	(0.8–	6.9–)		1998 06 24	704	0.3+	1.1+	1999 12 05	704	1.5+	0.1+
1966 10 21	095	0.9–	2.1+		1998 06 24	704	0.6+	0.0	1999 12 05	704	0.9+	0.8+
1970 10 01	095	1.0+	0.7–		1998 06 24	704	1.5+	1.0–	1999 12 05	704	0.9+	0.9+
1988 01 23	511	1.2–	0.4–		1998 06 26	704	0.2+	0.1+	1999 12 05	704	(2.2–	1.2+)
1988 01 23	511	(4.2+	0.2+)		1998 06 26	704	1.1–	0.4–	1999 12 05	704	0.7+	1.7–
1995 12 30	691	0.3–	0.1–		1998 06 26	704	1.3–	1.2–	1999 12 05	704	0.1+	1.0+
1995 12 30	691	0.2–	0.0		1999 10 10	704	0.8–	0.8–	1999 12 05	704	0.2–	1.2+
1995 12 30	691	0.2–	0.1+		1999 10 10	704	0.9–	0.8–	1999 12 05	704	0.3+	1.4+
1996 01 12	411	0.2+	0.6+		1999 10 10	704	0.8–	0.6–	1999 12 05	704	(2.5–	1.3+)
1996 01 12	411	0.2+	0.7+		1999 10 10	704	1.1–	1.0–	1999 12 06	704	1.6+	1.8–
1996 01 13	411	0.3–	0.1+		1999 10 10	704	1.2–	0.9–	1999 12 06	704	0.1–	0.5–
1996 01 13	411	0.3–	0.3+		1999 10 20	704	0.7–	0.4–	1999 12 06	704	0.6+	1.6+
1996 01 18	411	0.3+	0.2–		1999 10 20	704	0.9–	0.3–	1999 12 06	704	(2.7–	1.4+)

(12809)* 1996 BB = 1980 WO = 1995 BB₁₇

Discovered 1996 Jan. 16 by T. Kobayashi at Oizumi.

Id. T. B. Spahr (*MPC* 30457), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	65.84967		(2000.0)		P		Q
<i>n</i>	0.21234822	ω	213.86357	+0.88734709			+0.43467112
<i>a</i>	2.7825115	Ω	119.64452	−0.37401573			+0.87366901
<i>e</i>	0.1604157	<i>i</i>	10.19761	−0.26968015			+0.21854856
<i>P</i>	4.64	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1980 11 30	095	0.4+	0.1–	1998 07 03	699	0.7–	0.5–	1998 08 29	699	0.7+	0.5+
1995 01 23	691	0.4–	0.1–	1998 07 15	699	0.4+	0.7–	1998 10 03	689	0.1+	0.6–
1995 01 23	691	0.5–	0.1–	1998 07 15	699	0.4+	0.8–	1998 10 20	689	0.4+	0.4–
1995 01 23	691	0.5–	0.5–	1998 07 15	699	0.0	0.4–	1999 10 10	704	0.0	0.0
1996 01 13	411	1.3+	0.6+	1998 08 17	704	0.7+	0.8+	1999 10 10	704	0.3+	0.3–
1996 01 13	411	0.0	0.2–	1998 08 17	704	0.1–	1.3+	1999 10 10	704	0.6+	0.3+
1996 01 16	411	0.5+	0.4–	1998 08 17	704	0.2–	0.5+	1999 10 10	704	0.0	0.2+
1996 01 16	411	0.2+	0.0	1998 08 17	704	0.7–	1.8+	1999 10 10	704	0.5+	0.3+
1996 01 18	399	0.2+	1.5+	1998 08 17	704	0.1–	0.7+	1999 11 04	704	0.6+	0.1–
1996 01 18	399	(1.1–	2.4+)	1998 08 18	566	1.1–	0.1–	1999 11 04	704	0.3+	0.2+
1996 01 27	411	0.7+	1.1+	1998 08 18	566	0.2+	0.0	1999 11 04	704	0.2–	0.1+
1996 01 27	411	0.6+	0.3+	1998 08 18	566	0.2–	0.0	1999 11 04	704	0.5+	0.0
1996 02 12	411	0.8–	0.3+	1998 08 23	704	0.1+	0.1–	1999 11 04	704	0.7–	0.1+
1996 02 12	411	0.5–	1.1+	1998 08 23	704	0.6+	0.3–	1999 12 06	704	0.5–	0.2–
1996 02 19	411	0.7–	0.2+	1998 08 23	704	0.1+	0.0	1999 12 06	704	0.2–	0.0
1996 02 19	411	1.5–	0.8–	1998 08 23	704	0.3–	0.1+	1999 12 06	704	0.0	0.4–
1998 07 03	699	0.2–	0.4–	1998 08 29	699	0.5+	0.2+	1999 12 06	704	0.3+	0.2–
1998 07 03	699	1.5–	0.2+	1998 08 29	699	0.7+	0.7+	1999 12 06	704	(0.7+	2.6+)

(12810)* 1996 BV = 1990 UC₁₄ = 1998 MR₂₇

Discovered 1996 Jan. 17 by K. Endate and K. Watanabe at Kitami.

Id. A. Gnädig (*MPC* 32469)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	51.76403		(2000.0)		P		Q
<i>n</i>	0.23767167	ω	241.26874	+0.96632089			+0.12048485
<i>a</i>	2.5811769	Ω	111.03027	−0.04666865			+0.95102171
<i>e</i>	0.2373046	<i>i</i>	14.10028	−0.25307305			+0.28467720
<i>P</i>	4.15	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1990 10 17	413	0.6–	0.1+	1998 06 24	704	0.3+	1.1–	1999 10 10	704	0.6–	0.7+
1990 10 17	413	0.8+	1.0–	1998 06 24	704	1.1+	0.1+	1999 10 10	704	0.1–	1.5+
1996 01 17	400	0.9–	0.0	1998 06 26	704	0.0	0.3–	1999 10 10	704	0.5–	0.5+
1996 01 17	400	0.1–	0.5+	1998 06 26	704	0.1–	0.3–	1999 12 07	704	0.6+	1.1–
1996 01 19	400	0.5–	0.5–	1998 06 26	704	0.3+	0.1+	1999 12 07	704	0.6+	0.2+
1996 01 19	400	0.3+	0.9+	1998 06 26	704	0.5+	1.3+	1999 12 07	704	0.1–	0.0
1996 01 23	400	1.0+	1.0–	1998 06 26	704	0.5+	0.8+	1999 12 07	704	0.2+	0.1+
1996 01 23	400	0.8+	0.9–	1998 07 21	704	1.6–	0.2+	1999 12 08	704	0.2+	0.0
1996 02 11	400	0.6–	0.5+	1998 07 21	704	0.3–	0.4+	1999 12 08	704	0.2+	0.0
1996 02 11	400	(2.7–	3.7+)	1998 07 21	704	(0.6+	2.3+)	1999 12 08	704	0.1+	0.2–
1998 06 24	704	1.4–	0.7–	1998 07 21	704	(3.8–	1.9+)	1999 12 08	704	0.4–	0.1+
1998 06 24	704	0.9+	0.3+	1999 10 10	704	0.5–	1.3+	1999 12 08	704	0.6–	0.5–

(12811)* 1996 CL₇

Discovered 1996 Feb. 14 by U. Munari and M. Tombelli at Cima Ekar.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	48.73615		(2000.0)		P		Q
<i>n</i>	0.28954879	ω	117.56460	−0.11666316			−0.99144447
<i>a</i>	2.2628454	Ω	338.89004	+0.84425360			−0.06795074
<i>e</i>	0.1490989	<i>i</i>	9.35521	+0.52309232			−0.11144760
<i>P</i>	3.40	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1999 DEC. 22

M.P.C. 37067

1996 01 17	098	1.3+	1.4-	1998 08 31	704	(0.9+	2.5-)	1998 12 08	108	0.2+	1.0+
1996 01 17	098	0.4+	1.5-	1998 08 31	704	0.7+	0.1+	1998 12 14	704	0.0	0.6-
1996 01 18	098	0.7-	1.1-	1998 08 31	704	0.3+	1.3-	1998 12 14	704	0.4+	0.9-
1996 01 18	098	0.2+	1.5-	1998 08 31	704	0.1-	1.6+	1998 12 14	704	0.1+	0.6-
1996 01 20	098	0.3-	0.2-	1998 11 14	704	1.1+	0.2-	1998 12 14	704	1.0+	0.8+
1996 01 20	098	(0.2-	2.4-)	1998 11 14	704	0.6-	1.3-	1998 12 14	704	0.7-	0.7-
1996 02 14	098	1.4-	0.0	1998 11 14	704	(1.1+	3.2-)	1999 01 08	704	(0.9+	3.0+)
1996 02 14	098	0.8-	0.1+	1998 11 14	704	(1.0+	2.9-)	1999 01 08	704	(2.7+	2.2+)
1996 02 15	098	0.5-	0.3+	1998 11 14	704	(0.4+	5.8-)	1999 01 08	704	1.1-	0.9-
1996 02 15	098	1.3+	0.3+	1998 11 15	104	0.8-	0.7+	1999 01 08	704	0.5-	1.6+
1996 02 24	098	(2.4-	1.6-)	1998 11 15	104	0.4+	0.2+	1999 01 14	699	1.2-	0.3-
1996 02 24	098	0.3+	0.9-	1998 11 15	104	0.1-	0.0	1999 01 14	699	0.7-	0.9+
1996 03 11	327	0.5+	0.5-	1998 11 16	704	0.5+	0.4+	1999 01 14	699	0.7-	1.8+
1996 03 11	327	0.8+	0.6+	1998 11 16	704	0.4+	0.5-	1999 02 06	704	1.6-	0.3+
1996 03 11	327	0.2+	0.6+	1998 11 16	704	0.1+	0.5-	1999 02 06	704	1.9-	1.4+
1996 03 14	327	0.2+	0.4+	1998 11 16	704	0.4+	0.4-	1999 02 06	704	0.5-	0.2+
1996 03 14	327	0.8+	0.4+	1998 11 16	704	1.1+	0.7+				
1996 03 14	327	0.4-	0.5+	1998 11 17	108	1.1-	0.9-				

(12812)* 1996 CN₇

Discovered 1996 Feb. 14 by U. Munari and M. Tombelli at Cima Ekar.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	231.10884		(2000.0)	P	Q
<i>n</i>	0.26323211	ω	252.81955	-0.00132473	+0.99992232
<i>a</i>	2.4112568	Ω	17.11884	-0.90073750	+0.00419028
<i>e</i>	0.1462553	<i>i</i>	2.41316	-0.43436184	-0.01173899
<i>P</i>	3.74	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1951 02 04	675	1.8-	1.0-	1996 03 20	098	0.9+	0.6+	1997 09 01	104	0.1-	0.8-
1951 02 04	675	0.8+	1.4-	1996 03 20	098	(0.9-	2.8+)	1998 11 16	104	1.0+	0.9+
1996 01 17	098	0.9-	1.0+	1997 07 27	108	0.4+	0.9+	1998 11 16	104	0.1+	0.3-
1996 01 17	098	1.1-	1.3-	1997 07 27	108	0.1-	1.7-	1998 12 14	704	(2.4-	1.9+)
1996 01 18	098	(3.7-	1.9+)	1997 07 27	108	1.0+	0.5-	1998 12 14	704	0.1-	1.0-
1996 01 18	098	0.2-	0.4-	1997 07 27	108	0.6+	1.5-	1998 12 14	704	1.0-	0.7-
1996 01 20	098	(2.3-	1.1+)	1997 07 29	104	0.2-	0.7+	1998 12 14	704	(0.8+	2.5-)
1996 01 20	098	0.6+	1.1-	1997 07 30	104	0.5+	0.4-	1998 12 16	704	0.3-	0.5+
1996 02 14	098	(2.9-	0.6-)	1997 07 30	104	1.2-	0.1-	1998 12 16	704	0.3+	0.9+
1996 02 14	098	1.7-	0.7-	1997 08 07	108	0.0	0.2-	1998 12 16	704	0.0	1.7+
1996 02 15	098	1.5+	0.5-	1997 08 07	108	0.2-	1.0-	1998 12 16	704	1.3+	1.3+
1996 02 15	098	0.9+	0.4-	1997 08 07	108	0.5+	0.7+	1998 12 17	704	1.7-	0.3-
1996 02 24	098	(3.6-	0.7-)	1997 08 31	104	0.1-	0.7-	1998 12 17	704	1.4-	1.5-
1996 02 24	098	0.3-	0.2-	1997 08 31	104	0.9+	0.8-	1998 12 17	704	0.8+	1.2-
1996 03 14	098	1.1-	0.2+	1997 08 31	104	0.6+	0.2-	1998 12 17	704	(0.3-	2.6-)
1996 03 14	098	(2.9-	1.4+)	1997 09 01	104	0.6-	0.5+	1998 12 17	704	1.0+	0.9-

(12813)* 1996 CU₈ = 1998 QQ₅₀

Discovered 1996 Feb. 14 by U. Munari and M. Tombelli at Cima Ekar.

Id. G. V. Williams (*MPC* 32470)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	268.30164		(2000.0)	P	Q
<i>n</i>	0.21235908	ω	155.00322	-0.88114672	-0.47275884
<i>a</i>	2.7824166	Ω	356.74175	+0.40316266	-0.74130802
<i>e</i>	0.0899839	<i>i</i>	9.02790	+0.24706342	-0.47640476
<i>P</i>	4.64	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1953 12 10	675	1.4-	1.4-	1998 08 23	704	1.3-	1.0+	1999 10 14	704	0.2+	0.4+
1953 12 10	675	0.2+	1.7-	1998 09 14	704	0.3+	0.4-	1999 10 14	704	1.3-	0.5+
1996 02 14	098	0.9+	0.7+	1998 09 14	704	0.3-	0.1+	1999 10 14	704	0.2+	0.5+
1996 02 14	098	0.5+	0.4+	1998 09 14	704	0.6+	0.8-	1999 10 14	704	0.3-	0.4+
1996 02 15	098	0.7+	0.4+	1998 09 14	704	1.0-	0.2-	1999 10 14	704	0.2+	1.1+
1996 02 15	098	0.1-	0.3+	1998 09 18	704	1.8-	0.3+	1999 11 09	108	1.5+	0.2-
1996 02 18	691	0.8+	0.1+	1998 09 18	704	1.3+	0.1+	1999 11 09	108	0.7-	0.9-
1996 02 18	691	0.1-	0.0	1998 09 18	704	0.2+	0.2-	1999 11 09	108	(0.5+	2.6-)

1996 02 18	691	0.2-	0.1+	1998 09 18	704	1.5+	0.5+	1999 11 27	108	(3.0+	0.2-)
1996 02 24	098	0.7-	0.4-	1998 09 18	704	0.8-	0.1-	1999 11 27	108	(2.2+	0.7+)
1996 02 24	098	0.0	0.6-	1998 09 25	704	1.1+	0.3-	1999 11 27	108	0.4+	0.8+
1996 03 14	098	0.2-	0.6-	1998 09 25	704	0.2-	0.4-	1999 12 06	108	(3.4-	1.2-)
1996 03 14	098	0.2+	0.0	1998 09 25	704	0.7-	0.4-	1999 12 06	108	0.2+	1.1-
1996 03 20	098	0.3-	1.2+	1998 09 25	704	1.0+	0.2+	1999 12 06	108	1.2-	1.8-
1996 03 20	098	0.7-	0.1-	1998 09 25	704	0.1-	0.7+	1999 12 07	108	0.0	1.6+
1998 08 17	704	0.0	0.6-	1998 09 27	704	0.2-	1.2-	1999 12 07	108	0.4-	0.1+
1998 08 17	704	0.6+	0.5-	1998 09 27	704	1.4-	0.7+	1999 12 07	108	(2.3+	0.4-)
1998 08 17	704	1.2+	0.3+	1998 09 27	704	1.5+	0.5-	1999 12 12	704	0.0	0.1+
1998 08 17	704	0.7-	1.2+	1998 09 27	704	1.5+	0.3+	1999 12 12	704	0.2-	0.1+
1998 08 17	704	0.5-	0.8+	1998 09 27	704	0.8-	0.0	1999 12 12	704	0.0	0.2+
1998 08 23	704	0.6-	1.1-	1998 09 29	327	1.3-	0.0	1999 12 12	704	0.5+	0.3+
1998 08 23	704	1.1+	0.9+	1998 09 29	327	0.0	0.6+	1999 12 12	704	0.6+	0.4+
1998 08 23	704	1.1-	1.4-	1998 09 29	327	1.2+	0.0				

(12814)* 1996 CG₉ = 1997 JY₁₆

Discovered 1996 Feb. 13 by U. Munari and M. Tombelli at Cima Ekar.

Id. G. V. Williams (*MPC* 30457)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	116.89180		(2000.0)	P	Q
<i>n</i>	0.28167932	ω	167.69386	+0.99887594	-0.03671864
<i>a</i>	2.3047973	Ω	194.51125	+0.02651887	+0.95706415
<i>e</i>	0.1371301	<i>i</i>	6.87093	+0.03928866	+0.28754122
<i>P</i>	3.50	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1989 03 07	675	1.0-	0.6+	1998 08 31	704	0.6+	0.2-	1998 11 11	699	0.3-	0.1+
1989 03 07	675	1.1+	0.4-	1998 08 31	704	0.9-	0.2-	1998 11 11	704	1.2+	0.7-
1996 01 15	098	0.1-	1.3+	1998 08 31	704	0.2+	0.3-	1998 11 11	699	0.6-	0.6+
1996 01 15	098	0.3+	0.5-	1998 08 31	704	(3.8-	1.7-)	1998 11 11	699	0.1-	0.1-
1996 01 16	098	1.0+	0.6+	1998 10 13	910	1.3+	0.1-	1998 11 18	704	0.3-	0.3-
1996 01 17	098	0.2-	1.8-	1998 10 13	910	1.2+	0.1-	1998 11 18	704	0.5-	1.6-
1996 02 13	098	1.5-	0.0	1998 10 13	910	1.2+	0.2-	1998 11 18	704	0.5-	1.1-
1996 02 14	098	0.4+	0.5+	1998 10 20	699	0.3+	0.9+	1998 11 18	704	0.8-	1.1-
1996 02 15	098	0.1-	1.0-	1998 10 20	699	0.7+	0.6+	1998 11 18	704	0.1+	1.7-
1996 02 15	098	1.1+	0.6-	1998 10 20	699	0.2+	0.6+	1999 01 10	699	0.7+	0.9+
1996 02 17	098	1.2-	0.4+	1998 10 29	704	0.1-	0.9+	1999 01 10	699	0.2+	0.2-
1996 02 17	098	(9.1-	5.1+)	1998 10 29	704	0.1+	1.4+	1999 01 10	699	0.1+	0.7+
1997 05 03	809	(0.3+	2.8+)	1998 10 29	704	(2.9+	1.9+)	1999 01 15	699	0.3+	0.1+
1997 05 03	809	(0.0	2.3+)	1998 10 29	704	1.2-	1.1+	1999 01 15	699	0.6-	0.2+
1997 05 03	809	0.3+	2.0+	1998 10 29	704	0.2+	0.4+	1999 01 15	699	1.2-	0.1-
1997 05 04	809	(1.3+	4.0+)	1998 11 11	704	0.5-	0.2+	1999 02 04	704	0.5-	1.0+
1997 05 04	809	(1.3+	4.4+)	1998 11 11	704	0.1-	0.2-	1999 02 04	704	0.3-	1.4+
1997 05 04	809	(0.8+	4.2+)	1998 11 11	704	0.3-	0.5+	1999 02 04	704	0.3+	0.7+
1998 08 31	704	1.2-	0.2-	1998 11 11	704	0.3+	0.1-	1999 02 04	704	0.8+	0.6-

(12815)* 1996 DL₂ = 1993 PE₉

Discovered 1996 Feb. 23 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 27113)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	126.06082		(2000.0)	P	Q
<i>n</i>	0.19960009	ω	195.85729	+0.39579683	+0.91640494
<i>a</i>	2.8997612	Ω	97.48891	-0.83589541	+0.38636195
<i>e</i>	0.0089167	<i>i</i>	3.44371	-0.38029427	+0.10452955
<i>P</i>	4.94	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1993 07 26	675	1.3+	0.1-	1998 08 27	809	(4.4+	1.6+)	1998 09 27	704	0.2-</

1993 08 20	809	0.5−	0.9+	1998 09 17	699	0.2−	0.6+	1998 10 15	704	1.1+	0.8−
1993 09 21	675	0.2−	0.2−	1998 09 17	699	0.1−	0.3+	1998 10 15	704	0.8+	1.5+
1996 02 23	411	0.4+	0.4−	1998 09 18	704	0.0	0.4+	1998 10 15	704	(2.2+	0.3−)
1996 02 23	411	0.3+	0.5−	1998 09 18	704	0.1−	0.3+	1998 10 15	704	(2.8+	2.0−)
1996 02 27	411	0.2+	1.1+	1998 09 18	704	0.0	0.2+	1998 10 15	704	0.6+	0.7+
1996 02 27	411	0.4−	1.3+	1998 09 18	704	0.5+	0.1+	1999 11 17	704	0.4+	0.7−
1996 02 28	411	1.2−	1.5+	1998 09 18	704	0.3+	0.2+	1999 11 17	704	0.0	0.2+
1996 02 28	411	0.8+	0.4+	1998 09 24	699	0.5+	0.6+	1999 11 17	704	0.7+	0.4+
1996 03 09	411	1.5+	0.4+	1998 09 24	699	0.3+	0.5+	1999 11 17	704	0.6+	0.2−
1996 03 09	411	0.6−	1.1+	1998 09 24	699	0.1−	1.0+	1999 12 07	704	0.4+	0.8+
1996 03 22	411	0.4+	0.5+	1998 09 26	704	1.0+	0.6−	1999 12 07	704	0.1−	0.3+
1996 03 22	411	0.7+	0.9−	1998 09 26	704	0.3−	0.7−	1999 12 07	704	0.3−	0.8+
1996 06 06	327	0.0	1.1+	1998 09 26	704	0.7−	0.1+	1999 12 07	704	0.1−	0.7+
1996 06 06	327	0.2−	0.3−	1998 09 26	704	1.3−	0.1−	1999 12 08	704	0.5−	0.3−
1996 06 06	327	0.1−	1.0−	1998 09 26	704	1.5−	0.5+	1999 12 08	704	0.7−	0.2−
1998 08 26	809	0.1+	1.2−	1998 09 27	704	0.2−	0.3+	1999 12 08	704	0.1−	0.2−
1998 08 26	809	0.4−	1.1−	1998 09 27	704	0.5−	0.5−	1999 12 08	704	0.1−	0.4−
1998 08 26	809	0.1−	1.1−	1998 09 27	704	0.4−	0.4−	1999 12 08	704	0.1−	0.7−
1998 08 27	809	(3.3+	1.2+)	1998 09 27	704	0.4−	0.7−				

(12816)* 1996 ES₁ = 1998 SY₂₆

Discovered 1996 Mar. 15 at Haleakala by the JPL Near-Earth Asteroid Tracking program.

Id. G. V. Williams (*MPC* 32674)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		153.46288		(2000.0)		P		Q	
<i>n</i>		0.17266526	ω	82.30878		−0.21039631		+0.97760694	
<i>a</i>		3.1939840	Ω	175.53890		−0.91710678		−0.19586635	
<i>e</i>		0.1874890	<i>i</i>	3.13210		−0.33859790		−0.07694831	
<i>P</i>		5.71	<i>H</i>	13.4		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1992 09 30	691	0.1−	0.6−	1996 04 17	566	0.9−	1.4−	1998 10 15	704	0.5−	0.2−
1992 09 30	691	0.1+	0.3−	1998 09 17	327	1.0−	0.5+	1998 10 15	704	1.5−	0.9+
1992 09 30	691	0.4+	0.2−	1998 09 17	327	1.1−	1.0+	1998 10 15	704	(1.0+	2.3+)
1996 03 15	566	0.2+	0.9+	1998 09 17	327	1.2−	0.4+	1998 10 17	691	0.4+	0.6−
1996 03 15	566	0.1−	1.0+	1998 09 23	327	0.1+	0.5+	1998 10 17	691	0.2+	0.3−
1996 03 15	566	0.0	0.6+	1998 09 23	327	0.4+	0.6+	1998 10 17	691	0.2+	0.3−
1996 03 18	566	0.2+	0.3−	1998 09 23	327	0.3−	0.6+	1998 10 29	704	0.7−	1.7+
1996 03 18	566	0.0	0.5+	1998 09 26	704	0.4+	0.6−	1998 10 29	704	0.9+	0.6−
1996 03 18	566	0.4+	0.2+	1998 09 26	704	0.1−	1.0+	1998 10 29	704	0.0	0.0
1996 03 18	566	0.3+	0.9+	1998 09 26	704	0.4+	0.1+	1998 10 29	704	1.5−	0.7+
1996 03 18	566	0.5+	0.1+	1998 09 26	704	0.9+	0.4+	1999 11 15	704	0.3−	0.4−
1996 03 18	566	0.2−	0.4+	1998 09 26	704	1.4+	0.7+	1999 11 15	704	0.1+	0.0
1996 03 19	566	0.3+	0.1−	1998 09 27	704	0.7+	0.4−	1999 11 15	704	0.4+	0.4−
1996 03 19	566	0.2−	0.1−	1998 09 27	704	0.3+	0.3−	1999 11 15	704	0.8+	0.4+
1996 03 19	566	0.2+	0.3−	1998 09 27	704	1.4+	0.9−	1999 11 15	704	0.2+	0.2+
1996 03 20	098	0.6−	0.6+	1998 09 27	704	1.1+	0.2−	1999 11 29	120	0.7+	0.1+
1996 03 20	098	0.6−	0.4−	1998 10 13	691	0.2−	0.1−	1999 11 29	120	0.7−	1.2+
1996 04 16	098	0.5+	0.2−	1998 10 13	691	0.1−	0.4−	1999 12 08	704	0.1+	0.5−
1996 04 16	098	0.1+	0.3+	1998 10 13	691	0.0	0.5−	1999 12 08	704	0.4−	1.0−
1996 04 17	566	0.0	1.1−	1998 10 15	704	0.6−	1.2+	1999 12 08	704	0.6−	0.3−
1996 04 17	566	0.5+	0.0	1998 10 15	704	1.6−	1.4−	1999 12 08	704	0.2−	0.9−

(12817)* 1996 FM₁₆ = 1997 NT₆ = 1998 SS₁₂₂ = 1998 US₃₃

Discovered 1996 Mar. 22 by E. W. Elst at the European Southern Observatory.

Id. S. Nakano (*MPC* 33493)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		138.20721		(2000.0)		P		Q	
<i>n</i>		0.18408968	ω	85.11326		+0.44273171		+0.89598263	
<i>a</i>		3.0604344	Ω	211.23904		−0.84690252		+0.40514329	
<i>e</i>		0.0183379	<i>i</i>	3.83599		−0.29452462		+0.18186270	
<i>P</i>		5.35	<i>H</i>	13.4		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1996 03 22	809	(0.0	2.9+)	1998 09 14	699	0.5+	0.9−	1998 10 29	704	0.7−	1.1−
1996 03 22	809	(0.4−	2.7+)	1998 09 14	699	0.6−	0.3−	1998 10 29	704	0.8+	0.8+
1996 03 22	809	1.0−	2.0+	1998 09 14	699	0.9−	0.0	1998 10 29	704	0.0	0.7−
1996 03 24	809	(1.5−	2.4+)	1998 09 26	704	0.2−	0.4−	1998 10 29	704	0.0	0.2+
1996 03 24	809	1.1−	1.5+	1998 09 26	704	0.5−	0.2−	1998 10 29	704	0.7+	1.8+
1996 03 24	809	0.5−	1.1+	1998 09 26	704	0.0	0.1−	1998 11 10	704	0.3−	0.3+
1996 03 26	809	(2.2+	6.1+)	1998 09 26	704	0.7+	0.3+	1998 11 10	704	0.7+	0.9+
1996 03 26	809	(1.7+	4.8+)	1998 09 26	704	1.0−	0.6+	1998 11 10	704	(2.4−	1.3+)
1996 03 26	809	(1.0+	3.9+)	1998 09 27	704	0.6−	1.2+	1998 11 10	704	0.4−	1.5+
1996 04 23	566	0.6+	0.4−	1998 09 27	704	0.3−	1.5+	1999 10 10	704	0.3−	0.1−
1996 04 23	566	1.1+	0.6−	1998 09 27	704	0.1+	1.3+	1999 10 10	704	0.8+	0.5−
1996 04 23	566	0.6+	0.6−	1998 09 27	704	0.6+	0.6+	1999 10 10	704	0.2+	0.3−
1996 05 15	566	0.4+	0.8+	1998 09 27	704	0.3−	1.2+	1999 10 10	704	0.3−	0.5+
1996 05 15	566	0.1+	0.8+	1998 10 17	699	0.3+	0.5−	1999 10 21	704	(2.8+	0.9−)
1996 05 15	566	0.8+	0.6+	1998 10 17	699	0.4+	0.0	1999 10 21	704	0.6+	0.2−
1997 07 10	327	0.3−	0.4−	1998 10 17	699	1.5−	0.3−	1999 10 21	704	0.6+	0.2+
1997 07 10	327	0.4+	0.1+	1998 10 28	704	1.0+	0.9−	1999 10 21	704	0.2−	0.6−
1997 07 10	327	0.1−	0.4−	1998 10 28	704	1.3+	0.3−	1999 12 08	704	0.3+	0.5+
1997 07 11	327	0.3+	0.4−	1998 10 28	704	0.6−	0.1+	1999 12 08	704	0.3−	0.8+
1997 07 11	327	0.3+	0.1−	1998 10 28	704	1.0−	0.9−	1999 12 08	704	0.1−	1.1−
1997 07 11	327	0.1−	0.1+	1998 10 28	704	0.1−	0.6−	1999 12 08	704	0.8−	0.3+

(12818)* 1996 GU₈ = 1982 DC₄ = 1992 LY₂

Discovered 1996 Apr. 13 by Spacewatch at Kitt Peak.

Id. K. Ichikawa (*MPC* 27451)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		160.68925		(2000.0)		P		Q	
<i>n</i>		0.21756553	ω	228.12120		+0.58258172		+0.81011787	
<i>a</i>		2.7378479	Ω	77.62709		−0.72438947		+0.55415515	
<i>e</i>		0.0594996	<i>i</i>	3.85276		−0.36858980		+0.19136641	
<i>P</i>		4.53	<i>H</i>	13.7		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1982 02 20	033	0.3−	0.3+	1998 10 29	704	0.8−	0.4+	1998 11 24	699	0.2−	0.7+
1982 02 20	033	0.5+	0.5+	1998 10 29	704	0.3+	0.8−	1998 11 24	704	0.6−	0.5+
1982 02 20	033	0.6+	0.1+	1998 10 29	704	1.0−	0.2+	1998 11 24	699	0.1−	0.1−
1982 02 21	033	0.2−	0.6+	1998 10 29	704	0.4+	0.8−	1998 11 27	691	1.1−	0.3−
1982 02 21	033	0.5+	0.1+	1998 10 29	704	0.3+	1.3−	1998 11 27	691	1.2−	1.8+
1992 06 03	809	(1.0−	2.7+)	1998 11 11	704	0.6+	0.1+	1998 12 07	910	0.7+	0.1−
1992 06 03	809	(0.8−	3.0+)	1998 11 11	704	0.8+	1.5−	1998 12 07	910	0.7+	0.0
1992 06 03	809	(0.5−	3.2+)	1998 11 11	704	(0.7+	2.5−)	1998 12 07	910	0.5+	0.0
1993 10 15	010	0.1−	0.3−	1998 11 11	704	0.9+	0.4−	1998 12 08	910	0.0	0.3−
1993 10 15	010	0.6+	0.0	1998 11 15	691	0.3+	0.3−	1998 12 08	910	0.2+	0.1−
1993 10 15	010	1.4−	0.6+	1998 11 15	691	0.3+	0.2−	1998 12 08	910	0.2−	0.3−
1996 04 13	691	1.1−	0.8−	1998 11 15	691	0.2+	0.3−	1998 12 15	910	0.8+	0.5+
1996 04 13	691	1.0−	0.9−	1998 11 18	704	1.6+	0.7−	1998 12 15	910	0.7+	0.6+
1996 04 13	691	1.2−	1.0−	1998 11 18	704	0.1−	0.1+	1998 12 15	910	0.9+	0.5+
1996 04 14	691	0.6−	0.8−	1998 11 18	704	0.8+	0.5+	1998 12 21	910	0.2−	0.0
1996 04 14	691	0.6−	0.7−	1998 11 18	704	(0.9+	2.1+)	1998 12 21	910	0.2−	0.1−
1996 04 14	691	0.4−	0.9−	1998 11 18	704	1.9+	1.0+	1998 12 21	910	0.2−	0.2−
1996 04 17	566	0.9+	0.6+	1998 11 21	704	0.7−	1.5−	1999 02 20	691	0.6−	0.2−
1996 04 17	566	0.7+	0.7+	1998 11 21	704	0.6−	0.3−	1999 02 20	691	0.6−	0.5−
1996 04 17	566	0.5+	0.5+	1998 11 21	704	0.2−	1.1−	1999 11 16	704	0.2+	0.4+
1996 04 18	691	0.7−	0.7−	1998 11 21	704	0.1−	0.8−	1999 11 16	704	0.3+	0.4+
1996 04 18	691	0.5−	1.0−	1998 11 21	704	0.8−	1.3−	1999 11 16	704	0.4−	0.9+
1996 04 18	691	0.6−	0.6−	1998 11 21	691	0.2−	0.2−	1999 11 16	704	0.1−	0.7+
1997 08 01	566	0.0	0.7+	1998 11 21	691	0.6−	0.5−	1999 11 16	704	0.9+	0.7+
1997 08 01	566	0.0	0.4+	1998 11 21	691	0.2−	0.5−	1999 12 04	703	0.1+	1.1+
1997 08 01	566	0.6+	0.8+	1998 11 24	704	0.9−	0.3−	1999 12 04	703	0.4+	1.3+
1998 10 18	699	0.1−	0.3+	1998 11 24	704	0.0	0.9+	1999 12 04	703	1.8+	0.6+
1998 10 18	699	0.7−	0.3−	1998 11 24	704	(2.2−	1.5−)	1999 12 04	703	0.8+	0.4−
1998 10 18	699	0.2−	0.2+	1998 11 24	699	0.6+	0.6+				

1999 DEC. 22

M.P.C. 37069

Id. A. Doppler (*MPC* 33495), A. Milani (*MPC* 34514)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	177.13501	(2000.0)		P		Q					
n	0.17879389	ω	57.61087	+0.04960088		+0.99601526					
a	3.1205725	Ω	215.46252	−0.95390274		+0.02525017					
e	0.0433857	i	7.33963	−0.29598870		+0.08553375					
P	5.51 <th>H</th> <td>13.0<th>G</th><td>0.15<th>U</th><td>1</td></td></td>	H	13.0 <th>G</th> <td>0.15<th>U</th><td>1</td></td>	G	0.15 <th>U</th> <td>1</td>	U	1				
Residuals in seconds of arc											
1981 09 25	046	0.7+	0.2−	1998 11 10	704	0.2−	0.4−	1999 01 06	699	0.2−	0.8+
1981 09 25	046	0.1−	1.7−	1998 11 10	704	0.8+	0.1−	1999 01 30	402	(2.4−	1.5+)
1996 05 12	367	0.2−	0.2−	1998 11 10	704	0.5+	0.8−	1999 01 30	402	0.3+	0.1+
1996 05 12	367	0.1−	0.1+	1998 11 11	704	0.1−	0.2+	1999 02 06	402	0.3−	0.6+
1996 05 12	367	0.0	0.1+	1998 11 11	704	0.0	0.3+	1999 02 06	402	0.0	0.0
1996 05 12	900	0.1−	1.1+	1998 11 11	704	0.8+	0.3−	1999 02 06	402	0.2+	1.2+
1996 05 12	900	0.1+	1.2−	1998 11 11	704	0.5+	0.3+	1999 10 10	704	0.3−	1.0−
1996 05 13	900	0.1−	0.7−	1998 11 11	699	0.1−	0.0	1999 10 10	704	0.0	0.3−
1996 05 13	900	0.1+	0.5−	1998 11 11	704	(2.2+	0.1−)	1999 10 10	704	0.5−	0.2+
1996 05 15	900	0.4−	0.9−	1998 11 11	699	0.1+	0.0	1999 10 10	704	0.5−	0.6−
1996 05 15	900	0.5−	0.5+	1998 11 11	699	0.3+	0.6+	1999 10 10	704	0.4−	0.4−
1996 06 22	566	0.6+	0.4+	1998 11 24	699	0.1−	0.4+	1999 11 13	402	0.2+	0.0
1996 06 22	566	0.6+	0.5+	1998 11 24	699	0.3−	0.4+	1999 11 13	402	0.1+	0.2−
1996 06 22	566	0.1−	0.5+	1998 11 24	699	0.6+	0.5+	1999 12 05	704	0.3+	0.7+
1997 09 01	566	0.1−	0.2+	1998 12 08	699	0.9−	1.0−	1999 12 05	704	0.5+	0.4−
1997 09 01	566	0.3+	0.0	1998 12 08	699	0.0	0.7+	1999 12 05	704	0.1−	0.6−
1997 09 01	566	0.2−	0.1−	1998 12 08	699	0.1−	0.1+	1999 12 05	704	(2.3−	0.1−)
1998 11 10	704	0.3−	0.5−	1999 01 06	699	0.9−	0.3+				
1998 11 10	704	0.3−	0.7−	1999 01 06	699	1.4−	0.3+				

(12820)* 1996 JN₆ = 1978 XO₁

Discovered 1996 May 11 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 29925)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	87.90000		(2000.0)		P		Q				
<i>n</i>	0.19690273	ω	251.86830		+0.98578113		-0.16165088				
<i>a</i>	2.9261836	Ω	117.41300		+0.16697239		+0.91169232				
<i>e</i>	0.0492655	<i>i</i>	2.96227		+0.01886212		+0.37773815				
<i>P</i>	5.01	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1				
Residuals in seconds of arc											
1978 12 05	033	0.4+	0.6+	1998 10 29	704	0.8+	0.8-	1998 11 29	120	1.8-	1.2+
1978 12 05	033	0.4-	0.2-	1998 10 29	704	0.8+	1.1-	1998 12 11	699	0.1+	0.3+
1988 11 06	675	0.6+	0.9-	1998 11 10	704	0.3-	0.0	1998 12 11	699	0.3+	0.0
1988 11 06	675	0.3-	0.8-	1998 11 10	704	0.4+	0.1+	1998 12 11	699	0.0	0.1-
1996 05 11	691	0.5-	0.4+	1998 11 10	704	0.3-	0.5+	1999 11 10	120	1.3-	0.7-
1996 05 11	691	0.4-	0.5+	1998 11 10	704	(2.7-	0.1+)	1999 11 10	120	0.2-	0.2-
1996 05 11	691	0.5-	0.6+	1998 11 11	704	0.2+	0.0	1999 12 04	703	0.7-	0.2-
1996 05 20	691	0.2+	0.0	1998 11 11	699	0.7-	0.0	1999 12 04	703	0.2-	0.2+
1996 05 20	691	0.2+	0.6+	1998 11 11	704	0.1+	0.0	1999 12 04	703	0.1+	0.0
1996 05 20	691	0.1+	0.2+	1998 11 11	699	0.2-	0.2+	1999 12 04	703	0.2+	0.6-
1996 06 08	809	0.7+	0.6-	1998 11 11	704	0.8-	0.3-	1999 12 06	704	0.0	0.4+
1996 06 08	809	0.4+	0.4-	1998 11 11	699	0.4-	0.0	1999 12 06	704	0.1+	0.1-
1996 06 08	809	0.3-	0.5-	1998 11 24	699	0.2+	0.0	1999 12 06	704	0.8+	0.0
1996 06 10	809	0.9-	1.4-	1998 11 24	699	0.6-	1.0+	1999 12 06	704	0.5-	0.0
1996 06 10	809	0.3-	1.3-	1998 11 24	699	0.0	0.2+	1999 12 06	704	1.5+	0.2+
1996 06 10	809	0.2+	1.5-	1998 11 28	120	1.6+	0.8+	1999 12 09	699	0.2-	0.6+
1998 10 29	704	0.5-	1.2-	1998 11 28	120	0.6+	0.8+	1999 12 09	699	0.1-	0.5-
1998 10 29	704	1.0+	0.6-	1998 11 29	120	0.2-	1.2-	1999 12 09	699	(1.3+	2.4+)
1998 10 29	704	0.2+	1.2-	1998 11 29	120	(2.7+	1.0-)				

(12821)* 1996 RG₁ = 1991 CW₁

Discovered 1996 Sept. 10 by the Beijing Schmidt CCD Asteroid Program at Xinglong.

Id. G. V. Williams (*MPC* 28079)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	328.11662		(2000.0)		P		Q				
<i>n</i>	0.30599489	ω	18.16485		+0.88885846		-0.45790514				
<i>a</i>	2.1810214	Ω	9.13618		+0.40695866		+0.77304366				
<i>e</i>	0.1654446	<i>i</i>	5.75522		+0.21051196		+0.43900614				
<i>P</i>	3.22 <th><i>H</i></th> <td>14.3</td> <th><i>G</i></th> <td>0.15<th><i>U</i></th><td>2</td><td></td><td></td></td>	<i>H</i>	14.3	<i>G</i>	0.15 <th><i>U</i></th> <td>2</td> <td></td> <td></td>	<i>U</i>	2				
Residuals in seconds of arc											
1991 02 12	372	1.3-	0.7-	1998 04 17	327	0.0	0.5+	1999 10 02	704	0.7+	0.1-
1991 02 12	372	0.7+	1.1+	1998 04 18	327	0.3-	0.3-	1999 10 02	704	0.7+	0.1+
1991 02 16	372	(4.1-	3.5-)	1998 04 18	327	0.7+	0.2-	1999 10 02	704	0.5+	0.1+
1991 02 16	372	0.0	0.8-	1998 04 18	327	0.9+	0.4-	1999 10 05	704	0.5+	0.3-
1994 01 18	098	0.3+	0.1+	1998 04 21	704	0.4+	0.5+	1999 10 05	704	0.6+	0.1-
1994 01 18	098	(0.5-	2.2-)	1998 04 21	704	0.6-	0.3-	1999 10 05	704	0.5+	0.3-
1996 09 10	327	0.7-	0.1+	1998 04 21	704	0.8+	0.4-	1999 10 05	704	0.2+	1.2+
1996 09 10	327	0.2-	0.0	1998 04 21	704	0.1+	0.8-	1999 10 05	704	0.1-	0.4-
1996 09 10	327	0.6-	0.2-	1998 04 21	704	0.3+	0.6-	1999 10 07	703	0.0	0.2+
1996 09 10	327	0.5-	0.5-	1998 04 22	704	0.0	0.0	1999 10 07	703	0.3-	0.2+
1996 09 11	327	0.5+	0.1+	1998 04 22	704	0.0	0.7+	1999 10 07	703	0.1-	0.2+
1996 09 11	327	0.2+	0.2+	1998 04 22	704	0.2-	1.0+	1999 10 07	703	0.2-	0.1+
1996 09 11	327	0.1-	0.0	1998 04 22	704	0.6-	0.6+	1999 10 07	704	0.2+	0.2-
1996 09 11	327	0.2+	0.3-	1998 04 22	704	0.5+	1.1+	1999 10 07	704	0.2+	0.5-
1996 09 19	327	0.4-	0.3+	1998 05 18	327	0.2-	0.2-	1999 10 07	704	0.3+	0.8-
1996 09 19	327	0.1-	0.4-	1998 05 18	327	0.4-	0.0	1999 10 07	704	0.4+	0.4-
1996 09 19	327	0.2-	0.0	1999 07 16	704	0.2-	0.3-	1999 10 07	704	0.2-	0.1-
1996 09 19	327	0.3+	0.6+	1999 07 16	704	0.4-	0.2+	1999 10 15	704	0.4-	0.4-
1996 09 21	327	0.1+	1.1+	1999 07 16	704	0.2+	0.2-	1999 10 15	704	0.6-	0.0
1996 09 21	327	0.7+	1.0+	1999 07 16	704	0.9-	0.0	1999 10 15	704	0.2-	0.3-
1996 09 21	327	0.1-	0.5+	1999 07 16	704	0.1+	0.4-	1999 10 15	704	0.3-	0.0
1996 09 22	327	0.2+	0.1+	1999 08 22	699	0.4-	0.8+	1999 10 15	704	0.2-	0.1-
1996 09 22	327	0.5-	0.9+	1999 08 22	699	0.8+	1.0+	1999 10 30	699	0.0	0.8+
1996 09 22	327	0.2-	1.1+	1999 08 22	699	0.2-	0.4+	1999 10 30	699	0.3-	1.0+
1996 09 22	327	0.6-	0.9+	1999 09 04	699	0.3-	0.3+	1999 10 30	699	0.4-	1.2+
1996 10 05	327	0.0	0.2+	1999 09 04	699	0.1+	0.5+	1999 11 14	704	0.3-	1.8-
1996 10 05	327	0.1+	0.1-	1999 09 04	699	0.1-	0.4+	1999 11 14	704	0.0	1.0-
1996 10 05	327	0.5+	0.2+	1999 09 07	704	0.6+	0.2+	1999 11 14	704	0.6+	0.6-
1998 02 06	327	0.1-	1.0+	1999 09 07	704	0.4+	0.0	1999 11 14	704	0.3+	0.1-
1998 02 06	327	0.8+	1.1+	1999 09 07	704	0.1+	0.1+	1999 11 14	704	0.5+	1.2+
1998 02 06	327	1.1+	0.5+	1999 09 07	704	0.1+	0.1-	1999 11 16	704	0.4-	0.4-
1998 03 08	327	0.7-	0.2+	1999 09 07	704	0.2-	0.8-	1999 11 16	704	0.4-	0.2-
1998 03 08	327	0.1+	1.2+	1999 09 11	108	0.6-	0.3-	1999 11 16	704	0.1-	0.1-
1998 03 08	327	0.5-	0.8+	1999 09 11	108	0.8+	0.6-	1999 11 16	704	0.1-	0.3-
1998 03 20	327	0.3+	0.5+	1999 09 12	106	0.7-	0.5+	1999 11 16	704	0.2+	0.3+
1998 03 20	327	0.0	0.4+	1999 09 12	106	0.8-	0.2-	1999 12 03	704	0.6-	0.1+
1998 03 20	327	1.0+	1.2+	1999 09 13	106	0.3-	0.1+	1999 12 03	704	0.5-	0.5+
1998 03 20	327	(3.6+	0.9+)	1999 09 14	704	0.3-	0.1-	1999 12 03	704	0.6-	0.7+
1998 04 01	704	0.3+	0.1+	1999 09 14	704	0.4-	0.1-	1999 12 03	704	0.4-	0.5+
1998 04 01	704	1.1-	1.0+	1999 09 14	704	0.2-	0.5+	1999 12 03	704	0.2-	1.2+
1998 04 01	704	(1.6-	4.3+)	1999 09 14	704	0.1-	0.1-	1999 12 07	704	0.2+	0.3-
1998 04 01	704	(1.9+	2.2+)	1999 10 01	699	0.1-	0.4+	1999 12 07	704	0.1-	0.0
1998 04 01	704	(2.6-	0.1+)	1999 10 01	699	0.3-	0.3+	1999 12 07	704	0.0	0.4-
1998 04 17	327	0.4+	0.3-	1999 10 01	699	0.1-	0.3+	1999 12 07	704	0.2-	0.1-
1998 04 17	327	0.7+	0.5+	1999 10 02	704	0.8+	0.3-	1999 12 07	704	0.2-	0.7-
1998 04 17	327	0.6+	0.3-	1999 10 02	704	0.3+	0.1+				

Residuals in seconds of arc

1977 12 07	675	0.3−	0.0	1998 05 01	704	0.6+	0.0	1999 11 03	704	0.3−	0.0
1977 12 08	675	0.3+	0.3−	1998 05 01	704	0.0	0.3−	1999 11 03	704	0.2−	0.5+
1996 12 02	411	0.3−	0.2−	1998 05 22	704	0.3+	0.1−	1999 11 03	704	0.1−	1.0+
1996 12 02	411	0.3+	0.2−	1998 05 22	704	1.0+	0.8+	1999 11 15	704	0.3+	0.3+
1996 12 03	411	0.0	0.2−	1998 05 22	704	0.7−	1.2+	1999 11 15	704	0.3−	0.3+
1996 12 03	411	0.0	0.3−	1998 05 22	704	0.4+	0.2−	1999 11 15	704	0.3+	0.1+
1996 12 08	411	0.2+	0.2−	1998 05 22	704	0.8+	0.3−	1999 11 15	704	0.6+	0.6+
1996 12 08	411	0.4+	0.1−	1998 05 23	704	0.2−	0.3−	1999 11 17	704	0.3+	0.3+
1996 12 19	411	0.1+	0.0	1998 05 23	704	0.0	0.8−	1999 11 17	704	0.7+	0.6+
1996 12 19	411	0.5+	0.5+	1998 05 23	704	0.2+	0.6−	1999 11 17	704	1.0+	0.7+
1996 12 28	411	0.4−	0.4−	1998 05 23	704	0.1−	0.7−	1999 11 17	704	0.3+	0.7+
1996 12 28	411	0.2−	0.1+	1998 05 23	704	0.9+	0.4−	1999 11 17	704	0.6+	0.7+
1998 04 22	704	0.6−	0.2−	1998 05 24	704	0.5+	0.3+	1999 12 07	704	0.2−	0.4−
1998 04 22	704	0.4−	0.3+	1998 05 24	704	0.2+	0.3−	1999 12 07	704	0.5−	0.5−
1998 04 22	704	1.5−	0.1+	1998 05 24	704	0.1+	0.7+	1999 12 07	704	0.5−	0.3−
1998 04 22	704	0.9−	0.1+	1998 05 24	704	0.1+	0.4+	1999 12 07	704	0.2−	0.3−
1998 04 22	704	1.4−	0.9+	1998 05 24	704	0.3+	0.4−	1999 12 08	704	0.2−	0.5−
1998 04 30	566	0.5−	0.1−	1998 05 25	704	0.6+	0.3−	1999 12 08	704	0.0	0.5−
1998 04 30	566	0.4−	0.2+	1998 05 25	704	0.5+	0.9+	1999 12 08	704	0.3−	0.5−
1998 04 30	566	0.7−	0.1+	1998 05 25	704	0.4−	0.2+	1999 12 08	704	0.2+	0.1−
1998 05 01	704	0.5+	0.3−	1998 05 25	704	0.8+	0.0	1999 12 08	704	1.0−	0.1−
1998 05 01	704	0.0	0.1−	1999 11 03	704	0.2+	0.3−				
1998 05 01	704	0.3+	0.4+	1999 11 03	704	0.6−	0.7+				

(12823)* 1997 AP = 1998 KJ₂₁

Discovered 1997 Jan. 2 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 31981)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	54.84958	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.28473685	ω 30.66117	+0.81511274	+0.57776734
<i>a</i>	2.2882682	Ω 293.98642	−0.54041812	+0.73218156
<i>e</i>	0.1679384	<i>i</i> 2.64384	−0.20866114	+0.36068692
<i>P</i>	3.46	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1994 03 07	691	0.4−	0.0	1998 05 01	704	0.4+	0.1+	1999 11 14	704	0.4−	0.2−
1994 03 07	691	0.1−	0.1−	1998 05 01	704	1.2+	0.6−	1999 11 14	704	0.4−	0.2−
1994 03 07	691	0.3+	0.4−	1998 05 01	704	0.5+	0.0	1999 11 14	704	0.4−	0.3−
1997 01 02	411	0.2+	0.6−	1998 05 01	704	0.6+	0.6+	1999 11 14	704	1.0+	0.3−
1997 01 02	411	0.5+	0.4+	1998 05 22	704	0.1+	0.4+	1999 11 16	704	0.1−	0.2−
1997 01 03	411	0.6+	0.1+	1998 05 22	704	0.3−	0.5+	1999 11 16	704	0.1−	0.2−
1997 01 03	411	1.0−	0.2+	1998 05 22	704	0.2−	0.4−	1999 11 16	704	0.0	0.2−
1997 01 09	411	0.8+	0.3+	1998 05 22	704	0.5−	0.9+	1999 11 16	704	0.2−	0.0
1997 01 09	411	1.0−	0.2+	1998 05 22	704	0.6+	0.5+	1999 11 16	704	0.0	0.0
1997 01 09	411	0.6+	0.9+	1998 05 23	704	0.5−	0.4−	1999 11 29	560	0.2−	0.4+
1997 01 14	411	1.1+	0.7−	1998 05 23	704	0.3−	0.2−	1999 11 29	560	0.3−	0.8+
1997 01 14	411	0.3+	0.1−	1998 05 23	704	0.9−	0.8+	1999 11 29	560	0.3−	0.4+
1997 01 26	411	1.6−	0.2−	1998 05 23	704	0.9−	0.0	1999 12 05	560	0.9−	0.2−
1997 01 26	411	0.2+	0.8+	1998 05 24	704	0.3+	0.2+	1999 12 05	560	0.6+	0.3+
1997 02 04	691	0.1−	0.6−	1998 05 24	704	0.5−	0.3−	1999 12 05	560	0.4+	0.5+
1997 02 04	691	0.1−	0.3−	1998 05 24	704	0.3−	0.5+	1999 12 07	704	0.2−	0.3−
1997 02 04	691	0.3−	0.1−	1998 05 24	704	0.7−	0.9−	1999 12 07	704	(2.1− 0.4+)	
1998 04 22	704	1.5+	0.9−	1999 11 03	704	1.2+	0.3−	1999 12 07	704	0.4−	0.6+
1998 04 22	704	0.3+	0.7−	1999 11 03	704	0.7+	0.6−	1999 12 07	704	0.4−	0.3+
1998 04 22	704	1.1−	0.1+	1999 11 03	704	0.3+	0.3−	1999 12 07	704	0.3−	0.6+
1998 04 22	704	0.7+	0.7−	1999 11 03	704	0.4+	0.9−				
1998 04 22	704	0.1+	0.3+	1999 11 03	704	0.1+	0.7−				

(12824)* 1997 AW₃ = 1980 DH₄ = 1994 EC₃

Discovered 1997 Jan. 6 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 29120)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	275.94210	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.28667127	ω 342.23483	−0.40460569	−0.91163345
<i>a</i>	2.2779627	Ω 131.56478	+0.85031216	−0.40410620
<i>e</i>	0.0528363	<i>i</i> 5.54063	+0.33654638	−0.07498419
<i>P</i>	3.44	<i>H</i> 14.1	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1980 02 20	095	0.2−	0.6−	1997 02 14	691	0.8−	0.2+	1999 11 05	704	0.4−	0.3−
1994 03 12	098	0.6−	0.1+	1997 02 14	691	0.1−	0.2+	1999 11 05	704	0.1−	0.2+
1994 03 13	098	0.5−	1.6−	1999 10 08	703	(2.3+ 3.9−)		1999 11 05	704	0.1−	0.3+
1994 03 14	098	0.2+	0.8−	1999 10 08	703	0.5−	0.1−	1999 11 05	704	0.1+	0.0
1994 03 14	098	0.4−	2.1−	1999 10 08	703	0.2−	0.5+	1999 11 05	704	0.5+	0.3+
1997 01 06	411	0.0	0.6−	1999 10 08	703	0.6−	0.4−	1999 11 12	699	0.1+	0.3+
1997 01 06	411	0.7+	1.1+	1999 10 10	704	0.2+	0.0	1999 11 12	699	0.3−	0.1+
1997 01 07	411	0.5+	0.1−	1999 10 10	704	0.2+	0.5−	1999 11 12	699	0.0	0.1+
1997 01 07	411	0.3+	0.1+	1999 10 10	704	0.1−	0.6−	1999 12 04	699	0.0	0.6+
1997 01 11	411	0.2−	1.0+	1999 10 10	704	0.4−	0.7−	1999 12 04	699	0.4+	0.5+
1997 01 11	411	0.5−	0.9+	1999 10 10	704	0.5−	1.5−	1999 12 04	699	0.4+	0.3+
1997 01 16	411	0.3−	0.6+	1999 10 20	704	0.3−	0.4−	1999 12 05	704	1.0+	0.1+
1997 01 16	411	0.4−	0.8+	1999 10 20	704	0.1−	0.7−	1999 12 05	704	0.6+	0.0
1997 01 26	411	0.9+	0.2−	1999 10 20	704	0.2−	0.4−	1999 12 05	704	0.8+	0.3−
1997 01 26	411	0.8+	0.7−	1999 10 20	704	0.0	1.0−	1999 12 05	704	0.7+	0.2−
1997 02 14	691	0.7−	0.0	1999 10 20	704	0.4−	0.4−	1999 12 05	704	0.5+	0.5−

(12825)* 1997 AJ₇ = 1995 UO₁₈

Discovered 1997 Jan. 9 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 29123)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	217.27752	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.27219146	ω 264.89687	−0.99971394	+0.00774253
<i>a</i>	2.3580502	Ω 275.54544	+0.00194817	−0.91664825
<i>e</i>	0.1486737	<i>i</i> 1.30278	−0.02383791	−0.39961987
<i>P</i>	3.62	<i>H</i> 15.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1995 10 18	691	0.1−	0.0	1999 10 06	704	2.0+	1.8−	1999 11 14	704	0.3−	0.1−
1995 10 18	691	0.2−	0.4+	1999 10 06	704	1.3+	1.1−	1999 11 14	704	0.1+	0.1+
1995 10 18	691	0.1−	0.1+	1999 10 06	704	(1.5+ 2.9−)		1999 11 16	704	0.1+	0.3−
1995 10 23	691	0.1−	0.0	1999 10 06	704	(0.4+ 2.8−)		1999 11 16	704	0.1+	0.8−
1995 10 23	691	0.1+	0.1−	1999 10 06	704	0.5+	1.7−	1999 11 16	704	0.1−	0.1+
1995 10 23	691	0.3+	0.1−	1999 10 12	704	0.5+	0.4−	1999 11 16	704	0.5−	0.1+
1997 01 09	411	1.1+	0.2−	1999 10 12	704	1.1+	0.1−	1999 11 16	704	1.2−	0.9+
1997 01 09	411	1.6+	0.9−	1999 10 12	704	0.2+	0.9−	1999 12 04	703	0.7+	0.7+
1997 01 10	411	1.1−	0.6+	1999 10 12	704	(2.1+ 2.4−)		1999 12 04	703	0.2−	0.5+
1997 01 10	411	0.6−	0.5−	1999 10 15	704	0.0	0.7−	1999 12 04	703	0.9−	0.4+
1997 01 13	411	0.1−	0.5+	1999 10 15	704	0.5−	0.1−	1999 12 04	703	0.4+	0.6+
1997 01 13	411	0.6−	0.1−	1999 10 15	704	1.4−	0.2+	1999 12 07	704	0.1−	0.3−
1997 01 28	411	0.3+	0.3−	1999 11 03	704	0.1+	0.3−	1999 12 07	704	0.0	1.0+
1997 01 28	411	0.4−	0.2−	1999 11 03	704	0.5−	0.3+	1999 12 07	704	0.2+	0.8+
1997 02 14	411	0.0	0.0	1999 11 03	704	0.1+	0.4+	1999 12 07	704	0.5−	0.5−
1997 02 14	411	0.1−	0.7+	1999 11 03	704	0.8+	0.6−	1999 12 07	704	0.3−	0.8+
1998 07 26	691	0.0	0.5+	1999 11 14	704	0.2−	0.3+	1999 12 08	704	0.8−	0.5+
1998 07 26	691	0.1−	0.2+	1999 11 14	704	0.0	0.0	1999 12 08	704	0.0	1.0+
1998 07 26	691	0.3−	0.3+	1999 11 14	704	0.4+	0.5−	1999 12 08	704	1.2−	1.1+

(12826)* 1997 AO₇

Discovered 1997 Jan. 9

Residuals in seconds of arc

1995 09 30	691	0.5+	0.4+	1998 05 24	699	1.8-	0.2-	1998 08 23	704	0.4+	0.4-
1995 09 30	691	0.1+	0.5+	1998 05 24	699	1.5-	0.9-	1998 08 23	704	0.1+	0.5-
1995 09 30	691	0.0	0.2+	1998 05 24	699	1.1-	0.3-	1998 08 23	704	0.9+	0.6-
1995 10 31	104	0.3-	0.8-	1998 06 20	688	0.7-	0.3+	1998 08 23	704	0.2+	0.3+
1995 10 31	104	0.4-	0.6-	1998 06 20	688	0.2-	0.3+	1998 08 23	704	0.4+	0.7-
1995 10 31	104	0.5-	0.3-	1998 06 20	688	0.3-	0.1+	1998 09 14	699	1.1+	0.1+
1997 01 09	411	0.1+	0.1-	1998 07 28	684	0.4-	0.4+	1998 09 14	699	0.9+	0.6+
1997 01 09	411	0.0	1.7-	1998 07 28	684	0.4-	0.4+	1998 09 14	699	0.8+	0.5+
1997 01 10	411	0.5-	0.3-	1998 07 30	684	0.1-	0.7+	1999 10 21	704	1.1-	1.4-
1997 01 10	411	0.3-	0.1-	1998 07 30	684	0.2-	0.3-	1999 10 21	704	0.2+	0.8-
1997 01 13	411	1.1-	0.4+	1998 08 17	704	0.0	0.3+	1999 10 21	704	0.4+	0.7+
1997 01 13	411	0.5-	0.2+	1998 08 17	704	0.1-	0.5-	1999 12 06	704	0.2+	0.6+
1997 01 28	411	0.4+	0.3-	1998 08 17	704	0.4-	0.1+	1999 12 06	704	0.2-	0.4+
1997 01 28	411	0.6+	0.6-	1998 08 17	704	0.2-	0.4+	1999 12 06	704	0.3-	0.7+
1997 01 29	411	0.1+	1.0-	1998 08 17	704	0.2+	0.6-	1999 12 06	704	0.0	0.6+
1997 01 29	411	0.6+	0.1-	1998 08 19	566	0.7+	0.1-	1999 12 06	704	0.3-	1.2+
1997 02 14	411	0.8+	0.1+	1998 08 19	566	0.0	0.3-				
1997 02 14	411	0.1+	0.5+	1998 08 19	566	0.7+	0.6-				

(12827)* 1997 AS₇ = 1979 HH₅ = 1979 HS₆

Discovered 1997 Jan. 5 by the Beijing Schmidt CCD Asteroid Program at Xinglong.

Id. G. V. Williams (*MPC* 29123)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
184.09687		(2000.0)			
<i>n</i>	0.27062771	ω	129.77211	-0.39931564	+0.90939245
<i>a</i>	2.3671251	Ω	116.32728	-0.87586873	-0.34087144
<i>e</i>	0.0887582	<i>i</i>	7.46308	-0.27092616	-0.23835274
<i>P</i>	3.64	<i>H</i>	13.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1979 04 25	095	0.9-	0.4-	1998 08 25	809	0.4-	1.1-	1999 10 10	704	0.0	0.2+
1979 04 30	095	1.2+	1.4+	1998 08 25	809	0.9-	2.0-	1999 10 10	704	0.1-	0.3+
1997 01 05	327	0.3-	0.3-	1998 08 26	809	0.3-	0.7+	1999 10 10	704	0.7+	0.3+
1997 01 05	327	0.0	0.6+	1998 08 26	809	0.5+	1.0+	1999 10 21	704	1.2+	0.4+
1997 01 05	327	0.3+	0.0	1998 08 26	809	0.1+	0.0	1999 10 21	704	0.3+	0.1-
1997 01 09	327	0.0	0.1+	1998 09 21	704	0.2-	1.0+	1999 10 21	704	0.1-	0.6-
1997 01 09	327	0.0	0.4-	1998 09 21	704	0.1+	0.0	1999 10 21	704	0.1-	0.0
1997 01 23	327	0.6-	0.1+	1998 09 21	704	0.0	0.5-	1999 12 08	120	0.3-	0.0
1997 01 23	327	0.8-	0.2-	1998 09 21	704	0.4-	0.2-	1999 12 08	120	(4.5+	1.5-)
1997 01 23	327	1.0+	0.4-	1998 09 22	699	0.4+	0.0	1999 12 08	704	0.1+	0.0
1997 01 25	327	0.0	0.2-	1998 09 22	699	0.8+	0.4+	1999 12 08	704	0.3-	0.5-
1997 01 25	327	0.6+	0.2-	1998 09 22	699	0.5+	1.1+	1999 12 08	704	0.1+	0.1-
1997 01 25	327	0.6-	0.5-	1999 10 10	704	0.2-	0.1+	1999 12 08	704	0.3-	0.4+
1998 08 25	809	0.1-	0.9-	1999 10 10	704	0.0	0.9+	1999 12 08	704	0.6-	0.1-

(12828)* 1997 AU₉ = 1989 YN₇ = 1998 OU₁₁

Discovered 1997 Jan. 3 by Spacewatch at Kitt Peak.

Id. A. Gnädig (*MPC* 32472), B. G. Marsden (*ibid.*), S. Nakano (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
175.66368		(2000.0)			
<i>n</i>	0.28976123	ω	87.58288	-0.53008346	+0.84734865
<i>a</i>	2.2617393	Ω	150.33692	-0.80128435	-0.48828880
<i>e</i>	0.1340848	<i>i</i>	3.68513	-0.27740750	-0.20874463
<i>P</i>	3.40	<i>H</i>	14.5	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1989 12 26	033	0.9-	0.5+	1998 07 26	809	1.2+	1.0+	1998 09 14	704	0.6+	0.5-
1989 12 26	033	0.6-	0.5+	1998 07 27	809	(2.3+	0.4+)	1998 09 14	704	0.4+	0.3-
1989 12 26	033	1.6+	0.2+	1998 07 27	809	(2.8+	0.2+)	1998 09 14	704	0.3-	0.7+
1996 11 05	691	0.1-	0.1+	1998 07 27	809	(2.4+	1.0+)	1998 09 14	704	0.9-	0.4+
1996 11 05	691	0.0	0.1+	1998 08 17	704	0.1-	0.3-	1999 10 10	704	0.0	0.5-
1996 11 05	691	0.1-	0.1-	1998 08 17	704	0.3+	0.2+	1999 10 10	704	0.7+	1.3-
1997 01 03	691	0.0	0.1-	1998 08 17	704	0.3+	0.2+	1999 10 10	704	0.5+	0.7-

1997 01 03	691	0.3+	0.1-	1998 08 17	704	0.3+	0.5-	1999 10 10	704	0.0	0.3+
1997 01 03	691	0.1+	0.3-	1998 08 17	704	0.2-	1.3-	1999 10 10	704	0.1-	0.8-
1997 01 10	691	0.2+	0.1-	1998 08 23	704	0.1-	0.5+	1999 11 04	704	0.3+	1.2+
1997 01 10	691	0.3+	0.2-	1998 08 23	699	0.3-	0.4-	1999 11 04	704	0.7-	0.5+
1997 01 10	691	0.2+	0.3-	1998 08 23	704	1.2-	0.2-	1999 11 04	704	0.3-	0.5-
1997 01 27	411	0.0	0.8+	1998 08 23	704	1.0+	1.2+	1999 11 04	704	1.3-	0.2+
1997 01 27	411	0.2-	0.3+	1998 08 23	699	0.2-	0.1-	1999 12 08	704	0.6+	0.3+
1997 01 29	411	0.1-	0.6+	1998 08 23	704	1.6-	0.5+	1999 12 08	704	0.1+	0.4+
1997 01 29	411	0.4-	0.5+	1998 08 23	704	1.8-	0.4-	1999 12 08	704	0.3+	0.2-
1998 07 26	809	1.1+	0.8+	1998 08 23	699	0.0	0.2-	1999 12 08	704	0.0	0.4-
1998 07 26	809	0.7+	0.6+	1998 09 14	704	0.3+	0.6+	1999 12 08	704	0.2+	0.1-

(12829)* 1997 AB₁₃ = 1982 VA₉ = 1995 SB₅

Discovered 1997 Jan. 10 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 29124)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
351.26430		(2000.0)			
<i>n</i>	0.29211325	ω	340.19835	+0.70604952	-0.70636729
<i>a</i>	2.2495822	Ω	64.84877	+0.65699762	+0.62682025
<i>e</i>	0.0165015	<i>i</i>	3.19130	+0.26428813	+0.32884894
<i>P</i>	3.37	<i>H</i>	14.2	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1982 11 09	095	0.6-	0.7-	1997 02 13	385	0.3-	0.5-	1999 11 16	704	0.3-	0.4+
1992 10 23	010	1.8+	1.1-	1997 02 13	385	0.3+	0.7-	1999 12 02	819	0.0	0.5+
1992 10 23	010	1.0+	0.7-	1997 02 13	385	0.3-	0.6-	1999 12 02	819	0.2-	0.7+
1994 03 05	691	0.2-	0.9-	1997 02 14	385	0.3-	0.4-	1999 12 02	819	0.2-	0.4+
1994 03 05	691	0.3-	0.8-	1997 02 14	385	0.6-	0.0	1999 12 02	819	0.2+	0.3+
1994 03 05	691	0.4-	0.8-	1999 10 12	704	0.4+	0.8-	1999 12 07	704	0.2-	0.1-
1995 09 29	819	0.1-	0.3+	1999 10 12	704	1.5+	0.6-	1999 12 07	704	1.2-	0.1-
1995 09 29	819	0.1-	1.8-	1999 10 12	704	1.9+	0.4+	1999 12 07	704	0.5-	0.1+
1995 09 29	819	0.1-	1.2-	1999 11 03	704	0.0	0.3-	1999 12 07	704	0.2-	0.1-
1995 09 30	819	1.6+	1.0+	1999 11 03	704	0.2-	0.2-	1999 12 07	704	0.2-	0.1+
1995 09 30	819	(3.0+	2.7+)	1999 11 03	704	0.7-	0.3+	1999 12 07	133	0.3-	0.1+
1995 09 30	819	0.0	0.6-	1999 11 09	704	0.1-	0.1-	1999 12 07	133	0.6-	0.2+
1995 09 30	819	0.1+	0.6+	1999 11 09	704	0.2-	0.1-	1999 12 07	133	0.2-	0.4+
1995 09 30	819	0.9-	0.0	1999 11 09	704	0.5-	0.3-	1999 12 08	704	0.1-	0.1-
1995 09 30	819	0.1-	1.3-	1999 11 09	704	0.2-	0.5-	1999 12 08	704	0.1+	0.1+
1997 01 10	411	0.4+	0.0	1999 11 09	704	0.4-	0.3-	1999 12 08	704	0.1+	1.6+
1997 01 10	411	0.1-	0.1+	1999 11 12	704	0.0	0.1-	1999 12 08	704	0.0	0.3-
1997 01 11	411	0.2+	0.2+	1999 11 12	704	0.1-	0.0	1999 12 08	704	0.0	0.3+
1997 01 11	411	0.2+	0.1+	1999 11 12	704	0.1+	0.1-	1999 12 12	704	0.4+	0.2-
1997 01 14	411	0.0	0.9-	1999 11 12	704	0.0	0.1-	1999 12 12	704	0.3+	0.4+
1997 01 14	411	0.3+	0.4-	1999 11 12	704	0.1+	0.0	1999 12 12	704	0.1+	0.3+
1997 01 27	411	0.2-	0.3+	1999 11 16	704	0.2-	0.2-	1999 12 12	704	0.1+	0.7+
1997 01 27	411	0.1-	0.1-	1999 11 16	704	0.2-	0.0	1999 12 12	704	0.3+	1.0+
1997 02 12	411	0.2-	0.3-	1999 11 16	704	0.0	0.4-				
1997 02 12	411	0.3+	0.3-	1999 11 16	704	0.1+	0.4-				

(12830)* 1997 BP₁ = 1981 SL₄ = 1994 GP₃

Discovered 1997 Jan. 29 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 29636)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	331.90456	(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.27546552	ω 6.54038	+0.79517814	-0.60613595
a	2.3393286	Ω 30.79060	+0.55481841	+0.71592916
e	0.2009521	i 1.90950	+0.24467992	+0.34647460
P	3.58	H 14.8	G 0.15	U 1

(12832)* 1997 CE₁ = 1974 XG = 1981 UW = 1981 UV₂₇ = 1988 RW₁₃
 Discovered 1997 Feb. 1 by T. Kobayashi at Oizumi.
 Id. S. Nakano (*MPC* 29639), G. V. Williams (d, *ibid.*)

n	0.31672344	ω	197.68428	+0.61787552	+0.78510152						
a	2.1314865	Ω	110.49870	-0.71573906	+0.58422339						
e	0.1586048	i	2.62867	-0.32549570	+0.20566632						
P	3.11	H	14.7	G	0.15						
				U	2						
Residuals in seconds of arc											
1992 07 24	809	1.7+	0.3-	1997 03 10	046	0.2+	0.3-	1998 06 17	046	0.7-	0.5+
1992 07 24	809	0.4+	1.9-	1997 03 10	046	0.2+	0.3-	1998 06 24	704	(3.0+	0.0)
1992 07 24	809	0.2-	1.2-	1997 03 11	046	0.4+	0.5-	1998 06 24	704	0.5-	0.2+
1992 07 26	809	0.0	1.1-	1997 03 11	046	0.2+	0.3+	1998 06 24	704	0.4+	1.2+
1992 07 26	809	0.0	1.2-	1997 03 11	046	0.4+	0.2-	1998 06 24	704	(0.1+	3.2+)
1992 07 26	809	0.9-	0.6-	1998 03 31	046	0.5-	0.2-	1998 06 26	704	0.6+	0.1+
1992 07 30	809	1.0+	0.2+	1998 03 31	046	0.2-	0.3+	1998 06 26	704	(3.2+	0.9+)
1992 07 30	809	0.0	0.3+	1998 03 31	046	0.5-	0.3-	1998 06 26	704	0.6+	0.2-
1992 07 30	809	0.4-	0.6+	1998 04 07	046	0.5-	0.2+	1998 06 26	704	0.8+	0.6-
1996 12 20	411	0.7+	1.1-	1998 04 07	046	0.4+	0.3+	1998 08 11	046	0.2-	1.4+
1996 12 20	411	0.5+	0.7+	1998 04 07	046	0.2-	0.3+	1998 08 11	046	0.5-	1.3+
1996 12 21	411	0.2-	0.2-	1998 05 20	046	0.2-	0.5-	1998 08 11	046	0.2-	0.8+
1996 12 21	411	0.2-	0.5-	1998 05 20	046	0.3+	0.5-	1998 08 11	046	0.1-	0.7+
1997 01 13	566	0.5-	0.4-	1998 05 20	046	0.1-	0.0	1998 08 14	046	0.7+	0.5+
1997 01 13	566	0.2-	0.3-	1998 05 22	704	0.5+	0.6-	1999 10 12	704	0.7-	1.5-
1997 01 13	566	0.2-	0.2-	1998 05 22	704	0.7-	0.7+	1999 10 12	704	0.1+	0.3+
1997 02 02	046	0.2+	0.4-	1998 05 22	704	0.3+	0.2-	1999 10 12	704	0.3-	0.3-
1997 02 02	046	0.3+	0.3-	1998 05 22	704	0.3+	1.0-	1999 10 12	704	0.2-	0.5+
1997 02 02	046	0.5-	0.2+	1998 05 22	704	1.0+	1.3-	1999 10 22	704	0.3+	0.4-
1997 02 02	046	0.0	0.4-	1998 05 24	704	0.6-	0.1-	1999 10 22	704	0.1-	0.2+
1997 02 03	046	0.0	0.2+	1998 05 24	704	0.9+	0.4-	1999 10 22	704	0.4+	1.0+
1997 02 03	046	0.3+	0.0	1998 05 24	704	1.3+	0.7-	1999 12 07	704	0.1+	0.0
1997 02 03	046	0.1+	0.0	1998 05 24	704	1.2+	0.2+	1999 12 07	704	0.1+	0.4+
1997 02 06	046	0.1-	0.3-	1998 05 24	704	1.6-	1.4-	1999 12 07	704	0.1-	0.1-
1997 02 07	046	0.1+	0.2+	1998 05 28	046	0.5+	0.0	1999 12 07	704	0.4-	0.0
1997 02 07	046	0.3+	0.1+	1998 05 28	046	0.4+	0.2+	1999 12 08	704	0.2+	0.1-
1997 02 07	046	0.2+	0.1+	1998 05 28	046	0.4-	0.5+	1999 12 08	704	0.2-	0.2+
1997 02 10	046	0.5-	0.3-	1998 06 16	046	0.6-	0.3-	1999 12 08	704	0.1-	0.4-
1997 02 10	046	0.4-	1.1-	1998 06 16	046	0.4-	0.0	1999 12 08	704	0.8+	0.1+
1997 02 10	046	0.7-	0.1+	1998 06 16	046	0.4-	0.1-	1999 12 08	704	0.4+	0.3-

1999 DEC. 22

M.P.C. 37073

1997 03 10 046 0.5+ 0.1- 1998 06 17 046 1.0- 0.5+
 1997 03 10 046 0.3- 0.3- 1998 06 17 046 0.6- 0.4+

(12834)* 1997 CB₁₃ = 1976 UT₁₈

Discovered 1997 Feb. 4 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 29128)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams	
<i>M</i>	86.68353	(2000.0)	
	<i>P</i>	<i>Q</i>	
<i>n</i>	0.30656972	ω	189.35355
<i>a</i>	2.1782943	Ω	129.12082
<i>e</i>	0.1524492	<i>i</i>	4.06141
<i>P</i>	3.21	<i>H</i>	14.5
		<i>G</i>	0.15
		<i>U</i>	2

Residuals in seconds of arc

1976 10 22	381	0.5-	0.4+	1998 05 24	704	0.1+	0.4+	1999 10 10	704	0.5-	0.3-
1976 10 22	381	0.2+	0.1+	1998 05 24	704	0.8+	0.1+	1999 10 10	704	0.2+	0.4-
1976 10 24	381	0.0	0.5+	1998 05 24	704	0.0	0.2-	1999 10 10	704	0.0	0.4+
1997 01 14	566	0.1-	0.4+	1998 05 24	704	0.4+	0.5-	1999 10 21	704	0.7+	0.3-
1997 01 14	566	0.2+	0.4+	1998 06 24	704	0.1+	0.4-	1999 10 21	704	0.1-	1.0-
1997 01 14	566	0.5+	0.4+	1998 06 24	704	0.3+	0.3-	1999 10 21	704	0.6+	0.1-
1997 02 04	691	0.2+	0.2-	1998 06 24	704	0.1-	0.1+	1999 10 21	704	0.9-	0.2-
1997 02 04	691	0.5+	0.2-	1998 06 24	704	0.3-	0.1-	1999 10 21	704	0.8-	0.2-
1997 02 04	691	0.3+	0.3-	1998 06 24	704	0.3+	0.0	1999 12 07	704	0.1+	0.4-
1997 02 07	691	0.1-	0.0	1998 06 26	704	0.0	0.2-	1999 12 07	704	0.2-	0.0
1997 02 07	691	0.2-	0.0	1998 06 26	704	0.4+	0.0	1999 12 07	704	0.4+	0.4-
1997 02 07	691	0.4-	0.1-	1998 06 26	704	0.5+	0.5+	1999 12 07	704	0.4+	0.3-
1997 02 14	691	0.4-	0.2-	1998 06 26	704	0.5-	0.1+	1999 12 07	704	0.1-	0.0
1997 02 14	691	0.4-	0.1-	1998 06 26	704	0.5-	0.1-	1999 12 08	704	0.5+	0.3+
1997 02 14	691	0.6-	0.1-	1998 08 15	704	0.2-	1.6-	1999 12 08	704	0.1+	0.6+
1998 05 22	704	1.3-	0.3+	1998 08 15	704	0.3-	1.5-	1999 12 08	704	0.1+	0.1-
1998 05 22	704	0.9+	0.8+	1998 08 15	704	0.0	1.5+	1999 12 08	704	0.1+	0.5-
1998 05 22	704	(1.6- 3.3-)		1998 08 15	704	0.1+	0.7-	1999 12 08	704	0.5-	0.2-
1998 05 22	704	0.1+	0.0	1998 08 15	704	1.5-	0.2-				

(12835)* 1997 CN₁₃ = 1977 QO₅

Discovered 1997 Feb. 7 at Kleť.

Id. T. B. Spahr (*MPC* 30461)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams	
<i>M</i>	92.68836	(2000.0)	
	<i>P</i>	<i>Q</i>	
<i>n</i>	0.27851913	ω	163.36364
<i>a</i>	2.3221986	Ω	135.43579
<i>e</i>	0.1276076	<i>i</i>	7.81323
<i>P</i>	3.54	<i>H</i>	14.2
		<i>G</i>	0.15
		<i>U</i>	1

Residuals in seconds of arc

1977 08 20	808	1.0+	0.7-	1998 04 21	046	0.9+	0.4+	1998 07 27	689	1.1+	0.1-
1977 08 22	808	0.7-	1.2-	1998 04 21	046	0.7+	0.5+	1998 08 11	046	0.5+	0.8+
1997 02 07	046	0.6-	0.1+	1998 04 23	046	0.8-	0.8+	1998 08 11	046	0.7+	0.3+
1997 02 07	046	0.7-	0.2+	1998 04 23	046	0.5-	0.7+	1998 08 16	046	0.8-	1.1+
1997 02 07	046	0.6-	0.2+	1998 06 02	046	0.1-	0.4-	1999 10 10	704	0.2-	0.4+
1997 02 09	046	0.5-	0.0	1998 06 02	046	0.3-	0.5-	1999 10 10	704	0.9-	0.2-
1997 02 09	046	0.1-	0.0	1998 06 02	046	0.0	0.5-	1999 10 10	704	0.3+	0.3-
1997 02 09	046	0.2-	0.1-	1998 06 02	046	0.2-	0.0	1999 10 10	704	0.2+	0.3-
1997 02 09	046	0.6-	0.1+	1998 06 02	046	0.3-	0.3-	1999 10 10	704	0.2-	0.8-
1997 02 10	046	0.3-	0.2+	1998 06 02	046	0.0	0.0	1999 11 04	704	0.9-	0.6-
1997 02 10	046	0.3-	0.0	1998 06 16	046	0.0	0.1-	1999 11 04	704	0.4-	0.1+
1997 02 10	046	0.2-	0.1-	1998 06 16	046	0.1-	0.1-	1999 11 04	704	0.5-	0.2-
1997 02 17	046	0.6+	0.1-	1998 06 16	046	0.1-	0.0	1999 11 04	704	0.7-	0.5+
1997 02 17	046	0.5+	0.1-	1998 06 17	046	0.3+	0.2-	1999 11 04	704	0.5-	0.4+
1997 02 17	046	0.2+	0.1+	1998 06 17	046	0.4+	0.1-	1999 11 28	046	0.1+	0.5+
1997 02 27	046	0.8+	0.7+	1998 06 19	704	0.3+	1.0+	1999 11 28	046	1.0+	0.2+
1997 02 27	046	0.8+	0.1+	1998 06 19	704	0.8-	0.7-	1999 11 28	046	0.4+	0.5+
1997 02 27	046	0.6+	0.6-	1998 06 19	704	0.1+	0.2-	1999 11 28	046	0.1+	0.8+
1997 02 27	046	0.3+	0.6-	1998 06 19	704	0.0	0.1+	1999 11 28	046	0.1-	0.5+
1997 03 05	046	0.1+	0.5-	1998 06 19	704	0.5+	0.1+	1999 11 28	046	0.5+	0.8+

1997 03 05	046	0.1+	0.2-	1998 06 25	704	0.3+	0.0	1999 12 06	704	0.2+	0.0
1997 03 05	046	0.1-	0.0	1998 06 25	704	0.0	0.1+	1999 12 06	704	0.2-	0.2+
1997 03 08	046	0.3+	0.5-	1998 06 25	704	0.4+	0.2+	1999 12 06	704	0.1+	0.1-
1997 03 08	046	0.1-	0.5+	1998 06 25	704	0.1-	0.7+	1999 12 06	704	0.5+	0.3+
1997 03 08	046	0.3+	0.7-	1998 06 25	704	0.2-	0.6+	1999 12 06	704	0.2+	0.4+
1998 04 21	046	0.3+	0.3+	1998 07 26	689	1.7-	0.0				

(12836)* 1997 CA₂₂ = 1998 QE₃₄

Discovered 1997 Feb. 13 by T. Kobayashi at Oizumi.

Id. E. Bowell (*MPC* 32474), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams	
<i>M</i>	253.67127	(2000.0)	
	<i>P</i>	<i>Q</i>	
<i>n</i>	0.30475189	ω	28.03923
<i>a</i>	2.1869480	Ω	156.38883
<i>e</i>	0.0683616	<i>i</i>	1.51984
<i>P</i>	3.23	<i>H</i>	14.9
		<i>G</i>	0.15
		<i>U</i>	2

Residuals in seconds of arc

1995 10 01	691	0.2+	0.9+	1998 08 17	704	0.1+	0.4-	1998 09 25	704	0.0	1.1-
1995 10 01	691	0.1+	0.4+	1998 08 17	704	0.7+	0.7-	1998 09 25	704	0.7-	0.5-
1995 10 01	691	0.1+	0.3+	1998 08 23	699	0.0	1.4+	1998 09 25	704	0.3-	1.8-
1997 02 13	411	0.6-	1.0+	1998 08 23	704	0.2+	1.0+	1998 10 26	910	1.0-	0.1-
1997 02 13	411	0.0	0.3-	1998 08 23	704	0.5-	1.3-	1998 10 26	910	0.9-	0.4-
1997 02 14	411	1.1-	0.0	1998 08 23	699	0.1-	0.1-	1998 10 26	910	0.6-	0.7-
1997 02 14	411	0.5-	0.3+	1998 08 23	704	0.8-	0.1+	1998 11 09	910	1.3-	0.5-
1997 02 16	411	0.3-	0.2+	1998 08 23	704	0.1-	0.0	1998 11 09	910	1.2-	0.4-
1997 02 16	411	0.8-	0.0	1998 08 23	699	0.2+	0.3+	1998 11 09	910	1.2-	0.3-
1997 02 26	411	0.8-	0.2-	1998 08 23	704	0.1-	0.3+	1998 11 10	910	0.4-	0.6-
1997 02 26	411	0.9-	0.6-	1998 09 14	704	1.1+	0.5+	1998 11 10	910	0.8-	0.5-
1997 03 09	411	0.4-	0.2+	1998 09 14	704	0.3+	0.0	1998 11 10	910	1.0-	0.0
1997 03 09	411	0.8-	0.2-	1998 09 14	704	0.2+	0.1-	1998 11 12	910	0.6-	0.3-
1997 04 28	704	0.4-	0.2-	1998 09 14	704	(2.1+ 0.5+)		1998 11 12	910	0.6-	0.0
1997 04 28	704	0.2+	0.4+	1998 09 14	699	0.0	0.4+	1998 11 12	910	0.7-	0.4-
1997 04 28	704	0.3-	0.5-	1998 09 14	699	0.2+	0.1-	1999 11 11	703	0.9+	0.7+
1997 04 28	704	0.2-	0.1-	1998 09 14	699	0.4+	0.9+	1999 11 11	703	0.6+	0.1-
1997 04 28	704	1.0+	1.1+	1998 09 18	704	0.9+	0.7+	1999 11 11	703	0.2+	1.0+
1997 04 29	704	1.7+	0.0	1998 09 18	704	0.9+	0.5+	1999 11 11	703	0.7+	0.3+
1997 04 29	704	1.6+	0.0	1998 09 18	704	0.8+	0.0	1999 11 17	704	0.9+	0.3-
1997 04 29	704	1.4+	0.7+	1998 09 18	704	0.3+	0.9+	1999 11 17	704	0.4+	1.0+
1997 04 29	704	1.6+	0.4+	1998 09 21	699	0.6-	1.4+	1999 11 17	704	0.5+	1.8-
1997 04 29	704	1.3+	0.3+	1998 09 21	699	0.1-	0.3+	1999 11 17	704	0.6+	0.5-
1998 08 17	704	0.1+	0.3+	1998 09 21	699	0.1-	0.8+	1999 12 05	699	0.9-	0.4-
1998 08 17	704	0.7+	0.0	1998 09 25	704	0.0	0.4-	1999 12 05	699	1.1-	0.6+
1998 08 17	704	0.3+	0.3+	1998 09 25	704	1.7+	0.3-	1999 12 05	699	0.5-	0.9+

(12837)* 1997 EK₃₅ = 1988 PP₄ = 1998 KV₅₅

Discovered 1997 Mar. 4 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. S. Nakano (*MPC* 32475)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Nakano	
<i>M</i>	74.80579	(2000.0)	
	<i>P</i>	<i>Q</i>	
<i>n</i>	0.28825652	ω	189.99841
<i>a</i>	2.2696033	Ω	134.98816
<i>e</i>	0.1904884	<i>i</i>	5.88377
<i>P</i>	3.42	<i>H</i>	14.5
		<i>G</i>	0.15
		<i>U</i>	2

Residuals in seconds of arc

1988 08 08	095	0.0	0.1+	1998 05 23	704	1.2+	0.1-	1998 06 26	704	0.4-	0.4+
1988 08 08	095	(4.3+ 2.3-)		1998 05 23	704	1.3+	1.8-	1999 10 21	704	0.1-	0.3-
1997 02 08	566	1.5-	0.4-	1998 05 26	704	0.5+	0.2-	1999 10 21	704	0.2-	0.9+
1997 02 08	566	1.5-	0.2-	1998 05 2							

1997 03 04	704	1.2+	0.8+	1998 06 24	704	0.8-	0.4+	1999 11 17	704	0.1-	0.9-
1997 03 04	704	0.1+	0.3-	1998 06 24	704	0.0	0.3+	1999 11 17	704	0.3-	0.2+
1997 03 05	704	0.1+	0.5+	1998 06 24	704	0.4-	0.3+	1999 12 06	704	0.0	0.1-
1997 03 05	704	0.7+	0.5+	1998 06 24	704	0.6-	0.1-	1999 12 06	704	0.3-	0.4+
1997 03 06	704	1.7+	1.3-	1998 06 26	704	0.6-	0.2+	1999 12 06	704	0.1+	0.3+
1997 03 06	704	0.1+	0.0	1998 06 26	704	0.2+	0.5-	1999 12 06	704	0.2-	0.2+
1998 05 23	704	0.4+	0.5+	1998 06 26	704	0.7-	0.4+				
1998 05 23	704	1.0+	0.1+	1998 06 26	704	0.4-	0.3-				

(12838)* 1997 EL₅₅ = 1987 DX₆ = 1997 HO₁₄ = 1999 RX₂

Discovered 1997 Mar. 9 by E. W. Elst at the European Southern Observatory.

Id. A. Doppler (d, *MPC* 34061), G. V. Williams (*MPC* 35942)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	309.17758		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.20122348	ω	86.92457	+0.64461638	-0.76440724
a	2.8841440	Ω	322.92912	+0.69306682	+0.59109532
e	0.0700245	i	1.16917	+0.32268887	+0.25746436
P	4.90	H	12.9	G 0.15	U 1

Residuals in seconds of arc

1987 02 26	809	0.6-	0.2-	1999 09 07	678	0.6-	0.1-	1999 10 07	704	0.1+	0.2-
1987 02 26	809	0.2+	0.0	1999 09 07	704	0.1+	0.1-	1999 10 07	704	0.1+	0.8-
1987 02 26	809	0.9+	0.1-	1999 09 07	704	0.0	0.3-	1999 10 07	704	0.4+	0.0
1994 09 11	691	0.5-	0.2+	1999 09 07	704	0.2+	0.3-	1999 10 07	704	0.1+	0.6-
1994 09 11	691	0.4-	0.4+	1999 09 07	704	0.0	0.7-	1999 10 07	704	0.4-	0.3-
1994 09 11	691	0.4-	0.0	1999 09 07	704	0.5-	0.3-	1999 10 07	704	0.2+	0.5-
1997 03 08	809	(3.5-	1.3+)	1999 09 08	678	0.8-	0.1-	1999 10 07	704	0.5+	0.1-
1997 03 08	809	(3.6-	1.1+)	1999 09 08	678	0.9-	0.2-	1999 10 07	704	0.1+	0.5-
1997 03 08	809	(3.4-	1.6+)	1999 09 08	678	0.4-	0.2-	1999 10 07	704	0.7-	1.5-
1997 03 09	809	(3.4-	1.2+)	1999 09 09	704	0.2-	0.0	1999 10 07	704	0.2-	0.3-
1997 03 09	809	(3.1-	1.6+)	1999 09 09	704	0.0	0.2-	1999 10 07	106	1.0+	1.7+
1997 03 09	809	(3.0-	1.3+)	1999 09 09	704	0.4-	0.1-	1999 10 07	106	0.4+	1.3+
1997 03 10	809	1.4+	1.6+	1999 09 09	704	0.3-	0.1-	1999 10 09	704	0.2+	0.1-
1997 03 10	809	0.6+	1.2+	1999 09 09	704	0.2+	0.2-	1999 10 09	704	0.5+	0.4-
1997 03 10	809	0.5+	0.0	1999 09 09	120	0.2-	0.6-	1999 10 09	704	0.3+	0.4-
1997 03 11	809	(1.2+	3.0+)	1999 09 09	120	0.2+	0.6-	1999 10 09	704	0.3+	0.5-
1997 03 11	809	(1.4+	3.4+)	1999 09 09	120	0.0	0.7-	1999 10 09	704	0.4+	0.6-
1997 03 11	809	(0.6+	3.7+)	1999 09 10	120	0.4+	0.1-	1999 10 15	704	0.2-	0.2-
1997 04 28	691	0.7-	0.1-	1999 09 10	120	0.7+	0.4-	1999 10 15	704	0.2-	0.3-
1997 04 28	691	0.6-	0.0	1999 09 11	120	0.5-	0.1-	1999 10 15	704	0.2-	0.0
1997 04 28	691	0.5-	0.1-	1999 09 11	120	0.3-	0.1-	1999 10 15	704	0.3-	0.2-
1997 05 09	691	0.5-	0.7-	1999 09 29	703	0.3-	0.5+	1999 10 15	704	0.3+	0.2+
1997 05 09	691	0.2-	0.7-	1999 09 29	703	0.3-	0.4+	1999 10 30	699	0.3-	0.3-
1997 05 09	691	0.7-	0.6-	1999 09 29	703	0.2-	0.7+	1999 10 30	699	0.1+	0.2+
1998 06 24	704	0.3+	0.5-	1999 09 29	703	0.2-	0.7+	1999 10 30	699	0.8+	0.2+
1998 06 24	704	(0.7+	4.6-)	1999 10 01	699	0.1+	0.9+	1999 11 28	699	0.3-	0.0
1998 06 24	704	1.4-	0.1+	1999 10 01	699	0.1+	0.8+	1999 11 28	699	0.4-	0.4+
1998 06 24	704	(5.4-	0.7-)	1999 10 01	699	0.2-	0.6+	1999 11 28	699	1.9+	0.6+
1998 06 26	704	0.6+	0.5+	1999 10 02	704	0.4+	0.6+	1999 12 03	704	0.7-	0.1-
1998 06 26	704	0.3-	0.4+	1999 10 02	704	0.6+	0.1+	1999 12 03	704	0.3-	0.3+
1998 06 26	704	(4.1-	0.3+)	1999 10 02	704	0.3+	0.2+	1999 12 03	704	0.3-	1.2-
1998 06 26	704	1.0+	0.0	1999 10 02	704	0.4+	0.1-	1999 12 03	704	0.4-	0.0
1998 06 26	704	(4.4-	1.4+)	1999 10 02	704	0.2+	0.0	1999 12 03	704	0.3-	0.6+
1999 09 04	699	0.2+	1.3+	1999 10 06	704	0.4+	0.3+	1999 12 07	704	1.0-	0.2+
1999 09 04	699	0.5-	1.5+	1999 10 06	704	0.2+	0.2+	1999 12 07	704	0.2-	0.1-
1999 09 04	699	0.0	0.9+	1999 10 06	704	0.2+	0.3+	1999 12 07	704	0.5-	0.1+
1999 09 07	678	1.8+	0.6-	1999 10 06	704	0.2+	0.4+	1999 12 07	704	0.6-	0.0
1999 09 07	678	0.1-	0.5-	1999 10 06	704	0.1+	0.5+	1999 12 07	704	0.3-	0.5-

(12839)* 1997 FB₂ = 1978 SC₁ = 1990 RO₁₀

Discovered 1997 Mar. 29 by the Beijing Schmidt CCD Asteroid Program at Xinglong.

Id. G. V. Williams (*MPC* 29647)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	66.12122		(2000.0)	P	Q
n	0.24387820	ω	229.10080	+0.97684004	+0.16828255
a	2.5371963	Ω	120.82171	-0.11850488	+0.93973894
e	0.2026896	i	8.85229	-0.17815760	+0.29761000
P	4.04	H	14.0	G 0.15	U 1

Residuals in seconds of arc

1978 09 27	095	(0.4-	3.3+)	1997 04 15	327	0.4+	0.6+	1998 08 29	699	0.4-	0.5+
1978 10 07	095	1.7+	0.3+	1997 04 15	327	0.2+	0.4+	1998 08 29	699	0.0	0.4+
1990 09 14	675	0.0	0.6-	1997 04 15	327	1.0+	0.5+	1998 08 29	699	0.4-	0.5+
1990 09 14	675	0.3-	0.8-	1998 07 24	566	0.2+	0.2+	1999 10 10	704	1.1-	0.2+
1990 09 15	675	1.6-	1.0-	1998 07 24	566	0.5+	0.1+	1999 10 10	704	0.3+	0.6+
1990 09 15	675	1.7-	1.2-	1998 07 24	566	0.1+	0.1-	1999 10 10	704	0.7-	1.1+
1997 03 02	327	0.2-	0.3-	1998 08 17	704	0.4+	0.8+	1999 10 10	704	0.1+	1.4+
1997 03 02	327	1.3-	0.1-	1998 08 17	704	(1.7-	2.8+)	1999 12 06	704	0.5-	1.2-
1997 03 02	327	0.2-	0.2-	1998 08 17	704	(1.2-	2.3+)	1999 12 06	704	0.1-	0.3+
1997 03 29	327	0.4-	0.1+	1998 08 17	704	(2.3-	2.5+)	1999 12 06	704	1.0+	0.8+
1997 03 29	327	0.2-	0.4-	1998 08 17	704	(2.0-	2.9+)	1999 12 06	704	0.2-	1.8+
1997 03 29	327	0.3+	0.1+	1998 08 23	704	0.6-	0.6+	1999 12 07	704	0.2+	0.3+
1997 03 29	327	0.0	0.2-	1998 08 23	704	0.9+	1.1+	1999 12 07	704	0.5+	0.0
1997 04 02	327	0.3+	0.7+	1998 08 23	704	0.3+	0.8+	1999 12 07	704	0.2+	0.3+
1997 04 02	327	0.5-	0.2-	1998 08 23	704	0.6+	0.5+	1999 12 07	704	0.5+	0.4+
1997 04 02	327	0.7+	1.1+	1998 08 23	704	0.4+	1.5+	1999 12 07	704	0.2-	0.1+

(12840)* 1997 GR₅ = 1994 NJ₃

Discovered 1997 Apr. 6 by L. Tesi and G. Cattani at San Marcello Pistoiese.

Id. G. V. Williams (*MPC* 29931)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	228.04077		(2000.0)	P	Q
n	0.27418628	ω	82.74750	-0.96837684	+0.23369214
a	2.3465991	Ω	110.73661	-0.24939078	-0.89670349
e	0.1383109	i	5.36078	-0.00710928	-0.37591335
P	3.59	H	14.3	G 0.15	U 1

Residuals in seconds of arc

1983 07 01	413	0.6-	0.7+	1997 05 01	104	0.1-	0.4+	1998 09 25	704	0.5+	1.3+
1983 07 01	413	0.7+	0.1+	1997 05 28	104	0.2+	0.7-	1998 09 25	704	1.6+	1.3+
1994 07 11	809	(0.2+	2.2+)	1997 05 28	104	0.2+	0.9-	1998 09 25	704	1.5+	0.8-
1994 07 11	809	(1.0+	2.3+)	1997 05 28	104	0.1-	0.7-	1998 09 25	704	0.5+	1.3+
1994 07 11	809	0.8+	1.6+	1997 05 29	104	0.6+	1.0-	1998 09 27	704	0.8+	0.5+
1994 07 12	809	(1.5+	3.2+)	1997 05 29	104	0.3+	0.9-	1998 09 27	704	0.4+	0.3-
1994 07 12	809	(1.4+	3.6+)	1997 05 29	104	0.6+	0.7-	1998 09 27	704	0.9-	0.6+
1994 07 12	809	(1.4+	3.6+)	1998 08 17	704	0.3-	0.2-	1998 09 27	704	1.0+	1.3+
1997 04 06	104	0.2-	0.4-	1998 08 17	704	0.1+	0.6-	1998 09 27	704	0.2+	0.0
1997 04 06	104	0.4-	0.2-	1998 08 17	704	0.1+	1.1-	1999 11 04	704	0.3+	0.1-
1997 04 06	104	0.8-	0.1-	1998 08 17	704	(0.3-	2.5-)	1999 11 04	704	0.2+	0.2+
1997 04 06	104	0.6-	0.6+	1998 08 17	704	1.5-	0.8-	1999 11 04	704	0.3-	0.2-
1997 04 08	104	0.3+	0.8-	1998 08 20	104	0.7-	1.2-	1999 11 04	704	0.5-	0.5+
1997 04 08	104	0.2-	0.6-	1998 08 20	104	0.9-	1.2-	1999 11 04	704	0.4-	0.2+
1997 04 08	104	0.7-	0.4-	1998 08 20	104	1.9-	0.5-	1999 11 15	704	0.3+	0.2-
1997 04 09	104	0.3-	0.2+	1998 08 20	104	(2.1-	0.0)	1999 11 15	704	0.1+	0.3-
1997 04 09	104	0.0	0.5+	1998 08 23	104	0.4-	0.1-	1999 11 15	704	0.2+	0.1-
1997 04 09	104	0.3+	1.1+	1998 08 23	104	0.6-	0.1-	1999 11 15	704	0.0	0.2-
1997 04 10	104	0.2+	0.8+	1998 08 23	104	0.3-	0.2+	1999 11 15	704	0.2-	0.2-
1997 04 10	104	0.5+	0.7+	1998 09 14	704	0.5+	1.3-	1999 11 17	704	0.9-	1.3-
1997 04 10	104	0.7+	0.6+	1998 09 14	704	1.1-	1.0+	1999 11 17	704	0.3+	0.1-
1997 04 13	104	(2.0-	2.6+)	1998 09 14	704	1.2-	0.9-	1999 11 17	704	0.7-	0.4+
1997 04 13	104	(2.2-	2.7+)	1998 09 14	704	0.3-	0.3-	1999 12 07	104	0.3+	0.9+
1997 04 13	104	(2.2-	2.8+)	1998 09 14	704	1.6-	0.0	1999 12 07	104	0.2+	0.8+
1997 04 14	104	(2.7-	2.5+)	1998 09 18	704	1.8+	0.9+	1999 12 07	104	0.1+	0.8+
1997 04 14	104	(2.4-	2.5+)	1998 09 18	704	0.3-	0.6+	1999 12 07	104	0.4+	0.8+
1997 04 14	104	(2.2-	2.4+)	1998 09 18	704	(5.0-	0.9+)	1999 12 08	704	0.3+	0.3+
1997 04 25	104	0.5-	1.0+	1998 09 22	699	1.1+	0.9+	1999 12 08	704	0.3+	0.1+
1997 04 25	104	0.1+	0.9+	1998 09 22	699	0.4+	0.4+	1999 12 08	704	0.2+	0.0

1999 DEC. 22

M.P.C. 37075

1997 04 25 104 1.0+ 0.7+ 1998 09 22 699 0.6+ 0.2+ 1999 12 08 704 0.1- 0.2-
 1997 05 01 104 0.5- 0.9+ 1998 09 25 704 (2.4+ 1.2+) 1999 12 08 704 0.4+ 0.1+

(12841)* 1997 GD₈ = 1995 VG₁₈

Discovered 1997 Apr. 2 by the Lincoln Laboratory Near-Earth Asteroid
 Research Team at Socorro.

Id. G. V. Williams (*MPC* 29932)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	243.49677		(2000.0)	P	Q
<i>n</i>	0.27806370	ω	174.07126	-0.92028412	+0.39124279
<i>a</i>	2.3247335	Ω	28.96099	-0.35917688	-0.84229579
<i>e</i>	0.1608397	<i>i</i>	0.29519	-0.15514222	-0.37076527
<i>P</i>	3.54	<i>H</i>	14.9	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1995 11 15	691	0.2-	0.0	1997 05 01	704	0.3+	0.1-	1998 09 27	704	1.4-	0.6+
1995 11 15	691	0.1-	0.1-	1997 05 01	704	0.1+	0.1-	1998 10 15	704	0.3+	0.1-
1995 11 15	691	0.0	0.3-	1997 05 01	704	0.1-	0.2-	1998 10 15	704	0.6-	1.4+
1995 11 20	691	0.1-	0.2-	1997 05 01	704	0.2-	0.5+	1998 10 15	704	0.2-	0.5-
1995 11 20	691	0.4+	0.0	1997 05 01	704	0.1+	0.2+	1998 10 27	691	0.1-	0.3-
1995 11 20	691	0.3+	0.1+	1998 09 18	704	1.3-	0.3+	1998 10 27	691	0.3+	0.1-
1997 04 02	704	1.0+	0.2-	1998 09 18	704	0.7+	0.5-	1998 10 27	691	0.1+	0.2+
1997 04 02	704	1.1-	0.6+	1998 09 18	704	0.9+	0.4-	1999 10 19	704	0.7-	0.3+
1997 04 06	704	0.1+	0.2+	1998 09 18	704	0.8+	0.1-	1999 10 19	704	1.3-	0.8+
1997 04 06	704	0.7+	0.2-	1998 09 18	704	0.4+	0.2+	1999 10 19	704	(0.7-	2.6+)
1997 04 06	704	0.3+	0.1-	1998 09 26	704	0.5+	0.7+	1999 10 19	704	1.6-	1.5+
1997 04 06	704	0.2+	1.5+	1998 09 26	704	0.7-	0.2-	1999 11 12	703	0.2+	0.1+
1997 04 08	704	0.0	0.9+	1998 09 26	704	1.5-	0.2+	1999 11 12	703	0.0	0.7+
1997 04 08	704	0.2-	0.6+	1998 09 26	704	1.0-	1.8+	1999 11 12	703	1.2+	0.2+
1997 04 30	704	0.1+	0.1+	1998 09 26	704	0.5-	0.2-	1999 11 12	703	0.6+	0.6+
1997 04 30	704	0.2+	0.5-	1998 09 27	704	1.1+	1.0+	1999 12 04	691	0.7+	0.7+
1997 04 30	704	0.1-	1.4+	1998 09 27	704	0.6+	0.4-	1999 12 04	691	0.4+	0.1+
1997 04 30	704	0.0	0.2-	1998 09 27	704	0.6-	1.7+	1999 12 04	691	0.3+	0.1-
1997 04 30	704	0.1+	0.8+	1998 09 27	704	0.3-	0.7+				

(12842)* 1997 GQ₂₃ = 1998 QR₃₂

Discovered 1997 Apr. 6 by the Lincoln Laboratory Near-Earth Asteroid
 Research Team at Socorro.

Id. S. Nakano (*MPC* 32679), A. Doppler (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	106.27205		(2000.0)	P	Q
<i>n</i>	0.21497176	ω	330.67088	+0.50573615	+0.86250468
<i>a</i>	2.7598265	Ω	329.69914	-0.78447055	+0.45120249
<i>e</i>	0.0632239	<i>i</i>	2.02114	-0.35893858	+0.22913314
<i>P</i>	4.58	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1995 12 27	691	0.2+	0.1-	1998 08 17	704	0.4-	0.7-	1998 10 12	699	0.8-	1.3+
1995 12 27	691	0.3-	0.4-	1998 08 17	704	0.6-	0.5-	1998 12 08	704	1.2-	0.9+
1995 12 27	691	0.1-	0.2-	1998 08 17	704	0.9-	1.0-	1998 12 08	704	0.7-	0.9-
1997 04 06	704	0.8-	0.3+	1998 08 23	704	0.4+	0.3+	1998 12 08	704	(2.2-	0.4-)
1997 04 06	704	0.1-	0.4+	1998 08 23	704	1.9-	1.0-	1999 11 03	704	0.6+	0.7-
1997 04 08	704	0.5-	0.2+	1998 08 23	704	0.2+	0.7+	1999 11 03	704	1.0+	0.7-
1997 04 08	704	1.2-	0.1+	1998 08 23	704	0.7-	0.8+	1999 11 03	704	0.4-	0.2+
1997 04 30	704	0.0	0.1-	1998 09 01	691	0.2+	0.1-	1999 11 03	704	0.2+	0.3+
1997 04 30	704	0.4+	0.2-	1998 09 01	691	0.2-	0.1+	1999 11 14	704	0.8-	0.0
1997 04 30	704	0.5+	0.4-	1998 09 01	691	0.3-	0.3+	1999 11 14	704	0.4-	0.3-
1997 04 30	704	0.4+	0.0	1998 09 01	327	0.3+	0.7+	1999 11 14	704	0.6-	0.2+
1997 04 30	704	0.4+	0.4-	1998 09 01	327	0.2+	0.9+	1999 11 14	704	0.5-	0.2-
1997 05 01	704	0.0	0.1+	1998 09 01	327	0.2+	0.8+	1999 11 14	704	0.5-	0.1+
1997 05 01	704	0.1-	0.0	1998 09 14	704	0.1-	0.1+	1999 11 16	704	0.5-	0.5+
1997 05 01	704	0.2-	0.0	1998 09 14	704	0.9+	0.2-	1999 11 16	704	0.4-	0.0
1997 05 01	704	0.4+	0.2+	1998 09 14	704	1.4+	1.0-	1999 11 16	704	0.3-	0.0
1997 05 01	704	0.2+	0.2+	1998 09 14	704	1.3+	0.3-	1999 11 16	704	0.6-	0.1-
1997 05 05	704	0.2+	0.1-	1998 09 14	704	1.5+	0.9-	1999 11 16	704	0.3+	0.1+

1997 05 05	704	0.0	0.1-	1998 09 18	704	0.8+	0.1-	1999 12 07	704	0.9+	0.1+
1997 05 05	704	0.2-	0.4-	1998 09 18	704	0.5-	0.5-	1999 12 07	704	0.4+	0.0
1997 05 05	704	0.3-	0.5-	1998 09 18	704	1.4+	0.3-	1999 12 07	704	0.9+	0.1-
1997 05 05	704	0.1-	0.8-	1998 09 18	704	0.1-	0.6-	1999 12 07	704	0.6+	0.2-
1998 08 17	704	0.4-	0.2-	1998 10 12	699	0.9-	0.0	1999 12 07	704	0.2+	0.1-
1998 08 17	704	0.7-	0.4+	1998 10 12	699	1.1+	0.1+				

(12843)* 1997 GH₂₇ = 1989 ES₁₁ = 1995 UA₅₀

Discovered 1997 Apr. 9 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 29648)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	280.04728		(2000.0)	P	Q
<i>n</i>	0.25257148	ω	90.07252	-0.35286069	-0.93548565
<i>a</i>	2.4786384	Ω	20.62084	+0.83574899	-0.32417878
<i>e</i>	0.1226065	<i>i</i>	3.07078	+0.42072909	-0.14062261
<i>P</i>	3.90	<i>H</i>	14.7	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1989 03 03	808	0.2+	0.1-	1999 10 07	704	0.2-	0.6+	1999 11 04	704	0.2+	0.1-
1989 03 03	808	0.3+	0.7-	1999 10 07	704	1.4+	0.1+	1999 11 04	704	0.3+	0.5+
1995 10 17	691	0.3-	0.0	1999 10 07	704	0.4+	1.1-	1999 11 07	704	0.1-	0.4-
1995 10 17	691	0.4-	0.1+	1999 10 10	704	0.4-	0.4+	1999 11 07	704	0.0	0.3-
1995 10 17	691	0.1-	0.2-	1999 10 10	704	0.4+	0.5-	1999 11 07	704	0.1-	0.4-
1995 10 22	691	0.1+	0.7-	1999 10 10	704	0.1-	0.7-	1999 11 11	703	0.1-	0.3+
1995 10 22	691	0.1-	0.8-	1999 10 10	704	0.6+	0.3-	1999 11 11	703	0.2+	0.3-
1995 10 22	691	0.1-	0.8-	1999 10 10	704	0.1+	0.9-	1999 11 11	703	0.5-	0.2+
1997 03 14	691	0.6+	0.4-	1999 10 11	106	0.7-	0.1+	1999 11 11	703	0.8-	1.1+
1997 03 14	691	0.4+	0.3-	1999 10 12	106	0.5+	0.9-	1999 11 12	699	1.2-	0.6+
1997 03 14	691	0.5+	0.5-	1999 10 12	106	0.9-	0.4-	1999 11 12	699	0.0	0.4-
1997 04 09	691	0.6-	0.2-	1999 10 13	691	0.7+	0.1-	1999 11 12	699	0.4+	0.4+
1997 04 09	691	0.7-	0.2-	1999 10 13	691	0.4+	0.0	1999 11 14	704	0.1-	0.6-
1997 04 09	691	1.4-	0.2-	1999 10 13	691	0.5+	0.0	1999 11 14	704	0.6+	1.0-
1997 04 13	691	0.9-	0.0	1999 10 15	704	0.0	0.2+	1999 11 14	704	0.1+	0.9-
1997 04 13	691	0.1-	0.0	1999 10 15	704	0.4-	0.9+	1999 11 14	704	0.1+	1.2-
1997 04 13	691	0.2-	0.0	1999 10 15	704	0.3+	0.5+	1999 11 14	704	0.5+	0.9-
1997 04 16	691	0.1-	0.4-	1999 10 15	704	0.2+	1.3+	1999 11 16	704	0.1-	0.2-
1997 04 16	691	0.2+	0.1-	1999 10 15	704	0.4+	0.9+	1999 11 16	704	1.1+	0.5+
1997 04 16	691	0.1+	0.1-	1999 10 21	704	0.1+	0.2-	1999 11 16	704	1.2-	0.0
1998 07 01	809	0.8-	0.6-	1999 10 21	704	0.5+	0.1+	1999 11 16	704	0.3-	0.5+
1998 07 01	809	1.1+	0.3-	1999 10 21	704	0.1+	0.3-	1999 11 16	704	0.0	0.1-
1998 07 01	809	0.7+	0.3-	1999 10 21	704	0.5+	0.4-	1999 12 04	703	0.3-	0.1+
1999 10 02	691	0.2-	0.0	1999 10 21	704	0.5-	0.1-	1999 12 04	703	0.2+	0.2-
1999 10 02	691	0.2-	0.0	1999 10 29	703	0.1-	0.3+	1999 12 04	703	0.6-	0.5+
1999 10 02	691	0.3-	0.1+	1999 10 29	703	0.5-	0.4+	1999 12 04	703	0.5+	0.7+
1999 10 03	704	0.5+	0.5+	1999 10 29	703	0.1-	0.7+	1999 12 04	699	0.7-	1.0+
1999 10 03	704	0.6+	1.2+	1999 10 29	703	0.0	0.1+	1999 12 04	699	1.1-	1.1+
1999 10 03	704	0.1-	0.3+	1999 11 03	703	0.3+	0.4+	1999 12 04	699	0.0	1.0+
1999 10 03	704	1.2-	1.1+	1999 11 03	703	0.7-	0.4-	1999 12 07	704	1.1+	0.1-
1999 10 06	704	0.8+	0.7-	1999 11 03	703	0.4-	0.5-	1999 12 07	704	0.3+	0.2-
1999 10 06	704	0.5+	1.4-	1999 11 03	703	0.7-	0.1+	1999 12 07	704	0.1+	0.8-
1999 10 06	704	0.3+	0.6-	1999 11 04	704	0.4+	0.3+	1999 12 07	704	1.0+	0.2-
1999 10 06	704	0.2+	1.1-	1999 11 04	704	0.2+	0.2+	1999 12 07	704	0.3-	1.5-
1999 10 06	704	0.4-	0.7-	1999 11 04	704	0.6+	0.3+				

(12844)* 1997 JE₁₀ = 1979 YN₃ = 1989 WR₆ = 1992 LX₂

Discovered 1997 May 9 by F. Uto at Kashiwara.

Residuals in seconds of arc

1979 12 24	095	0.6+	0.7+	1997 06 05	691	0.1+	0.3-	1999 11 06	715	0.1-	0.2+
1989 11 25	399	(2.8-	1.5+)	1997 06 05	691	0.1-	0.3+	1999 11 06	704	0.1+	0.4-
1989 11 25	399	1.1-	0.4-	1997 06 05	691	0.1-	0.5+	1999 11 06	704	(0.2+	3.1+)
1989 11 25	399	0.0	0.2+	1997 06 07	809	(3.2+	1.4+)	1999 11 06	704	0.1+	0.2-
1992 06 03	809	0.2+	0.3-	1997 06 07	809	(2.7+	1.5+)	1999 11 06	704	(1.0+	4.2+)
1992 06 03	809	0.8-	0.3+	1997 06 07	809	(3.3+	1.7+)	1999 11 06	704	0.2+	0.2-
1992 06 03	809	0.1-	0.2+	1997 06 07	355	1.5+	0.8-	1999 11 06	704	(1.5-	5.3+)
1997 05 03	809	0.5+	0.6-	1997 06 07	355	(2.6+	0.6-)	1999 11 06	704	0.1-	0.1-
1997 05 03	809	1.2+	0.7-	1997 06 08	809	0.4-	1.4-	1999 11 06	704	0.1-	0.0
1997 05 03	809	0.6+	0.7-	1997 06 08	809	0.1+	1.5-	1999 11 06	365	0.1+	0.4-
1997 05 04	809	0.7+	1.1+	1997 06 08	809	0.3-	1.9-	1999 11 06	365	0.3+	0.0
1997 05 04	809	0.2-	1.7+	1999 10 02	699	1.1+	1.1+	1999 11 07	704	0.3+	0.1-
1997 05 04	809	0.1-	1.2+	1999 10 02	699	0.5+	0.8+	1999 11 07	704	0.4+	0.2-
1997 05 04	809	(3.2+	2.2+)	1999 10 02	699	0.1+	1.2+	1999 11 07	704	0.2+	0.0
1997 05 04	809	(2.2+	2.3+)	1999 10 07	703	0.6-	0.1-	1999 11 07	704	0.2+	0.4-
1997 05 04	809	(2.5+	1.7+)	1999 10 07	703	0.4-	0.2+	1999 11 07	704	0.4+	0.1-
1997 05 09	691	0.3-	0.7+	1999 10 07	703	0.1-	0.0	1999 11 07	704	0.1-	0.7+
1997 05 09	691	0.5-	0.6+	1999 10 07	703	0.1-	0.1-	1999 11 08	365	0.2+	0.0
1997 05 09	691	0.4-	0.6+	1999 10 09	704	0.1-	0.2-	1999 11 08	365	0.9+	0.0
1997 05 09	365	0.5-	0.4+	1999 10 09	704	0.2-	0.3-	1999 11 10	715	0.7+	0.0
1997 05 09	365	0.3+	0.1+	1999 10 09	704	0.2-	0.2-	1999 11 10	715	0.2+	0.1-
1997 05 12	365	0.4-	1.4+	1999 10 09	704	0.3-	0.2-	1999 11 10	715	0.4+	0.5-
1997 05 12	365	0.1-	0.4+	1999 10 09	704	0.6-	0.1-	1999 11 13	715	0.3-	0.6+
1997 05 17	367	0.0	0.9+	1999 10 13	699	1.1-	1.2+	1999 11 13	715	0.0	0.2+
1997 05 17	367	0.5+	0.3+	1999 10 13	699	0.3-	0.2-	1999 11 15	715	0.0	0.4-
1997 05 17	367	0.3-	0.3+	1999 10 13	699	0.6-	0.1+	1999 11 15	715	0.6-	0.0
1997 05 17	900	0.4-	0.4+	1999 11 03	703	0.3-	0.2+	1999 12 03	704	0.5+	1.2-
1997 05 17	900	0.0	0.2+	1999 11 03	703	0.1-	0.2+	1999 12 03	704	0.4+	0.0
1997 05 17	402	0.2+	0.1+	1999 11 03	703	0.1+	0.3+	1999 12 03	704	0.4+	0.1+
1997 05 17	402	0.3+	0.1+	1999 11 03	703	0.4-	0.3+	1999 12 03	704	0.3-	0.2+
1997 05 17	402	0.0	0.0	1999 11 05	715	0.2-	0.1-	1999 12 03	704	1.4-	0.5+
1997 05 28	355	0.3-	1.0-	1999 11 05	715	(4.7-	2.0+)	1999 12 08	699	0.2-	0.2-
1997 05 28	355	0.1-	0.8-	1999 11 06	715	0.5+	0.2-	1999 12 08	699	0.3+	0.2-
1997 05 28	355	0.2-	0.3-	1999 11 06	715	0.3+	0.3+	1999 12 08	699	0.5-	0.2-

(12845)* 1997 JM₁₅ = 1998 QC₃₂

Discovered 1997 May 3 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 32479)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	155.79537		(2000.0)	P	Q
n	0.21072876	ω	154.05770	-0.35657453	+0.93283900
a	2.7967491	Ω	95.01640	-0.86594010	-0.30924510
e	0.0180547	i	2.97108	-0.35071691	-0.18487530
P	4.68	H	14.2	G 0.15	U 1

Residuals in seconds of arc

1994 10 29	691	0.2-	0.6+	1998 08 23	704	0.9-	0.3-	1999 11 15	704	0.1-	0.2-
1994 10 29	691	0.2-	0.5+	1998 08 23	704	0.4-	0.8-	1999 11 15	704	0.1-	0.4-
1994 10 29	691	(1.7-	3.4+)	1998 08 23	704	0.7-	1.7+	1999 11 17	704	0.2-	0.5+
1997 05 03	809	0.6-	0.2+	1998 08 23	704	(3.4-	2.5+)	1999 11 17	704	0.7-	0.5+
1997 05 03	809	1.6-	1.8+	1998 09 14	704	1.1-	1.0+	1999 11 17	704	0.0	0.4-
1997 05 03	809	1.4-	0.8-	1998 09 14	704	1.0-	0.5-	1999 11 17	704	0.5-	0.4-
1997 05 04	809	(2.8-	2.3+)	1998 09 14	704	0.8-	0.4+	1999 12 07	704	0.1+	0.8-
1997 05 04	809	(4.0-	1.3+)	1998 09 14	704	0.6-	1.3+	1999 12 07	704	0.5+	1.1-
1997 05 04	809	(3.3-	1.0+)	1998 09 19	428	1.3+	0.2-	1999 12 07	704	0.2+	0.1-
1997 06 07	809	0.1+	0.7-	1998 09 19	428	1.1+	0.7-	1999 12 07	704	0.1-	1.3-
1997 06 07	809	0.0	0.0	1998 09 20	428	1.3+	0.8-	1999 12 07	704	0.3+	0.5-
1997 06 07	809	0.0	1.1-	1998 09 20	428	1.0+	1.1-	1999 12 08	704	0.9+	0.4-
1997 06 08	809	1.2+	0.9-	1998 09 21	699	1.4-	0.0	1999 12 08	704	1.1+	0.6-
1997 06 08	809	0.8+	0.9-	1998 09 21	699	1.0+	0.6-	1999 12 08	704	0.3+	0.3-
1997 06 08	809	0.3+	1.7-	1998 09 21	699	(2.7+	0.7+)	1999 12 08	704	0.1-	0.7-
1998 08 17	704	0.4+	0.1-	1999 11 03	704	0.6+	0.1-	1999 12 08	704	1.2-	1.1-
1998 08 17	704	0.3+	0.5-	1999 11 03	704	0.0	1.0+	1999 12 09	540	0.1-	0.4+
1998 08 17	704	1.0+	0.1-	1999 11 03	704	0.9+	0.1-	1999 12 09	540	0.0	0.4+

1998 08 17	704	(2.4-	1.3-)	1999 11 03	704	0.8+	0.3-	1999 12 09	540	0.4-	0.6+
1998 08 17	704	(3.9-	1.2-)	1999 11 15	704	0.7-	0.0	1999 12 09	540	0.6-	0.6+

(12846)* 1997 MR = 1998 QU₆₆

Discovered 1997 June 28 by Spacewatch at Kitt Peak.

Id. E. Bowell (*MPC* 32480), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	42.82279		(2000.0)	P	Q
n	0.18556854	ω	142.72942	+0.98743162	+0.14418829
a	3.0441531	Ω	209.17906	-0.15682340	+0.94472650
e	0.0462940	i	7.62827	+0.01962681	+0.29445132
P	5.31	H	13.9	G 0.15	U 1

Residuals in seconds of arc

1993 09 16	691	0.2-	0.4-	1998 08 17	704	0.1+	0.9+	1999 11 04	704	1.3+	0.7-
1993 09 16	691	0.2-	0.1+	1998 08 17	704	0.6+	0.2-	1999 11 05	732	(0.8+	4.2+)
1993 09 16	691	0.2-	0.0	1998 08 17	704	0.7+	0.5+	1999 11 05	732	0.7+	0.2+
1996 03 27	691	0.6+	0.7-	1998 08 17	704	0.2-	1.7-	1999 11 05	732	0.9+	0.6+
1996 03 27	691	0.4+	0.7-	1998 08 17	704	0.9+	0.4-	1999 11 15	704	0.2+	0.4-
1996 03 27	691	0.5+	0.8-	1998 08 23	699	0.6+	0.2+	1999 11 15	704	0.2+	0.2-
1997 05 04	809	(2.3+	2.2-)	1998 08 23	699	0.5-	0.5+	1999 11 15	704	0.5-	0.4-
1997 05 04	809	1.7+	1.6-	1998 08 23	699	0.5-	0.4+	1999 11 15	704	0.2-	0.7-
1997 05 04	809	(1.0+	2.7-)	1998 08 24	704	0.1-	1.4-	1999 11 15	704	0.2-	0.7-
1997 05 29	691	0.6-	0.4+	1998 08 24	704	0.8+	0.3-	1999 11 17	704	0.6-	1.0-
1997 05 29	691	0.7-	0.3+	1998 08 24	704	(1.6+	2.4-)	1999 11 17	704	1.2-	0.1-
1997 05 29	691	0.5-	0.1+	1998 08 24	704	0.3-	1.9-	1999 11 17	704	0.7-	0.1-
1997 06 08	809	0.6-	0.6+	1998 08 27	704	1.5+	0.3+	1999 11 17	704	1.2-	0.3-
1997 06 08	809	0.5-	1.0+	1998 08 27	704	0.2-	1.7+	1999 11 17	704	0.4-	0.8-
1997 06 08	809	0.3+	1.0+	1998 08 27	704	1.9+	0.7+	1999 12 04	703	0.3+	0.3+
1997 06 09	809	(0.6+	3.6+)	1998 08 27	704	0.0	0.6+	1999 12 04	703	1.2+	2.0+
1997 06 09	809	(0.4+	3.3+)	1998 09 14	704	0.8-	0.6-	1999 12 04	703	1.0+	0.8+
1997 06 09	809	(0.3-	3.5+)	1998 09 14	704	0.4-	0.1+	1999 12 04	703	0.4+	0.2+
1997 06 28	691	0.1+	0.0	1998 09 14	704	0.1-	0.8+	1999 12 06	704	0.4-	0.6-
1997 06 28	691	0.3+	0.4-	1998 09 14	704	1.6-	0.7-	1999 12 06	704	0.8-	0.2-
1997 06 28	691	0.1+	0.2-	1998 09 14	704	(3.6-	0.0)	1999 12 06	704	1.2-	1.6+
1997 06 29	691	0.5-	0.5-	1999 11 04	704	0.5+	0.0	1999 12 06	704	1.1-	0.4+
1997 06 29	691	0.9-	0.1+	1999 11 04	704	0.5+	0.1+				
1997 06 29	691	0.6-	0.3-	1999 11 04	704	0.1-	0.5-				

(12847)* 1997 NQ₂ = 1991 CN₃

Discovered 1997 July 6 at Farra d'Isonzo.

Id. G. V. Williams (*MPC* 30465)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	272.55749		(2000.0)	P	Q
n	0.21151848	ω	255.44518	-0.87335031	-0.01905047
a	2.7897836	Ω	281.59774	+0.26222617	-0.86046530
e	0.1330968	i	29.79276	-0.41048345	-0.50915278
P	4.66	H	13.3	G 0.15	U 1

Residuals in seconds of arc

1991 02 10	413	0.5-	0.6-	1998 09 23	595	0.3+	0.5+	1998 11 22	725	0.1+	0.6-
1991 02 11	413	0.1+	0.2+	1998 09 23	595	0.2-	0.3+	1998 11 26	725	0.4+	0.4-
1997 07 06	595	0.1-	0.9-	1998 09 24	704	1.3+	0.4-	1998 11 26	725	0.8+	0.1+
1997 07 06	595	0.2-	0.0	1998 09 24	703	1.2-	0.3+	1999 10 13	704	0.1+	0.8+
1997 07 07	595	0.4+	0.5-	1998 09 24	704	(2.7+	1.1+)	1999 10 13	704	0.5-	0.2-
1997 07 08	595	0.4-	0.3+	1998 09 24	703	0.4+	0.2+	1999 10 13	704	0.5+	1.7+
1997 07 08	595	0.2+	0.5+	1998 09 24	704	0.4-	1.2+	1999 10 13	704	0.2-	1.2+
1997 07 08	595	0.0	0.0	1998 09 24	704	0.8+	0.3-	1999 10 13	704	0.2-	1.2+
1997 07 10	595	1.3-	0.8-	1998 09 24	704	1.9+	1.3+	1999 11 16	704	0.3+	0.3-
1997 07 10	595	0.8+	1.2+	1998 09 25	703	(2.0-	2.3+)	1999 11 16	704	0.7+	0.1-
1997 07 12	595	0.7-	0.4+	1998 09 25	703	(1.3-	2.1+)	1999 11 16	704	1.1+	0.2-
1997 07 12	595	0.6-	0.1+	1998 10 19	703	0.2+	0.8-	1999 11 16	704	0.4-	0.7-
1997 07 24	595	0.3+	0.3+	1998 10 19	703	0.3-	1.1-	1999 11 16	704	0.4+	0.3-
1997 07 24	595	1.8+	1.5-	1998 10 19	703	0.1+	0.7-	1999 12 03	699	0.4+	0.7+
1998 08 23	595	0.0	0.8+	1998 10 20	658	0.0	0.6-	1999 12 03	699	0.5+	1.1+

1999 DEC. 22

M.P.C. 37077

1998 08 23	595	0.1+	0.3+	1998 10 20	658	0.5-	0.9-	1999 12 03	699	0.4+	0.9+
1998 08 23	595	0.0	0.5+	1998 10 20	658	0.4-	0.7-	1999 12 07	704	0.9+	1.1-
1998 08 23	595	0.7+	0.6+	1998 10 20	595	0.2-	0.1-	1999 12 07	704	0.4-	0.2-
1998 08 25	704	(2.0+	2.5+)	1998 10 20	595	0.4+	0.9-	1999 12 07	704	0.4+	0.7-
1998 08 25	704	0.1+	1.9+	1998 10 25	704	0.9-	1.8-	1999 12 07	704	0.3-	0.9-
1998 08 25	704	(2.6+	0.1-)	1998 10 25	704	1.3-	0.8+	1999 12 07	704	0.7-	0.1-
1998 08 25	704	0.6+	1.0+	1998 10 25	704	1.7-	1.0-	1999 12 08	704	0.1-	0.8-
1998 08 25	704	1.8-	0.5+	1998 10 25	704	(0.1-	2.2-)	1999 12 08	704	0.4-	0.0
1998 09 21	595	1.1+	0.6+	1998 10 25	704	(2.2-	0.4-)	1999 12 08	704	0.3-	0.1-
1998 09 21	595	1.7+	0.4+	1998 11 22	725	0.1+	0.5-	1999 12 08	704	0.3-	0.3-
1998 09 23	595	0.5+	0.1+	1998 11 22	725	0.1+	0.6-	1999 12 08	704	0.4-	0.3+

(12848)* 1997 NK₁₀ = 1993 QQ₁₀

Discovered 1997 July 10 by A. Boattini at the Astronomical Observatory, Campo Imperatore.

Id. G. V. Williams (*MPC* 30674)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	74.88202		(2000.0)	P	Q
<i>n</i>	0.23480850	ω	249.46912	+0.45888501	-0.88792484
<i>a</i>	2.6021171	Ω	172.96118	+0.88080683	+0.44991685
<i>e</i>	0.0950082	<i>i</i>	15.06170	+0.11663564	+0.09573035
<i>P</i>	4.20	<i>H</i>	13.8	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1950 06 18	675	0.1-	0.8-	1997 07 27	104	0.1-	0.5-	1998 11 18	610	0.4-	0.7-
1950 06 18	675	0.3+	1.1-	1997 07 27	104	0.3-	0.6-	1998 11 20	610	(2.8+	0.8-)
1988 06 13	413	(3.8-	0.9-)	1997 08 24	104	1.3+	0.6-	1998 11 20	610	(2.1+	0.6-)
1988 06 13	413	0.9-	1.1-	1997 08 24	104	0.7+	1.5-	1998 11 20	610	1.4+	0.3-
1993 08 19	675	1.7-	1.4+	1997 09 01	566	0.1-	0.1-	1998 11 20	610	0.7+	0.0
1993 08 19	675	(3.3-	1.0+)	1997 09 01	566	0.2+	0.1+	1998 11 20	610	0.4-	0.3+
1993 08 21	675	(2.4-	0.4-)	1997 09 01	566	0.1+	0.0	1998 12 19	704	0.2-	0.6+
1993 08 21	675	0.4+	1.3+	1998 11 15	104	0.8+	0.6-	1998 12 19	704	0.6+	0.7+
1997 07 10	599	0.8-	0.8+	1998 11 16	104	1.2+	0.3-	1998 12 19	704	0.7-	0.8+
1997 07 10	599	0.2-	0.5+	1998 11 16	104	0.2+	0.8-	1998 12 19	704	(2.1-	1.0-)
1997 07 13	104	0.1-	0.0	1998 11 17	104	1.4+	0.6-	1998 12 19	704	0.5-	0.4+
1997 07 13	104	0.1+	0.2-	1998 11 17	104	0.0	0.7-	1998 12 25	108	1.4-	0.4-
1997 07 13	104	0.4-	1.0-	1998 11 17	104	1.4-	0.7-	1998 12 25	108	(1.8-	2.5-)
1997 07 14	104	0.2+	0.2-	1998 11 17	610	0.6+	0.3+	1999 03 10	704	0.1+	0.2+
1997 07 14	104	0.5-	0.2-	1998 11 18	610	0.1+	0.1-	1999 03 10	704	1.3-	0.3-
1997 07 26	108	0.2-	0.5-	1998 11 18	610	0.1-	0.4-	1999 03 10	704	0.5-	0.9-
1997 07 27	108	1.9+	0.6-	1998 11 18	610	0.3-	0.7-	1999 03 10	704	0.0	1.4-

(12849)* 1997 QD₂ = 1949 KQ = 1990 HA₅

Discovered 1997 Aug. 27 by Y. Shimizu and T. Urata at the Nachi-Katsuura Observatory.

Id. S. Nakano (*MPC* 30878)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	234.07976		(2000.0)	P	Q
<i>n</i>	0.18939149	ω	95.65105	-0.50783327	+0.85391210
<i>a</i>	3.0030489	Ω	143.10681	-0.84620925	-0.46974464
<i>e</i>	0.0705277	<i>i</i>	10.92266	-0.16135449	-0.22399575
<i>P</i>	5.20	<i>H</i>	11.9	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1949 05 29	760	0.8+	0.6+	1998 11 15	610	0.1-	0.7-	1999 01 13	699	0.4+	0.1+
1949 05 29	760	0.7-	0.1-	1998 11 15	610	0.2-	0.6-	1999 01 13	699	0.5+	0.2-
1990 04 19	095	(5.0-	0.2+)	1998 11 15	610	0.3-	0.6-	1999 01 13	699	0.5-	0.4+
1990 04 19	095	(4.7-	1.0+)	1998 11 16	610	0.3-	0.6-	1999 02 14	888	0.6-	0.3+
1997 08 27	905	0.1-	0.2-	1998 11 16	610	0.3-	0.5-	1999 02 14	888	0.7-	0.8+
1997 08 27	905	0.4+	0.8-	1998 11 16	610	0.3+	0.6-	1999 11 13	699	1.1+	1.0+
1997 08 28	905	0.7-	0.5-	1998 11 16	610	0.3+	0.6-	1999 11 13	699	1.4+	0.8+
1997 08 28	905	0.4-	0.2-	1998 11 17	610	0.3+	0.6-	1999 11 13	699	0.0	1.1+
1997 09 04	385	0.5-	0.9+	1998 11 17	610	0.3+	0.7-	1999 11 17	704	0.0	0.2-
1997 09 04	385	0.5-	0.8+	1998 11 17	610	0.3+	0.8-	1999 11 17	704	0.0	0.0
1997 09 09	905	0.0	1.1+	1998 11 20	905	0.1+	0.8+	1999 11 17	704	0.0	0.2-

1997 09 11	385	0.0	0.6+	1998 11 20	905	0.2-	0.5+	1999 11 17	704	0.4-	0.1+
1997 09 11	385	0.2-	1.2+	1998 12 09	886	1.7+	0.6+	1999 11 17	704	0.2+	0.4+
1997 09 29	905	0.1-	0.6-	1998 12 09	886	0.9+	0.2+	1999 12 05	704	1.4-	0.1-
1997 09 29	905	0.4-	0.1+	1998 12 15	704	(1.2+	2.5-)	1999 12 05	704	0.1-	0.1-
1997 10 20	385	0.8+	0.2-	1998 12 15	704	2.0+	0.6-	1999 12 05	704	0.5-	0.4+
1997 10 20	385	1.4+	0.5+	1998 12 15	704	0.5-	0.7-	1999 12 05	704	0.3+	0.8+
1998 10 31	385	0.4-	0.0	1998 12 15	704	0.5-	0.4+	1999 12 05	704	0.7+	0.5-
1998 10 31	385	0.4-	0.5+	1998 12 15	704	0.2+	0.7-	1999 12 07	704	0.5-	1.0-
1998 11 13	704	0.7+	0.2+	1998 12 17	699	0.2-	0.1+	1999 12 07	704	0.1-	0.5-
1998 11 13	704	0.6-	0.3+	1998 12 17	699	0.0	0.3+	1999 12 07	704	0.5-	0.7-
1998 11 13	704	0.4+	0.7+	1998 12 17	699	0.2+	0.2+	1999 12 07	704	0.2+	0.2+
1998 11 13	704	0.2-	0.5+	1998 12 22	704	0.1-	0.3+	1999 12 07	704	0.4+	0.5-
1998 11 13	704	0.8-	0.5-	1998 12 22	704	0.5-	0.5-	1999 12 09	699	0.3+	0.8+
1998 11 14	888	0.1+	0.7-	1998 12 22	704	0.5-	0.2+	1999 12 09	699	0.4+	1.0+
1998 11 14	888	0.2+	0.5-	1998 12 22	704	0.6-	0.9+	1999 12 09	699	0.2-	1.1+
1998 11 14	888	0.2+	0.5-	1998 12 22	704	0.7-	1.6+				

(12850)* 1998 CO₃ = 1972 RG₂ = 1982 PS = 1982 RP₃ = 1999 RH₁₇₇

Discovered 1998 Feb. 6 by E. W. Elst at the European Southern Observatory.

Id. A. Doppler (*MPC* 36354), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	22.30460		(2000.0)	P	Q
<i>n</i>	0.29097732	ω	313.83869	+0.55833984	+0.82951716
<i>a</i>	2.2554331	Ω	350.07952	-0.73869487	+0.49019984
<i>e</i>	0.2107269	<i>i</i>	4.18287	-0.37760630	+0.26759186
<i>P</i>	3.39	<i>H</i>	14.1	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1972 09 11	095	0.1+	0.3+	1999 08 22	699	0.3+	0.9+	1999 10 06	704	0.3-	0.8-
1982 08 14	095	0.8+	0.5+	1999 08 22	699	0.3-	1.0+	1999 10 07	704	0.8+	0.4+
1982 08 16	095	0.6+	1.3-	1999 08 22	699	0.1-	0.9+	1999 10 07	704	0.0	0.1-
1982 09 13	095	0.3-	2.0-	1999 09 07	704	0.5-	0.9+	1999 10 07	704	0.0	0.1+
1997 12 07	910	1.0-	0.1-	1999 09 07	704	0.6-	0.1+	1999 10 07	704	0.0	0.2-
1997 12 07	910	1.1-	0.1+	1999 09 07	704	0.9-	0.2+	1999 10 07	704	1.3-	0.4-
1997 12 07	910	1.3-	0.5+	1999 09 07	704	1.2-	0.1+	1999 10 16	611	0.2+	0.7-
1998 02 06	809	(0.5+	2.5+)	1999 09 07	704	1.2-	0.1-	1999 10 16	611	0.4+	0.3-
1998 02 06	809	(0.8+	2.9+)	1999 09 09	704	0.3-	0.0	1999 11 01	703	0.2+	0.3+
1998 02 06	809	(0.8+	2.3+)	1999 09 09	704	0.7-	0.3-	1999 11 01	703	0.4+	0.4+
1998 02 07	809	(3.3+	2.0+)	1999 09 09	704	0.8-	0.0	1999 11 01	703	0.3+	0.5+
1998 02 07	809	1.9+	1.9+	1999 09 09	704	1.0-	0.2-	1999 11 01	703	0.3+	0.7+
1998 02 07	809	(1.3-	3.2+)	1999 09 09	704	0.7-	0.6-	1999 11 07	704	0.2-	0.0
1998 02 24	566	0.1+	0.5+	1999 09 14	704	0.4-	0.5+	1999 11 07	704	0.1+	0.3-
1998 02 24	566	0.3+	0.5+	1999 09 14	704	0.5-	0.2+	1999 11 07	704	0.3-	0.4+
1998 02 24	566	0.1+	0.5+	1999 09 14	704	1.8+	0.5-	1999 11 07	704	0.1-	0.2-
1998 03 03	704	0.3+	0.9-	1999 09 14	704	1.2-	0.7-	1999 11 07	704	0.4+	0.1+
1998 03 03	809	(2.2+	3.0+)	1999 09 30	699	0.2-	0.7+	1999 11 13	691	0.4-	0.2-
1998 03 03	704	0.2+	0.5+	1999 09 30	699	0.3-	0.8+	1999 11 13	691	0.5-	0.2+
1998 03 03	809	(2.7+	1.9+)	1999 09 30	699	0.0	0.7+	1999 11 13	691	0.4-	0.1+
1998 03 03	809	(1.5+	2.4+)	1999 10 02	678	0.7+	0.2+	1999 11 14	704	0.2-	1.0-
1998 03 03	704	1.3+	0.2-	1999 10 02	678	0.5+	0.2+	1999 11 14	704	0.2-	0.9-
1998 03 03	704	0.6+	0.0	1999 10 02	678	0.7+	0.1+	1999 11 14	704	0.4+	0.9-
1998 03 03	704	0.8+	0.0	1999 10 02	691	0.2+	0.1+	1999 11 14	704	0.2+	0.3-
1998 03 04	809	(1.4+	3.5+)	1999 10 02	691	0.3+	0.0	1999 11 14	704	1.0+	0.9-
1998 03 04	809	(2.0+	3.6+)	1999 10 02	691	0.3+	0.1+	1999 11 16	704	0.1-	0.1-
1998 03 04	809	(2.1+	4.1+)	1999 10 02	704	0.6+	0.7+	1999 11 16	704	0.6-	0.2-
1998 03 04	704	1.9-	0.2-	1999 10 02	704	0.3+	0.7+	1999 11 16	704	0.4-	0.2+
1998 03 04	704	(2.1-	0.1-)	1999 10 02	704	0.3+	0.9+	1999 11 16	704	0.0	0.9+
1998 03 04	704	(2.2-	1.2-)	1999 10 02	704	0.2+	0.4+	1999 12 03	704	0.3-	0.2-
1998 03 04	704	(3.2-	0.6-)	1999 10 02	704	0.7+	0.9+	1999 12 03	704	0.5-	0.7-
1998 03 04	704	(2.7-	0.8-)	1999 10 03	678	0.5+	0.4+	1999 12 03	704	0.5+	1.1+
1999 07 16	704	0.2+	0.9-	1999 10 03	678	0.4+	0.0	1999 12 03	704	0.3+	0.1+
1999 07 16	704	0.0	0.9-	1999 10 03	699	0.0	0.5+	1999 12 03	704	0.6+	0.2-
1999 07 16	704	0.3-	0.9-	1999 10 03	699	0.3-	0.8+	1999 12 07	704	0.3-	0.4-
1999 07 16	704	0.2-	0.9-	1999 10 03	699	0.5-	0.7+	1999 12 07	704	0.2+	0.2-
1999 08 22	703	0.2+	0.0	1999 10 06	704	1.1+	0.4-	1999 12 07	704	0.4-	0.6-
1999 08 22	703	0.1+	0.6+	1999 10 06	704	0.2+	0.7-	1999 12 07	704	0.8+	0.7-

1999 08 22 703 0.2+ 0.6+ 1999 10 06 704 0.3+ 0.8- 1999 12 07 704 0.5+ 2.0-
 1999 08 22 703 0.0 1.7+ 1999 10 06 704 0.2+ 0.5-

(12851)* 1998 DT₉ = 1996 TB₂₅

Discovered 1998 Feb. 22 at Haleakala by the JPL Near-Earth Asteroid

Tracking program.

Id. G. V. Williams (*MPC* 31558)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	10.09692	(2000.0)	P	Q	
<i>n</i>	0.31680525	ω	346.09549	+0.87572681	+0.48271979
<i>a</i>	2.1311195	Ω	345.03098	-0.43950262	+0.78917143
<i>e</i>	0.1185531	<i>i</i>	2.03534	-0.19984995	+0.37972365
<i>P</i>	3.11	<i>H</i>	15.1	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1990 11 18	675	1.3+	0.2-	1998 03 22	704	0.7-	1.0-	1999 10 06	704	0.3+	0.2-
1990 11 18	675	0.2+	0.4-	1998 03 22	704	0.5+	0.9-	1999 10 06	704	0.4+	0.4-
1995 03 28	691	0.2-	1.0-	1998 03 22	704	0.3+	1.2+	1999 10 06	704	0.3+	0.6-
1995 03 28	691	0.6-	0.1-	1998 03 22	704	0.3-	1.1+	1999 10 06	704	0.2+	0.5-
1995 03 28	691	0.5-	0.2-	1998 03 22	704	0.5-	0.6+	1999 10 06	704	0.1+	0.6-
1996 10 06	691	0.4-	0.4-	1998 03 29	704	0.3+	0.1-	1999 10 07	704	0.5+	0.2-
1996 10 08	691	0.7-	0.3-	1998 03 29	704	0.3+	0.2+	1999 10 07	704	0.2-	0.4-
1996 10 08	691	0.9-	0.3-	1998 03 29	704	0.4-	1.3-	1999 10 07	704	0.1+	0.3-
1996 10 08	691	0.7-	0.3-	1998 03 29	704	0.8+	1.5-	1999 10 07	704	0.2-	0.5-
1998 02 22	566	1.0+	0.0	1998 03 29	704	0.8+	1.1-	1999 10 07	704	0.3+	0.2-
1998 02 22	566	0.1-	0.2-	1999 08 22	699	0.2-	0.2+	1999 10 09	704	0.2-	0.6-
1998 02 22	566	0.2-	0.1+	1999 08 22	699	0.2-	0.3+	1999 10 09	704	0.3-	0.3-
1998 02 23	566	0.1-	0.1+	1999 08 22	699	0.4-	0.6+	1999 10 09	704	0.3-	0.2-
1998 02 23	566	0.0	0.1-	1999 09 04	699	0.2+	0.3+	1999 10 09	704	0.2+	0.3-
1998 02 23	566	0.2-	0.1+	1999 09 04	699	0.5+	0.4+	1999 10 09	704	0.1-	0.3-
1998 02 23	327	0.1+	0.3-	1999 09 04	699	0.1-	0.0	1999 10 15	704	0.3-	0.1+
1998 02 23	327	0.0	0.2-	1999 09 07	704	0.4+	0.0	1999 10 15	704	0.5-	0.4+
1998 02 23	327	0.2-	0.2-	1999 09 07	704	0.5+	0.3+	1999 10 15	704	0.4-	0.1+
1998 02 24	557	0.3+	0.2-	1999 09 07	704	0.2+	0.0	1999 10 15	704	0.1+	0.5+
1998 02 24	557	0.5-	0.2-	1999 09 07	704	0.8+	0.1+	1999 10 15	704	0.3-	0.1+
1998 02 24	557	0.6-	0.6-	1999 09 07	704	0.3+	0.1+	1999 10 30	699	0.7+	0.4-
1998 02 24	557	0.3+	0.8-	1999 09 09	704	0.2+	0.4-	1999 10 30	699	0.4+	0.9+
1998 02 25	422	(2.8+ 0.2-)		1999 09 09	704	0.4+	0.9-	1999 10 30	699	0.5-	1.7+
1998 02 25	422	1.6+	0.4+	1999 09 09	704	0.8+	0.5-	1999 11 14	704	0.7-	0.3-
1998 02 25	422	0.7+	0.0	1999 09 09	704	0.4+	0.5-	1999 11 14	704	(0.9+ 2.1-)	
1998 02 25	426	0.9-	0.3+	1999 09 10	120	0.5-	0.4-	1999 11 14	704	0.0	0.3+
1998 02 25	426	0.2-	0.2-	1999 09 10	120	0.2-	0.3-	1999 11 14	704	1.5+	0.2+
1998 02 25	426	0.3-	0.3-	1999 09 11	120	0.5-	0.5-	1999 11 16	704	0.8-	0.0
1998 03 03	704	0.6-	1.7+	1999 09 11	120	0.1-	0.4-	1999 11 16	704	0.1+	0.2+
1998 03 03	704	0.1+	0.1-	1999 09 29	703	0.4-	0.0	1999 11 16	704	0.1-	0.2+
1998 03 03	704	0.8-	0.6-	1999 09 29	703	0.1-	0.5+	1999 11 16	704	0.4-	0.5+
1998 03 03	704	(3.4+ 0.9+)		1999 09 29	703	0.2-	0.3+	1999 11 16	704	0.5-	0.2+
1998 03 03	704	0.5-	0.0	1999 09 29	703	0.6+	0.9-	1999 12 07	704	0.7-	0.1+
1998 03 20	704	0.3-	0.5+	1999 10 02	704	0.7+	0.1-	1999 12 07	704	0.6-	0.4+
1998 03 20	704	0.2+	0.8+	1999 10 02	704	0.2+	0.3-	1999 12 07	704	0.4+	0.5+
1998 03 20	704	0.7-	0.0	1999 10 02	704	0.3+	0.2-	1999 12 07	704	0.3+	0.1+
1998 03 20	704	0.8-	0.3+	1999 10 02	704	0.5+	0.2-	1999 12 07	704	0.3-	0.5+
1998 03 20	704	0.0	1.8-	1999 10 02	704	0.2+	0.0				

(12852)* 1998 FW₃₀ = 1989 VS₃ = 1992 RN₂ = 1998 HB₁₃

Discovered 1998 Mar. 20 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. A. Doppler (*MPC* 35955)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	57.79004	(2000.0)	P	Q	
<i>n</i>	0.28799416	ω	115.35398	+0.16635787	+0.98558457
<i>a</i>	2.2709815	Ω	164.13083	-0.94034520	+0.16796541
<i>e</i>	0.1446669	<i>i</i>	6.46566	-0.29677596	+0.02026541
<i>P</i>	3.42	<i>H</i>	14.4	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1989 11 03	809	0.9+	1.4-	1998 04 18	704	0.2+	0.3+	1999 10 05	703	0.2-	0.2+
1989 11 03	809	0.4+	1.0-	1998 04 18	704	1.0-	0.4-	1999 10 07	703	0.2-	0.3+
1989 11 03	809	0.0	1.3-	1998 04 18	704	0.3+	0.3+	1999 10 07	703	0.5-	0.6+
1992 09 02	809	0.6+	1.0-	1998 04 18	704	(4.0- 1.6+)		1999 10 07	703	0.8-	0.4+
1992 09 02	809	0.9+	1.1-	1998 04 19	704	0.5+	0.9+	1999 10 07	703	0.5-	0.5+
1992 09 02	809	0.2-	1.3-	1998 04 19	704	0.6+	0.9+	1999 10 07	704	0.7-	0.2+
1992 09 03	809	0.3-	1.1-	1998 04 19	704	1.0+	0.8+	1999 10 07	704	0.1+	0.2+
1998 02 28	809	(2.2- 2.0+)		1998 04 19	704	0.2+	0.2-	1999 10 07	704	0.2+	0.6-
1998 02 28	809	(3.7- 4.4+)		1998 04 19	704	1.2-	0.7+	1999 10 07	704	0.1-	0.6+
1998 02 28	809	(3.1- 3.9+)		1998 04 28	012	0.1-	0.0	1999 10 07	704	0.7+	0.5-
1998 03 20	704	0.3+	0.2-	1998 04 28	012	0.4-	0.5+	1999 10 12	699	0.4-	1.5+
1998 03 20	704	0.4+	0.1+	1998 04 28	012	0.4-	0.6+	1999 10 12	699	0.3-	0.5+
1998 03 20	704	0.6+	0.3-	1999 09 14	704	0.4+	0.1+	1999 10 12	699	0.5+	0.0
1998 03 20	704	1.1+	0.9-	1999 09 14	704	0.8+	0.5+	1999 10 15	704	0.6-	0.2+
1998 03 22	704	0.0	0.3+	1999 09 14	704	0.4+	0.7+	1999 10 15	704	0.8-	0.3-
1998 03 22	704	0.4+	0.3-	1999 09 14	704	0.9+	0.5+	1999 10 15	704	0.8-	0.3-
1998 03 22	704	0.3-	0.3+	1999 09 14	704	0.3+	0.0	1999 10 15	704	0.7-	0.1+
1998 03 22	704	0.2+	0.6+	1999 10 02	699	0.2+	0.3+	1999 10 15	704	0.7-	0.2-
1998 03 22	704	0.0	0.2-	1999 10 02	699	0.1-	0.5+	1999 10 31	699	0.6-	1.1+
1998 03 26	704	0.0	0.5-	1999 10 02	704	0.2+	0.1+	1999 10 31	699	0.3-	0.3+
1998 03 26	704	0.4+	0.5+	1999 10 02	704	0.5+	0.2+	1999 10 31	699	0.0	0.2+
1998 03 26	704	0.4-	1.1-	1999 10 02	699	0.1-	0.2+	1999 11 07	704	1.1+	0.2+
1998 03 29	704	0.1+	0.1+	1999 10 02	704	0.6+	0.8+	1999 11 07	704	(2.3+ 1.3-)	
1998 03 29	704	0.3-	0.2-	1999 10 02	704	0.9+	0.2+	1999 11 07	704	0.4+	1.1-
1998 03 29	704	1.6-	0.2+	1999 10 02	704	0.4+	0.5+	1999 11 07	704	(0.7- 2.3-)	
1998 03 29	704	0.6-	0.2-	1999 10 05	703	0.2-	0.7+	1999 12 02	704	0.8-	1.2-
1998 03 29	704	0.4-	0.3-	1999 10 05	703	0.3-	0.1+	1999 12 02	704	1.0-	0.1-
1998 04 18	704	0.8+	0.2-	1999 10 05	703	0.3-	0.7+	1999 12 02	704	0.9-	1.1-

(12853)* 1998 FZ₉₇ = 1950 TM₁ = 1983 VN₆ = 1995 SY₃

Discovered 1998 Mar. 31 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. A. Gnädig (*MPC* 32002)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	27.28708	(2000.0)	P	Q	
<i>n</i>	0.24079359	ω	64.95812	+0.45324224	+0.88748500
<i>a</i>	2.5588182	Ω	232.25041	-0.85110286	+0.40308255
<i>e</i>	0.2219683	<i>i</i>	6.04866	-0.26494413	+0.22337153
<i>P</i>	4.09	<i>H</i>	13.2	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1950 10 13	024	(8.8- 5.2-)		1998 04 19	704	0.3+	0.6-	1999 10 04	704	0.9+	0.0
1983 11 09	033	0.2-	0.8-	1998 04 19	704	0.9-	1.0-	1999 10 04	704	0.6+	0.6-
1983 11 10	033	0.2+	0.5-	1999 07 09	097	0.1-	0.2-	1999 10 04	704	0.4+	0.7-
1995 09 20	400	(1.6- 2.3+)		1999 07 09	097	0.2-	0.2-	1999 10 04	704	0.0	0.6-
1995 09 20	400	0.3+	0.2+	1999 07 10	097	0.2-	0.2-	1999 10 04	704	0.0	1.5-
1995 09 21	400	0.3+	0.2+	1999 07 23	704	0.0	0.0	1999 10 09	704	0.4+	0.3+
1995 09 21	400	(2.7- 2.3-)		1999 07 23	704	0.3-	1.0-	1999 10 09	704	0.1+	0.2-
1998 02 25	566	0.7+	0.8+	1999 07 23	704	0.6+	0.3+	1999 10 09	704	0.2+	0.3-
1998 02 25	566	0.4+	0.7+	1999 08 23	106	0.7+	0.2-	1999 10 09	704	0.2+	0.3-
1998 02 25	566	0.9+	0.9+	1999 08 23	106	0.5-	0.2-	1999 10 09	704	0.1-	0.7-
1998 03 24	704	0.1-	0.1-	1999 08 23	106	0.1+	0.0	1999 10 16	611	0.7+	0.4-
1998 03 24	704	0.3+	0.5+	1999 09 04	703	0.					

1999 DEC. 22

M.P.C. 37079

1998 04 01	704	0.6−	1.1−	1999 09 16	704	0.1−	0.2+	1999 11 16	704	0.2+	0.4+
1998 04 18	704	0.2+	1.4−	1999 09 16	704	0.1+	0.1+	1999 12 03	704	0.1+	0.3−
1998 04 18	704	0.1−	0.2−	1999 09 16	704	0.1−	0.1−	1999 12 03	704	0.3−	0.1+
1998 04 18	704	0.2+	0.4−	1999 09 16	704	0.0	0.4−	1999 12 03	704	0.4−	0.3−
1998 04 18	704	1.4−	0.5−	1999 10 01	703	0.1−	0.0	1999 12 03	704	0.2+	0.4+
1998 04 19	704	0.2+	0.8−	1999 10 01	703	0.2−	0.1+	1999 12 03	704	0.9+	0.3−
1998 04 19	704	0.3+	0.5−	1999 10 01	703	1.2−	0.0				
1998 04 19	704	0.3+	0.3−	1999 10 01	703	0.0	0.3−				

(12854)* 1998 HA₁₃ = 1991 PY₃₁

Discovered 1998 Apr. 29 at Haleakala by the JPL Near-Earth Asteroid Tracking program.

Id. K. Lawrence (*MPC* 35332)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	61.06160		(2000.0)		P		Q
<i>n</i>	0.26934835	ω	82.75642		+0.75521413		+0.65104835
<i>a</i>	2.3746148	Ω	236.58982		−0.63160432		+0.69175138
<i>e</i>	0.2975999	<i>i</i>	5.22902		−0.17529288		+0.31243573
<i>P</i>	3.66	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1991 07 09	675	0.3+	0.1−	1998 04 25	699	0.0	0.2+	1998 05 22	704	0.2+	0.7−
1991 07 09	675	0.6+	0.2+	1998 04 29	566	0.1+	0.0	1998 05 24	704	0.6+	1.0−
1991 07 11	675	0.6−	0.9−	1998 04 29	566	0.4+	0.2−	1998 05 24	704	0.7−	0.3−
1991 07 11	675	0.7−	0.0	1998 04 29	566	0.5−	0.0	1998 05 24	704	1.1+	0.1−
1991 08 15	675	1.6−	0.8−	1998 04 30	566	0.2+	0.2−	1998 05 24	704	0.2−	0.5+
1991 08 15	675	0.1+	0.2−	1998 04 30	566	0.3+	0.1−	1999 11 15	704	1.0−	0.1+
1991 08 16	675	1.0+	0.8+	1998 04 30	566	0.2−	0.0	1999 11 15	704	0.2+	1.3−
1991 08 16	675	1.2+	0.1+	1998 05 01	704	0.1−	0.5−	1999 11 15	704	0.3−	1.5−
1995 12 26	691	0.1−	0.1+	1998 05 01	704	0.0	0.0	1999 12 07	704	0.6+	0.2−
1995 12 26	691	0.2−	0.2+	1998 05 01	704	0.2−	0.2−	1999 12 07	704	1.0+	0.1+
1995 12 26	691	0.0	0.1+	1998 05 01	704	0.0	1.0+	1999 12 07	704	0.2−	0.3−
1998 04 21	704	0.1−	0.2−	1998 05 18	699	0.8+	0.0	1999 12 07	704	0.4+	0.2−
1998 04 21	704	0.2+	0.2−	1998 05 18	699	1.1+	0.2−	1999 12 08	704	0.4+	0.1−
1998 04 21	704	1.3−	0.1−	1998 05 18	699	0.3+	0.1−	1999 12 08	704	0.3−	0.4+
1998 04 21	704	0.4−	0.4−	1998 05 22	704	1.1−	1.9+	1999 12 08	704	0.6−	0.0
1998 04 21	704	1.0−	0.7+	1998 05 22	704	0.2−	0.4−	1999 12 08	704	0.4−	0.4+
1998 04 25	699	0.0	0.1−	1998 05 22	704	0.7+	0.9+				
1998 04 25	699	0.0	0.2−	1998 05 22	704	0.2−	1.0−				

(12855)* 1998 HS₃₂ = 1999 RE₂₀

Discovered 1998 Apr. 20 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 35981)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	15.01783		(2000.0)		P		Q
<i>n</i>	0.24034511	ω	122.02423		+0.75820171		+0.65191950
<i>a</i>	2.5620003	Ω	197.29812		−0.61045445		+0.70358709
<i>e</i>	0.1745264	<i>i</i>	2.20718		−0.22907539		+0.28278292
<i>P</i>	4.10	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1992 12 26	691	0.0	0.5−	1998 04 22	704	1.2−	0.3+	1999 10 02	704	0.1+	0.2−
1992 12 26	691	0.4−	0.8−	1998 05 16	704	0.6−	1.0+	1999 10 02	704	0.1−	0.1+
1992 12 26	691	0.3−	1.0−	1998 05 16	704	(1.2+ 2.2−)		1999 10 02	704	0.6−	0.1+
1995 10 21	691	0.1+	0.2+	1998 05 16	704	1.0−	0.8−	1999 10 02	704	0.4−	0.3+
1995 10 21	691	0.3+	0.1+	1998 05 16	704	0.3−	0.7−	1999 10 05	704	0.5+	0.3+
1995 10 21	691	0.4−	0.2−	1999 07 16	704	0.5+	0.5+	1999 10 05	704	0.3+	0.0
1998 03 22	704	0.3+	0.6+	1999 07 16	704	0.6+	0.1−	1999 10 05	704	0.0	0.0
1998 03 22	704	0.1−	0.4+	1999 07 16	704	0.5+	0.3+	1999 10 05	704	0.7+	0.1+
1998 03 22	704	0.4−	0.8−	1999 07 16	704	0.2+	0.6−	1999 10 05	704	0.1−	0.0
1998 03 22	704	(0.8− 2.1−)		1999 09 07	704	0.2−	0.2+	1999 10 07	704	0.0	0.3−
1998 03 22	704	(5.8− 1.3−)		1999 09 07	704	0.0	0.3+	1999 10 07	704	0.2−	0.5−
1998 03 25	704	0.4+	0.8−	1999 09 07	704	0.3−	0.1−	1999 10 07	704	0.1+	0.3−
1998 03 25	704	0.0	1.4−	1999 09 07	704	0.3−	0.1+	1999 10 07	704	0.3−	1.2+

1998 03 25	704	1.0+	1.0−	1999 09 07	704	0.1−	0.6+	1999 10 07	704	0.6−	0.5−
1998 03 25	704	1.4+	0.8+	1999 09 08	704	0.1+	0.2−	1999 10 08	691	0.4+	0.1−
1998 03 25	704	0.0	1.8+	1999 09 08	704	0.0	0.5−	1999 10 08	691	0.2+	0.1−
1998 03 29	704	0.4−	0.2−	1999 09 08	704	0.2+	0.6−	1999 10 08	691	0.3+	0.1+
1998 03 29	704	0.2+	0.4+	1999 09 08	704	0.1−	0.8−	1999 10 14	691	0.2+	0.0
1998 03 29	704	0.5−	0.2−	1999 09 09	704	0.2−	0.4−	1999 10 14	691	0.1+	0.0
1998 03 29	704	1.6+	0.4+	1999 09 09	704	0.5−	0.5−	1999 10 14	691	0.2+	0.1+
1998 03 29	704	1.1−	1.0−	1999 09 09	704	0.1−	0.1+	1999 10 15	704	0.6+	0.0
1998 04 01	704	1.5+	0.7−	1999 09 09	704	1.0−	0.6−	1999 10 15	704	0.2+	0.6+
1998 04 01	704	0.5−	0.5+	1999 09 09	704	1.5−	1.6−	1999 10 15	704	0.1+	0.4−
1998 04 01	704	0.1−	0.1−	1999 09 11	699	0.2−	0.7+	1999 10 15	704	0.5+	0.0
1998 04 01	704	0.7−	0.2+	1999 09 11	699	0.8+	0.4+	1999 10 15	704	0.1+	0.7−
1998 04 01	704	0.2+	0.4+	1999 09 11	699	(2.9+ 0.1−)		1999 10 15	704	0.2+	0.0
1998 04 18	704	0.8+	0.3−	1999 09 14	704	0.1+	0.2−	1999 10 15	704	0.3+	0.7−
1998 04 18	704	0.9−	1.4−	1999 09 14	704	0.1−	0.3−	1999 10 15	704	0.2+	0.1−
1998 04 18	704	0.8−	0.3−	1999 09 14	704	0.1−	0.2−	1999 10 15	704	0.1−	0.9−
1998 04 18	704	0.0	0.7−	1999 09 14	704	0.1−	0.0	1999 10 15	704	0.2−	0.4−
1998 04 20	704	0.8−	0.9+	1999 09 14	704	0.1−	0.1−	1999 11 12	704	0.4+	0.8+
1998 04 20	704	0.2+	1.2−	1999 09 30	699	0.6−	0.3+	1999 11 12	704	0.3+	0.5+
1998 04 20	704	0.2−	0.3+	1999 09 30	699	0.3−	1.1+	1999 11 12	704	1.5+	1.7−
1998 04 20	704	0.7+	1.8+	1999 09 30	699	0.1−	0.6+	1999 12 07	704	0.3+	0.0
1998 04 22	704	1.1+	1.3−	1999 10 01	691	0.4+	0.3−	1999 12 07	704	0.2−	0.5+
1998 04 22	704	1.9−	1.2+	1999 10 01	691	0.3+	0.1−	1999 12 07	704	0.7−	0.2+
1998 04 22	704	1.1+	0.5−	1999 10 01	691	0.4+	0.2−	1999 12 07	704	0.7−	0.3+
1998 04 22	704	(1.2− 2.2+)		1999 10 02	704	0.1−	0.5+	1999 12 07	704	0.1+	1.0+

(12856)* 1998 HH₉₃ = A915 RE = 1965 AG = 1983 TT = 1986 RM₁₅

Discovered 1998 Apr. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32269)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	285.68467		(2000.0)		P		Q
<i>n</i>	0.30528607	ω	75.45846		+0.32252561		−0.94655551
<i>a</i>	2.1843961	Ω	355.72192		+0.85139978		+0.29155234
<i>e</i>	0.0712571	<i>i</i>	2.41795		+0.41363710		+0.13794894
<i>P</i>	3.23	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1915 09 15	029	(12.7+ 1.2−)	Y	1999 08 22	699	1.1−	0.1+	1999 10 08	610	0.3+	0.6+
1965 01 01	330	0.6+	0.7−	1999 08 22	699	0.0	0.2−	1999 10 08	610	0.4+	0.5+
1983 10 07	046	(0.1+ 5.0−)		1999 08 22	699	0.4−	0.1+	1999 10 08	610	0.3+	0.4+
1983 10 07	046	(0.6− 4.6−)		1999 09 04	699	0.2−	0.2+	1999 10 09	704	0.8+	0.1+
1983 10 14	046	0.1−	1.6−	1999 09 04	699	1.0−	0.1+	1999 10 09	704	0.7+	0.3−
1983 10 14	046	0.0	1.8−	1999 09 04	699	0.0	0.0	1999 10 09	704	0.9+	0.4−
1986 09 12	095	(4.5+ 0.4−)		1999 09 07	704	0.5+	0.1−	1999 10 09	704	0.7+	0.2−
1989 07 05	675	0.3+	1.4−	1999 09 07	704	0.4+	0.3−	1999 10 09	704	0.6+	0.3−
1989 07 05	675	0.0	0.3+	1999 09 07	704	0.2+	0.1−	1999 10 11	704	0.8+	0.1+
1998 04 21	704	0.0	0.1−	1999 09 07	704	0.3+	0.0	1999 10 11	704	1.0+	0.1+
1998 04 21	704	0.1+	0.8−	1999 09 07	704	0.1−	0.2−	1999 10 11	704	0.1−	0.4−
1998 04 21	704	1.9+	0.2−	1999 09 09	704	0.1+	0.5−	1999 10 11	704	0.1+	0.2−
1998 04 21	704	0.1−	1.5+	1999 09 09	704	0.5+	0.2+	1999 10 11	704	0.6−	0.6−
1998 04 21	704	(3.4− 2.5−)		1999 09 09	704	0.4+	0.1+	1999 10 15	699	0.4−	1.0+
1998 04 22	704	0.6−	0.1−	1999 09 09	704	0.2+	0.2+	1999 10 15	699	0.6−	0.0
1998 04 22	704	0.3+	0.4−	1999 09 09	704	0.2+	0.1−	1999 10 15	699	0.5−	0.7+
1998 04 22	704	0.2−	0.9−	1999 09 29	703	0.1−	0.0	1999 10 15	704	0.1+	0.2−
1998 04 22	704	0.0	1.4−	1999 09 29	703	0.2−	0.1+	1999 10 15	704	0.0	0.6−
1998 04 22	704	0.1−	0.4−	1999 09 29	703	0.2−	0.1+	1999 10 15	704	0.3+	0.6−
1998 04 25	699	0.1+	0.4−	1999 09 29	703	0.2−	0.3+	1999 10 15	704	0.4+	0.8−
1998 04 25	699	0.1+	0.4−	1999 10 01	699	0.2−	0.4+	1999 10 15	704	0.3+	0.7−
1998 04 25	699	0.3−	0.6−	1999 10 01	699	0.2−	0.4+	1999 10 30	699	0.0	0.4+
1998 04 25	699	0.1+	0.5−	1999 10 01	699	0.4−	0.2+	1999 10 30	699	0.1+	0.4+
1998 04 25	699	0.0	0.9−	1999 10 02	704	0.4+	0.2−	1999 10 30	699	0.3−	0.4+
1998 04 25	699	0.0	0.5−	1999 10 02	704	0.1+	0.2+	1999 10 31	012	0.2−	0.3+
1998 05 01	704	0.1−	1.7−	1999 10 02	704	0.1−	0.2+	1999 10 31	012	0.1−	0.4+
1998 05 01	704	0.0	0.1−	1999 10 02	704	0.0	0.0	1999 10 31	012	0.3−	0.3+
1998 05 01	704	0.1−	0.1+	1999 10 02	704	0.1+	0.0	1999 10 31	012	0.2−	0.3+

1998 05 01	704	0.4−	0.2+	1999 10 05	704	0.1+	0.1−	1999 11 28	699	1.5−	0.7+
1998 05 01	704	0.4−	0.3+	1999 10 05	704	0.0	0.1−	1999 11 28	699	1.4−	0.3+
1998 05 18	699	0.1+	1.4+	1999 10 05	704	0.1+	0.0	1999 11 28	699	1.4−	0.6+
1998 05 18	699	0.2−	0.0	1999 10 05	704	0.1−	0.0	1999 12 03	704	0.7−	0.3−
1998 05 18	699	0.1+	1.3+	1999 10 05	704	0.1+	0.1+	1999 12 03	704	0.4−	0.4−
1998 05 22	704	0.4+	0.2−	1999 10 07	704	0.3+	0.1+	1999 12 03	704	0.5−	0.1+
1998 05 22	704	0.6−	0.5+	1999 10 07	704	0.0	0.1−	1999 12 03	704	0.7−	0.1+
1998 05 22	704	0.2−	0.6+	1999 10 07	704	0.7+	0.8−	1999 12 03	704	0.3−	0.0
1998 05 22	704	0.2+	0.5+	1999 10 07	704	0.2−	0.4−	1999 12 07	704	0.2+	0.0
1998 05 22	704	0.2−	1.4+	1999 10 07	704	0.1+	0.6−	1999 12 07	704	0.3−	0.1−
1998 05 23	704	0.2+	0.7+	1999 10 07	106	0.1+	0.2+	1999 12 07	704	0.3−	0.1+
1998 05 23	704	0.6−	0.3+	1999 10 07	106	0.3−	0.3+	1999 12 07	704	0.1−	0.1−
1998 05 23	704	0.2−	0.8+	1999 10 07	106	0.3−	0.5+	1999 12 07	704	0.1−	0.7−
1998 05 23	704	0.1−	0.3+	1999 10 08	610	0.2+	0.7+				
1998 05 23	704	1.1+	0.3−	1999 10 08	610	0.3+	0.6+				

(12857)* 1998 HQ₉₇ = 1999 NL₄₀

Discovered 1998 Apr. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 35335)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams		
<i>M</i>	326.42706	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.19941359	ω	344.91381	+0.99507882	+0.09891611
<i>a</i>	2.9015688	Ω	9.41517	−0.08683726	+0.89880159
<i>e</i>	0.0759747	<i>i</i>	2.03508	−0.04772247	+0.42704954
<i>P</i>	4.94	<i>H</i>	13.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1993 05 13	691	0.2+	0.0	1998 05 22	704	0.4+	1.5−	1999 09 07	704	0.6+	0.4−
1993 05 13	691	0.1+	0.1+	1998 05 24	704	0.3+	0.4+	1999 09 07	704	0.2−	0.6−
1993 05 13	691	0.1−	0.4+	1998 05 24	704	1.5−	0.0	1999 09 07	704	0.1+	0.4+
1997 02 08	910	0.1−	0.1+	1998 05 24	704	0.8+	0.0	1999 09 07	704	0.2+	0.1+
1997 02 08	910	0.1−	0.0	1998 05 24	704	1.1−	0.8+	1999 09 11	699	0.5−	0.8+
1997 02 08	910	0.1−	0.1+	1998 05 24	704	(0.2−	2.1+)	1999 09 11	699	0.0	0.0
1998 04 21	704	0.3+	0.9+	1999 07 14	704	0.1−	0.6−	1999 09 11	704	0.5+	0.1+
1998 04 21	704	(2.3−	0.5+)	1999 07 14	704	0.4−	0.9−	1999 09 11	699	0.1−	0.7−
1998 04 21	704	1.1−	0.7−	1999 07 14	704	0.0	0.4−	1999 09 11	704	0.2+	0.5+
1998 04 21	704	1.9+	1.7−	1999 07 14	704	0.3−	0.6−	1999 09 11	704	0.1−	0.4+
1998 04 22	704	0.2−	0.0	1999 07 14	704	0.1+	0.1−	1999 09 11	704	0.2+	0.1−
1998 04 22	704	0.9+	0.2+	1999 07 16	704	0.5−	0.7−	1999 09 11	704	0.1−	0.6+
1998 04 22	704	(3.1−	0.6+)	1999 07 16	704	0.1−	0.3−	1999 09 30	699	1.1+	0.7+
1998 04 22	704	0.4−	1.9−	1999 07 16	704	0.9−	0.1−	1999 09 30	699	(2.1+	0.9+)
1998 04 22	704	0.4−	0.9−	1999 07 19	428	0.6−	0.3+	1999 09 30	699	0.4+	1.7+
1998 04 25	699	0.2+	0.2+	1999 07 19	428	1.1−	0.3+	1999 10 05	699	0.3−	0.5−
1998 04 25	699	0.1+	1.1+	1999 07 20	699	0.0	0.3+	1999 10 05	699	0.3−	1.0−
1998 04 25	699	(0.6−	2.1+)	1999 07 20	699	0.1+	0.1+	1999 10 05	699	0.3−	0.0
1998 05 01	704	0.6+	1.0−	1999 07 20	699	0.0	0.2+	1999 11 10	704	(2.2+	0.1−)
1998 05 01	704	0.7+	0.6+	1999 07 20	428	0.6+	0.5−	1999 11 10	704	1.3+	0.3+
1998 05 01	704	0.7+	0.6+	1999 07 20	428	0.6−	0.1+	1999 11 10	704	(2.1+	0.4+)
1998 05 01	704	0.3−	1.0+	1999 09 04	699	1.2−	0.4+	1999 11 10	704	1.2+	0.2−
1998 05 22	704	0.9−	0.3−	1999 09 04	699	0.6+	0.1−	1999 11 10	704	1.4+	1.1+
1998 05 22	704	1.2−	0.6+	1999 09 04	699	0.2−	0.2−				
1998 05 22	704	0.8+	1.4+	1999 09 07	704	0.4+	0.2+				

(12858)* 1998 JD₂ = 1988 PU₂

Discovered 1998 May 1 at Haleakala by the JPL Near-Earth Asteroid Tracking program.

Id. G. V. Williams (*MPC* 32028)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams		
<i>M</i>	93.55066	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.28436223	ω	96.55857	+0.23286761	+0.97246013
<i>a</i>	2.2902775	Ω	186.93022	−0.92099702	+0.21732118
<i>e</i>	0.1846447	<i>i</i>	4.60806	−0.31230940	+0.08421873
<i>P</i>	3.47	<i>H</i>	15.1	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1988 08 10	413	1.0−	0.4+	1998 05 22	704	0.3+	0.0	1998 06 16	704	(3.1−	2.0+)
1988 08 10	413	1.4−	0.1−	1998 05 22	704	0.3+	0.7−	1999 11 10	699	0.9+	0.2−
1988 08 11	413	0.1+	0.6−	1998 05 22	704	0.3+	0.2−	1999 11 10	699	0.5−	0.6+
1988 08 11	413	2.2+	0.5+	1998 05 22	699	0.0	0.3−	1999 11 10	699	0.4−	0.9−
1995 09 17	809	0.2+	0.1+	1998 05 22	704	0.7+	0.1+	1999 11 17	704	0.1+	0.5+
1998 04 24	910	0.3−	0.2−	1998 05 22	699	0.1−	0.8−	1999 11 17	704	0.2−	0.2−
1998 04 24	910	0.3−	0.4−	1998 05 22	699	0.3−	0.2+	1999 11 17	704	0.6+	1.0−
1998 04 24	910	0.5−	0.2−	1998 05 23	699	0.5+	0.1−	1999 11 17	704	0.0	0.2−
1998 05 01	704	0.9+	0.1−	1998 05 23	699	0.1−	0.5+	1999 11 17	704	0.2+	1.3−
1998 05 01	704	0.1+	0.9+	1998 05 23	699	0.5+	0.9+	1999 11 17	704	0.6−	0.2−
1998 05 01	704	0.1−	0.4+	1998 05 24	704	0.8+	0.5−	1999 11 17	704	0.3−	1.4−
1998 05 01	704	(2.8−	2.5+)	1998 05 24	699	0.5−	0.2+	1999 11 17	704	0.6−	0.2+
1998 05 01	566	0.6−	0.0	1998 05 24	699	0.6−	1.0−	1999 11 17	704	0.5+	0.2−
1998 05 01	566	0.5−	0.2+	1998 05 24	704	0.5+	0.5+	1999 11 27	049	1.4+	0.2+
1998 05 01	566	0.8−	0.1+	1998 05 24	699	0.5+	1.1−	1999 11 28	049	1.6+	0.3+
1998 05 02	566	0.2+	0.3−	1998 05 24	704	0.1+	0.3+	1999 11 28	049	1.6+	0.1+
1998 05 02	566	0.1+	0.0	1998 05 24	704	0.1+	0.1−	1999 12 03	699	0.8−	0.0
1998 05 02	566	0.3−	0.0	1998 05 24	704	0.6+	0.4+	1999 12 06	704	0.8−	0.3−
1998 05 05	699	0.1−	0.1−	1998 06 16	704	(2.1+	0.7+)	1999 12 06	704	1.0−	0.2−
1998 05 05	699	0.1−	0.6+	1998 06 16	704	1.3−	0.0	1999 12 06	704	0.7−	0.0
1998 05 05	699	0.4−	0.5+	1998 06 16	704	0.4−	0.5−	1999 12 06	704	0.0	0.5+
1998 05 22	704	0.5−	0.4−	1998 06 16	704	0.4+	1.2−	1999 12 06	704	0.7−	0.6+

(12859)* 1998 KK₁ = 1978 SD₅

Discovered 1998 May 18 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPC* 32030)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams		
<i>M</i>	24.31573	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.28462790	ω	306.12851	+0.99244324	+0.11458080
<i>a</i>	2.2888521	Ω	47.33665	−0.08433752	+0.89686412
<i>e</i>	0.1782541	<i>i</i>	3.42297	−0.08912688	+0.42720719
<i>P</i>	3.46	<i>H</i>	14.7	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1978 09 27	095	0.2+	0.3−	1998 05 22	704	0.4−	0.4−	1999 11 09	704	0.1+	0.2+
1978 10 03	095	0.7−	0.3+	1998 05 22	704	0.4−	0.4−	1999 11 09	704	0.0	0.1+
1978 10 07	095	0.6+	0.3−	1998 05 22	704	0.1+	0.9−	1999 11 12	704	0.0	0.3+
1997 01 10	691	0.1+	0.0	1998 05 22	704	0.2−	0.4+	1999 11 12	704	0.2+	0.2+
1997 01 10	691	0.0	0.1+	1998 05 22	699	0.1+	0.3+	1999 11 12	704	0.5+	0.0
1997 01 10	691	0.1−	0.0	1998 05 22	699	0.1−	0.1−	1999 11 12	704	0.1−	0.1−
1998 04 22	704	1.3+	1.6+	1998 05 22	699	1.0+	0.2−	1999 11 16	704	0.2−	0.0
1998 04 22	704	1.7−	0.2−	1998 05 24	704	0.3+	0.2+	1999 11 16	704	0.5−	0.2+
1998 04 22	704	(0.7−	2.5+)	1998 05 24	704	0.3+	0.4−	1999 11 16	704	0.4−	0.4+
1998 04 22	704	(2.8−	0.8−)	1998 05 24	704	0.5−	0.7+	1999 11 16	704	0.1+	0.0
1998 04 22	704	0.0	1.2−	1998 05 24	704	1.1+	0.1−	1999 11 16	704	0.2−	0.3+
1998 05 01	704	0.0	1.7−	1998 05 24	704	0.7−	0.2−	1999 12 07	704	0.3−	0.1−
1998 05 01	704	(3.3−	0.7−)	1999 11 03	704	0.2+	0.5+	1999 12 07	704	0.1−	0.3−
1998 05 01	704	0.2+	1.2+	1999 11 03	704	1.2+	1.2−	1999 12 07	704	0.0	0.4−
1998 05 01	704	1.4−	1.5−	1999 11 03	704	0.3+	0.9−	1999 12 07	704	0.0	0.4−
1998 05 18	699	0.3−	0.1+	1999 11 03	704	0.3−	1.0−	1999 12 13	106	0.3+	0.2+
1998 05 18	699	0.0	1.4+	1999 11 09	704	0.2−	0.3−	1999 12 13	106	0.4+	0.7+

M.P.C. 37081

(12861)* 1998 KW₃₃ = 1994 LC₈
 Discovered 1998 May 22 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.
 Id. G. V. Williams (*MPC* 32278)
 Epoch 1999 Aug. 10.0 TT = JDT 2451400.5 Williams

<i>M</i>	359.76220		(2000.0)		P		Q
<i>n</i>	0.23832696	<i>ω</i>	215.17049		+0.99994475		+0.00473465
<i>a</i>	2.5764434	<i>Ω</i>	144.55467		−0.00074924		+0.92265375
<i>e</i>	0.1201221	<i>i</i>	0.92729		−0.01048521		+0.38560035
<i>P</i>	4.14	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1994 06 08	809	(1.3+ 2.5+)	1998 07 02	691	0.9−	0.3−	1999 11 09	704	0.1−
1994 06 08	809	(2.3+ 3.7+)	1999 10 01	699	0.1−	1.4+	1999 11 09	704	0.8−
1994 06 08	809	(1.3+ 3.7+)	1999 10 01	699	0.2+	0.2−	1999 11 12	704	0.8+
1994 06 09	809	(2.5+ 2.1+)	1999 10 01	699	1.2−	0.8+	1999 11 12	704	0.6+
1994 06 09	809	(1.2+ 2.5+)	1999 10 08	106	0.0	0.4+	1999 11 12	704	0.3−
1994 06 09	809	0.2+ 0.8+	1999 10 08	106	0.3+	0.5+	1999 11 12	704	0.8+
1997 02 06	691	0.5− 0.3+	1999 10 08	106	0.3+	0.2−	1999 11 12	704	0.7−
1997 02 06	691	1.0+ 0.8−	1999 10 13	699	0.2−	0.4+	1999 12 02	691	0.2−
1997 02 06	691	0.7− 0.2+	1999 10 13	699	0.1−	0.5+	1999 12 02	691	0.0
1998 05 22	704	2.0+ 1.0−	1999 10 13	699	0.1−	0.4+	1999 12 02	691	0.1−

(12862)* 1998 KV₃₇ = 1995 XM₃
 Discovered 1998 May 22 by the Lincoln Laboratory Near-Earth Asteroid
 Research Team at Socorro.
 Id. G. V. Williams (*MPC* 32688)
 Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams							
<i>M</i>	64.32989			(2000.0)		P		Q			
<i>n</i>	0.24313200			ω 196.37187		+0.59100617		+0.79907483			
<i>a</i>	2.5423849			Ω 109.98699		−0.72630543		+0.58667666			
<i>e</i>	0.2060943			<i>i</i> 6.74725		−0.35098735		+0.13149111			
<i>P</i>	4.05			<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>		2	

Residuals in seconds of arc

1995 12 14	691	0.1+	0.3+	1998 05 24	704	0.6−	1.0+	1999 11 04	704	0.1+	0.1−
1995 12 14	691	0.2−	0.1+	1998 05 24	704	0.4+	0.8+	1999 11 04	704	0.2+	1.0−
1995 12 14	691	0.2+	0.2−	1998 05 24	704	0.9+	0.7+	1999 11 04	704	0.5−	0.0+
1995 12 20	691	(1.0− 4.9−)		1998 05 24	704	1.1+	0.6−	1999 11 04	704	0.1−	0.0+
1995 12 20	691	(2.0− 4.4−)		1998 05 25	699	0.7−	0.8+	1999 11 04	704	0.3+	0.0+
1995 12 26	691	0.1−	0.2−	1998 05 25	699	0.4−	0.1−	1999 12 03	699	0.7+	1.0−
1995 12 26	691	0.1−	0.1−	1998 05 25	699	0.3−	0.7+	1999 12 03	699	1.0−	0.0+
1995 12 26	691	0.1−	0.3−	1998 06 03	704	1.7+	1.1+	1999 12 03	699	1.0+	0.0+
1997 03 06	704	1.2+	0.8+	1998 06 03	704	0.3−	1.8+	1999 12 05	703	0.0	0.0+
1997 03 06	704	0.2−	0.3+	1998 06 03	704	0.8+	0.8+	1999 12 05	703	0.6−	1.0−
1998 05 08	910	0.2+	0.1+	1998 06 03	704	0.4−	0.3+	1999 12 05	703	0.7−	0.0+
1998 05 08	910	0.0	0.1−	1999 10 10	704	1.9+	0.9−	1999 12 05	703	0.9−	0.0+
1998 05 08	910	0.2−	0.1+	1999 10 10	704	0.3+	0.5+	1999 12 06	704	0.3−	0.0+
1998 05 22	704	1.1+	0.1−	1999 10 10	704	1.5−	1.1+	1999 12 06	704	0.2−	0.0+
1998 05 22	704	1.8−	0.6+	1999 10 20	704	0.3+	1.0+	1999 12 06	704	0.6−	0.0+
1998 05 22	704	0.2−	0.1+	1999 10 20	704	0.6−	0.1+	1999 12 06	704	0.4−	1.0−
1998 05 22	704	0.3+	0.4−	1999 10 20	704	0.3+	0.8+	1999 12 06	704	0.4−	0.0+
1998 05 22	704	0.3+	0.1+	1999 10 20	704	0.0	0.3+				

(12863)* 1998 KE₄₈ = 1977 DN₁₀ = 1992 UV₉
 Discovered 1998 May 22 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.
 Id. S. Nakano (*MPC* 32485)
 Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	128.71057		(2000.0)	P		Q	
<i>n</i>	0.28817306	<i>ω</i>	125.25580	−0.32214536		+0.94578422	
<i>a</i>	2.2700415	<i>Ω</i>	125.89914	−0.88433036		−0.28502506	
<i>e</i>	0.0954433	<i>i</i>	2.93007	−0.33790853		−0.15573351	
<i>P</i>	3.42	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1977 02 19	381	0.1−	0.1−	1998 06 26	704	1.6−	0.1+	1999 11 15	704	0.7+	0.1−
1977 02 19	381	0.1−	0.6−	1999 10 02	691	0.6−	0.4−	1999 11 15	704	0.2+	0.2−
1992 10 31	033	0.2−	1.0−	1999 10 02	691	0.4−	0.4−	1999 11 15	704	0.1−	0.4−
1992 10 31	033	0.1−	1.0−	1999 10 02	691	0.4−	0.3−	1999 11 17	704	0.1−	0.3+
1992 11 01	033	0.7+	0.1−	1999 10 10	704	0.0	0.4−	1999 11 17	704	0.5−	0.4+
1995 08 01	691	0.2−	0.5+	1999 10 10	704	0.8+	0.7−	1999 11 17	704	0.1−	0.4+
1995 08 01	691	0.0	1.0+	1999 10 10	704	0.9+	1.4−	1999 11 17	704	0.2−	0.2−
1995 08 01	691	0.1−	0.5+	1999 10 10	704	1.1+	1.4−	1999 11 17	704	0.2+	0.4+
1998 05 22	704	1.2+	0.4−	1999 10 10	704	0.4+	1.6−	1999 12 02	699	0.1−	0.3+

1998 05 22	704	1.3+	1.8+	1999 10 21	704	1.2-	0.5+	1999 12 02	699	1.5+	1.0+
1998 05 22	704	1.4+	0.8+	1999 10 21	704	0.1+	0.4+	1999 12 02	699	0.9+	0.0
1998 05 22	704	0.9+	0.9+	1999 10 21	704	0.5-	0.2+	1999 12 04	703	0.7-	0.8+
1998 05 22	704	1.1+	0.4+	1999 10 21	704	0.2+	0.9-	1999 12 04	703	0.6-	0.7+
1998 05 24	704	0.8+	0.2-	1999 10 21	704	0.3-	0.7+	1999 12 04	703	0.4-	0.1-
1998 05 24	704	0.9+	0.5-	1999 11 01	703	0.1-	0.5+	1999 12 04	703	0.1-	0.3+
1998 05 24	704	(1.4+	3.3+)	1999 11 01	703	0.2-	0.3+	1999 12 06	704	0.2+	0.3-
1998 05 24	704	(2.1+	2.9+)	1999 11 01	703	0.9-	1.0+	1999 12 06	704	0.1-	0.6+
1998 06 03	704	0.2-	1.4+	1999 11 01	703	0.1+	0.1+	1999 12 06	704	0.0	0.1-
1998 06 03	704	0.3-	1.8-	1999 11 04	704	0.3-	0.4-	1999 12 06	704	0.7-	0.1+
1998 06 03	704	0.0	1.8-	1999 11 04	704	0.1-	0.2-	1999 12 06	704	0.1-	0.7+
1998 06 03	704	1.9-	1.1-	1999 11 04	704	0.2-	0.3+	1999 12 07	704	0.4-	0.0
1998 06 24	704	(2.2-	0.1-)	1999 11 04	704	0.7+	0.5+	1999 12 07	704	0.1-	0.4-
1998 06 24	704	1.6-	0.1+	1999 11 04	704	0.2-	0.2+	1999 12 07	704	1.1-	0.4+
1998 06 24	704	0.0	0.4-	1999 11 08	120	1.1+	1.0-	1999 12 07	704	0.4-	0.2+
1998 06 24	704	0.2+	0.1-	1999 11 08	120	0.8+	0.9-	1999 12 07	704	0.2-	0.1+
1998 06 24	704	0.1-	0.2+	1999 11 12	699	0.4-	0.2-	1999 12 12	703	0.3+	0.4+
1998 06 26	704	0.8-	0.4-	1999 11 12	699	0.6+	0.1+	1999 12 12	703	0.9-	0.1+
1998 06 26	704	0.9-	0.1+	1999 11 12	699	0.9+	0.1+	1999 12 12	703	0.1-	0.6+
1998 06 26	704	0.4-	0.3+	1999 11 15	704	0.6+	0.0	1999 12 12	703	0.2-	0.3+
1998 06 26	704	0.0	0.2+	1999 11 15	704	0.1+	0.3-				

(12864)* 1998 KB₅₅ = 1985 OF₁ = 1986 WB₃

Discovered 1998 May 23 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. A. Doppler (*MPC* 32283)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	351.89428	(2000.0)	P	Q
<i>n</i>	0.22287028	ω 207.27444	+0.97517636	-0.21778313
<i>a</i>	2.6942297	Ω 165.14054	+0.22071706	+0.94154413
<i>e</i>	0.1411416	<i>i</i> 8.97785	+0.01774923	+0.25703145
<i>P</i>	4.42	<i>H</i> 13.8	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1985 07 20	413	0.2-	1.2+	1998 06 25	704	0.3-	0.2-	1999 10 03	703	0.1-	0.1-
1986 11 27	033	0.6-	0.6+	1998 06 25	704	0.8-	0.5+	1999 10 03	703	0.6-	0.1-
1986 11 27	033	0.5+	1.0+	1999 09 05	699	0.3+	0.4-	1999 10 03	699	0.3+	0.3+
1998 05 23	704	0.2+	0.6-	1999 09 05	699	0.1-	0.2+	1999 10 03	703	0.5-	0.0
1998 05 23	704	1.8-	0.4+	1999 09 05	699	0.1-	0.4-	1999 10 09	704	0.2-	0.0
1998 05 23	704	0.6+	1.2-	1999 09 08	699	0.0	0.5+	1999 10 09	704	0.1-	0.2+
1998 05 23	704	(3.9-	0.4-)	1999 09 08	699	0.7+	0.2-	1999 10 09	704	0.5-	0.1+
1998 05 26	704	0.8+	0.7-	1999 09 08	699	0.1-	0.2+	1999 10 09	704	0.3-	0.0
1998 05 26	704	0.8+	0.9+	1999 09 09	704	0.1-	0.4+	1999 10 09	704	0.0	0.1-
1998 05 26	704	0.9+	0.5+	1999 09 09	704	0.2-	0.9-	1999 10 12	699	0.3+	0.2+
1998 05 26	704	0.8+	0.2-	1999 09 09	704	0.3+	0.6-	1999 10 12	699	0.4-	0.5+
1998 05 26	704	0.5+	1.6+	1999 09 09	704	0.9+	0.6-	1999 10 12	699	0.1+	0.8+
1998 06 03	704	0.3-	0.9+	1999 09 09	704	0.2-	1.8-	1999 11 03	699	0.2-	0.7+
1998 06 03	704	1.0+	0.1+	1999 09 15	106	0.1-	0.5+	1999 11 03	699	0.5-	0.6+
1998 06 03	704	1.8-	1.3-	1999 09 15	106	0.5+	0.0	1999 11 03	699	0.9-	0.2+
1998 06 03	704	(0.1+	2.4-)	1999 09 15	106	0.2+	0.2+	1999 11 07	704	0.2+	0.8-
1998 06 19	704	0.2-	0.8-	1999 10 02	704	0.3+	0.1+	1999 11 07	704	0.3+	1.1-
1998 06 19	704	0.2-	0.4+	1999 10 02	704	0.2+	0.2+	1999 11 07	704	0.1+	0.9-
1998 06 19	704	0.2+	0.8+	1999 10 02	704	0.3+	0.1+	1999 11 07	704	0.1+	0.7-
1998 06 19	704	0.2+	0.0	1999 10 02	704	0.6+	0.2+	1999 12 09	699	0.2-	0.5-
1998 06 19	704	0.1+	0.9-	1999 10 02	704	0.6+	0.3-	1999 12 09	699	0.1+	0.2+
1998 06 25	704	1.2+	0.4-	1999 10 03	699	0.4+	0.3+	1999 12 09	699	0.5+	0.1+
1998 06 25	704	1.0-	0.8+	1999 10 03	703	0.4-	0.3+				
1998 06 25	704	0.7-	0.5-	1999 10 03	699	0.9-	1.0+				

(12865)* 1998 KL₅₅

Discovered 1998 May 23 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	45.84265	(2000.0)	P	Q
<i>n</i>	0.18419833	ω 91.26526	+0.38266070	+0.92205753
<i>a</i>	3.0592308	Ω 201.52113	-0.89812219	+0.35649169
<i>e</i>	0.0687118	<i>i</i> 9.11968	-0.21667331	+0.15074348
<i>P</i>	5.35	<i>H</i> 13.2	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1992 04 09	691	0.6-	0.0	1998 07 26	910	0.4+	0.4+	1999 10 01	703	0.7-	0.3+
1992 04 09	691	0.4-	0.1-	1998 07 26	910	0.3+	0.3+	1999 10 02	704	0.3+	0.2-
1992 04 09	691	0.0	0.1+	1999 09 04	703	0.4-	0.4-	1999 10 02	704	0.6+	0.2-
1994 10 26	691	0.1+	0.5+	1999 09 04	703	0.3-	0.2+	1999 10 02	704	1.3-	0.9+
1994 10 26	691	0.9+	0.6+	1999 09 04	703	0.8-	0.1+	1999 10 02	704	0.5-	0.4+
1994 10 26	691	0.3-	0.6+	1999 09 04	703	0.3-	0.8+	1999 10 02	704	0.8-	0.4+
1997 04 29	704	0.9+	0.2+	1999 09 07	704	0.5+	0.6+	1999 10 07	704	0.7-	0.7+
1997 04 29	704	0.8+	1.6+	1999 09 07	704	0.4+	0.5+	1999 10 07	704	0.6-	0.0
1997 04 29	704	1.0-	0.9+	1999 09 07	704	0.2+	0.4+	1999 10 07	704	0.5-	0.3-
1997 04 29	704	0.6+	0.5+	1999 09 07	704	0.5+	0.6+	1999 10 07	704	0.8-	0.4-
1997 04 29	704	0.0	0.7+	1999 09 07	704	0.7+	0.5+	1999 10 07	704	0.6+	1.1-
1998 05 23	704	0.4-	0.3+	1999 09 09	704	1.3+	0.1-	1999 10 09	704	0.2-	0.4-
1998 05 23	704	0.2-	0.4+	1999 09 09	704	1.2+	0.1-	1999 10 09	704	0.0	0.6-
1998 05 23	704	1.2+	0.8+	1999 09 09	704	1.4+	0.3-	1999 10 09	704	0.0	0.2-
1998 05 23	704	(2.3-	0.5-)	1999 09 09	704	0.0	0.3-	1999 10 09	704	1.3+	0.1-
1998 05 26	704	0.5-	0.0	1999 09 09	704	0.3+	0.6-	1999 10 13	704	0.1-	0.2+
1998 05 26	704	0.8-	0.7+	1999 09 10	704	0.1+	0.7+	1999 10 13	704	0.2+	0.2+
1998 05 26	704	1.2-	0.5+	1999 09 10	704	0.2+	0.1+	1999 10 13	704	0.1-	0.2+
1998 05 26	704	0.5-	0.2-	1999 09 10	704	0.5+	0.7-	1999 10 13	704	0.2-	0.2+
1998 05 26	704	1.1-	0.5-	1999 09 12	699	0.3-	0.2+	1999 10 13	704	0.1-	0.1+
1998 06 19	704	0.1+	0.2+	1999 09 12	699	0.2+	0.1+	1999 10 15	704	0.1-	0.2-
1998 06 19	704	0.6+	0.5-	1999 09 12	699	0.8-	0.3+	1999 10 15	704	0.3-	0.2+
1998 06 19	704	0.6+	0.7-	1999 09 16	704	0.1+	0.9-	1999 10 15	704	1.0-	0.4+
1998 06 19	704	0.5+	0.1+	1999 09 16	704	0.1-	0.3+	1999 10 15	704	0.2-	0.1+
1998 06 19	704	0.6-	0.0	1999 09 16	704	0.2-	0.3+	1999 10 15	704	0.0	0.0
1998 06 25	704	0.8+	0.1+	1999 09 16	704	0.6-	0.1-	1999 12 03	704	0.0	0.8-
1998 06 25	704	1.3+	1.0-	1999 10 01	703	0.5-	0.1-	1999 12 03	704	0.8+	0.7-
1998 06 25	704	0.6+	1.0-	1999 10 01	703	0.6-	0.5+	1999 12 03	704	(0.5-	2.1-)
1998 07 26	910	0.2-	0.4+	1999 10 01	703	0.1+	0.2+				

(12866)* 1998 KL₆₅ = 1995 WZ₂₇

Discovered 1998 May 22 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. S. Nakano (*MPC* 32486)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	100.33028	(2000.0)	P	Q
<i>n</i>	0.26219664	ω 228.78144	+0.06183452	+0.99743980
<i>a</i>	2.4176010	Ω 44.80324	-0.89979799	+0.07128320
<i>e</i>	0.1849254	<i>i</i> 2.92196	-0.43190285	-0.00570560
<i>P</i>	3.76	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1995 11 19	691	1.0-	0.7+	1999 10 12	704	0.2+	0.8-	1999 11 14	704	0.2+	0.3+
1995 11 19	691	0.5-	0.6+	1999 10 12	704	0.9+	0.9-	1999 11 14	704	0.5+	0.2+
1995 11 19	691	0.6+	0.5-	1999 10 12	704	0.3-	0.8-	1999 11 14	704	0.3+	0.3+
1995 11 25	691	0.1-	0.5+	1999 10 12	704	0.0	0.7-	1999 11 14	704	0.3+	0.3+
1995 11 25	691	0.0	0.2+	1999 10 22	704	1.3-	0.7-	1999 11 16	704	0.1-	0.4+
1995 11 25	691	0.2+	0.3+	1999 10 22	704	1.7-	0.1-	1999 11 16	704	0.3-	0.8+
1997 01 15	566	0.2+	0.0	1999 10 22	704	1.7-	1.5-	1999 11 16	704	0.2+	0.0
1997 01 15	566	0.4-	0.2-	1999 10 22	704	0.8-	1.5-	1999 11 16	704	0.3+	0.2+
1997 01 15	566	0.2+	0.3-	1999 11 03	704	0.3-	1.0+	1999 11 16	704	0.2+	0.6+
1998 05 22	704	0.4+	0.1+	1999 11 03	704	0.3+	0.5-	1999 12 02	699	1.0+	0.4+
1998 05 22	704	0.4-	0.9+	1999 11 03	704	0.2+	0.0	1999 12 02	699	0.2-	0.3+
1998 05 22	704	0.2-	0.9+	1999 11 03	704	0.3+	0.5+	1999 12 02	699	0.6+	0.2+
1998 05 22	704	(0.6-	2.7-)	1999 11 03	704	0.4+	0.4+	1999 12 04	703	0.3-	0.2+
1998 05 24	704	1.4-	0.7-	1999 11 04	703	0.2-	0.7+	1999 12 04	703	0.2-	0.6+
1998 05 24	704	(0.9-	2.3-)	1999 11 04	703	0.4+	0.3-	1999 12 04	703	0.0	1.2+

1999 DEC. 22

M.P.C. 37083

1998 05 24	704	1.2−	0.1+	1999 11 04	703	1.1−	1.0+	1999 12 04	703	0.6−	0.6+
1998 06 24	704	0.6+	0.0	1999 11 04	703	0.0	0.3+	1999 12 07	704	0.0	0.2−
1998 06 24	704	0.3+	0.6−	1999 11 09	704	0.5+	0.2+	1999 12 07	704	0.2−	0.6−
1998 06 24	704	0.3+	0.2+	1999 11 09	704	0.3−	0.8−	1999 12 07	704	0.2−	0.0
1998 06 24	704	1.0+	0.5−	1999 11 09	704	0.0	0.7−	1999 12 07	704	0.8−	0.6+
1998 06 26	704	(2.6+ 0.9+)		1999 11 09	704	0.8+	0.1+	1999 12 07	704	0.0	0.5+
1998 06 26	704	(1.7− 3.8+)		1999 11 09	704	0.1+	0.3+	1999 12 08	704	0.0	0.5−
1998 06 26	704	0.6−	0.5+	1999 11 12	699	0.6+	0.4−	1999 12 08	704	0.0	0.2+
1998 06 26	704	1.3+	0.3+	1999 11 12	699	0.2−	0.1+	1999 12 08	704	0.8−	0.6+
1999 10 05	704	0.8+	0.5−	1999 11 12	704	0.1+	0.4−	1999 12 08	704	0.2−	0.2+
1999 10 05	704	1.4+	0.2−	1999 11 12	704	0.5+	0.6−	1999 12 08	704	1.5+	1.0+
1999 10 05	704	0.1+	0.6−	1999 11 12	704	0.6+	0.2−	1999 12 12	703	0.9−	0.2+
1999 10 05	704	0.0	0.9−	1999 11 12	704	0.3−	0.2+	1999 12 12	703	0.2+	0.3−
1999 10 05	704	0.3+	0.3−	1999 11 12	704	0.0	0.2−	1999 12 12	703	1.2−	0.7+
1999 10 12	704	0.2+	1.0−	1999 11 14	704	0.1+	0.2+	1999 12 12	703	0.4−	0.3−

(12867)* 1998 LK₂ = 1959 LK = 1970 PH = 1981 WR₇

Discovered 1998 June 1 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 32284)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	63.93916		(2000.0)	P	Q
<i>n</i>	0.27908316	<i>ω</i>	176.66511	+0.94100437	+0.33680843
<i>a</i>	2.3190687	<i>Ω</i>	163.53714	−0.31308159	+0.903233205
<i>e</i>	0.2108667	<i>i</i>	6.63084	−0.12841612	+0.26595479
<i>P</i>	3.53	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1959 06 04	760	0.0	1.2+	1998 06 19	704	0.0	0.2+	1999 10 10	704	0.5+	0.3+
1959 06 04	760	0.3−	0.6−	1998 06 19	704	0.7−	0.3+	1999 10 20	704	0.5+	0.9−
1970 08 03	095	0.7+	0.1+	1998 06 19	704	1.2−	0.1+	1999 10 20	704	0.1+	0.7−
1981 11 25	095	1.2−	0.6−	1998 06 19	704	0.4−	0.2−	1999 10 20	704	0.1+	0.2−
1998 05 26	704	0.1−	0.2+	1998 06 25	704	0.2+	0.5+	1999 10 20	704	0.3−	1.1−
1998 05 26	704	(3.8+ 0.1−)		1998 06 25	704	1.0−	0.0	1999 11 13	703	0.0	0.0
1998 05 26	704	0.4+	0.1−	1998 06 25	704	0.1−	0.4+	1999 11 13	703	1.0−	0.0
1998 05 26	704	0.6+	1.5+	1998 06 25	704	0.6+	1.1+	1999 11 13	703	0.2+	0.6+
1998 06 01	809	0.4+	0.8−	1998 08 15	704	1.1+	0.1−	1999 11 13	703	0.3+	0.2+
1998 06 01	809	0.1+	1.2−	1998 08 15	704	0.7−	1.1−	1999 12 06	704	0.9+	1.2+
1998 06 01	809	0.2−	1.0−	1998 08 15	704	(2.6+ 0.7+)		1999 12 06	704	0.8−	0.2−
1998 06 02	809	0.1+	0.9−	1998 08 15	704	(2.8+ 0.1−)		1999 12 06	704	0.7+	0.7−
1998 06 02	809	0.2+	0.9−	1999 10 10	704	0.5+	0.1−	1999 12 06	704	0.7+	0.7−
1998 06 02	809	0.1−	1.4−	1999 10 10	704	0.6−	0.2−	1999 12 06	704	0.7−	1.1−
1998 06 19	704	0.3+	0.2−	1999 10 10	704	0.6+	0.1−				

(12868)* 1998 MZ₇ = 1987 QC₁₁ = 1992 KT

Discovered 1998 June 19 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPC* 32285)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	56.86375		(2000.0)	P	Q
<i>n</i>	0.18050049	<i>ω</i>	93.18664	+0.91250608	+0.34147358
<i>a</i>	3.1008717	<i>Ω</i>	246.94151	−0.39817263	+0.86765581
<i>e</i>	0.2905654	<i>i</i>	14.16924	+0.09376140	+0.36134360
<i>P</i>	5.46	<i>H</i>	12.5	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1987 08 28	095	0.1+	0.1−	1998 08 24	704	0.0	0.8−	1998 11 21	704	0.3−	0.9−
1992 05 29	675	0.5−	0.4+	1998 08 24	704	0.1−	0.8+	1998 11 21	704	1.1−	0.5+
1992 05 29	675	0.5−	0.9+	1998 08 24	704	(1.7− 2.0+)		1998 11 21	704	0.3+	0.2−
1992 06 01	675	0.5+	1.5+	1998 08 24	704	(1.4+ 2.4−)		1998 11 21	704	1.5+	0.9+
1992 06 01	675	0.2+	0.3−	1998 08 27	704	0.2−	0.2+	1999 10 10	704	0.5+	0.4+
1998 06 19	699	1.0−	0.1+	1998 08 27	704	0.5+	0.0	1999 10 10	704	0.2+	0.2−
1998 06 19	699	0.7−	0.5−	1998 08 27	704	0.2+	0.7+	1999 10 10	704	0.2+	0.3+
1998 06 19	699	0.4−	0.5−	1998 08 27	704	0.4+	0.2+	1999 10 10	704	0.1−	0.6+
1998 06 26	699	0.4+	0.4−	1998 08 27	704	1.0+	0.1+	1999 10 10	704	0.2−	0.6+
1998 06 26	699	0.3+	0.3−	1998 08 31	628	0.2+	0.8+	1999 10 21	704	0.5−	0.7+

1998 06 26	699	0.1−	0.2−	1998 08 31	628	0.1−	0.6+	1999 10 21	704	0.8−	0.5−
1998 06 30	704	(1.0+ 2.2−)		1998 08 31	628	0.1+	0.5+	1999 10 21	704	0.3−	0.2+
1998 06 30	704	0.7+	1.1−	1998 08 31	628	0.1+	0.7+	1999 10 21	704	0.5−	0.6−
1998 06 30	704	1.9+	1.3−	1998 08 31	628	0.1+	0.6+	1999 10 21	704	0.1−	1.0+
1998 06 30	704	1.3+	1.9−	1998 09 19	699	1.0−	0.1+	1999 10 21	704	0.2+	0.2−
1998 07 17	699	0.1−	0.0	1998 09 19	699	1.1−	0.3+	1999 10 21	704	0.1+	1.2+
1998 07 17	699	0.0	0.3+	1998 09 19	699	1.1−	0.2+	1999 10 21	704	0.2−	0.9−
1998 07 17	699	0.2+	0.0	1998 09 23	628	0.1−	0.6−	1999 10 21	704	0.2−	0.3+
1998 07 23	750	0.5−	1.0−	1998 09 23	628	0.9−	0.2−	1999 10 21	704	0.8−	1.5−
1998 07 23	750	1.0−	0.6+	1998 09 23	628	0.5−	0.0	1999 12 06	704	0.5+	0.2+
1998 07 24	750	0.9−	0.6+	1998 09 23	628	0.5−	0.2−	1999 12 06	704	0.7+	0.5−
1998 07 31	750	0.9+	0.0	1998 11 07	689	0.3−	0.2−	1999 12 06	704	0.2+	0.0
1998 07 31	750	1.7+	0.7+	1998 11 19	689	0.2−	0.1−	1999 12 06	704	0.4+	0.2+
1998 08 24	704	0.0	0.1−	1998 11 21	704	0.0	0.8−	1999 12 06	704	0.2+	0.1−

(12869)* 1998 MR₃₂ = 1992 GZ₂ = 1995 WR₂₆ = 1999 TA₂₇

Discovered 1998 June 24 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. A. Doppler (*MPC* 36814)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	357.45705		(2000.0)	P	Q
<i>n</i>	0.19741227	<i>ω</i>	159.68612	+0.92902954	−0.36937096
<i>a</i>	2.9211461	<i>Ω</i>	222.01098	+0.33484745	+0.86421820
<i>e</i>	0.0688805	<i>i</i>	1.85473	+0.15742079	+0.34160209
<i>P</i>	4.99	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1992 04 04	809	0.5+	0.5−	1998 06 26	704	0.2−	1.1+	1999 11 04	704	0.1−	0.5−
1992 04 04	809	0.4+	1.2−	1998 06 26	704	1.5+	0.9−	1999 11 04	704	0.1+	0.6−
1992 04 04	809	0.3+	1.3−	1998 06 26	704	1.0−	0.4−	1999 11 04	704	0.2+	0.8−
1992 04 06	809	0.5−	1.5−	1998 06 26	704	0.2+	1.0+	1999 11 04	704	0.3−	0.7−
1992 04 06	809	1.6−	1.2−	1998 06 27	809	(0.3+ 4.7−)		1999 11 12	704	0.4+	0.2−
1992 04 06	809	1.2−	1.9−	1998 06 27	809	(0.4+ 4.9−)		1999 11 12	704	0.8+	0.4+
1993 07 12	809	(3.1− 1.4−)		1998 06 27	809	(0.0 4.3−)		1999 11 12	704	0.7+	0.9−
1993 07 12	809	(3.6− 3.0−)		1999 10 01	703	0.2−	0.4−	1999 11 12	704	0.9+	0.6−
1993 07 12	809	(4.3− 3.3−)		1999 10 01	703	0.3−	0.2−	1999 11 12	704	0.8+	0.9−
1993 07 23	809	0.8−	0.4+	1999 10 01	703	0.9−	0.1+	1999 12 04	703	0.3+	0.4+
1993 07 23	809	0.4+	0.8+	1999 10 01	703	0.1−	0.7−	1999 12 04	703	0.5−	1.2+
1993 07 23	809	0.3−	1.0+	1999 10 03	704	0.2+	0.1−	1999 12 04	703	0.3+	0.4+
1995 11 18	691	0.2+	0.8+	1999 10 03	704	0.9−	0.9+	1999 12 04	703	0.4−	0.0
1995 11 18	691	0.4+	0.8+	1999 10 03	704	0.0	0.0	1999 12 04	699	0.3−	0.6−
1995 11 28	691	0.2+	1.0+	1999 10 03	704	0.2+	0.5−	1999 12 04	699	0.0	0.1+
1995 11 28	691	0.0	1.1+	1999 10 03	704	0.1−	0.6−	1999 12 04	699	0.1−	0.3+
1995 11 28	691	0.0	0.8+	1999 10 06	704	0.9+	0.2+	1999 12 06	704	0.8+	0.2+
1998 06 24	704	1.1−	0.3+	1999 10 06	704	0.4+	0.4−	1999 12 06	704	0.7+	0.9−
1998 06 24	704	0.1+	0.6−	1999 10 06	704	0.5+	0.3−	1999 12 06	704	0.3+	0.1+
1998 06 24	704	1.3+	0.6+	1999 10 06	704	0.3+	0.3−	1999 12 06	704	0.2−	1.1−
1998 06 24	704	(0.2+ 2.5−)		1999 11 03	703	0.8+	0.5−	1999 12 07	704	1.2+	0.2+
1998 06 24	704	1.0−	1.2−	1999 11 03	703	1.8−	0.4+	1999 12 07	704	0.3−	0.4+
1998 06 26	809	(1.1− 4.6−)		1999 11 03	703	0.4−	0.6+	1999 12 07	704	0.3+	0.3−
1998 06 26	809	(1.8− 4.2−)		1999 11 03	703	0.4−	0.3−	1999 12 07	704	0.4+	0.0
1998 06 26	809	(1.6− 4.5−)		1999 11 04	704	0.2−	0.1+	1999 12 07	704	1.4−	0.7−

(12870)* 1998 MK₃₇ = 1990 SN₁₅ = 1997 ES₉

Discovered 1998 June 24 by the Lowell Observatory Near-Earth Object Search

at the Anderson Mesa Station.</

Residuals in seconds of arc

1990 09 18	675	0.1+	1.1-	1998 06 29	704	(2.2+	1.0-)	1999 10 13	704	0.1-	0.7-
1990 09 18	675	0.6+	1.4-	1998 06 29	704	(2.3+	0.0)	1999 10 13	704	0.7-	0.3+
1990 09 20	675	0.1+	0.3+	1998 06 29	704	0.5+	1.7-	1999 11 16	704	0.9+	0.1-
1990 09 20	675	0.5+	0.7-	1998 06 29	704	0.2-	1.8-	1999 11 16	704	0.2+	0.3-
1997 03 03	691	0.7-	0.7-	1998 06 29	704	0.3+	0.3-	1999 11 16	704	0.7+	0.3-
1997 03 03	691	0.8-	0.7-	1998 07 02	699	0.2+	0.6-	1999 11 16	704	0.6+	0.1-
1997 03 03	691	0.8-	0.7-	1998 07 02	699	0.1+	0.5-	1999 11 16	704	0.3+	0.3-
1997 03 09	691	0.0	1.4-	1998 07 02	699	0.4-	0.0	1999 12 07	703	0.7-	0.7+
1997 03 09	691	0.3+	1.0-	1998 08 17	704	0.1-	0.6+	1999 12 07	703	0.5-	0.4+
1997 03 09	691	0.4-	0.8-	1998 08 17	704	0.8+	0.3+	1999 12 07	703	0.4-	0.1+
1998 06 02	699	1.4-	0.4+	1998 08 17	704	0.1-	0.2+	1999 12 07	703	(1.9-	3.7-)
1998 06 02	699	0.5-	0.7+	1998 08 17	704	0.8+	0.5+	1999 12 13	703	0.4+	0.3-
1998 06 02	699	0.5-	0.4+	1998 08 17	704	0.1+	1.4+	1999 12 13	703	0.0	0.3+
1998 06 24	699	0.7+	1.0-	1998 08 23	689	0.6-	0.5-	1999 12 13	703	0.1+	0.6-
1998 06 24	699	0.6+	0.6-	1999 10 13	704	0.1+	0.0	1999 12 13	703	0.5-	0.1-
1998 06 24	699	0.4+	0.1-	1999 10 13	704	0.3-	0.8-				

(12871)* 1998 ML₃₇ = 1971 UX₃ = 1988 SQ₃ = 1993 BS₂

Discovered 1998 June 24 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPC* 32488)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
27.59832		(2000.0)			
<i>n</i>	0.28819144	ω	296.00962	+0.65541853	-0.75041346
<i>a</i>	2.2699450	Ω	112.76773	+0.72185342	+0.58910904
<i>e</i>	0.1717828	<i>i</i>	5.31892	+0.22215805	+0.29971684
<i>P</i>	3.42	<i>H</i>	14.1	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1971 10 22	805	0.4-	1.9+	1998 07 02	699	0.9+	0.3+	1999 11 04	703	1.0+	0.0
1971 10 22	805	0.4-	1.3+	1998 07 02	699	0.1-	0.2+	1999 11 04	703	0.1+	1.3+
1971 10 22	805	0.1-	0.2-	1998 07 02	699	0.6+	1.1+	1999 11 16	704	0.1-	0.4-
1988 09 16	095	0.7-	1.9-	1998 08 17	704	1.3-	0.8+	1999 11 16	704	0.1+	0.3-
1988 09 16	095	1.8+	2.2-	1998 08 17	704	1.2-	0.4-	1999 11 16	704	0.2+	0.4-
1993 01 21	691	0.2-	0.7-	1998 08 17	704	0.4-	0.5-	1999 11 16	704	1.3+	0.3-
1993 01 21	691	0.1+	0.7-	1998 08 17	704	1.3+	1.3-	1999 11 16	704	0.4+	0.2+
1993 01 21	691	0.1-	0.5-	1998 08 17	704	0.1-	0.8-	1999 12 05	704	0.2-	0.5+
1993 01 23	400	(0.3-	2.2+)	1998 08 23	704	0.4+	0.7+	1999 12 05	704	0.8-	0.8+
1993 01 23	400	0.3-	0.9+	1998 08 23	704	1.1-	1.5+	1999 12 05	704	0.7-	0.7+
1993 01 24	400	0.3-	1.5-	1998 08 23	704	0.5+	0.2-	1999 12 05	703	0.8+	0.6+
1993 01 24	400	(0.0	3.6-)	1998 08 23	704	0.6-	1.6-	1999 12 05	704	0.3-	0.6+
1998 06 24	699	0.4-	0.3-	1998 08 23	704	0.2-	0.8-	1999 12 05	703	0.6+	0.5+
1998 06 24	699	0.2+	0.5+	1998 08 29	699	1.1+	0.8+	1999 12 05	704	0.4-	0.6+
1998 06 24	699	0.2+	0.0	1998 08 29	699	0.1-	1.6+	1999 12 05	703	0.3-	0.0
1998 06 30	691	0.0	0.4+	1998 08 29	699	1.0-	0.8+	1999 12 05	703	0.5+	0.1+
1998 06 30	691	1.2+	0.4+	1999 11 04	703	1.2-	0.2-				
1998 06 30	691	0.2+	0.3+	1999 11 04	703	1.3+	0.4+				

(12872)* 1998 OZ₅ = 1988 PM₃

Discovered 1998 July 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Gnädig (*MPC* 34921), M. E. Sansaturio (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
129.91856		(2000.0)			
<i>n</i>	0.29042683	ω	56.96419	+0.00442554	+0.99951432
<i>a</i>	2.2582823	Ω	213.33100	-0.93517701	-0.00678802
<i>e</i>	0.1376798	<i>i</i>	3.21822	-0.35415304	+0.03041452
<i>P</i>	3.39	<i>H</i>	14.2	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1988 08 11	413	0.5-	0.7-	1998 07 17	910	0.1+	0.2+	1999 11 15	704	0.2+	0.0
1988 08 11	413	0.1-	0.8-	1998 07 17	910	0.1+	0.2+	1999 11 15	704	0.1+	0.0
1988 10 09	413	1.4+	0.2+	1998 07 21	704	0.4-	0.4-	1999 11 15	704	0.0	0.3-

1988 10 09	413	0.1-	0.7+	1998 07 21	704	0.6-	0.5+	1999 11 17	704	0.4+	0.2+
1989 11 04	675	1.0-	1.1+	1998 07 21	704	0.0	1.4-	1999 11 17	704	0.0	0.6-
1989 11 04	675	0.6+	0.4-	1998 07 21	704	0.6-	0.0	1999 11 17	704	0.0	0.3+
1991 03 23	413	0.8+	0.7-	1998 07 26	704	0.2-	0.7+	1999 11 17	704	0.5-	0.3-
1991 03 23	413	0.7-	0.3-	1998 07 26	704	0.5-	0.1+	1999 11 17	704	0.4-	0.2+
1995 10 15	691	0.0	0.1-	1998 07 26	704	0.2-	0.5+	1999 12 08	704	0.3-	0.0
1995 10 15	691	0.2+	0.1+	1998 07 26	704	0.5+	0.0	1999 12 08	704	0.2-	0.4-
1995 10 15	691	0.1-	0.0	1999 11 03	704	0.4+	0.5+	1999 12 08	704	0.4+	0.8-
1998 06 26	704	0.5+	0.1+	1999 11 03	704	0.3+	0.4-	1999 12 08	704	0.3+	0.0
1998 06 26	704	0.5+	0.0	1999 11 03	704	0.2-	0.3+	1999 12 08	704	0.1+	0.4-
1998 06 26	704	0.4+	0.2-	1999 11 03	704	0.1-	0.3+	1999 12 13	106	0.2-	0.5+
1998 06 26	704	0.5+	0.8+	1999 11 03	704	0.1-	0.2-	1999 12 13	106	0.3+	0.4+
1998 06 26	704	0.4-	0.4-	1999 11 15	704	0.3-	0.1-				
1998 07 17	910	0.0	0.1+	1999 11 15	704	0.1+	0.1-				

(12873)* 1998 OU₇ = 1991 RJ₁₄ = 1993 BL₁₃

Discovered 1998 July 26 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 32490)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
97.75491		(2000.0)			
<i>n</i>	0.27457238	ω	26.24903	+0.80890964	+0.58214586
<i>a</i>	2.3443987	Ω	297.90632	-0.55447465	+0.70882465
<i>e</i>	0.1259243	<i>i</i>	5.34293	-0.19550717	+0.39833882
<i>P</i>	3.59	<i>H</i>	14.4	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1991 09 13	675	0.8+	1.0-	1998 08 17	704	1.2-	0.1+	1999 10 12	704	0.3+	0.2+
1991 09 13	675	0.2+	0.6-	1998 08 17	704	0.3+	1.1+	1999 10 12	704	0.4-	0.4+
1991 09 15	675	0.3+	1.0-	1998 08 17	704	0.7+	0.3-	1999 10 12	704	1.1-	0.1-
1991 09 15	675	0.3+	1.2-	1998 08 23	704	0.4-	0.4+	1999 10 22	704	0.4+	0.2+
1993 01 22	809	0.1+	0.1-	1998 08 23	704	1.0-	0.1-	1999 10 22	704	0.5+	0.6+
1993 01 22	809	1.3-	0.6+	1998 08 23	704	0.7-	0.1-	1999 10 22	704	0.4+	0.2+
1993 01 22	809	0.1-	0.4-	1998 08 23	704	1.8-	0.0	1999 10 22	704	0.2+	0.3+
1993 01 28	809	0.2-	1.1-	1998 08 23	704	0.9-	1.1-	1999 12 07	704	0.2+	0.5+
1993 01 28	809	0.2+	1.2-	1998 08 30	699	0.3-	0.0	1999 12 07	704	0.2+	1.3+
1993 01 28	809	0.3+	0.5-	1998 08 30	699	0.5-	0.3+	1999 12 07	704	0.2+	0.2-
1998 07 24	566	1.2+	0.5-	1998 08 30	699	0.7-	0.2+	1999 12 07	704	1.1+	1.0+
1998 07 24	566	2.0+	0.0	1998 09 15	699	0.7+	0.1+	1999 12 07	704	0.0	0.3+
1998 07 24	566	1.0+	0.6-	1998 09 15	699	0.0	0.5+	1999 12 08	704	(2.5+	0.8+)
1998 07 26	809	(1.2+	4.0+)	1998 09 15	699	0.3+	0.2+	1999 12 08	704	0.7+	0.2+
1998 07 26	809	(0.9+	3.1+)	1998 10 20	699	0.4-	0.2+	1999 12 08	704	0.0	0.2+
1998 07 26	809	(1.1+	3.5+)	1998 10 20	699	1.3-	0.2+	1999 12 08	704	0.1+	1.5-
1998 07 27	809	(0.0	3.2+)	1998 10 20	699	0.7-	0.5+	1999 12 12	691	0.5-	0.1+
1998 07 27	809	(0.0	3.1+)	1998 11 22	703	0.8+	0.9-	1999 12 12	691	0.6-	0.0
1998 07 27	809	(0.3+	2.6+)	1998 11 22	703	0.1+	0.3+	1999 12 12	691	0.6-	0.1+
1998 08 17	704	0.5+	0.6+	1998 11 22	703	1.3+	1.1+				
1998 08 17	704	0.3+	1.3+	1999 10 12	704	0.1-	0.1+				

(12874)* 1998 QZ = 1992 LG₂ = 1993 RH₁₂

Discovered 1998 Aug. 19 by P. G. Comba at Prescott.

Id. B. G. Marsden (*MPC* 32690), A. Milani (*MPC* 34533), A. Doppler (*MPC* 34533)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
161.41718		(2000.0)			
<i>n</i>	0.20541281	ω	91.68906	-0.03637888	+0.99933603
<i>a</i>	2.8447954	Ω	176.22435	-0.92863096	-0.03305865
<i>e</i>	0.0674485	<i>i</i>	1.75648	-0.36921690	-0.01531740
<i>P</i>	4.80	<i>H</i>	13.3	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1999 DEC. 22

M.P.C. 37085

1993 09 14	809	1.1+	0.0	1998 09 26	704	0.0	0.1+	1998 10 28	704	0.4-	0.5-
1993 09 14	809	0.4+	0.7-	1998 09 26	704	0.9-	1.0+	1998 10 28	704	0.2+	1.2-
1993 09 19	809	0.4+	1.7-	1998 09 26	704	0.8-	0.0	1998 10 28	704	0.2-	0.2-
1993 09 19	809	(0.6+	2.9-)	1998 09 26	704	0.5-	0.3-	1998 10 29	704	0.7+	0.1+
1993 09 19	809	(0.8-	2.0-)	1998 09 27	704	0.1-	0.1-	1998 10 29	704	1.8-	0.5+
1996 02 15	566	1.5+	0.3+	1998 09 27	704	0.1-	0.1-	1998 10 29	704	0.1+	0.5+
1996 02 15	566	1.5+	0.3+	1998 09 27	704	0.9-	0.1+	1998 10 29	704	1.8-	0.5-
1996 02 15	566	1.5+	0.2+	1998 09 27	691	0.5-	0.4-	1998 10 29	704	1.0-	0.1+
1998 08 19	684	0.1-	0.2+	1998 09 27	704	0.5+	0.4+	1998 11 11	699	0.5-	0.3+
1998 08 19	684	0.0	0.0	1998 09 27	691	0.5-	0.3-	1998 11 11	699	1.4+	0.3-
1998 08 19	684	0.1+	0.2+	1998 09 27	704	0.3-	0.2+	1998 11 11	699	0.1-	0.8-
1998 08 20	684	0.1+	0.0	1998 09 27	691	0.7-	0.2-	1999 10 12	704	0.3-	0.6+
1998 08 20	684	0.2+	0.3-	1998 10 11	684	0.0	0.2-	1999 10 12	704	0.0	0.2-
1998 08 26	684	0.3+	0.1-	1998 10 11	684	0.1-	0.3-	1999 10 12	704	0.1-	0.8+
1998 08 26	684	0.1+	0.3-	1998 10 14	704	1.0+	1.1-	1999 12 03	684	0.6-	0.3-
1998 08 27	684	0.1+	0.3+	1998 10 14	704	1.0-	0.8+	1999 12 03	684	0.4-	0.5-
1998 08 27	684	0.2+	0.3+	1998 10 14	704	(2.1-	1.6-)	1999 12 03	684	0.3-	0.5-
1998 09 15	684	0.2+	0.1+	1998 10 14	704	0.7+	0.4+	1999 12 04	684	0.4-	0.4-
1998 09 15	684	0.3+	0.1+	1998 10 14	704	(1.2-	2.4+)	1999 12 04	684	0.4-	0.3-
1998 09 15	684	0.1+	0.2+	1998 10 14	699	0.2+	0.8+	1999 12 07	704	(0.1+	2.6-)
1998 09 15	699	1.0+	0.3+	1998 10 14	699	0.3-	0.5+	1999 12 07	704	0.9-	0.6-
1998 09 15	699	1.1+	0.4+	1998 10 14	699	1.4+	0.7+	1999 12 07	704	0.0	0.8-
1998 09 15	699	0.6+	0.0	1998 10 15	704	0.6+	0.1-	1999 12 07	704	0.5-	0.3-
1998 09 16	684	0.3+	0.3+	1998 10 15	704	1.2+	0.4-	1999 12 07	704	0.0	0.2-
1998 09 16	684	0.2+	0.3+	1998 10 15	704	0.6+	0.5+	1999 12 08	704	0.1-	0.6-
1998 09 18	684	0.5+	0.2+	1998 10 15	704	1.3+	0.6+	1999 12 08	704	0.2-	0.5-
1998 09 18	684	0.2+	0.1+	1998 10 15	704	0.3-	0.2-	1999 12 08	704	0.5-	0.1-
1998 09 20	691	0.4-	0.4-	1998 10 17	327	0.0	0.4+	1999 12 08	704	0.0	0.6-
1998 09 20	691	0.8-	0.5-	1998 10 17	327	0.2+	0.3+	1999 12 08	704	0.1-	0.3-
1998 09 20	691	0.3+	0.5-	1998 10 17	327	0.1-	0.8+				

(12875)* 1998 QA₂ = 1985 RV₅

Discovered 1998 Aug. 19 at Haleakala by the JPL Near-Earth Asteroid Tracking program.

Id. G. V. Williams (*MPC* 32494)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	17.42975		(2000.0)	P	Q
n	0.22426999	ω	196.25589	+0.60009075	-0.79927882
a	2.6830078	Ω	216.88517	+0.73978842	+0.56988872
e	0.1997520	i	3.08656	+0.30430935	+0.19073600
P	4.39	H	14.3	G 0.15	U 1

Residuals in seconds of arc

1985 09 15	095	0.5+	2.3+	1998 08 21	566	0.5-	0.3-	1998 09 14	704	0.0	0.0
1985 09 20	095	2.0-	1.3+	1998 08 23	704	0.4-	1.2-	1998 09 14	704	0.8+	1.2+
1992 05 03	691	0.4+	0.5+	1998 08 23	704	1.0+	1.5-	1999 10 10	704	0.2+	0.5-
1992 05 03	691	0.8+	1.3+	1998 08 23	704	(2.1-	0.5-)	1999 10 10	704	0.3+	0.4+
1992 05 03	691	0.1-	1.4+	1998 08 23	704	(1.7+	2.2-)	1999 10 10	704	0.0	0.3-
1998 07 26	699	0.9+	0.3+	1998 08 25	327	0.6-	0.4-	1999 11 17	704	0.5+	0.3+
1998 07 26	699	0.9+	0.6+	1998 08 25	327	1.3-	0.4-	1999 11 17	704	0.6-	0.9-
1998 07 26	699	1.6+	1.7-	1998 08 25	327	1.1-	0.1+	1999 11 17	704	0.7-	0.2+
1998 08 17	704	0.6-	0.3-	1998 08 31	327	0.0	0.1-	1999 11 17	704	0.3+	0.5+
1998 08 17	704	0.0	0.3+	1998 08 31	327	0.3-	0.0	1999 11 17	704	0.3-	0.4+
1998 08 17	704	0.5+	0.4+	1998 08 31	327	0.2-	0.1-	1999 12 07	704	0.3-	0.3+
1998 08 17	704	0.7+	0.4+	1998 09 10	910	0.5+	0.4+	1999 12 07	704	0.1-	0.2-
1998 08 19	566	0.5-	0.0	1998 09 11	910	0.5+	0.4+	1999 12 07	704	0.6+	0.6+
1998 08 19	566	0.4-	0.0	1998 09 11	910	0.3+	0.5+	1999 12 07	704	0.3+	0.2+
1998 08 19	566	0.2-	0.1+	1998 09 14	704	0.7+	1.5-	1999 12 07	704	0.1+	0.2-
1998 08 21	566	0.2-	0.2-	1998 09 14	704	0.2+	0.3+				
1998 08 21	566	0.7-	0.2-	1998 09 14	704	0.7-	1.2+				

(12876)* 1998 QR₁₀ = 1996 DT₅ = 1997 HP₆

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32692)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	54.73496		(2000.0)	P	Q
n	0.19669543	ω	34.83032	+0.92309163	+0.38431228
a	2.9282391	Ω	302.56241	-0.35660061	+0.84136609
e	0.0870908	i	0.97556	-0.14400639	+0.38000945
P	5.01	H	13.7	G 0.15	U 1

Residuals in seconds of arc

1996 02 16	010	1.0-	0.0	1998 09 14	699	0.7-	0.8+	1999 11 16	704	0.9+	0.7+
1996 02 16	010	0.3+	0.1+	1998 09 15	691	0.2-	0.6+	1999 11 16	704	0.3-	0.7-
1996 02 16	010	0.9+	0.2+	1998 09 15	691	0.1-	0.2+	1999 11 16	704	0.0	0.1-
1996 02 17	010	(0.8-	3.3-)	1998 09 15	691	0.0	0.2+	1999 11 16	704	0.4+	0.1-
1996 02 17	010	(0.9-	2.4-)	1999 10 22	704	0.1+	0.0	1999 11 16	704	0.2-	0.6-
1996 02 17	010	(0.5-	2.8-)	1999 10 22	704	0.2-	0.2-	1999 11 17	699	0.8-	1.0+
1997 04 30	704	0.1-	0.5+	1999 10 22	704	0.1+	0.5-	1999 11 17	699	0.1-	1.1+
1997 04 30	704	0.3-	0.2-	1999 10 22	704	0.1-	0.4-	1999 11 17	699	0.1-	0.3+
1997 04 30	704	0.2-	0.1-	1999 10 22	704	0.1-	0.9-	1999 12 04	691	0.0	0.0
1997 04 30	704	0.2+	0.4+	1999 10 22	704	0.0	0.0	1999 12 04	691	0.1-	0.1-
1997 04 30	704	0.9-	0.7-	1999 10 22	704	0.2+	0.5-	1999 12 04	703	0.6-	0.2-
1997 05 01	704	0.4+	0.1+	1999 10 22	704	0.0	0.1+	1999 12 04	703	0.4-	0.0
1997 05 01	704	0.1+	0.2-	1999 10 22	704	0.1-	1.3-	1999 12 04	691	0.0	0.4-
1997 05 01	704	0.1+	0.3+	1999 10 22	704	0.0	0.1-	1999 12 04	703	0.2-	0.3-
1997 05 01	704	0.5+	0.1+	1999 11 03	704	0.2-	0.7-	1999 12 04	703	0.1-	0.4-
1997 05 01	704	0.2+	0.1-	1999 11 03	704	0.1-	0.3-	1999 12 05	703	1.0-	0.3+
1998 08 17	704	0.5+	0.1-	1999 11 03	704	0.2+	0.3-	1999 12 05	703	0.6-	0.7+
1998 08 17	704	0.7+	0.0	1999 11 03	704	0.4+	0.4-	1999 12 05	703	(0.6-	3.6-)
1998 08 17	704	0.9+	0.0	1999 11 03	704	0.2+	0.3-	1999 12 05	703	1.4-	0.0
1998 08 17	704	0.8+	0.4-	1999 11 09	704	0.7+	0.5-	1999 12 07	704	0.2-	0.3+
1998 08 17	704	0.5+	0.2+	1999 11 09	704	0.3+	0.1-	1999 12 07	704	0.1+	0.6+
1998 08 23	704	1.1-	1.0-	1999 11 09	704	0.2+	0.2-	1999 12 07	704	0.9-	0.2-
1998 08 23	704	0.1-	0.5+	1999 11 09	704	0.6+	0.4-	1999 12 07	704	0.5-	0.0
1998 08 23	704	0.9-	0.7-	1999 11 09	704	0.5+	0.3-	1999 12 07	704	0.0	0.5+
1998 08 23	704	0.6+	1.1+	1999 11 10	704	0.9+	0.3+	1999 12 08	704	0.0	0.2+
1998 08 23	704	0.5-	0.3-	1999 11 10	704	0.6+	0.2+	1999 12 08	704	0.4+	0.4+
1998 08 27	699	0.7-	0.3-	1999 11 10	704	1.3+	0.0	1999 12 08	704	0.4-	0.7+
1998 08 27	699	0.3+	0.8-	1999 11 10	704	0.2+	0.0	1999 12 08	704	0.1+	0.6+
1998 08 27	699	0.1-	0.8-	1999 11 10	704	0.9+	0.9+	1999 12 08	704	0.0	0.7+
1998 08 28	691	0.1-	0.6+	1999 11 12	704	0.2+	0.6-	1999 12 13	703	1.6-	0.0
1998 08 28	691	0.3-	0.4+	1999 11 12	704	0.8+	0.5-	1999 12 13	703	1.2-	0.6+
1998 08 28	691	0.2-	0.2+	1999 11 12	704	0.4+	0.4-	1999 12 13	703	0.6-	0.4+
1998 09 14	699	0.2+	0.5+	1999 11 12	704	0.9+	0.1+	1999 12 13	703	0.0	0.9+
1998 09 14	699	0.0	0.3+	1999 11 12	704	0.1+	0.2+				

(12877)* 1998 QF₁₁ = 1988 VS₈ = 1993 AK

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32496)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	288.47386		(2000.0)	P	Q		
n	0.27324719	ω	13.71730	-0.63687892	-0.74506620		
a	2.3519725	Ω	116.23379	+0.68487459	-0.66477520		
e	0.0807758	i	12.76181	+0.35402265	-0.05431665		
P	3.61	H	13.4	G	0.15	U	2

Residuals in seconds of arc

1988 11 04	033	0.2+	1.6+	1998 07 31	699	0.3-	0.1-	1999 10 10	704	1.1-	0.4+
1988 11 05	033	0.8-	0.1+	1998 07 31	699	1.2-	0.4+	1999 10 10	704	0.4+	0.1+
1992 12 24	691	0.2+	0.5+	1998 07 31	699	1.0-	0.6+	1999 10 10	704	0.3+	0.3-
1992 12 24	691	0.0	0.3+	1998 08 17	704	0.2+	0.3+	1999 10 20	704	1.0+	0.3-
1992 12 24	691	0.2+	0.4+	1998 08 17	704	0.2+	0.3-	1999 10 20	704	0.1+	0.2+
1993 01 13	400	0.8-	0.4-	1998 08 17	704	0.3+	0.3+	1999 10 20	704	0.3+	0.6-
1993 01 13	400	(2.7-	1.5+)	1998 08 17	704	0.2+	0.9-	1999 10 20	704	0.9+	1.1-
1993 01 14	400	(3.0+	0.9+)	1998 08 17	704	0.3+	0.7-	1999 12 06	704	0.1-	0.1-
1993 01 14	400	0.8-	0.2+	1998 08 23	704	0.0	0.4+	1999 12 06	704	0.3-	0.3-
1993 02 21	400	(2.2+	2.2-)	1998 08 23	704	0.5+	1.2-	1999 12 06	704	0.0	0.2-

1993 02 21	400	1.4+	0.0	1998 08 23	704	0.3+	0.1+	1999 12 06	704	0.1-	0.2-
1998 07 04	699	0.1+	0.1+	1998 08 23	704	0.4+	1.4+	1999 12 06	704	0.3-	0.4-
1998 07 04	699	0.0	0.4-	1999 10 10	704	0.4-	0.2+				
1998 07 04	699	0.1-	0.0	1999 10 10	704	0.1+	0.0				

(12878)* 1998 QH₁₁ = 9585 P-L

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32496)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	66.52716		(2000.0)	P	Q
n	0.23178648	ω	244.52215	+0.93268028	+0.35512386
a	2.6246858	Ω	94.62392	-0.30397609	+0.86816450
e	0.0985741	i	3.63549	-0.19418039	+0.34666618
P	4.25	H	14.3	G 0.15	U 2

Residuals in seconds of arc

1960 10 17	675	0.0	0.2-	1998 08 17	704	0.3+	0.1-	1999 10 15	704	1.0+	0.1-
1960 10 22	675	0.6-	0.0	1998 08 17	704	0.6+	1.0+	1999 10 15	704	1.4+	0.4-
1960 10 24	675	1.4+	0.1-	1998 08 17	704	1.7-	0.6+	1999 10 15	704	0.0	0.7-
1960 10 26	675	0.4-	0.4-	1998 08 17	704	(4.0-	0.2+)	1999 10 15	704	0.1+	0.3-
1994 09 06	691	0.5-	0.3-	1998 08 23	704	0.4+	0.1-	1999 12 07	704	0.7+	0.4+
1994 09 06	691	0.1+	0.0	1998 08 23	704	1.7+	0.7-	1999 12 07	704	0.3+	1.1+
1994 09 06	691	0.0	0.3-	1998 08 23	704	0.1+	1.4+	1999 12 07	704	0.0	0.4+
1995 10 21	327	0.0	0.5+	1998 08 23	704	0.4-	0.3+	1999 12 07	704	0.1+	0.6+
1995 10 21	327	0.8-	0.0	1998 08 29	699	0.4+	0.3+	1999 12 08	704	0.5-	0.5-
1995 10 21	327	0.1-	0.2+	1998 08 29	699	0.2+	0.4-	1999 12 08	704	0.3-	0.3+
1998 07 31	699	0.3-	0.5-	1998 08 29	699	0.4+	0.3+	1999 12 08	704	0.2-	0.0
1998 07 31	699	0.2-	0.3-	1998 09 14	699	0.1-	0.5+	1999 12 08	704	1.2-	0.8-
1998 07 31	699	0.8-	1.1-	1998 09 14	699	0.0	0.9+				
1998 08 17	704	0.4-	0.5-	1998 09 14	699	0.1-	0.0				

(12879)* 1998 QN₁₈ = 1991 EE₂ = 1996 DJ₆

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPC* 32974), K. Ichikawa (*ibid.*), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	190.81613		(2000.0)	P	Q
n	0.18894531	ω	223.01210	-0.94548496	+0.31706815
a	3.0077747	Ω	335.18077	-0.22942044	-0.81048367
e	0.0506882	i	10.20062	-0.23113732	-0.49252818
P	5.22	H	13.3	G 0.15	U 1

Residuals in seconds of arc

1991 03 10	809	0.4-	0.8+	1996 02 17	010	(0.6+	4.0-)	1999 10 14	704	0.2+	0.3-
1991 03 10	809	0.1-	0.4+	1996 02 17	010	(1.0-	4.1-)	1999 10 14	704	1.1+	0.2-
1991 03 10	809	0.1+	0.2+	1996 02 17	010	(0.6-	4.4-)	1999 11 08	699	1.1-	1.3+
1991 03 12	809	0.2+	0.4+	1998 08 17	704	0.0	0.3-	1999 11 08	699	0.4+	0.2+
1991 03 12	809	0.4+	0.5+	1998 08 17	704	0.2-	0.7+	1999 11 08	699	1.1-	0.4+
1991 03 12	809	0.6+	0.4+	1998 08 17	704	0.1+	0.1-	1999 11 10	703	0.2+	0.4+
1991 03 14	809	1.1-	0.3+	1998 08 17	704	1.2+	0.1+	1999 11 10	703	0.4-	0.0
1991 03 14	809	1.0-	0.4+	1998 08 17	704	0.4-	0.8+	1999 11 10	703	0.1+	0.5-
1991 03 14	809	0.9-	0.6+	1998 08 23	704	0.0	0.9-	1999 11 10	703	(2.0+	2.5-)
1991 03 15	809	0.5+	0.5-	1998 08 23	704	1.3+	0.3-	1999 11 26	560	0.8+	0.7+
1991 03 15	809	0.8+	0.4-	1998 08 23	704	(1.8-	2.3-)	1999 11 26	560	0.4-	0.9+
1991 03 15	809	1.0+	0.4-	1998 08 23	704	1.8-	0.2+	1999 11 26	560	0.5-	0.7-
1993 09 18	010	0.4-	0.4+	1998 10 20	910	0.1-	0.8-	1999 11 26	560	1.3+	0.1+
1993 09 18	010	1.8-	0.0	1998 10 20	910	0.1-	0.4-	1999 11 28	560	1.1-	0.3-
1993 09 18	010	1.4-	1.1+	1998 10 20	910	0.2+	0.2-	1999 11 28	560	0.9-	1.0-
1993 09 18	010	1.1+	0.2+	1998 10 21	910	0.2+	0.2-	1999 11 28	560	1.2-	1.0-
1993 09 18	010	0.8+	0.9+	1998 10 21	910	0.0	0.4-	1999 11 28	560	0.5-	0.9-
1993 09 18	010	1.1+	0.6+	1998 10 21	910	0.2+	0.6-	1999 12 13	703	0.8+	1.2+
1996 02 16	010	(0.8+	3.0-)	1999 10 14	704	1.0+	0.5-	1999 12 13	703	0.5-	0.4+
1996 02 16	010	(1.3+	2.9-)	1999 10 14	704	0.2+	0.4-	1999 12 13	703	0.1+	0.0
1996 02 16	010	0.7+	1.7-	1999 10 14	704	0.5+	0.2-	1999 12 13	703	0.0	0.0

(12880)* 1998 QM₂₅ = 1997 GU₃₅

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32499)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	56.78800		(2000.0)	P	Q
n	0.22528804	ω	321.56605	+0.99391715	+0.10695791
a	2.6749189	Ω	32.32305	-0.08495213	+0.89624369
e	0.0076761	i	2.81325	-0.07008448	+0.43047329
P	4.37	H	14.4	G 0.15	U 1

Residuals in seconds of arc

1992 04 06	809	0.0	0.7+	1998 08 23	704	1.5+	1.0+	1999 11 14	704	0.0	0.2-
1994 10 02	691	0.4+	0.1+	1998 08 23	704	(2.2-	0.1+)	1999 11 14	704	0.3+	0.1+
1994 10 02	691	0.2+	0.1-	1998 08 23	704	1.3-	1.3+	1999 11 14	704	0.3-	0.5-
1994 10 02	691	0.2+	0.1-	1998 08 28	699	1.7-	0.3+	1999 11 14	704	0.3-	0.5-
1997 04 06	704	0.4-	0.9+	1998 08 28	699	0.6+	1.7-	1999 11 14	704	0.8+	0.4-
1997 04 06	704	0.4+	0.4+	1998 08 28	699	0.3-	0.7+	1999 11 16	704	0.1-	1.5-
1997 04 11	704	0.4+	1.0+	1998 09 14	704	0.5+	1.4+	1999 11 16	704	1.3+	0.3-
1997 04 11	704	0.2+	0.3-	1998 09 14	704	0.1+	0.2+	1999 11 16	704	0.4+	0.8-
1997 05 01	704	0.5+	0.2+	1998 09 14	704	(2.6+	0.9-)	1999 12 05	703	0.2-	1.2+
1997 05 01	704	0.1-	0.4+	1998 09 14	704	1.4-	1.4+	1999 12 05	703	0.5-	0.9+
1997 05 01	704	1.1+	0.1+	1998 09 14	704	1.1-	1.1+	1999 12 05	703	0.9-	1.1+
1997 05 01	704	0.2+	0.4-	1998 09 18	704	(0.7+	2.2-)	1999 12 05	703	0.0	1.9+
1997 05 01	704	0.5-	0.1+	1998 09 18	704	1.6+	0.8-	1999 12 07	704	1.1-	0.1+
1998 08 17	704	0.2+	1.6-	1998 09 18	704	(1.3+	2.3-)	1999 12 07	704	0.4+	0.4+
1998 08 17	704	0.3-	0.2-	1998 09 18	704	0.3+	0.0	1999 12 07	704	0.6+	0.8-
1998 08 17	704	0.8+	0.8+	1999 11 03	704	0.3-	1.1+	1999 12 07	704	0.3+	0.1-
1998 08 17	704	(1.2-	2.3+)	1999 11 03	704	0.5-	0.1-	1999 12 07	704	0.2-	0.3-
1998 08 17	704	1.1-	0.6-	1999 11 03	704	0.2-	1.1+				
1998 08 23	704	0.6+	1.2-	1999 11 03	704	0.1+	0.5+				

(12881)* 1998 QF₃₁ = 1981 NG₁ = 1990 UO₇ = 1994 RC₅ = 1995 YS₉

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32698)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	81.06478		(2000.0)	P	Q
n	0.23452194	ω	199.35384	+0.90012104	+0.43335810
a	2.6042363	Ω	134.88125	-0.39095045	+0.84864863
e	0.1586206	i	3.60307	-0.19219745	+0.30330885
P	4.20	H	14.4	G 0.15	U 1

Residuals in seconds of arc

1981 07 02	805	0.6-	2.5+	1998 08 17	704	0.5-	0.6-	1998 09 18	704	0.1+	0.2-
1981 07 02	805	0.2+	0.1+	1998 08 17	704	0.2+	0.9-	1998 09 18	704	1.8+	0.1-
1990 10 16	809	0.5-	1.1+	1998 08 17	704	0.1-	0.4-	1998 09 18	704	1.2-	1.6+
1990 10 16	809	0.3+	0.4-	1998 08 17	704	1.0-	1.9-	1998 09 18	704	1.6-	0.5+
1990 10 16	809	0.6-	0.1+	1998 08 23	699	0.1-	0.3-	1998 09 21	699	0.2-	0.1+
1994 09 05	691	0.2+	0.2-	1998 08 23	704	0.6+	0.3-	1998 09 21	699	0.1+	0.2+
1994 09 05	691	0.5+	0.4-	1998 08 23	704	1.0-	0.3+	1998 09 21	699	0.0	0.6+
1994 09 05	691	0.6+	0.3-	1998 08 23	699	0.3+	0.0	1999 10 10	704	0.1-	0.4-
1994 09 09	691	0.3+	0.8-	1998 08 23	704	0.2+	1.0+	1999 10 10	704	0.8-	0.2+
1994 09 09	691	0.2+	0.5-	1998 08 23	704	0.5+	1.5+	1999 10 10	704	1.1+	0.8+
1994 09 09	691	0.1+	0.3-	1998 08 23	699	0.4+	0.4+	1999 11 29	120	(2.2+	0.5-)
1995 12 18	691	0.1+	0.1+	1998 08 23	704	1.0+	0.7+	1999 11 29	120	0.4+	0.2-
1995 12 18	691	0.0	0.3+	1998 09 13	699	0.5+	0.5-	1999 11 29	120	0.9+	0.1+
1995 12 18	691	0.2+	0.2+	1998 09 13	699	0.6-	0.1+	1999 12 07	704	0.4-	0.6+
1995 12 23	691	0.1+	0.5+	1998 09 13	699	0.9-	1.1+	1999 12 07	704	0.3-	0.0
1995 12 23	691	0.3-	0.2+	1998 09 14	704	0.0	0.7-	1999 12 07	704	0.4+	0.7-
1995 12 23	691	0.3-	0.4+	1998 09 14	704	0.3-	0.2-	1999 12 07	704	0.1+	0.3-
1998 07 26	699	0.5+	0.1+	1998 09 14	704	0.2-	0.1+	1999 12 08	704	0.0	1.2+
1998 07 26	699	1.4+	0.2+	1998 09 14	704	0.2-	0.7-	1999 12 08	704	0.2-	0.1-

1999 DEC. 22

M.P.C. 37087

1998 07 26 699 0.6+ 0.2- 1998 09 14 704 0.3- 0.2+ 1999 12 08 704 0.5- 0.0
1998 08 17 704 0.0 0.4- 1998 09 18 704 0.6- 0.0 1999 12 08 704 0.2+ 0.2-

(12882)* 1998 QS₃₁ = 1981 RN₃ = 1981 SX₁ = 1981 SG₄ = 1996 EJ₈

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32500)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams							
<i>M</i>		(2000.0)		P		Q			
<i>n</i>	97.47890	<i>ω</i>	298.28935	+0.28137710		+0.95823858			
<i>a</i>	3.2147924	<i>Ω</i>	347.72631	-0.77466462		+0.19543435			
<i>e</i>	0.1101294	<i>i</i>	13.89402	-0.56632292		+0.20876838			
<i>P</i>	5.76	<i>H</i>	12.4	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1981 09 02	095	2.4-	1.1-	1998 08 23	704	0.2+	0.1+	1998 11 09	910	0.8-	0.6-
1981 09 25	688	1.6+	1.2-	1998 08 23	704	0.2+	1.1+	1998 11 10	910	0.5-	0.6-
1981 09 25	688	2.4+	0.7-	1998 08 23	704	0.4+	0.2+	1998 11 10	910	0.5-	1.2-
1981 09 25	095	0.8-	2.0+	1998 08 23	704	0.6-	0.6-	1998 11 10	910	0.7-	0.8-
1996 03 12	691	0.1+	0.2+	1998 08 28	699	0.1+	0.6+	1999 10 14	704	1.3+	0.1-
1996 03 12	691	0.6+	0.4+	1998 08 28	699	0.2-	0.5-	1999 10 14	704	0.7+	0.4+
1996 03 12	691	0.6+	0.1+	1998 08 28	699	0.4+	0.5+	1999 10 14	704	0.8+	0.3-
1996 03 17	691	0.2-	0.0	1998 09 14	704	0.4-	0.2+	1999 10 14	704	0.4+	1.2-
1996 03 17	691	0.1-	0.1+	1998 09 14	704	0.3-	0.2-	1999 10 14	704	0.0	0.5-
1996 03 17	691	0.1+	0.1+	1998 09 14	704	0.3-	0.1+	1999 10 30	699	0.4+	0.8+
1996 03 23	691	0.0	0.2+	1998 09 14	704	0.2+	0.1+	1999 10 30	699	1.2-	0.2+
1996 03 23	691	0.1-	0.3+	1998 09 14	704	0.5+	0.8-	1999 10 30	699	0.3+	0.0
1996 03 23	691	0.2-	0.2+	1998 09 18	704	0.5+	0.9-	1999 11 14	699	0.1+	0.4+
1998 07 31	699	0.0	0.3+	1998 09 18	704	0.6-	0.1-	1999 11 14	699	0.0	0.5+
1998 07 31	699	0.1+	0.3+	1998 09 18	704	1.3+	0.1+	1999 11 14	699	0.1-	0.8+
1998 07 31	699	1.3+	0.6-	1998 09 18	704	0.2-	0.4-	1999 12 11	704	1.5-	0.0
1998 08 17	704	0.1-	0.8+	1998 09 18	704	0.8-	0.0	1999 12 11	704	0.4-	0.3+
1998 08 17	704	0.3+	1.0+	1998 09 21	699	0.0	0.1-	1999 12 11	704	0.3-	0.0
1998 08 17	704	0.5-	0.6+	1998 09 21	699	0.1+	1.3+	1999 12 12	704	0.1+	0.1+
1998 08 17	704	0.2-	0.1-	1998 09 21	699	0.3+	0.9+	1999 12 12	704	0.3-	0.1+
1998 08 17	704	0.7-	0.9+	1998 10 20	910	0.4+	0.1+	1999 12 12	704	0.1+	0.3-
1998 08 21	566	0.2-	0.1+	1998 10 20	910	0.9+	0.4-	1999 12 12	704	0.3-	0.0
1998 08 21	566	0.4-	0.0	1998 10 20	910	0.8+	0.3-	1999 12 12	704	0.3-	0.0
1998 08 21	566	0.5-	0.0	1998 11 09	910	0.9-	0.4-				
1998 08 23	704	0.4-	0.3+	1998 11 09	910	0.8-	0.3-				

(12883)* 1998 QY₃₂ = 1980 GV

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32500)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams							
<i>M</i>		(2000.0)		P		Q			
<i>n</i>	232.73835	<i>ω</i>	343.83212	-0.96486609		+0.26127158			
<i>a</i>	2.2747471	<i>Ω</i>	211.35566	-0.23476666		-0.90474643			
<i>e</i>	0.0929178	<i>i</i>	3.05807	-0.11797478		-0.33640907			
<i>P</i>	3.43	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1980 04 14	805	0.7+	0.8-	1998 08 24	691	0.6+	0.4-	1999 10 12	704	0.6+	0.4-
1980 04 15	805	1.1-	0.5+	1998 08 24	691	0.9+	0.0	1999 10 12	704	0.0	0.4-
1980 04 16	805	0.3+	0.1-	1998 08 24	691	0.7+	0.0	1999 10 12	704	0.1+	1.3-
1995 10 24	691	0.1-	0.2+	1998 08 26	699	0.7+	0.5+	1999 10 22	704	0.2+	0.2+
1995 10 24	691	0.1-	0.2+	1998 08 26	699	0.9+	0.1-	1999 10 22	704	0.6+	0.1+
1995 10 24	691	0.1-	0.5+	1998 08 26	699	1.0+	0.5-	1999 10 22	704	0.4-	0.1-
1998 08 17	704	0.4-	0.2-	1998 09 14	704	0.9-	0.4-	1999 10 22	704	0.1-	0.9+
1998 08 17	704	0.4-	0.3-	1998 09 14	704	0.1-	0.7-	1999 10 22	704	0.1+	1.8+
1998 08 17	704	0.9+	0.1+	1998 09 14	704	0.1-	0.9-	1999 12 07	704	0.4-	0.0
1998 08 17	704	0.5-	0.3-	1998 09 14	704	1.1-	0.4-	1999 12 07	704	0.2-	0.1-
1998 08 17	704	0.2-	0.0	1998 09 14	704	0.6-	0.5+	1999 12 07	704	0.3-	0.0
1998 08 23	704	0.3-	0.2-	1998 09 18	704	0.3-	0.2-	1999 12 08	704	0.4+	0.2+

1998 08 23 704 0.5- 0.1+ 1998 09 18 704 0.3+ 0.2+ 1999 12 08 704 0.2+ 0.3-
1998 08 23 704 0.3+ 0.6+ 1998 09 18 704 1.1- 0.3- 1999 12 08 704 0.2- 0.3-
1998 08 23 704 1.0+ 1.0+ 1998 09 18 704 0.6- 0.5- 1999 12 08 704 0.1+ 0.6-
1998 08 23 704 0.0+ 1.0+ 1999 10 12 704 0.1+ 0.7- 1999 12 08 704 0.5- 0.4-

(12884)* 1998 QL₃₄ = 1987 SM₂ = 1991 KJ₂ = 1996 FK₂₀

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32699)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams							
<i>M</i>		(2000.0)		P		Q			
<i>n</i>	1.81523	<i>ω</i>	295.17989	+0.62725200		-0.77787631			
<i>a</i>	3.1843420	<i>Ω</i>	115.91824	+0.72898746		+0.56912456			
<i>e</i>	0.1626539	<i>i</i>	2.43763	+0.27410256		+0.26646891			
<i>P</i>	5.68	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1987 09 19	071	(3.7+ 2.8+)	1998 08 23	704	0.8+	0.0	1999 10 12	704	0.9-	0.2+	
1987 09 19	071	1.6-	0.5+	1998 08 23	704	0.3-	0.2+	1999 10 15	704	0.2+	0.4+
1987 09 19	071	0.0	0.4-	1998 08 23	699	0.6-	0.1-	1999 10 15	704	0.1+	0.0
1987 09 20	071	(4.0+ 2.9+)	1998 08 23	704	1.2-	1.0+	1999 10 15	704	0.5+	0.2+	
1987 09 21	071	(4.3+ 3.8+)	1998 08 23	704	0.3-	0.8+	1999 10 15	704	0.7+	0.1+	
1987 09 21	071	0.1+	0.5-	1998 08 23	699	0.2+	0.3-	1999 11 15	704	1.0+	0.1+
1987 09 22	071	(5.0+ 1.8-)	1998 08 23	704	0.1-	1.2+	1999 11 15	704	0.4+	0.4+	
1987 09 22	071	1.2+	1.1+	1998 09 14	704	0.9+	0.0	1999 11 15	704	0.3+	0.2+
1987 09 22	071	(0.6+ 4.1-)	1998 09 14	704	0.4-	0.4-	1999 11 15	704	0.0	0.2+	
1991 05 17	809	0.0	0.1-	1998 09 14	704	0.3+	0.0	1999 11 15	704	0.7-	0.3-
1991 05 17	809	0.0	0.1+	1998 09 14	704	0.1+	1.1+	1999 11 17	704	0.0	0.3+
1991 05 17	809	0.0	0.1-	1998 09 14	704	0.2+	0.7+	1999 11 17	704	0.2-	0.3+
1996 03 24	809	(0.2+ 3.2+)	1998 09 16	699	0.3-	0.7+	1999 11 17	704	0.0	0.1+	
1996 03 24	809	(0.3+ 4.2+)	1998 09 16	699	0.3+	0.7-	1999 11 17	704	0.4-	0.2+	
1996 03 24	809	(1.0- 3.4+)	1998 09 16	699	0.4+	0.5-	1999 11 17	704	0.4-	0.2+	
1996 03 26	809	(1.3+ 5.9+)	1998 09 18	704	0.3-	0.3-	1999 12 07	704	0.2+	0.2-	
1996 03 26	809	(1.9+ 5.2+)	1998 09 18	704	0.6+	0.1-	1999 12 07	704	0.2+	0.6-	
1996 03 26	809	(1.2+ 4.4+)	1998 09 18	704	0.7+	0.9-	1999 12 07	704	0.1+	0.5-	
1998 08 17	704	0.0	1.3-	1998 09 21	699	0.3-	0.1+	1999 12 07	704	0.2+	0.4-
1998 08 17	704	0.4+	1.1-	1998 09 21	699	0.5-	0.2-	1999 12 08	704	0.3+	0.4-
1998 08 17	704	0.1-	0.2-	1998 09 21	699	0.4-	0.4-	1999 12 08	704	0.2+	0.3-
1998 08 17	704	0.2+	0.3-	1999 10 12	704	0.9-	0.4+	1999 12 08	704	0.1+	0.4-
1998 08 17	704	0.6+	0.1+	1999 10 12	704	0.8-	0.1+	1999 12 08	704	0.1-	0.2-
1998 08 23	699	0.3-	0.4-	1999 10 12	704	0.7-	0.3+	1999 12 08	704	0.1+	0.3-

(12885)* 1998 QM₃₄ = 1992 DB₁ = 1997 KB

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32699)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams							
<i>M</i>		(2000.0)		P		Q			
<i>n</i>	169.88156	<i>ω</i>	85.48698	-0.73360311		+0.67275410			
<i>a</i>	2.8051236	<i>Ω</i>	136.75178	-0.66576885		-0.68312686			
<i>e</i>	0.1414715	<i>i</i>	8.05985	-0.13630231		-0.28414718			

1998 08 17	704	0.7−	0.2−	1998 09 21	699	(0.7+ 2.2+)	1999 11 16	703	0.9−	0.5−
1998 08 17	704	1.3+	0.1−	1998 09 21	699	(0.4+ 2.0+)	1999 11 16	703	0.1+	0.5−
1998 08 17	704	0.1+	1.1+	1999 10 19	704	0.1− 0.4−	1999 12 04	699	0.2−	0.7+
1998 08 17	704	1.1+	0.4+	1999 10 19	704	0.5+ 0.2−	1999 12 04	699	0.0	0.2+
1998 08 23	699	1.0−	0.2−	1999 10 19	704	0.3+ 0.9+	1999 12 04	699	0.1−	1.1+
1998 08 23	704	0.7−	0.5+	1999 10 19	704	0.4+ 0.2+	1999 12 05	704	(2.4+ 0.5−)	
1998 08 23	704	1.3−	1.3−	1999 10 19	704	0.0	0.5−	1999 12 05	704	0.6+ 1.2−
1998 08 23	699	0.7−	0.5+	1999 10 31	703	0.5+ 0.7+	1999 12 05	704	0.3+ 0.1−	
1998 08 23	704	0.5+	0.4+	1999 10 31	703	0.3− 0.6−	1999 12 05	704	(2.0− 0.2+)	
1998 08 23	699	0.5−	0.3+	1999 10 31	703	0.7− 0.5+				

(12886)* 1998 QG₃₅ = 1974 HS₃

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Gnädig (*MPC* 34924), M. E. Sansaturio (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21462479	ω	29.18878	+0.96841049	−0.24622698		
<i>a</i>	2.7628001	Ω	344.91075	+0.18915467	+0.82835069		
<i>e</i>	0.1789741	<i>i</i>	8.70810	+0.16248578	+0.50319719		
<i>P</i>	4.59	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1974 04 28	413	0.0	0.6+	1998 08 23	704	0.3+	0.4+	1999 10 13	704	0.3+	0.2−
1974 04 28	413	0.7+	0.9+	1998 09 21	699	0.2−	0.4+	1999 10 13	704	0.7+	0.0
1992 05 24	413	0.4+	0.6−	1998 09 21	699	0.2−	0.7+	1999 10 13	704	0.2+	0.2+
1992 05 24	413	0.4+	1.3+	1998 09 21	699	0.1+	0.5+	1999 10 13	704	0.3−	0.3+
1996 01 26	691	0.2−	0.1+	1998 10 12	699	0.8+	0.6+	1999 10 19	704	0.4−	0.9−
1996 01 26	691	0.3−	0.0	1998 10 12	699	0.4−	0.6+	1999 10 19	704	0.4−	0.1−
1996 01 26	691	0.3−	0.3+	1998 10 12	699	0.1−	0.6+	1999 10 19	704	0.3−	0.4−
1996 02 10	691	0.2−	0.0	1998 10 20	699	0.6−	0.0	1999 10 19	704	0.6−	0.3+
1996 02 10	691	0.2−	0.2−	1998 10 20	699	0.0	0.0	1999 10 19	704	1.1+	1.0−
1996 02 10	691	0.1−	0.1−	1998 10 20	699	0.0	0.4+	1999 11 05	699	0.5−	0.2−
1998 08 17	704	0.2+	0.1−	1998 12 09	704	1.1−	0.2−	1999 11 05	699	1.0+	1.0−
1998 08 17	704	0.2+	0.4−	1998 12 09	704	1.3−	1.3+	1999 11 05	699	0.7−	1.6+
1998 08 17	704	0.3+	0.2−	1998 12 09	704	(3.2− 0.3−)		1999 12 08	703	0.0	0.3+
1998 08 17	704	0.3+	0.4−	1998 12 09	704	(4.0− 0.9+)		1999 12 08	703	0.3+	0.2+
1998 08 17	704	0.6+	1.4−	1998 12 11	699	0.2−	0.2−	1999 12 08	703	0.2+	0.5+
1998 08 23	704	0.8+	0.3+	1998 12 11	699	1.3−	0.1+	1999 12 08	703	0.6+	0.1+
1998 08 23	704	0.1−	1.1−	1998 12 11	699	0.6−	0.2−				
1998 08 23	704	0.0	0.2−	1999 10 13	704	0.1−	0.2+				

(12887)* 1998 QP₃₅ = 1987 SK₂ = 1993 YR₁

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32700)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17558094	ω	284.85204	+0.98077480	−0.18978539		
<i>a</i>	3.1585260	Ω	86.10369	+0.19193131	+0.89610280		
<i>e</i>	0.2212611	<i>i</i>	2.60887	+0.03525841	+0.40122471		
<i>P</i>	5.61	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1987 09 19	071	2.1+	2.1−	1998 08 17	704	1.0−	0.5+	1998 09 18	704	0.2+	1.7+
1987 09 19	071	2.5−	0.7−	1998 08 17	704	0.7−	1.7+	1999 10 12	704	0.3−	0.2+
1987 09 19	071	0.3−	1.3−	1998 08 17	704	0.4−	0.9+	1999 10 12	704	0.6+	0.8−
1987 09 20	071	1.1+	1.3−	1998 08 17	704	0.8−	0.4+	1999 10 12	704	0.6+	0.1−
1987 09 21	071	1.5+	0.5−	1998 08 17	704	1.0−	0.2−	1999 10 12	704	0.1+	0.7+
1987 09 21	071(29.1− 13.3−)			1998 08 23	704	1.2+	0.1−	1999 10 12	704	0.3−	0.1+
1987 09 22	071(25.8− 10.6−)			1998 08 23	704	0.7+	1.2−	1999 10 22	704	0.1+	0.9+
1987 09 22	071 (3.4+ 0.5+)			1998 08 23	704	0.1+	0.7−	1999 10 22	704	0.7−	0.2−
1987 09 22	071 (4.3+ 0.4−)			1998 08 23	704	0.4+	1.2−	1999 10 22	704	0.9−	0.7+
1993 12 16	691	0.3+	0.0	1998 09 14	704	0.1−	0.3+	1999 10 22	704	0.0	0.0
1993 12 16	691	0.1−	0.3+	1998 09 14	704	0.1−	0.4+	1999 10 22	704	0.0	0.6+

1993 12 16	691	0.0	0.0	1998 09 14	704	1.0−	0.5+	1999 12 07	704	0.4+	0.1+
1993 12 17	691	0.3+	0.2+	1998 09 14	704	0.6−	0.5+	1999 12 07	704	0.2−	1.1+
1993 12 17	691	0.4+	0.1+	1998 09 14	704	0.4−	0.2−	1999 12 07	704	0.0	0.4+
1993 12 17	691	0.2+	0.2+	1998 09 18	704	0.1+	0.4+	1999 12 07	704	0.0	0.0
1995 02 02	691	0.3−	0.5−	1998 09 18	704	0.7+	0.2+	1999 12 07	704	0.6−	0.1−
1995 02 02	691	0.0	0.3−	1998 09 18	704	0.7+	0.8+				
1995 02 02	691	0.3+	0.6−	1998 09 18	704	0.3+	0.7+				

(12888)* 1998 QR₄₂ = 1985 GC₁

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Gnädig (*MPC* 34925), M. E. Sansaturio (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17642780	ω	348.41943	−0.97175909	−0.23575799		
<i>a</i>	3.1484106	Ω	177.86338	+0.23232797	−0.96337117		
<i>e</i>	0.1269795	<i>i</i>	15.75202	+0.04132770	−0.12780513		
<i>P</i>	5.59	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1955 12 16	675	0.3+	0.3−	1998 09 18	704	1.0+	1.8−	1999 10 15	699	0.5−	0.2+
1955 12 16	675	1.0−	0.8−	1998 09 18	704	0.5−	0.3−	1999 10 15	699	0.2+	0.1+
1985 04 15	688	0.5+	2.3−	1998 09 18	704	1.0+	0.1−	1999 10 31	703	0.2+	0.7+
1985 04 15	688	0.9+	1.1−	1998 09 18	704	0.8+	1.5+	1999 10 31	703	0.0	0.4+
1996 03 25	413	0.8−	0.5+	1998 09 18	704	0.9−	0.5+	1999 10 31	703	0.1+	0.1+
1996 03 25	413	1.0−	0.1+	1998 10 10	699	0.1+	1.3+	1999 10 31	703	0.3+	0.2+
1998 08 17	704	0.2−	0.1−	1998 10 10	699	0.9+	1.0+	1999 11 04	699	0.2−	0.6+
1998 08 17	704	0.0	0.3+	1998 10 10	699	0.1−	1.0+	1999 11 04	699	0.2−	0.3+
1998 08 17	704	0.9−	0.4+	1998 12 22	910	1.4−	0.3−	1999 11 04	699	0.7+	0.2+
1998 08 17	704	0.5+	0.7−	1998 12 22	910	1.6−	0.4−	1999 11 06	704	0.1−	0.1+
1998 08 17	704	1.6−	0.1−	1998 12 22	910	1.1−	0.1−	1999 11 06	704	0.2−	0.6+
1998 08 23	704	0.3−	1.2+	1999 10 05	699	0.1+	1.1−	1999 11 06	704	0.5−	0.3+
1998 08 23	704	1.0+	0.0	1999 10 05	699	0.0	0.1−	1999 11 06	704	0.3+	0.3−
1998 08 23	704	0.2−	0.5−	1999 10 05	699	1.1−	0.1+	1999 11 06	704	0.5−	0.4−
1998 08 23	704	1.4+	1.1−	1999 10 09	704	0.5+	0.2+	1999 12 03	704	0.5−	0.7+
1998 08 23	704	0.9−	0.7−	1999 10 09	704	0.1+	0.5+	1999 12 03	704	0.2+	0.2−
1998 09 14	704	0.4+	0.8−	1999 10 09	704	0.5+	0.7−	1999 12 03	704	(0.2− 2.7−)	
1998 09 14	704	0.7+	1.1−	1999 10 09	704	1.4+	0.2−	1999 12 03	704	1.9+	1.6−
1998 09 14	704	0.1−	0.9−	1999 10 09	704	0.8+	0.7−	1999 12 03	704	0.9−	2.0−
1998 09 14	704	0.6−	0.1−	1999 10 15	699	0.6−	0.3+				

(12889)* 1998 QW₄₂ = 1990 BX₄ = 1993 TK₁₅

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32708)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17814256	ω	6.01271	−0.85112351	+0.52483110		
<i>a</i>	3.1281741	Ω	205.65507	−0.48278236	−0.79141840		
<i>e</i>	0.1140657	<i>i</i>	1.57213	−0.20617947	−0.31338352		
<i>P</i>	5.53	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1990 01 24	033	0.8+	0.4−	1998 09 18	704	0.5+	0.8+	1999 11 04	704	0.3−	0.3−
1990 01 25	033	1.0−	0.5−	1998 09 18	699	0.8+	0.1−	1999 11 04	704	0.3+	0.2−
1993 10 09	809	1.2+	2.0−	1998 09 18	704	0.2+	0.9+	1999 11 09	704	0.5−	0.7+
1993 10 09	809	1.5+	1.0−	1998 09 18	704	1.9−	1.9+	1999 11 09	704	0.6−	0.5+
1993 10 09	809	0.7+	1.3−	1998 09 18	699	0.0	0.4−	1999 11 09	704	0.9−	0.2+
1993 10 10	809	0.4+	0.5+	1998 09 18	699	0.1+	0.2+	1999 11 12	704	0.2−	0.5+
1993 10 10	809	0.8−	0.3+	1999 10 05	704	0.3+	0.2+	1999 11 12	704	0.2−	0.3+
1993 10 10	809	0.9−	0.5+	1999 10 05	704	0.7+	0.5+	1999 11 12	704	0.2−	0.4+
1993 10 11	809	0.6+	1.4−	1999 10 05	704	0.6+	0.7+	1999 11 12	704	0.1−	0.1−
1993 10 11	809	(1.5−	2.5−)	1999 10 05	704	0.6+	0.5+	1999 11 12	704	0.0	0.2+
1993 10 11	809	1.2−	1.5−	1999 10 05	704	0.4−	0.8+	1999 11 12	691	0.5+	0.1−
1993 10 20	809	(2.0−	3.0−)	1999 10 10	704	0.2+	0.1+	1999 11 12	691	0.1+	0.2−

1993 10 20	809	(1.6– 2.6–)	1999 10 10	704	0.3+ 0.2–	1999 11 12	691	0.0 0.3–
1993 10 20	809	(1.3– 2.5–)	1999 10 10	704	0.3+ 0.1–	1999 12 04	703	0.1– 0.6+
1993 10 22	809	1.6+ 0.2+	1999 10 10	704	0.1– 0.2–	1999 12 04	703	0.1– 0.2+
1993 10 22	809	0.2– 0.2–	1999 10 10	704	0.3– 0.0	1999 12 04	703	0.1– 0.2–
1993 10 22	809	0.6– 1.4+	1999 10 15	704	0.5– 0.3–	1999 12 04	703	0.3+ 0.7–
1998 08 17	704	0.1+ 0.2+	1999 10 15	704	0.3– 0.0	1999 12 06	704	1.1+ 0.4–
1998 08 17	704	0.5+ 0.9–	1999 10 15	704	0.4– 0.0	1999 12 06	704	0.5+ 0.2+
1998 08 17	704	0.5+ 0.9–	1999 10 15	704	0.2+ 0.2+	1999 12 06	704	0.6+ 0.2+
1998 08 17	704	0.4– 0.6–	1999 10 21	704	0.6– 0.1–	1999 12 06	704	1.0+ 0.5+
1998 08 17	704	0.3– 1.1+	1999 10 21	704	0.0 1.0–	1999 12 06	704	0.8+ 0.3+
1998 08 23	704	1.1+ 0.7–	1999 10 21	704	0.2– 1.0–	1999 12 07	704	0.4+ 0.5+
1998 08 23	704	0.5– 0.3+	1999 10 21	704	0.4– 0.5–	1999 12 07	704	0.7+ 0.1+
1998 08 23	704	0.4+ 0.5+	1999 10 21	704	0.1+ 0.6–	1999 12 07	704	0.5+ 0.2–
1998 08 23	704	1.4+ 0.7–	1999 11 01	703	0.8– 0.3+	1999 12 07	704	0.1+ 0.2+
1998 08 23	704	0.3– 1.8–	1999 11 01	703	0.7– 0.2+	1999 12 07	704	0.9+ 0.6+
1998 09 14	704	0.5– 0.7–	1999 11 01	703	0.2– 0.5+	1999 12 12	703	0.5– 0.2–
1998 09 14	704	0.8– 0.0	1999 11 01	703	0.7– 0.4+	1999 12 12	703	0.1– 0.4+
1998 09 14	704	0.1– 0.7+	1999 11 04	704	0.4– 0.1+	1999 12 12	703	0.5– 0.2–
1998 09 14	704	0.4– 0.9+	1999 11 04	704	0.2– 0.4+	1999 12 12	703	1.4– 0.8–
1998 09 18	704	0.9– 0.9+	1999 11 04	704	0.4+ 0.0			

(12890)* 1998 QG₄₃ = 1990 BO₁

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32708)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	21.10586		(2000.0)	P	Q
<i>n</i>	0.18188302	ω	234.97737	+0.90895490	–0.40263759
<i>a</i>	3.0851381	Ω	148.36201	+0.41688225	+0.87982904
<i>e</i>	0.0052157	<i>i</i>	11.89194	–0.00319017	+0.25255459
<i>P</i>	5.42	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1990 01 21	402	0.3+ 1.0–	1998 08 30	699	0.5+ 0.2–	1999 10 19	704	0.6+ 1.4–
1990 01 21	402	0.1+ 0.1–	1998 08 30	699	0.7+ 0.2+	1999 10 19	704	0.0 1.8–
1990 02 01	402	0.2+ 0.1+	1998 08 30	699	0.1– 0.1+	1999 11 05	699	0.2– 1.0+
1990 02 01	402	0.8+ 0.4–	1998 09 14	704	0.1+ 0.4+	1999 11 05	699	0.3+ 0.4+
1990 02 02	402	(2.8– 0.3+)	1998 09 14	704	1.6– 1.0+	1999 11 05	699	0.5+ 1.5+
1990 02 02	402	1.6– 0.0	1998 09 14	704	0.9– 0.6+	1999 11 05	704	0.1+ 0.2+
1993 09 23	675	(0.1+ 2.2–)	1998 09 14	704	0.5– 0.4+	1999 11 05	704	0.2– 0.1+
1993 09 23	675	0.2+ 0.2–	1998 09 16	699	1.6– 1.0+	1999 11 05	704	0.8+ 0.9–
1998 08 01	699	1.2+ 0.1–	1998 09 16	699	0.4– 0.5+	1999 11 05	704	0.8– 0.0
1998 08 01	699	0.7+ 0.5+	1998 09 16	699	0.3– 0.3+	1999 11 05	704	0.5– 0.0
1998 08 01	699	0.2+ 0.4+	1998 09 18	704	0.1– 0.3+	1999 11 16	703	0.0 0.1+
1998 08 17	704	1.0+ 0.4–	1998 09 18	704	1.1– 0.5+	1999 11 16	703	0.8– 0.1+
1998 08 17	704	0.7– 0.8–	1998 09 18	704	0.7– 0.2–	1999 11 16	703	0.1+ 0.5+
1998 08 17	704	1.2+ 1.0–	1998 09 18	704	0.8– 0.3–	1999 11 16	703	0.4+ 0.3–
1998 08 17	704	0.5+ 0.4–	1998 09 18	704	0.3– 0.9–	1999 12 03	704	0.3+ 0.3+
1998 08 17	704	1.2+ 0.6–	1999 10 11	699	0.1– 1.0+	1999 12 03	704	0.4+ 0.2+
1998 08 23	704	0.6+ 0.1+	1999 10 11	699	0.4+ 0.8–	1999 12 03	704	0.0 0.0
1998 08 23	704	1.6+ 1.7–	1999 10 11	699	0.9– 0.1+	1999 12 03	704	0.1– 0.5+
1998 08 23	704	0.3+ 0.9–	1999 10 19	704	0.0 0.0	1999 12 03	704	1.0– 0.3+
1998 08 23	704	0.3+ 0.6+	1999 10 19	704	0.4+ 0.8–	1999 12 07	106	0.5– 0.3+
1998 08 23	704	0.5+ 0.0	1999 10 19	704	0.6+ 0.7–	1999 12 08	106	0.2+ 0.3+

(12891)* 1998 QH₅₁ = 1997 LV₁₄

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. S. Nakano (*MPC* 32976)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	66.71067		(2000.0)	P	Q
<i>n</i>	0.21110451	ω	165.46680	+0.99655026	+0.08228178
<i>a</i>	2.7934294	Ω	189.83259	–0.08106059	+0.93705443
<i>e</i>	0.1109010	<i>i</i>	3.63615	–0.01779797	+0.33935040
<i>P</i>	4.67	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1991 02 11	511	0.2+ 1.4–	1998 08 23	704	0.3+ 0.4–	1999 09 06	046	0.2– 0.5+
1991 02 11	511	(3.6+ 1.2–)	1998 08 23	704	1.6– 0.2+	1999 09 06	046	0.4+ 0.1+
1993 07 23	675	0.4+ 0.7–	1998 08 26	120	0.5– 0.3+	1999 10 10	704	0.8– 0.6+
1993 07 23	675	0.4– 1.8–	1998 08 26	120	0.4– 0.3+	1999 10 10	704	1.1– 0.2+
1997 06 08	809	0.7+ 0.8+	1998 08 26	120	0.7– 0.5+	1999 10 10	704	0.0 0.4+
1997 06 08	809	0.9– 1.6+	1998 08 26	120	0.3– 0.4+	1999 10 10	704	0.9– 0.9+
1997 06 08	809	0.4– 1.5+	1998 08 26	120	1.1+ 0.3+	1999 10 21	704	0.9+ 0.7+
1997 06 09	809	(1.9+ 3.0+)	1998 08 26	120	0.2– 0.2+	1999 10 21	704	0.3– 0.4+
1997 06 09	809	1.0+ 1.9+	1998 09 14	704	0.3– 0.1–	1999 10 21	704	1.6+ 0.3–
1997 06 09	809	1.2+ 1.7+	1998 09 14	704	1.6– 0.2–	1999 12 05	704	0.0 0.5+
1998 06 29	704	(0.6+ 2.2–)	1998 09 14	704	0.4– 0.2+	1999 12 05	704	0.5– 0.5+
1998 06 29	704	0.3+ 1.1–	1998 09 14	704	0.0 0.1–	1999 12 05	704	0.1– 0.7+
1998 06 29	704	1.8+ 1.6–	1998 09 18	704	0.1– 0.2+	1999 12 05	704	0.2+ 0.2+
1998 06 29	704	(2.9– 0.5+)	1998 09 18	704	1.1+ 0.7+	1999 12 05	704	0.2– 0.5+
1998 08 17	704	0.2+ 0.2+	1998 09 18	704	0.1+ 1.0+	1999 12 05	704	0.3+ 0.0
1998 08 17	704	0.1– 0.6–	1998 09 18	704	0.9+ 0.6+	1999 12 05	704	1.0+ 0.0
1998 08 17	704	0.3– 0.6–	1998 09 18	704	0.5– 0.5+	1999 12 05	704	0.5– 0.4–
1998 08 17	704	1.3+ 0.6–	1998 12 08	704	0.5+ 1.6+	1999 12 06	704	(2.2+ 0.9–)
1998 08 17	704	0.0 0.1+	1998 12 08	704	0.2– 0.6+	1999 12 06	704	0.0 0.4–
1998 08 23	704	0.1+ 0.0	1998 12 08	704	0.1– 1.2+	1999 12 06	704	(2.2– 1.0–)
1998 08 23	704	0.3+ 0.6+	1999 09 06	046	0.4– 0.6+	1999 12 06	704	(3.0– 0.8+)
1998 08 23	704	0.7– 0.0	1999 09 06	046	0.1+ 0.4+			

(12892)* 1998 QE₅₂ = 1992 LV₂ = 1994 WN₁₀

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32716)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	346.19519		(2000.0)	P	Q
<i>n</i>	0.21252904	ω	209.50647	–0.06940406	–0.99342589
<i>a</i>	2.7809330	Ω	244.60340	+0.93387988	–0.03261077
<i>e</i>	0.1418258	<i>i</i>	5.78398	+0.35078690	–0.10973399
<i>P</i>	4.64	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1992 06 03	809	0.6+ 2.0+	1998 09 14	704	0.5+ 1.4+	1999 10 10	704	0.5– 0.0
1992 06 03	809	0.6– 1.1+	1998 09 16	699	0.5+ 0.8+	1999 10 10	704	0.1– 0.4+
1992 06 03	809	0.2– 1.4+	1998 09 16	699	0.6+ 0.3+	1999 10 10	704	0.3– 0.6+
1994 11 27	901	(0.3+ 2.9–)Y	1998 09 16	699	0.4+ 0.6+	1999 10 10	704	0.2– 0.9+
1994 11 27	901	0.9– 0.5+	1998 09 18	704	0.3+ 0.6+	1999 10 10	704	0.1– 1.0+
1994 12 03	901	(3.4+ 2.5–)Y	1998 09 18	704	1.0– 0.5+	1999 10 21	704	0.1+ 0.2–
1994 12 04	901	0.8– 0.4+	1998 09 18	704	0.1– 0.3+	1999 10 21	704	0.1+ 0.1+
1994 12 04	901	0.9+ 0.0	1998 09 18	704	1.1– 0.0	1999 10 21	704	0.2– 0.4+
1994 12 06	901	1.1+ 0.8–	1998 09 18	704	0.3– 0.1+	1999 10 21	704	0.1+ 0.3–
1998 08 17	704	0.1– 0.4–	1998 09 27	699	0.2– 0.6+	1999 10 21	704	0.1– 0.4–
1998 08 17	704	0.4+ 1.2–	1998 09 27	699	0.4+ 0.1+	1999 11 04	699	0.3+ 0.9+
1998 08 17	704	0.9+ 0.3+	1998 09 27	699	0.4+ 0.2+	1999 11 04	699	0.5+ 0.6+
1998 08 17	704	0.3+ 1.1–	1998 10 12	704	0.7– 0.5–	1999 11 04	699	0.1– 1.0+
1998 08 23	704	0.6+ 1.7–	1998 10 12	704	1.1– 0.6+	1999 11 17	704	0.2– 0.2+
1998 08 23	704	0.2– 0.1+	1998 10 12	704	0.4+ 1.9–	1999 11 17	704	0.0 0.3+
1998 08 23	704	1.7+ 1.6+	1998 10 12	704	(0.8+ 2.6–)	1999 11 17	704	0.3– 0.0
1998 08 23	704	0.1– 0.5–	1998 11 25	699	0.7– 0.9–	1999 11 17	704	0.2+ 0.5+
1998 08 23	704	(0.6+ 2.5–)	1998 11 25	699	0.3– 0.9–	1999 11 17	704	0.0 0.1–
1998 08 30	699	0.4+ 0.2–	1998 11 25	699	0.9– 0.7–	1999 12 06	704	0.1+ 1.4+
1998 08 30	699	0.9– 0.7+	1998 12 09	704	0.5– 0.8–	1999 12 06	704	0.8+ 0.3–
1998 08 30	699	0.0 0.0	1998 12 09	704	1.8– 0.1–	1999 12 06	704	0.8+ 0.6+
1998 09 14	704	0.4+ 0.8+	1998 12 09	704	0.5– 0.8+	1999 12 06	704	0.1– 2.0–

1998 09 14 704 1.3+ 1.2+ 1998 12 09 704 1.0- 0.7-
 1998 09 14 704 0.6+ 1.3+ 1998 12 09 704 1.4- 0.8-

(12893)* 1998 QS₅₅ = 1993 SX₇

Discovered 1998 Aug. 26 by the OCA-DLR Asteroid Survey at Caussols.

Id. G. V. Williams (*MPC* 33268)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	85.71646		(2000.0)	P	Q
n	0.20726987	ω	181.48195	+0.99197581	-0.12636176
a	2.8277777	Ω	185.78224	+0.11640842	+0.92549300
e	0.0691472	i	2.32414	+0.04932612	+0.35706499
P	4.76	H	13.9	G 0.15	U 2

Residuals in seconds of arc

1983 10 08	413	0.7-	0.1+	1996 04 22	566	(1.4+	2.5-)	1998 11 10	704	0.5+	0.2-
1983 10 08	413	0.3-	0.3-	1996 04 22	566	(1.1+	2.5-)	1998 11 10	704	1.5+	0.2+
1993 09 17	809	(2.8+	0.5+)	1996 04 22	566	(1.5+	2.5-)	1998 11 11	704	0.2-	0.1+
1993 09 17	809	(2.3+	0.4+)	1998 08 26	910	0.6+	0.8-	1998 11 11	704	0.4+	0.3+
1993 09 17	809	0.7+	1.0+	1998 08 26	910	0.5+	0.9-	1998 11 11	704	0.4+	0.2-
1993 09 18	809	1.9+	0.5-	1998 08 26	910	0.3+	0.8-	1998 11 11	704	0.1-	0.0
1993 09 18	809	1.3+	0.0	1998 08 31	910	0.4-	0.1+	1998 11 11	704	0.5-	0.6+
1993 09 18	809	0.7+	0.8-	1998 08 31	910	0.3-	0.0	1999 11 17	704	0.3-	0.5-
1993 09 22	809	(1.6+	2.4-)	1998 08 31	910	0.3-	0.1+	1999 11 17	704	0.7+	0.7+
1993 09 22	809	0.0	1.5-	1998 10 14	699	0.5-	0.3-	1999 11 17	704	0.4-	0.2+
1993 09 22	809	0.8-	1.6-	1998 10 14	699	0.1-	0.6+	1999 11 17	704	0.2-	0.4-
1993 09 24	809	(2.5+	0.1+)	1998 10 14	699	0.4-	0.2+	1999 12 06	704	0.3-	0.6-
1993 09 24	809	0.8+	0.6+	1998 10 17	691	0.8-	0.0	1999 12 06	704	0.6+	0.7-
1993 09 24	809	1.4-	1.5+	1998 10 17	691	0.8-	0.0	1999 12 06	704	0.4-	0.1-
1996 03 15	566	1.0-	0.2+	1998 10 17	691	0.8-	0.1+	1999 12 06	704	0.8+	0.3-
1996 03 15	566	1.2-	0.1-	1998 10 20	699	0.1+	0.3-	1999 12 07	704	1.6-	0.6-
1996 03 15	566	0.9-	0.3+	1998 10 20	699	0.2-	0.3-	1999 12 07	704	0.5+	0.5+
1996 04 21	566	(0.5+	2.1-)	1998 10 20	699	0.2-	1.0+	1999 12 07	704	0.8+	0.7+
1996 04 21	566	0.6+	1.6-	1998 11 10	704	0.5-	0.7-				
1996 04 21	566	1.4+	1.3-	1998 11 10	704	0.1-	0.2-				

(12894)* 1998 QN₇₃ = 1954 SR = 1980 NP

Discovered 1998 Aug. 24 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 32981)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	92.93861		(2000.0)	P	Q
n	0.22360344	ω	49.74979	+0.74606176	+0.63975198
a	2.6883371	Ω	269.64319	-0.65315522	+0.64914001
e	0.2048233	i	10.64309	-0.12953810	+0.41150292
P	4.41	H	12.9	G 0.15	U 1

Residuals in seconds of arc

1954 09 24	760	1.5-	0.1+	1998 08 27	704	0.5+	0.9+	1999 10 22	704	0.4+	0.1-
1954 09 24	760	1.2+	0.4+	1998 08 27	704	0.5+	1.4+	1999 10 22	704	0.3+	0.2-
1980 07 11	805	0.2-	0.2-	1998 08 27	704	0.6+	1.0+	1999 11 08	120	0.3-	1.2+
1980 07 12	805	0.9+	2.2+	1998 08 27	704	0.3-	0.9+	1999 11 08	120	0.7+	0.3+
1980 07 12	805	0.1-	1.9+	1998 09 19	704	0.4-	0.1+	1999 11 08	120	0.2+	0.2+
1980 07 12	805	(0.8+	3.7+)	1998 09 19	704	0.3+	0.3-	1999 11 17	704	0.6+	1.8+
1980 07 12	805	0.7-	0.4-	1998 09 19	704	0.1+	1.2-	1999 11 17	704	1.0+	0.7+
1980 07 13	805	0.0	0.3-	1998 09 19	704	0.7+	1.7-	1999 11 17	704	0.1-	0.8+
1980 07 13	805	0.4-	0.3-	1998 09 19	704	0.2+	0.2-	1999 11 17	704	0.1-	1.5+
1998 06 30	704	1.0-	0.7+	1998 09 21	699	0.8+	0.0	1999 11 17	704	1.0-	1.0+
1998 06 30	704	0.1-	0.5+	1998 09 21	699	0.3-	0.3-	1999 12 07	704	0.0	1.0-
1998 06 30	704	1.0+	0.0	1998 09 21	699	0.4+	0.5-	1999 12 07	704	0.1+	0.7-
1998 06 30	704	0.8+	0.2-	1998 09 23	704	0.1-	0.8-	1999 12 07	704	0.2+	1.0-
1998 08 19	704	0.6-	0.9+	1998 09 23	704	0.4-	0.3-	1999 12 07	704	0.2-	0.9-
1998 08 19	704	0.1+	1.5-	1998 09 23	704	0.3+	0.2+	1999 12 07	704	0.0	0.5-
1998 08 19	704	(0.5-	2.2+)	1998 09 23	704	0.7-	0.1+	1999 12 08	704	0.1-	0.0
1998 08 19	704	0.7+	0.9-	1998 09 23	704	0.6-	0.6-	1999 12 08	704	0.2-	0.4-
1998 08 19	704	1.6-	1.2+	1998 12 09	704	0.5+	1.2+	1999 12 08	704	0.1+	0.3-

1998 08 24 704 0.1- 0.5- 1998 12 09 704 1.0+ 0.4+ 1999 12 08 704 0.4+ 0.0
 1998 08 24 704 0.1- 0.4- 1998 12 09 704 0.8+ 0.4+ 1999 12 08 704 0.2+ 0.0
 1998 08 24 704 0.4+ 0.8- 1998 12 09 704 0.4+ 0.7+ 1999 12 14 106 0.7- 0.3+
 1998 08 24 704 (0.9- 2.6-) 1998 12 09 704 0.1+ 1.3+ 1999 12 14 106 0.8- 0.2-
 1998 08 24 704 0.9- 1.2- 1999 10 22 704 0.2+ 0.6+
 1998 08 27 704 0.7- 0.1+ 1999 10 22 704 0.5+ 0.5+

(12895)* 1998 QO₉₉ = 1990 CP = 1991 PN₂₅ = 1997 GH₃₉

Discovered 1998 Aug. 26 by E. W. Elst at the European Southern

Observatory.

Id. G. V. Williams (*MPC* 32721)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	284.64591		(2000.0)	P	Q
n	0.29435901	ω	37.63494	-0.96924500	-0.23166536
a	2.2381258	Ω	128.76301	+0.19189846	-0.92270850
e	0.1040899	i	6.11325	+0.15407500	-0.30812367
P	3.35	H	14.5	G 0.15	U 2

Residuals in seconds of arc

1990 02 15	400	0.9+	0.6+	1998 09 18	704	1.2+	0.3+	1998 10 12	699	0.4-	0.6+
1990 02 15	400	1.0+	0.9+	1998 09 18	704	0.0	0.1-	1998 10 15	704	0.8-	0.4-
1990 02 15	400	0.6-	1.1+	1998 09 18	704	1.0+	1.6+	1998 10 15	704	(1.8-	2.9+)
1991 08 03	809	(3.1-	0.2+)	1998 09 18	704	1.7+	1.1-	1998 10 15	704	0.9-	1.7+
1991 08 03	809	(4.0-	1.5+)	1998 09 18	704	1.0-	0.7+	1998 10 15	704	0.3-	0.7+
1991 08 03	809	1.6-	1.5+	1998 09 24	699	0.0	0.6+	1999 10 10	704	0.4+	0.3-
1997 04 07	809	0.7+	1.7+	1998 09 24	699	1.5+	1.4+	1999 10 10	704	0.1-	0.4-
1997 04 07	809	0.6+	1.8+	1998 09 24	699	0.6-	1.5+	1999 10 10	704	0.7-	1.8+
1997 04 07	809	0.4+	1.6+	1998 09 26	704	1.5-	1.1+	1999 11 17	704	0.1+	0.3+
1997 04 08	809	(2.4-	2.2+)	1998 09 26	704	0.7-	0.2+	1999 11 17	704	0.3-	0.3-
1997 04 08	809	(1.2+	2.8+)	1998 09 26	704	1.8+	0.9+	1999 11 17	704	0.1-	0.4-
1997 04 08	809	(1.1+	2.8+)	1998 09 26	704	1.7-	0.1-	1999 11 17	704	0.1-	0.1+
1998 08 26	809	0.8+	1.6-	1998 09 27	704	1.5+	0.8+	1999 11 17	704	0.6+	0.1+
1998 08 26	809	(1.3+	2.4-)	1998 09 27	704	0.7+	0.3+	1999 12 06	704	0.0	0.1+
1998 08 26	809	1.2+	1.5-	1998 09 27	704	1.0-	0.3+	1999 12 06	704	1.6+	0.2+
1998 08 27	809	(2.7-	2.3-)	1998 09 27	704	0.8-	0.9-	1999 12 06	704	1.9-	1.4+
1998 08 27	809	0.8+	1.6-	1998 09 27	699	0.1+	0.0	1999 12 06	704	0.2+	0.5+
1998 08 27	809	0.0	1.4-	1998 09 27	704	0.8-	0.0	1999 12 07	704	0.6+	0.1-
1998 09 14	704	0.5+	0.2+	1998 09 27	699	0.9-	0.3+	1999 12 07	704	0.2-	0.5-
1998 09 14	704	1.1-	0.4-	1998 09 27	699	0.5-	1.5+	1999 12 07	704	0.0	0.0
1998 09 14	704	0.7+	0.3+	1998 10 12	699	0.5-	0.3+	1999 12 07	704	0.2-	0.1+
1998 09 14	704	0.5-	1.1+	1998 10 12	699	0.9-	0.4+	1999 12 07	704	0.2-	0.2+

(12896)* 1998 QV₁₀₂ = 1975 XC₁ = 1990 SF₁₇

Discovered 1998 Aug. 26 by E. W. Elst at the European Southern

Observatory.

Id. G. V. Williams (*MPC* 32987)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	34.54307		(2000.0)	P	Q
n	0.12545824	ω	322.55489	+0.98293154	-0.16515156
a	3.9518756	Ω	47.15850	+0.18385848	+0.86638064
e	0.2918110	i	6.34698	+0.00645309	+0.47128501
P	7.86	H	12.4	G 0.15	U 1

Residuals in seconds of arc

1975 12 01	095	1.8+	1.8-	1998 09 18	704	0.9+	0.1+	1998 10 17	699	0.4-	0.8-
1982 12 04	413	1.4-	0.4-	1998 09 18	704	0.6-	0.1+	1998 11 15	699	0.1+	0.5+
1982 12 04	413	0.5-	0.3+	1998 09 18	704	0.2+	1.2+	1998 11 15	699	0.1-	0.5+
1982 12 05	413	2.4-	1.2-	1998 09 18	704	0.5+	0.2+	1998 11 15	699	0.0	0.8+
1982 12 05	413	0.3-	1.5+	1998 09 18	704	1.0-	0.3-	1998 12 08	704	0.9-	1.1-
1990 09 14	675	2.0+	1.3-	1998 09 26	704	0.2+	0.3+	1998 12 08	704	1.2-	0.3+
1990 09 14	675	1.3+	0.4-	1998 09 26	704	0.3-	0.1-	1998 12 08	704	1.2-	1.7+
1990 09 16	675	0.1+	0.3-	1998 09 26	704	0.8+	0.3+	1998 12 08	704	(0.7-	2.5-)
1990 09 16	675	0.4-	0.8+	1998 09 26	704	0.3-	0.4+	1998 12 08	704	0.3+	1.8+
1998 06 29	704	1.0+	0.3+	1998 09 26	704	0.6-	0.0	1998 12 16	699	0.2-	1.0-
1998 06 29	704	0.6+	0.8+	1998 09 27	704	0.6+	0.6-	1998 12 16	699	0.7-	0.3-

1999 DEC. 22

M.P.C. 37091

1998 06 29	704	1.0−	1.3+	1998 09 27	704	1.4+	0.9+	1998 12 16	699	0.6+	1.4−
1998 06 29	704	0.5+	1.9+	1998 09 27	704	0.7+	0.0	1999 10 13	704	0.1−	0.7−
1998 06 29	704	(4.2−	1.0+)	1998 09 27	704	0.2+	0.1+	1999 10 13	704	0.3+	0.3+
1998 08 26	809	(2.1+	1.0+)	1998 09 27	704	1.2−	0.3+	1999 10 13	704	0.2+	0.0
1998 08 26	809	1.4+	0.7+	1998 10 14	704	0.4−	0.2−	1999 10 13	704	0.0	0.5−
1998 08 26	809	0.9+	0.7+	1998 10 14	704	0.9+	0.4−	1999 10 13	704	0.4+	0.4−
1998 08 27	809	(3.6+	2.4+)	1998 10 14	704	0.0	1.7−	1999 11 16	704	0.2+	0.1−
1998 08 27	809	(2.7+	2.5+)	1998 10 14	704	0.6+	0.2−	1999 11 16	704	0.6−	0.0
1998 08 27	809	(2.2+	2.4+)	1998 10 14	704	0.1−	0.9−	1999 11 16	704	0.3+	0.5+
1998 09 14	704	(0.7+	2.7+)	1998 10 15	704	0.1+	0.1+	1999 11 16	704	0.5−	0.2+
1998 09 14	704	1.7−	0.3−	1998 10 15	704	0.4−	0.2−	1999 11 16	704	1.0−	0.0
1998 09 14	704	0.2+	0.7−	1998 10 15	704	0.8−	0.4+	1999 12 07	106	0.1−	1.1+
1998 09 17	699	0.4+	0.1−	1998 10 15	704	0.5−	0.5−	1999 12 07	106	0.3+	1.4+
1998 09 17	699	0.5+	0.2−	1998 10 15	704	1.7−	0.7−				
1998 09 17	699	0.4+	0.2−	1998 10 17	699	0.7−	0.3−				

(12897)* 1998 RY₅ = 1987 FD = 1990 BC

Discovered 1998 Sept. 13 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPC* 32990)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	291.79191	(2000.0)	P	Q	
<i>n</i>	0.29856416	<i>ω</i>	135.34306	−0.92620173	−0.37608426
<i>a</i>	2.2170608	<i>Ω</i>	22.60632	+0.32361875	−0.82929211
<i>e</i>	0.0878410	<i>i</i>	3.97759	+0.19344575	−0.41332217
<i>P</i>	3.30	<i>H</i>	14.5	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1987 03 27	688	0.4−	0.2−	1998 08 30	699	0.6+	0.1−	1998 10 20	699	0.1−	0.4+
1987 03 27	688	0.8+	0.2−	1998 09 13	699	0.7+	0.5+	1998 10 20	699	0.1−	0.2−
1990 01 17	400	(2.8+	3.8+)	1998 09 13	699	0.4+	0.4+	1998 10 20	699	(2.4−	0.5−)
1990 01 17	400	(3.3+	1.1−)	1998 09 13	699	0.6+	0.2−	1999 11 10	703	0.1−	0.1+
1990 01 21	400	1.6−	0.7+	1998 09 14	704	0.0	0.3−	1999 11 10	703	0.5−	0.3+
1990 01 21	400	0.8+	0.4+	1998 09 14	704	0.1+	0.2+	1999 11 10	703	0.2−	0.5−
1995 10 28	691	0.6+	0.0	1998 09 14	704	0.5+	0.4+	1999 11 10	703	0.0	0.1−
1995 10 28	691	0.5+	0.1+	1998 09 14	704	0.5+	0.1−	1999 11 16	704	0.6+	0.0
1995 10 28	691	0.7+	0.0	1998 09 18	699	0.2−	0.9+	1999 11 16	704	1.1+	0.4−
1995 11 15	691	0.1−	0.8−	1998 09 18	699	0.2+	0.1+	1999 11 16	704	1.2+	0.5−
1995 11 15	691	0.0	0.5−	1998 09 18	704	0.2+	0.1−	1999 11 16	704	1.0+	0.3−
1995 11 15	691	0.1+	0.5−	1998 09 18	699	0.2−	1.3+	1999 11 16	704	1.2+	1.3−
1997 04 01	809	(1.8+	2.4+)	1998 09 18	704	0.2+	0.2+	1999 12 04	703	0.7+	0.8+
1997 04 01	809	(2.2+	2.1+)	1998 09 18	704	1.3−	0.4+	1999 12 04	703	0.1+	0.7+
1997 04 01	809	(1.4+	2.1+)	1998 09 18	704	0.4−	1.3+	1999 12 04	703	0.1+	1.2+
1998 08 23	704	1.4−	0.0	1998 09 18	704	0.4+	0.8+	1999 12 04	703	0.1+	0.8+
1998 08 23	704	1.0−	0.5+	1998 10 10	699	0.5−	0.5−	1999 12 08	704	0.8−	0.2+
1998 08 23	704	1.1−	0.5−	1998 10 10	699	0.3+	0.5+	1999 12 08	704	0.6−	0.1−
1998 08 23	704	0.6−	0.1−	1998 10 10	699	0.5+	0.6−	1999 12 08	704	0.2−	0.2−
1998 08 23	704	0.9−	0.7−	1998 10 12	699	0.2+	0.2−	1999 12 08	704	0.9−	0.1−
1998 08 30	699	0.4+	0.6−	1998 10 12	699	0.3+	0.9−	1999 12 08	704	0.9−	0.4+
1998 08 30	699	0.6−	0.4−	1998 10 12	699	0.1−	0.2−				

(12898)* 1998 RK₆ = 1997 LD₆

Discovered 1998 Sept. 14 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. A. Gnädig (*MPC* 33270)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	84.82880	(2000.0)	P	Q	
<i>n</i>	0.17345550	<i>ω</i>	155.88796	+0.60503972	+0.79440218
<i>a</i>	3.1842758	<i>Ω</i>	151.25634	−0.74735446	+0.58977697
<i>e</i>	0.1428655	<i>i</i>	6.37610	−0.27456919	+0.14521812
<i>P</i>	5.68	<i>H</i>	13.2	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1996 04 22	566	0.2−	0.5+	1998 09 14	704	0.6+	1.0+	1999 10 20	704	0.0	0.2−
1996 04 22	566	0.3+	1.1+	1998 09 14	699	0.3−	0.3+	1999 10 20	704	0.3−	0.7−

1996 04 22	566	0.5+	0.9+	1998 09 14	699	1.0−	0.5+	1999 10 20	704	0.3−	0.0
1997 06 10	327	0.1+	0.0	1998 09 14	699	0.0	0.1+	1999 11 04	704	0.4−	0.4+
1997 06 10	327	0.1−	0.2−	1998 09 18	704	0.3+	0.0	1999 11 04	704	0.2−	0.7+
1997 06 10	327	0.2+	0.1+	1998 09 18	704	0.3−	1.0−	1999 11 04	704	1.1−	0.3−
1997 06 14	327	0.7+	0.1+	1998 09 18	704	0.2+	1.0−	1999 11 04	704	0.5−	1.0−
1997 06 14	327	0.7−	0.2+	1998 09 18	699	0.8+	0.4+	1999 11 04	704	0.4−	1.1−
1997 06 14	327	0.1−	0.1−	1998 09 18	704	0.7−	0.5−	1999 11 17	699	0.8+	0.3+
1998 08 23	704	0.8+	0.5−	1998 09 18	699	0.3+	0.3+	1999 11 17	699	0.3+	0.5+
1998 08 23	704	(2.3+	2.2−)	1998 09 18	704	1.1−	0.9+	1999 11 17	699	0.9+	0.0
1998 08 23	704	0.6−	1.5−	1998 09 18	699	0.4+	0.3+	1999 12 03	699	0.8−	0.0
1998 08 23	704	0.4−	0.3−	1998 10 14	699	0.3+	0.2+	1999 12 03	699	0.7+	0.4+
1998 08 23	704	0.7−	0.2−	1998 10 14	699	0.1−	1.1+	1999 12 03	699	0.2−	0.3+
1998 08 30	699	0.7+	0.4−	1998 10 14	699	0.3−	0.4+	1999 12 06	704	0.4+	0.4+
1998 08 30	699	0.9+	0.1+	1998 12 08	704	(2.7−	0.9+)	1999 12 06	704	0.6+	0.2+
1998 08 30	699	0.7+	0.1+	1998 12 08	704	0.2+	0.4−	1999 12 06	704	0.7+	0.1+
1998 09 14	704	0.3+	0.1+	1998 12 08	704	1.0+	1.5−	1999 12 06	704	0.0	0.4−
1998 09 14	704	0.5−	0.5+	1998 12 08	704	(3.8−	2.2+)	1999 12 06	704	0.6+	0.6+
1998 09 14	704	0.6−	1.6+	1999 10 20	704	0.3−	0.0				
1998 09 14	704	0.7−	1.0+	1999 10 20	704	0.8−	0.3+				

(12899)* 1998 RN₁₃ = 1993 CS

Discovered 1998 Sept. 1 by F. B. Zoltowski at Woomera.

Id. S. Nakano (*MPC* 32991)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Nakano			
<i>M</i>	241.42315	(2000.0)	P	Q	
<i>n</i>	0.26440074	<i>ω</i>	56.85938	−0.98654838	−0.15517278
<i>a</i>	2.4041465	<i>Ω</i>	114.16783	+0.12482462	−0.91818351
<i>e</i>	0.1212586	<i>i</i>	3.23071	+0.10555149	−0.36450027
<i>P</i>	3.73	<i>H</i>	14.2	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1991 10 03	691	1.0−	0.9+	1998 08 17	704	1.3+	1.3−	1999 11 17	704	0.9−	0.2+
1991 10 03	691	0.3−	1.2+	1998 08 17	704	0.7+	0.0	1999 11 17	704	0.8−	0.4+
1991 10 03	691	0.8−	0.5+	1998 09 01	426	0.1+	0.9−	1999 11 17	704	1.7−	0.2−
1993 01 27	010	0.4−	0.1+	1998 09 01	426	0.1+	0.8−	1999 11 17	704	0.8−	0.5+
1993 01 27	010	0.5−	0.5+	1998 09 12	426	0.1−	0.4−	1999 11 28	120	0.0	0.0
1993 01 27	010	0.5−	0.4−	1998 09 12	426	0.4−	0.7−	1999 11 28	120	0.1−	0.2+
1993 01 29	691	0.0	0.3+	1998 09 12	426	0.1−	0.1−	1999 11 29	120	0.1+	0.1+
1993 01 29	691	0.2−	0.3+	1998 09 20	426	0.3+	1.2−	1999 11 29	120	0.0	0.3+
1993 01 29	691	0.1−	0.2+	1998 09 20	426	0.5+	0.0	1999 12 06	120	0.1+	0.6−
1993 02 14	385	0.9−	0.4+	1998 09 20	426	0.5−	0.3−	1999 12 06	120	0.9+	1.3−
1993 02 14	385	0.3−	0.2−	1998 10 20	426	0.6+	0.5−	1999 12 07	106	0.1+	0.1+
1993 02 15	385	(0.5+	3.9−)	1998 10 20	426	0.5+	0.0	1999 12 07	106	0.9+	0.1+
1993 02 20	010	0.1+	1.3−	1998 10 20	426	0.0	0.7−	1999 12 07	704	0.2+	0.0
1993 02 20	010	1.0+	1.4−	1998 10 25	426	0.2−	0.1+	1999 12 07	704	0.1−	0.2−
1993 02 20	010	0.4+	1.3−	1998 10 25	426	0.0	0.0	1999 12 07	704	0.2−	0.1−
1993 02 22	385	1.0−	0.9−	1998 10 25	426	0.5−	0.9−	1999 12 07	704	0.2−	0.2−
1993 02 22	385	0.7+	0.1+	1999 11 04	704	0.3−	0.3−	1999 12 07	704	0.3+	0.3+
1993 02 28	385	0.9+	0.3−	1999 11 04	704	0.2−	0.4−	1999 12 07	120	0.4+	0.1−
1993 02 28	385	0.1−	0.4+	1999 11 04	704	0.6+	0.8−	1999 12 07	120	1.1+	0.5+
1993 02 28	385	0.3+	0.0	1999 11 04	704	0.3−	0.7−	1999 12 08	704	0.0	0.1−
1995 11 28	691	0.1+	0.1+	1999 11 15	704	0.1−	0.1+	1999 12 08	704	0.6+	0.3−
1995 11 28	691	0.5+	0.5+	1999 11 15	704	0.0	0.2+	1999 12 08	704	0.4+	0.1−
1995 11 28	691	0.6+	0.6+	1999 11 15	704	0.2−	0.1+	1999 12 08	704	0.2+	0.3+
1998 08 17	704	0.5+	0.1−	1999 11 15	704	0.2−	0.0	1999 12 08	704	0.1−	0.1+
1998 08 17	704	0.3−	0.0	1999 11 15	704	0.5−	0.0	1999 12 13	120	0.4+	0.2+
1998 08 17	704	0.3−	0.4+	1999 11 17	704	0.3−	0.1−	1999 12 13	120	0.2+	0.1−

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	116.95020		(2000.0)	P	Q
<i>n</i>	0.17595721	ω	121.74379	+0.05751884	+0.99804377
<i>a</i>	3.1540217	Ω	151.52288	-0.93246650	+0.06247379
<i>e</i>	0.1427788	<i>i</i>	2.94527	-0.35664802	-0.00237883
<i>P</i>	5.60	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1991 04 11	033	0.3+	0.3-	1998 08 17	704	(0.0	2.5+)	1998 09 26	327	0.8-	0.6-
1991 04 11	033	0.2+	0.4-	1998 08 23	704	0.3-	1.4-	1999 11 01	691	0.3-	1.7-
1991 04 12	033	0.3-	1.1+	1998 08 23	704	(0.3-	2.3+)	1999 11 01	691	0.4+	0.3-
1997 05 03	809	0.1+	0.9+	1998 08 23	704	1.1-	1.6+	1999 11 01	691	0.3+	0.2-
1997 05 03	809	0.2-	0.1-	1998 08 23	704	(5.3-	3.0+)	1999 11 15	704	0.7-	1.1+
1997 05 03	809	0.1-	0.7+	1998 08 30	699	0.3-	0.1-	1999 11 15	704	0.0	0.4+
1997 05 04	809	0.1+	0.6-	1998 08 30	699	0.2-	0.8+	1999 11 15	704	0.4-	0.1+
1997 05 04	809	0.0	0.7-	1998 08 30	699	0.6+	0.3+	1999 11 15	704	0.1+	0.4+
1997 05 04	809	0.4-	1.1-	1998 09 14	704	0.4+	0.3-	1999 11 15	704	0.4-	0.1+
1997 06 08	809	1.1+	0.6+	1998 09 14	704	1.3-	0.3+	1999 12 05	703	0.5+	0.6+
1997 06 08	809	1.0+	0.2+	1998 09 14	704	1.0-	1.0-	1999 12 05	703	0.2-	0.3-
1997 06 08	809	0.9+	0.3-	1998 09 14	704	0.6+	1.0-	1999 12 05	703	1.0+	0.5+
1997 06 24	910	0.8-	0.3+	1998 09 18	704	0.0	0.6+	1999 12 05	703	1.9-	0.6+
1997 06 24	910	0.7-	0.3+	1998 09 18	704	0.7+	1.3+	1999 12 07	704	0.6-	0.1+
1997 06 24	910	1.0-	0.1+	1998 09 18	704	1.3+	0.9+	1999 12 07	704	1.2+	0.1-
1998 08 17	704	0.7-	1.2-	1998 09 18	704	(2.2+	0.4+)	1999 12 07	704	1.0+	0.9-
1998 08 17	704	0.1-	0.5-	1998 09 26	327	0.4+	0.0				
1998 08 17	704	1.6+	0.6+	1998 09 26	327	0.1+	0.3-				

(12901)* 1998 RF₅₀ = 1975 EN₄ = 1980 DU = 1996 JB₃

Discovered 1998 Sept. 14 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 32995)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	318.50138		(2000.0)	P	Q
<i>n</i>	0.19196064	ω	318.48775	-0.37660761	-0.92495761
<i>a</i>	2.9761941	Ω	153.51519	+0.87732023	-0.37386286
<i>e</i>	0.1034334	<i>i</i>	6.59093	+0.29744903	-0.06841045
<i>P</i>	5.13	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1975 03 15	095	(2.3-	3.9+)	1996 05 15	691	0.7-	0.6-	1998 09 27	704	0.5+	0.3-
1980 02 14	046	(2.6+	2.3-)	1996 05 15	691	0.4-	0.4-	1998 09 27	704	0.4-	0.4-
1980 02 14	046	0.5-	1.0-	1996 05 15	691	0.6-	0.3-	1998 10 17	699	0.1+	0.6-
1980 02 15	046	(3.9-	2.6+)	1998 09 14	704	1.6+	0.4+	1998 10 17	699	0.9+	0.3+
1980 02 15	046	(4.6-	1.5+)	1998 09 14	704	1.1+	0.5+	1998 10 17	699	0.5+	0.5-
1980 02 19	046	0.7-	0.9-	1998 09 14	704	0.2+	1.0-	1999 10 10	704	0.0	0.3-
1980 02 19	046	1.4-	1.5-	1998 09 14	704	0.2-	0.2+	1999 10 10	704	0.9+	0.0
1980 02 21	046	1.2-	1.0-	1998 09 14	704	0.2-	0.0	1999 10 10	704	0.3+	0.0
1980 02 21	046	0.4-	2.3-	1998 09 18	704	0.1+	0.6-	1999 10 10	704	0.3+	0.7-
1980 02 22	046	0.6-	0.1-	1998 09 18	704	0.9-	0.3-	1999 12 06	704	0.8-	0.4+
1980 02 22	046	2.0+	0.3-	1998 09 18	704	0.2+	0.7-	1999 12 06	704	0.0	0.6+
1980 02 23	046	0.4+	0.3+	1998 09 18	704	0.2+	0.6-	1999 12 06	704	0.1-	0.7+
1980 02 23	046	0.2+	0.5-	1998 09 18	704	0.0	0.6-	1999 12 06	704	0.2+	0.4+
1993 10 15	010	1.5+	1.0+	1998 09 26	704	0.2+	0.5-	1999 12 06	704	0.1-	0.6+
1993 10 15	010	0.3-	0.9-	1998 09 26	704	0.5-	1.1-	1999 12 07	106	0.4+	0.6-
1993 10 15	010	0.5+	0.9-	1998 09 26	704	0.3-	1.3-	1999 12 07	106	0.0	0.8+
1996 05 09	691	0.4+	0.0	1998 09 26	704	1.0-	0.5+	1999 12 07	106	0.6-	0.5+
1996 05 09	691	0.6+	0.3-	1998 09 26	704	0.4-	0.9-				
1996 05 09	691	0.5+	0.3-	1998 09 27	704	1.0-	0.3+				

**(12902)* 1998 RW₅₂ = 1980 FT₁₀ = 1985 DU = 1990 BL₅ = 1993 TB₂₁
= 1996 HK₂₂**

Discovered 1998 Sept. 14 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 32996)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	240.48878		(2000.0)	P	Q
<i>n</i>	0.18647092	ω	164.11643	-0.99830708	-0.04244233
<i>a</i>	3.0343241	Ω	13.63739	+0.01409971	-0.83995618
<i>e</i>	0.0393824	<i>i</i>	9.71079	+0.05642845	-0.54099193
<i>P</i>	5.29	<i>H</i>	12.4	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1980 03 16	095	0.2-	1.7-	1996 04 22	566	0.1+	0.6-	1998 09 26	704	0.3-	0.7-
1985 02 20	046	(3.3-	0.2-)	1996 04 22	566	0.9-	0.1-	1998 09 26	704	0.2+	0.6-
1985 02 20	046	1.0-	2.2-	1996 04 23	566	0.7-	0.3-	1998 09 26	704	0.4+	0.3-
1990 01 30	046	(7.8+	1.1-)	1996 04 23	566	0.5-	0.4-	1998 09 27	704	0.5-	0.3-
1990 01 30	046	(4.6+	0.6-)	1996 04 23	566	0.4-	0.8-	1998 09 27	704	0.3-	0.2-
1993 09 19	691	0.2+	0.0	1998 09 14	704	0.7+	0.7-	1998 09 27	704	0.4-	0.5-
1993 09 19	691	0.2-	0.4+	1998 09 14	704	1.0+	1.0+	1998 09 27	704	0.2-	1.3-
1993 09 19	691	0.2-	0.2+	1998 09 14	704	1.6+	0.9+	1998 09 27	704	0.6-	0.8-
1993 10 10	675	0.8-	1.2-	1998 09 14	704	0.8+	0.0	1998 11 22	725	0.2-	0.7+
1993 10 10	675	0.4-	1.4-	1998 09 14	704	(2.4+	1.1+)	1998 11 22	725	0.2-	0.7+
1993 10 12	809	(0.8+	3.6+)	1998 09 18	704	0.9+	0.2+	1999 10 14	704	0.5-	0.0
1993 10 12	809	(0.6+	2.6+)	1998 09 18	704	0.5+	0.0	1999 10 14	704	0.1-	0.2+
1993 10 12	809	0.1-	1.5+	1998 09 18	704	0.2+	0.1-	1999 10 14	704	0.3+	0.4+
1993 10 13	675	0.3-	1.5-	1998 09 18	704	0.4+	0.6-	1999 10 14	704	0.4-	0.1+
1993 10 13	675	0.2-	0.7-	1998 09 18	704	0.5-	0.1-	1999 10 14	704	1.2+	0.7-
1993 10 22	809	(1.6+	2.6+)	1998 09 18	704	0.8+	0.4+	1999 12 07	106	0.5+	1.4-
1993 10 22	809	(1.6+	2.4+)	1998 09 18	704	0.6+	0.9-	1999 12 07	106	0.4-	0.5+
1993 10 22	809	(0.5+	2.8+)	1998 09 18	704	0.9+	0.1-	1999 12 07	106	0.4-	0.4+
1996 03 18	566	1.9+	1.9+	1998 09 18	704	0.1+	0.4-	1999 12 12	704	0.6-	0.0
1996 03 18	566	(2.0+	2.2+)	1998 09 18	704	0.0	1.1+	1999 12 12	704	0.1-	0.0
1996 03 18	566	(1.8+	2.3+)	1998 09 25	699	0.1-	0.5+	1999 12 12	704	0.5+	0.0
1996 04 22	566	0.0	0.8-	1998 09 25	699	0.0	0.4-	1999 12 12	704	0.5+	0.2+
1996 04 22	566	0.8-	0.4-	1998 09 25	699	0.1-	0.1-	1999 12 12	704	0.2+	0.4+
1996 04 22	566	0.6-	1.0-	1998 09 26	704	0.3-	0.2-				
1996 04 22	566	1.0-	0.1-	1998 09 26	704	0.3+	0.7-				

(12903)* 1998 RK₅₇ = 1994 PX₁

Discovered 1998 Sept. 14 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 32999)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	138.81162		(2000.0)	P	Q
<i>n</i>	0.26073836	ω	128.26306	+0.21832952	+0.97567588
<i>a</i>	2.4266069	Ω	154.32718	-0.90896258	+0.21067095
<i>e</i>	0.1967028	<i>i</i>	2.60867	-0.35513272	+0.06061631
<i>P</i>	3.78	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1994 06 07	691	0.5-	0.6-	1998 09 26	704	0.6-	0.3-	1998 11 15	699	(1.0+ 2.4+)
1994 06 07	691	0.7-	0.1-	1998 09 26	704	1.4-	0.7-	1998 11 15	699	0.0 0.8+
1994 06 07	691	0.3-	0.2-	1998 09 26	704	1.1-	0.9-	1998 11 15	699	0.3- 1.2+
1994 08 11	894	0.5-	0.5+	1998 09 26	704	1.3-	0.2-	1998 11 25	699	0.1+ 0.6+
1994 08 11	894	0.3-	0.7+	1998 09 26	704	1.1-	0.2-	1998 11 25	699	0.5- 0.4-
1994 08 15	894	0.6-	0.2+	1998 09 27	704	0.6+	0.4-	1998 11 25	699	0.1- 0.0
1994 08 15	894	0.2+	0.8+	1998 09 27	704	0.3-	0.7+	1998 12 08	704	0.8- 0.2-
1994 08 16	894	1.2+	0.4+	1998 09 27	704	0.2+	0.4-	1998 12 08	704	0.5- 0.4+
1994 08 16	894	0.1+	1.6+	1998 09 27	704	0.1-	0.0	1998 12 08	704	1.3- 1.4+
1997 04 02	704	0.1-	0.7+	1998 09 27	704	0.4+	0.5-	1998 12 08	704	(1.0+ 2.7+)
1997 04 02	704	0.2-	0.2+	1998 10 13	704	0.9+	0.7-	1999 10 12	704	0.3- 0.4-
1997 04 02	704	0.6+	0.4-	1998 10 13	704	1.8+	1.9+	1999 10 12	704	0.1+ 1.0+
1997 04 02	704	0.2+	0.9+	1998 10 13	704	(2.4+ 0.5+)		1999 10 12	704	0.6- 0.1-
1998 06 29	704	0.8-	1.6-	1998 10 13	704	1.6-	0.1+	1999 10 12	704	0.2- 0.1+
1998 06 29	704	2.0+	1.2-	1998 10 13	704	1.0-	1.0+	1999 10 12	704	0.2+ 0.6-
1998 06 29	704	0.5+	0.6-	1998 10 13	704	0.6-	1.7-	1999 12 07	704	0.1- 0.6+
1998 06 29	704	(3.5- 2.1+)		1998 10 13	704	0.1+	0.9-	1999 12 07	704	0.1- 0.0
1998 09 14	704	0.9+	0.7-	1998 10 14	704	0.0	0.1+	1999 12 07	704	0.0 0.3+
1998 09 14	704	0.2+	0.2-	1998 10 14	704	1.0-	0.9+	1999 12 07	704	0.2+ 0.8-

1999 DEC. 22

M.P.C. 37093

1998 09 14	704	0.8+	0.7−	1998 10 14	704	(2.1−	3.6+)	1999 12 08	704	0.1+	0.1−
1998 09 18	704	1.5+	0.5−	1998 10 14	704	0.2+	0.9+	1999 12 08	704	0.2+	0.5−
1998 09 18	704	(2.7+	1.4−)	1998 10 14	704	0.4+	0.7+	1999 12 08	704	0.1+	0.0
1998 09 18	704	0.4+	1.2−	1998 10 17	699	0.7+	1.4+	1999 12 08	704	0.4+	0.3−
1998 09 18	704	1.6+	1.1−	1998 10 17	699	0.3+	0.8+				
1998 09 18	704	0.7+	0.7−	1998 10 17	699	0.3+	1.1+				

(12904)* 1998 RB₆₅ = 1990 FN₂

Discovered 1998 Sept. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. S. Nakano (*MPC* 33273)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	168.93891		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.17030348	ω	154.57681	−0.51722935	+0.85584554		
<i>a</i>	3.2234457	Ω	84.27657	−0.78547883	−0.47401266		
<i>e</i>	0.1191019	<i>i</i>	0.08554	−0.33984821	−0.20697924		
<i>P</i>	5.79	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1990 03 17	033	0.9+	0.1−	1998 09 26	704	0.0	0.3−	1999 11 12	704	0.0	0.0
1990 03 18	033	0.5+	0.3+	1998 09 26	704	1.0−	0.7−	1999 11 16	704	0.1−	0.7−
1995 01 07	691	0.6−	0.6+	1998 09 27	704	0.5+	0.3+	1999 11 16	704	0.2−	0.2−
1995 01 07	691	1.2−	0.6+	1998 09 27	704	1.4+	0.7+	1999 11 16	704	0.5+	0.1+
1995 01 07	691	0.9−	0.5+	1998 09 27	704	0.2−	0.9+	1999 11 16	704	0.7+	0.1−
1996 03 18	566	0.2+	0.2−	1998 09 27	704	1.2+	0.3+	1999 11 16	704	0.1+	0.1+
1996 03 18	566	0.1+	0.3−	1998 09 27	704	0.4−	0.1−	1999 11 25	120	0.4+	0.5+
1996 03 18	566	0.1−	0.1+	1998 10 14	699	0.5+	0.8+	1999 11 25	120	0.9−	0.7+
1996 04 22	566	0.1+	0.6−	1998 10 14	699	0.0	0.5+	1999 11 30	120	0.5+	0.4+
1996 04 22	566	0.6−	0.1−	1998 10 14	699	0.1−	0.3−	1999 11 30	120	0.3+	0.3−
1996 04 22	566	0.5−	0.5−	1998 10 16	691	0.3+	0.6+	1999 12 04	703	0.1+	0.4+
1998 08 28	704	1.6+	0.6−	1998 10 16	691	0.0	0.2+	1999 12 04	703	0.4−	0.3+
1998 08 28	704	1.7−	0.8+	1998 10 16	691	0.2−	0.2−	1999 12 04	703	0.3−	0.7+
1998 08 28	704	0.9−	0.5−	1998 10 24	691	0.5+	0.2+	1999 12 04	703	0.8−	1.6+
1998 08 28	704	1.9−	1.0+	1998 10 24	691	0.5+	0.1+	1999 12 05	703	0.5+	0.2+
1998 09 14	704	0.6+	1.1−	1998 10 24	691	0.3+	0.2+	1999 12 05	703	0.6−	0.7+
1998 09 14	704	0.6+	0.7−	1998 10 28	691	0.2−	0.6−	1999 12 05	703	0.4−	1.2+
1998 09 14	704	1.5+	0.1−	1998 10 28	691	0.4−	0.6−	1999 12 05	703	0.1−	0.4+
1998 09 18	704	1.3+	0.9+	1998 10 28	691	0.3−	0.6−	1999 12 07	704	0.4+	0.8−
1998 09 18	704	0.3−	0.0	1999 11 09	704	0.2+	0.4+	1999 12 07	704	0.1+	0.5−
1998 09 18	704	0.9−	0.9−	1999 11 09	704	0.6+	0.2−	1999 12 07	704	0.1+	1.2−
1998 09 18	704	1.6−	1.8−	1999 11 09	704	0.4−	0.3−	1999 12 07	704	0.3+	1.1−
1998 09 25	699	0.7−	0.5+	1999 11 09	704	0.3−	0.9−	1999 12 07	704	0.5+	0.7−
1998 09 25	699	0.2+	0.4+	1999 11 09	704	0.3+	0.4−	1999 12 08	704	0.2+	0.5−
1998 09 25	699	0.3−	0.9+	1999 11 12	704	0.2+	0.4+	1999 12 08	704	0.3+	0.5−
1998 09 26	704	0.6−	0.1−	1999 11 12	704	0.4+	0.4+	1999 12 08	704	0.2+	0.4−
1998 09 26	704	0.7+	0.1−	1999 11 12	704	0.5+	0.1+	1999 12 08	704	0.5+	0.7−
1998 09 26	704	1.2−	0.4−	1999 11 12	704	0.0	0.3−	1999 12 08	704	0.1−	0.5−

(12905)* 1998 RJ₇₂ = 1979 JK = 1997 MP₁₁

Discovered 1998 Sept. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 33008)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	147.34589		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.17208768	ω	171.83541	−0.16617677	+0.98517610		
<i>a</i>	3.2011267	Ω	88.59150	−0.90711466	−0.13579013		
<i>e</i>	0.1317914	<i>i</i>	2.44132	−0.38668887	−0.10482890		
<i>P</i>	5.73	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 05 01	323	0.2+	0.3−	1998 09 26	704	0.3+	0.6−	1999 11 03	704	0.0	0.0
1979 05 02	323	0.0	0.8+	1998 09 26	704	0.9−	0.4−	1999 11 03	704	1.0+	0.3+
1997 06 29	704	0.3+	0.5+	1998 09 26	704	0.7−	0.5+	1999 11 09	704	0.2−	0.0
1997 06 29	704	0.0	0.5+	1998 09 26	704	0.6−	0.6−	1999 11 09	704	0.2+	0.1+
1997 06 29	704	1.1−	1.7+	1998 09 27	704	0.0	0.4−	1999 11 09	704	0.2−	0.6+

1997 06 29	704	0.2−	0.8+	1998 09 27	704	0.4+	0.3−	1999 11 09	704	0.4+	0.8+
1997 06 29	704	0.4+	0.3+	1998 09 27	704	0.1+	0.3+	1999 11 09	704	1.2−	0.8+
1997 07 02	704	0.1+	0.2−	1998 09 27	704	0.3−	0.2+	1999 11 12	704	0.5+	0.0
1997 07 02	704	0.1−	0.3+	1998 09 27	704	0.0	0.1+	1999 11 12	704	0.1−	0.3+
1997 07 02	704	0.4+	0.7−	1998 10 17	699	0.2+	0.0	1999 11 12	704	0.3−	0.1−
1997 07 02	704	0.2+	0.4+	1998 10 17	699	0.6−	0.2+	1999 11 12	704	0.4−	0.4+
1998 09 14	704	0.0	0.9−	1998 10 17	699	0.1+	0.0	1999 11 12	704	0.7−	0.1−
1998 09 14	704	1.1−	0.6−	1998 10 19	699	0.3+	0.3+	1999 11 28	120	0.0	0.2−
1998 09 14	704	0.3+	1.1−	1998 10 19	699	0.4+	0.1−	1999 11 28	120	0.2+	0.0
1998 09 17	699	0.3+	0.2+	1998 10 19	699	0.0	1.2+	1999 12 07	704	0.1−	0.6+
1998 09 17	699	0.1−	0.7+	1998 10 28	704	0.2−	0.5+	1999 12 07	704	0.4−	1.0+
1998 09 17	699	(2.6−	0.7+)	1998 10 28	704	1.3+	0.9−	1999 12 07	704	0.2−	0.4+
1998 09 18	704	0.7+	0.4−	1998 10 28	704	0.4+	0.7+	1999 12 07	704	0.3−	0.2+
1998 09 18	704	0.1+	0.5+	1998 10 28	704	0.3−	1.4−	1999 12 07	704	0.2+	0.0
1998 09 18	704	0.2−	0.2−	1998 10 28	704	(3.7−	2.4+)	1999 12 08	704	0.1+	0.1−
1998 09 18	704	0.2−	0.4−	1998 10 29	704	0.6+	0.1−	1999 12 08	704	0.3+	0.5+
1998 09 18	704	1.5−	0.6−	1998 10 29	704	0.5−	0.6+	1999 12 08	704	0.3−	0.4−
1998 09 25	699	0.8+	0.1−	1998 10 29	704	0.9+	1.8+	1999 12 08	704	0.1−	0.1+
1998 09 25	699	0.1−	0.5+	1998 10 29	704	0.9+	0.2+	1999 12 08	704	0.1+	0.1−
1998 09 25	699	0.2+	0.0	1999 11 03	704	0.7+	0.3−				
1998 09 26	704	0.0	0.6−	1999 11 03	704	0.2−	0.1−				

(12906)* 1998 RS₇₂ = 1992 LY

Discovered 1998 Sept. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 33008)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	267.79218		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.21177470	ω	14.06126	−0.98247706	−0.18383049		
<i>a</i>	2.7875328	Ω	155.28179	+0.16311094	−0.92783857		
<i>e</i>	0.0324910	<i>i</i>	4.21633	+0.09018678	−0.32453340		
<i>P</i>	4.65	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1992 06 01	809	0.3+	0.6−	1998 09 25	699	0.3−	1.0+	1998 10 29	704	0.0	0.3−
1992 06 01	809	1.1−	1.5−	1998 09 25	699	0.8+	1.3+	1998 10 29	704	0.9+	0.4−
1992 06 01	809	0.3−	0.8−	1998 09 25	699	0.1+	0.2+	1998 10 29	704	1.7+	0.6−
1992 06 03	809	0.7+	0.4−	1998 09 26	704	0.3+	0.6−	1999 10 10	704	0.5+	0.6−
1992 06 03	809	0.0	0.2+	1998 09 26	704	0.2−	0.4−	1999 10 10	704	1.5+	1.8−
1992 06 03	809	1.3−	1.2−	1998 09 26	704	0.4−	0.1+	1999 10 10	704	(2.5+	1.5−)
1993 08 15	010	(5.2+	1.1+)	1998 09 26	704	0.5−	0.6−	1999 10 21	704	0.1+	1.6−
1993 08 15	010	0.5+	1.5−	1998 09 26	704	0.6−	0.7−	1999 10 21	704	0.3+	0.8−
1993 08 15	010	0.1−	0.6+	1998 09 27	704	0.2+	0.3+	1999 10 21	704	0.6+	0.4−
1996 01 04	327	0.3−	0.7−	1998 09 27	704	0.4−	0.0	1999 10 21	704	0.3+	0.3+
1996 01 04	327	0.5−	0.7−	1998 09 27	704	0.4+	0.4+	1999 12 05	704	0.8−	0.7+
1996 03 21	566	0.1+	0.0	1998 09 27	704	1.1+	0.3+	1999 12 05	704	1.1−	0.0
1996 03 21	566	0.3+	0.7+	1998 09 27	704	0.3+	0.1+	1999 12 05	704	0.5−	0.9−
1996 03 21	566	0.0	0.2+	1998 10 17	699	0.3+	0.4+	1999 12 05	704	0.2−	0.7+
1996 03 26	691	0.6+	0.1−	1998 10 17	699	0.2+	0.9+	1999 12 05	704	0.3+	0.0
1996 03 26	691	0.4+	0.3−	1998 10 17	699	0.6−	0.5−	1999 12 05	704	1.5−	0.1+
1996 03 26	691	0.4+	0.1+	1998 10 19	699	0.4−	0.7+	1999 12 05	704	1.6−	0.2+
1998 09 14	704	1.1+	0.2+	1998 10 19	699	0.3−	1.0+	1999 12 05	704	0.9−	1.0+
1998 09 14	704	(2.5+	0.2+)	1998 10 19	699	0.0	0.2+	1999 12 05	704	1.1+	0.3+
1998 09 14	704	0.5+	1.1−	1998 10 28	704	0.6+	0.3−	1999 12 05	704	0.5+	0.5−
1998 09 18	704	0.8−	0.5−	1998 10 28	704	0.0	1.0−	1999 12 05	704	1.1+	0.5−
1998 09 18	704	1.8+	0.4−	1998 10 28	704	0.3−	1.1−	1999 12 05	704	0.0	1.0−
1998 09 18	704	1.5−	0.1+	1998 10 28	704	1.7−	0.9−	1999 12 05	704	0.2−	0.0
1998 09 18	704	0.3+	0.5+	1998 10 28	704	(2.9−	0.6+)				
1998 09 18	704	0.0	0.9+	1998 10 29	704	1.6−	0.1−				

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	181.38247		(2000.0)	P	Q
<i>n</i>	0.22862149	ω	138.15589	-0.41581554	+0.90759328
<i>a</i>	2.6488540	Ω	107.19916	-0.84970343	-0.36494554
<i>e</i>	0.1601131	<i>i</i>	3.48493	-0.32419363	-0.20757938
<i>P</i>	4.31	<i>H</i>	13.4	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1971 05 25	095	0.0	0.2+	1998 09 17	699	0.3+	0.9+	1998 10 28	704	1.9-	0.4-
1993 07 12	809	0.4-	0.8-	1998 09 17	699	0.9+	0.1+	1998 10 29	704	0.7-	0.2+
1993 07 12	809	0.1-	1.0-	1998 09 17	699	0.9+	0.3+	1998 10 29	704	1.7-	0.6-
1993 07 12	809	1.1-	0.9-	1998 09 18	704	0.4+	0.7-	1998 10 29	704	0.3+	0.2+
1993 07 19	809	0.3-	1.2-	1998 09 18	704	0.3-	1.0-	1998 10 29	704	2.0-	1.0-
1993 07 19	809	0.3-	1.1-	1998 09 18	704	0.7+	0.4-	1999 11 15	704	0.3-	0.5-
1993 07 19	809	0.1-	1.3-	1998 09 18	704	0.4+	0.5-	1999 11 15	704	0.1-	0.2-
1993 07 23	809	1.3+	0.4+	1998 09 18	704	0.3-	0.2+	1999 11 15	704	0.3-	0.4-
1993 07 23	809	1.8+	0.6+	1998 09 26	704	1.0+	0.2+	1999 11 15	704	0.2+	0.6-
1993 07 23	809	1.2+	0.7+	1998 09 26	704	0.3+	0.4-	1999 11 15	704	0.4-	0.1-
1993 07 26	809	0.0	0.1+	1998 09 26	704	0.2-	0.1+	1999 11 17	704	0.0	1.0-
1993 07 26	809	0.3-	0.6+	1998 09 26	704	1.4+	0.2-	1999 11 17	704	1.2-	0.5-
1993 07 26	809	0.4-	0.7+	1998 09 26	704	0.7+	0.3+	1999 11 17	704	0.8-	0.4-
1993 07 26	809	(0.2+ 3.3+)		1998 09 27	704	0.3-	0.1+	1999 11 17	704	0.3-	0.7-
1993 07 26	809	(1.0- 3.9+)		1998 09 27	704	(2.4+ 0.6+)		1999 11 17	704	0.6-	0.6-
1993 07 26	809	(0.5- 3.1+)		1998 09 27	704	0.4-	0.0	1999 12 07	704	0.1+	0.7-
1997 06 08	809	0.2-	0.3-	1998 09 27	704	0.1-	1.0+	1999 12 07	704	0.4+	0.7-
1997 06 08	809	0.5-	0.7-	1998 09 27	704	0.0	0.7+	1999 12 07	704	0.1+	0.3-
1997 06 08	809	0.8-	0.6-	1998 10 19	699	0.4+	0.1-	1999 12 07	704	0.3+	0.2-
1997 06 09	809	0.1+	2.0-	1998 10 19	699	0.5+	0.2+	1999 12 08	704	0.8+	1.3-
1997 06 09	809	0.4-	1.9-	1998 10 19	699	0.7-	0.5+	1999 12 08	704	0.0	0.7-
1997 06 09	809	0.6-	1.9-	1998 10 28	704	0.5+	0.7-	1999 12 08	704	0.2-	0.9-
1998 09 14	704	0.2-	0.2+	1998 10 28	704	1.7+	0.4-	1999 12 08	704	2.0+	1.1-
1998 09 14	704	0.3-	0.1-	1998 10 28	704	0.2-	0.0	1999 12 08	704	1.0+	1.5-
1998 09 14	704	0.3-	0.3+	1998 10 28	704	1.0-	0.5-				

(12908)* 1998 SG₂₅ = 1979 HK₄ = 1981 UP₅

Discovered 1998 Sept. 22 by the Lowell Observatory Near-Earth Object

Search at the Anderson Mesa Station.

Id. A. Gnädig (*MPC* 33278)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	267.74374		(2000.0)	P	Q
<i>n</i>	0.22752955	ω	140.37518	-0.98022103	+0.10043951
<i>a</i>	2.6573220	Ω	46.29492	-0.17781813	-0.82522107
<i>e</i>	0.1150223	<i>i</i>	13.64395	+0.08687603	-0.55580760
<i>P</i>	4.33	<i>H</i>	12.8	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1979 04 24	095	0.2-	0.7-	1998 10 17	699	0.8+	1.3+	1998 11 25	699	0.2+	0.3+
1980 07 11	413	0.1+	0.6+	1998 10 20	699	0.1+	0.2+	1998 11 25	699	1.0+	0.1+
1980 07 11	413	0.5-	0.6+	1998 10 20	699	0.5+	0.6+	1999 01 09	910	0.7-	0.6-
1981 10 30	381	0.4-	0.4-	1998 10 20	699	0.6+	0.1+	1999 01 09	910	0.8-	0.3-
1981 10 30	381	1.3+	1.4-	1998 10 28	704	0.9+	0.4-	1999 01 09	910	0.8-	0.6-
1981 10 30	381	0.1+	0.1-	1998 10 28	704	0.3+	0.9-	1999 01 10	699	0.2+	0.0
1981 10 30	381	0.0	0.2-	1998 10 28	704	0.5+	0.4-	1999 01 10	699	0.5-	0.0
1992 05 30	413	0.3+	1.2+	1998 10 28	704	0.6-	0.4+	1999 01 10	699	0.1+	0.4-
1992 05 30	413	0.6-	0.1-	1998 10 29	704	0.3+	0.1-	1999 01 11	704	1.2+	0.3+
1998 09 22	699	0.6-	0.3-	1998 10 29	704	0.4+	0.3+	1999 01 11	704	0.5+	0.0
1998 09 22	699	0.8-	0.3+	1998 10 29	704	1.1+	0.2+	1999 01 11	704	0.1+	0.4-
1998 09 22	699	0.4-	0.2+	1998 10 29	704	0.3-	0.0	1999 01 11	704	1.1-	0.9-
1998 09 24	699	0.9-	0.5+	1998 10 29	704	0.1+	0.9-	1999 01 13	910	1.0-	1.0-
1998 09 24	699	0.4-	0.2+	1998 11 10	704	0.3+	0.3-	1999 01 13	910	0.9-	0.8-
1998 09 24	699	0.4-	0.2+	1998 11 10	704	0.1+	1.1+	1999 01 13	910	0.7-	0.7-
1998 09 26	704	0.2+	0.3-	1998 11 10	704	0.2+	0.4+	1999 01 14	910	0.6-	1.0-
1998 09 26	704	(0.5- 2.3-)		1998 11 10	704	0.2-	0.5+	1999 01 14	910	0.6-	1.0-
1998 09 26	704	0.6-	0.3-	1998 11 10	704	0.7-	0.7+	1999 01 14	910	0.5-	1.0-
1998 09 26	704	0.0	1.1+	1998 11 11	704	0.5+	0.7-	1999 11 05	699	0.3+	0.1-

1998 09 26	704	0.5-	0.3-	1998 11 11	704	(0.1- 2.1-)	1999 11 05	699	0.7+	0.1+
1998 09 27	704	0.8-	0.0	1998 11 11	704	0.7+ 1.2-	1999 11 05	699	0.8+	0.1+
1998 09 27	704	0.2-	0.0	1998 11 11	704	1.8+ 1.7-	1999 12 12	704	0.2-	0.2+
1998 09 27	704	1.3-	0.5+	1998 11 11	704	(1.2+ 2.1-)	1999 12 12	704	0.2+	0.0
1998 09 27	704	0.6-	0.8+	1998 11 14	699	0.3- 1.1+	1999 12 12	704	0.4+	0.6+
1998 09 27	704	0.4-	0.6+	1998 11 14	699	0.0 0.9+	1999 12 12	704	0.2+	0.9+
1998 10 17	699	0.7+	1.1+	1998 11 14	699	0.2+ 0.3-	1999 12 12	704	0.2+	1.7+
1998 10 17	699	0.1+	0.6+	1998 11 25	699	1.3+ 0.6+				

(12909)* 1998 SK₅₈ = 1978 UP₁ = 1982 VP₇ = 1992 DA₇

Discovered 1998 Sept. 17 by the Lowell Observatory Near-Earth Object

Search at the Anderson Mesa Station.

Id. A. Doppler (*MPC* 34928)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	316.95019		(2000.0)	P	Q
<i>n</i>	0.24094848	ω	126.07364	-0.71071947	-0.70343618
<i>a</i>	2.5577215	Ω	9.23122	+0.62959347	-0.64076047
<i>e</i>	0.1131244	<i>i</i>	2.65899	+0.31383100	-0.30757693
<i>P</i>	4.09	<i>H</i>	14.2	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1978 10 30	010	0.1-	1.2-	1998 09 26	704	1.4-	0.6+	1998 10 28	691	0.6-	0.4-
1978 11 01	010	(6.3+ 0.2-)		1998 09 26	704	0.9-	0.2+	1999 11 16	704	0.1-	0.0
1982 11 09	095	0.5-	1.7+	1998 09 26	704	1.2-	0.4-	1999 11 16	704	0.2+	0.7-
1992 02 29	809	0.1+	0.4+	1998 09 26	704	1.1-	0.1+	1999 11 16	704	0.2-	0.2-
1992 03 03	809	0.5-	0.2-	1998 09 26	704	1.1-	1.3-	1999 11 16	704	0.2+	0.7-
1992 03 07	809	0.0	0.1+	1998 09 27	704	0.5+	0.4+	1999 11 16	704	0.1+	0.8-
1994 11 01	691	0.6+	0.1+	1998 09 27	704	0.1+	0.5+	1999 12 04	703	0.3+	0.3-
1994 11 01	691	1.2+	0.2+	1998 09 27	704	0.2+	0.7+	1999 12 04	703	0.8-	0.6-
1994 11 01	691	0.4+	0.2+	1998 09 27	704	1.0+	0.3+	1999 12 04	703	0.2-	0.3+
1996 03 24	566	0.9+	0.9+	1998 09 27	704	1.3+	0.1+	1999 12 04	703	0.2-	0.3+
1996 03 24	566	1.1+	0.6+	1998 10 14	699	0.0	0.6+	1999 12 08	704	0.2-	0.6-
1996 03 24	566	0.3+	1.2+	1998 10 14	699	0.1-	0.4-	1999 12 08	704	0.3-	0.5-
1998 09 17	699	0.6+	0.5-	1998 10 14	699	0.6+	0.6-	1999 12 08	704	0.6+	0.5+
1998 09 17	699	0.8+	1.0+	1998 10 16	691	0.3-	0.6+	1999 12 08	704	0.4+	0.1+
1998 09 17	699	0.7+	0.1+	1998 10 16	691	0.2-	0.4+	1999 12 08	704	0.6+	0.5-
1998 09 25	699	0.9-	0.9-	1998 10 16	691	(1.7+ 4.6-)		1999 12 09	699	0.3+	1.0+
1998 09 25	699	0.2+	0.8+	1998 10 28	691	0.5-	0.5-	1999 12 09	699	1.4-	0.1-
1998 09 25	699	0.1+	0.7+	1998 10 28	691	0.5-	0.4-	1999 12 09	699	0.6-	0.7+

(12910)* 1998 SP₅₉ = 4143 T-1

Discovered 1998 Sept. 17 by the Lowell Observatory Near-Earth Object

Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPC* 33033)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	333.96695		(2000.0)	P	Q
<i>n</i>	0.23472789	ω	1.10484	-0.45540891	-0.88902731
<i>a</i>	2.6027128	Ω	115.98795	+0.81641437	-0.43820374
<i>e</i>	0.0536489	<i>i</i>	3.01355	+0.35506381	-0.13269482
<i>P</i>	4.20	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1971 03 24	675	(1.7+ 3.1-)	1998 09 26	704	0.4- 0.4+	1998 10 29	704	1.3- 0.4-
1971 03 26	675	0.1+ 0.3-	1998 09 26	704	0.3+ 1.0+	1998 10 29	704	(2.9+ 0.3+)
1971 03 26	675	0.4- 0.9-	1998 09 26	704	0.4+ 0.3-	1999 11 16	704	0.7+ 0.4-
1971 03 27	675	(2.5- 1.4-)	1998 09 26	704	0.1+ 0.3-	1999 11 16	704	0.2+ 1.2-
1971 04 02	675	0.0 0.3+	1998 09 27	704	0.6- 0.1+	1999 11 16	704	0.2+ 0.7-
1993 07 12	809	0.1+ 0.6-	1998 09 27	704	0.3+ 0.5-	1999 12 06	704	0.3- 0.7+
1993 07 12	809	0.2+ 0.6-	1998 09 27	704	0.7+ 0.2-	1999 12 06	704	0.3- 0.3-
1993 07 12	809	0.0 0.8-	1998 09 27	704	0.5+ 0.3+	1999 12 06	704	1.1- 1.3+
1998 09 15	691	0.5- 0.3-	1998 09 27	704	1.8- 0.7-	1999 12 07	704	0.5+ 0.7+
1998 09 15	691	0.6- 0.4-	1998 10 19	699	1.4+ 0.4-	1999 12 07	704	0.2+ 0.7-
1998 09 15	691	0.6- 0.2-	1998 10 19	699	0.6+ 0.4+	1999 12 07	704	0.9+ 0.4-
1998 09 17	699	0.2- 1.4-	1998 10 19	699	0.5+ 0.2+	1999 12 07	704	0.4- 0.6-
1998 09 17	699	0.2- 0.2-	1998 10 28	704	1.2+ 0.8-	1999 12 07	704	0.3- 0.3-

1998 09 17	699	0.5−	0.2+	1998 10 28	704	(0.4−	2.1−)	1999 12 09	699	0.2−	0.5−
1998 09 25	699	0.7+	1.0+	1998 10 28	704	0.8−	0.9+	1999 12 09	699	0.5−	1.0−
1998 09 25	699	1.1+	0.0	1998 10 28	704	1.9−	0.3−	1999 12 09	699	0.0	0.7+
1998 09 25	699	0.3−	0.1+	1998 10 29	704	1.2+	0.7+				
1998 09 26	704	0.7+	0.1+	1998 10 29	704	0.4+	0.1+				

(12911)* 1998 SQ₅₉ = 1976 SY₃ = 1991 HS

Discovered 1998 Sept. 17 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPC* 33033)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 137.63737			(2000.0)			P			Q		
<i>n</i>	0.18075280	<i>ω</i>	177.84797			+0.08368310			+0.99560150		
<i>a</i>	3.0979854	<i>Ω</i>	96.95040			−0.91489668			+0.09351674		
<i>e</i>	0.1546201	<i>i</i>	2.43237			−0.39491925			−0.00568000		
<i>P</i>	5.45	<i>H</i>	12.9			<i>G</i>	0.15		<i>U</i>	1	

Residuals in seconds of arc

1976 09 24	095	(12.7+	2.9+)	1998 09 18	704	0.5+	0.3−	1998 10 28	704	1.0+	1.7+
1976 09 29	095	(18.1+	3.8+)	1998 09 25	699	0.3+	0.4+	1998 10 28	704	1.5−	0.3+
1991 04 17	071	0.3+	0.8+	1998 09 25	699	1.2+	0.2+	1998 10 28	704	1.6−	1.2−
1991 04 17	071	(0.1+	2.7+)	1998 09 25	699	0.6+	0.6−	1998 10 28	704	1.8−	1.1−
1996 03 22	566	1.1+	1.2+	1998 09 26	704	0.7−	1.6+	1998 10 28	704	0.7+	0.3+
1996 03 22	566	1.1+	0.9+	1998 09 26	704	0.6−	0.9+	1998 10 29	704	0.8−	0.4−
1996 03 22	566	1.0+	0.6+	1998 09 26	704	0.3+	1.4+	1998 10 29	704	(3.2+	2.1−)
1996 05 22	691	0.7−	0.7+	1998 09 26	704	0.1+	0.6+	1998 10 29	704	0.5−	0.0
1996 05 22	691	0.8−	0.3+	1998 09 26	704	0.4−	0.9+	1998 10 29	704	1.4−	0.3+
1996 05 22	691	0.7−	0.3+	1998 09 27	704	0.0	0.5−	1998 10 29	704	1.9−	0.2−
1998 09 01	691	0.3−	0.2−	1998 09 27	704	0.1−	0.2+	1999 11 09	704	0.9+	0.1+
1998 09 01	691	0.1−	0.4+	1998 09 27	704	0.6−	0.1+	1999 11 09	704	0.4+	0.0
1998 09 01	691	0.5−	0.2−	1998 09 27	704	0.3−	0.2−	1999 11 09	704	1.0+	0.1−
1998 09 14	704	0.6+	0.3−	1998 09 27	704	1.3−	1.0−	1999 12 07	704	0.3+	0.1−
1998 09 14	704	0.9+	0.0	1998 09 29	327	2.0+	0.3−	1999 12 07	704	0.1+	0.0
1998 09 14	704	0.7−	1.3+	1998 09 29	327	0.6−	0.3−	1999 12 07	704	0.0	0.2+
1998 09 17	699	0.2+	0.3−	1998 09 29	327	1.0−	0.2−	1999 12 07	704	0.1−	0.5−
1998 09 17	699	0.5+	0.1−	1998 10 10	699	0.2+	0.5+	1999 12 08	704	0.2−	0.7−
1998 09 17	699	0.2+	0.1+	1998 10 10	699	0.7+	0.2+	1999 12 08	704	0.1−	0.2+
1998 09 18	704	1.6+	0.3−	1998 10 10	699	0.6+	0.2+	1999 12 08	704	0.4−	0.3−
1998 09 18	704	0.2+	0.4+	1998 10 19	699	0.4+	0.3+	1999 12 08	704	0.4−	0.2−
1998 09 18	704	0.2−	0.3+	1998 10 19	699	0.9+	0.1+	1999 12 08	704	1.0−	0.3−
1998 09 18	704	0.0	0.1−	1998 10 19	699	0.9+	0.1+				

(12912)* 1998 SR₆₀ = 1990 EG₆ = 1991 JM₃ = 1997 MG₅

Discovered 1998 Sept. 17 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Id. G. V. Williams (*MPC* 33034)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 154.24971			(2000.0)			P			Q		
<i>n</i>	0.17413807	<i>ω</i>	144.90011			−0.26163528			+0.96415238		
<i>a</i>	3.1759494	<i>Ω</i>	109.89723			−0.89593638			−0.22556640		
<i>e</i>	0.1275573	<i>i</i>	2.69667			−0.35894983			−0.13974970		
<i>P</i>	5.66	<i>H</i>	13.0			<i>G</i>	0.15		<i>U</i>	1	

Residuals in seconds of arc

1990 03 02	809	0.9−	0.3−	1998 09 17	699	0.2−	0.2−	1998 10 29	704	1.6+	0.3+
1990 03 02	809	0.6−	0.4−	1998 09 17	699	0.6+	1.5+	1998 10 29	704	0.6−	1.1−
1990 03 02	809	0.5−	0.6−	1998 09 17	699	0.5+	0.5+	1998 10 29	704	(2.7−	1.9+)
1990 03 03	809	(2.9−	15.7−)	1998 09 18	704	0.6+	0.6−	1998 10 29	704	0.5+	0.4+
1990 03 03	809	(2.6−	15.9−)	1998 09 18	704	0.2+	0.1+	1999 11 03	704	0.5+	0.2−
1990 03 03	809	(2.4−	15.8−)	1998 09 18	704	0.2−	0.2+	1999 11 03	704	0.7+	0.3−
1991 05 12	809	0.6+	0.4+	1998 09 18	704	0.4+	0.0	1999 11 03	704	0.5−	1.2−
1991 05 12	809	0.2+	0.4−	1998 09 18	704	0.2+	0.6−	1999 11 03	704	0.6−	0.2−
1991 05 12	809	0.4+	0.7+	1998 09 25	699	0.2−	0.0	1999 11 15	704	0.2−	0.3−
1991 05 17	809	0.0	1.3−	1998 09 25	699	0.1−	0.1+	1999 11 15	704	0.4−	0.4−
1991 05 17	809	0.5−	0.8−	1998 09 25	699	0.5−	0.9+	1999 11 15	704	0.1−	0.1−

1991 05 17	809	0.1−	1.2−	1998 09 26	704	0.1−	0.4−	1999 11 15	704	0.1−	0.1+
1996 04 23	566	0.4+	0.3+	1998 09 26	704	0.1+	1.7−	1999 11 15	704	0.1−	0.2−
1996 04 23	566	1.1+	0.7+	1998 09 26	704	1.0+	0.6+	1999 11 17	704	0.4+	0.9−
1996 04 23	566	0.8+	0.6+	1998 09 26	704	0.2−	0.5−	1999 11 17	704	1.0+	0.4+
1997 06 29	704	1.1−	0.3+	1998 09 26	704	0.3−	1.2−	1999 11 17	704	1.2+	0.4+
1997 06 29	704	0.2−	0.7+	1998 09 27	704	0.5+	0.7+	1999 11 17	704	0.0	1.0−
1997 06 29	704	1.4−	0.3+	1998 09 27	704	0.2+	0.2+	1999 11 17	704	0.1+	0.4−
1997 06 29	704	1.6+	0.5+	1998 09 27	704	0.4−	0.6+	1999 12 07	704	0.6+	0.5+
1997 06 29	704	0.2+	0.8−	1998 09 27	704	0.7−	0.1+	1999 12 07	704	1.0−	0.2−
1997 07 02	704	0.2+	0.4+	1998 09 27	704	0.8−	1.0+	1999 12 07	704	0.1+	1.6+
1997 07 02	704	0.0	0.7+	1998 10 19	699	0.3−	0.7+	1999 12 07	704	0.5−	0.4+
1997 07 02	704	0.2+	0.1+	1998 10 19	699	0.4+	0.1−	1999 12 07	704	0.4−	0.6+
1997 07 02	704	0.2+	0.0	1998 10 19	699	0.6−	0.2+	1999 12 08	704	0.5−	0.3+
1997 07 02	704	1.7−	0.3+	1998 10 28	704	0.3−	1.0+	1999 12 08	704	0.7+	1.0+
1998 09 14	704	0.3+	0.8−	1998 10 28	704	1.7+	1.1−	1999 12 08	704	1.7−	1.3+
1998 09 14	704	0.5+	0.6−	1998 10 28	704	0.1−	1.3+	1999 12 08	704	(1.7+	3.4+)
1998 09 14	704	0.2−	1.6−	1998 10 28	704	1.7−	0.7−				

(12913)* 1998 SR₁₃₀ = 1975 VF₄ = 1992 JW₂

Discovered 1998 Sept. 26 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 33290)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 129.91595			(2000.0)			P			Q		
<i>n</i>	0.21305594	<i>ω</i>	97.52687			+0.65709725			+0.75183211		
<i>a</i>	2.7763461	<i>Ω</i>	213.75430			−0.72451150			+0.60994314		
<i>e</i>	0.0519046	<i>i</i>	5.63035			−0.20810161			+0.25043532		
<i>P</i>	4.63	<i>H</i>	13.4			<i>G</i>	0.15		<i>U</i>	1	

Residuals in seconds of arc

1975 11 02	095	0.4+	1.6−	1998 10 17	699	0.5+	0.3+	1998 11 23	699	0.3−	0.8+
1992 05 04	809	0.9−	0.3−	1998 10 17	699	0.2+	0.4−	1998 11 23	699	0.1+	0.0
1992 05 04	809	0.9−	0.3−	1998 10 17	699	0.4+	0.0	1998 11 23	699	0.6+	0.6+
1992 05 04	809	0.9−	0.2−	1998 10 28	704	0.1+	0.5−	1998 12 09	699	0.4+	1.2−
1992 05 07	809	(3.9−	0.4−)	1998 10 28	704	0.1−	0.9−	1998 12 09	699	0.2−	0.6+
1992 05 07	809	(3.5−	0.5−)	1998 10 28	704	1.1−	0.0	1998 12 09	699	1.1+	0.3−
1992 05 07	809	(3.3−	0.6−)	1998 10 28	704	0.7−	1.0−	1999 01 10	699	0.1−	0.2−
1992 05 08	809	0.8+	0.2+	1998 10 28	704	1.1−	0.8−	1999 01 10	699	0.2+	0.7−
1992 05 08	809	0.7+	0.4+	1998 10 29	704	0.1+	0.3−	1999 01 10	699	0.3+	0.0
1992 05 08	809	1.1+	0.1+	1998 10 29	704	0.2+	0.4−	1999 10 10	704	0.9+	0.7+
1998 09 14	699	0.1+	0.8−	1998 10 29	704	0.4−	0.9−	1999 10 10	704	1.4−	0.2+
1998 09 14	699	0.0	0.2−	1998 10 29	704	1.3+	1.0−	1999 10 10	704	0.3−	0.4−
1998 09 14	699	0.0	0.4+	1998 10 29	704	0.4−	1.5+	1999 10 10	704	0.2+	0.3−
1998 09 26	704	0.2+	0.2+	1998 11 10	704	0.2+	0.2−	1999 11 17	704	0.4+	0.4+
1998 09 26	704	0.0	0.1+	1998 11 10	704	0.5−	0.7+	1999 11 17	704	0.3−	0.1−
1998 09 26	704	0.6−	0.1−	1998 11 10	704	1.3−	0.3+	1999 11 17	704	1.3+	0.7+
1998 09 26	704	0.5−	0.4−	1998 11 10	699	0.5+	0.7+	1999 11 17	704	0.1+	0.2+
1998 09 27	704	0.3+	0.1−	1998 11 10	704	0.9+	0.1+	1999 11 17	704	0.3+	0.0
1998 09 27	704	0.5−	0.4+	1998 11 10	699	0.7+	0.6+	1999 12 06	704	0.1−	0.5−
1998 09 27	704	0.5−	0.4+	1998 11 10	699	0.5+	0.8+	1999 12 06	704	0.3+	0.4−
1998 09 27	704	0.7−	0.9+	1998 11 11	704	0.4−	0.5+	1999 12 06	704	0.4−	0.0
1998 09 27	704	0.6−	0.1+	1998 11 11	704	0.0	0.1+	1999 12 06	704	0.2+	0.7+
1998 10 11	699	1.3+	0.2+	1998 11 11	704	0.1+	0.5+	1999 12 06	704	1.3−	0.2−
1998 10 11	699	0.5−	0.5+	1998 11 11	704	0.1−	0.0				
1998 10 11	699	0.2−	0.2−	1998 11 11	704	0.5+	0.4+				

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	280.23823		(2000.0)	P	Q
<i>n</i>	0.22486163	ω	156.52766	-0.99564365	-0.01446643
<i>a</i>	2.6782995	Ω	23.21696	-0.04222722	-0.81081136
<i>e</i>	0.1077984	<i>i</i>	13.51250	+0.08312993	-0.58512876
<i>P</i>	4.38	<i>H</i>	12.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1950 12 09	675	1.7+	0.6-	1998 09 26	704	0.5+	0.0	1998 11 11	704	0.8+	0.4-
1950 12 09	675	0.1-	0.4-	1998 09 26	704	0.0	0.3+	1998 11 11	704	0.2+	0.3-
1974 03 21	095	(3.0-	4.2+)	1998 09 27	704	0.6-	0.1-	1998 11 11	704	0.1-	0.4+
1983 05 10	413	0.3-	0.6-	1998 09 27	704	1.4-	0.4+	1998 11 17	699	0.4+	0.8+
1983 05 10	413	1.0-	0.4-	1998 09 27	704	1.1-	0.1-	1998 11 17	699	0.6-	0.2+
1991 01 18	033	1.9-	0.1-	1998 09 27	704	1.2-	0.4+	1998 11 17	699	0.5-	1.1+
1991 01 18	033	1.8-	0.4-	1998 09 27	704	0.5-	0.1-	1999 01 08	704	1.5+	0.3+
1991 01 19	033	1.2+	1.5-	1998 10 28	704	0.3-	0.2+	1999 01 08	704	0.7+	0.2+
1992 03 31	413	0.5+	0.2+	1998 10 28	704	0.4-	0.0	1999 01 08	704	0.3-	0.2-
1992 04 09	413	0.2+	0.3-	1998 10 28	704	0.4-	0.1+	1999 01 08	704	(2.7+	1.9-)
1992 04 09	413	0.0	1.0+	1998 10 28	704	0.0	0.8+	1999 01 11	704	1.2-	0.6-
1998 09 14	699	0.1-	0.3+	1998 10 29	704	0.2+	0.1+	1999 01 11	704	0.8+	0.9-
1998 09 14	699	0.4-	0.2-	1998 10 29	704	1.4+	0.0	1999 01 11	704	(1.0+	2.2-)
1998 09 14	699	0.3+	0.6-	1998 10 29	704	0.2+	0.4+	1999 01 11	704	0.6+	0.3-
1998 09 18	809	(2.9+	2.4+)	1998 10 29	704	0.3+	0.1-	1999 09 13	699	0.5+	0.3+
1998 09 18	809	1.9+	2.0+	1998 10 29	704	0.4-	0.2+	1999 09 13	699	0.6+	1.1+
1998 09 18	809	(2.1+	2.1+)	1998 11 10	704	0.6+	0.4-	1999 09 13	699	0.6+	0.8+
1998 09 20	809	(4.2+	2.0+)	1998 11 10	704	0.2-	0.4+	1999 12 12	703	0.7+	0.3+
1998 09 20	809	(4.4+	2.2+)	1998 11 10	704	0.2+	0.7-	1999 12 12	703	0.9+	0.5+
1998 09 20	809	(4.2+	1.9+)	1998 11 10	704	0.3-	0.4-	1999 12 12	703	0.9+	0.3+
1998 09 26	704	0.1+	0.1+	1998 11 10	704	0.5-	0.7-	1999 12 12	703	0.4+	0.2+
1998 09 26	704	0.7+	0.8-	1998 11 11	704	0.9-	1.1-				
1998 09 26	704	0.1+	1.0-	1998 11 11	704	0.2+	0.4+				

(12915)* 1998 SL₁₆₁ = 1988 JX = 1989 SJ₉

Discovered 1998 Sept. 26 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 33046)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	229.13673		(2000.0)	P	Q
<i>n</i>	0.23003874	ω	358.02412	-0.78974670	+0.61323500
<i>a</i>	2.6379632	Ω	219.81342	-0.56247943	-0.73405390
<i>e</i>	0.1619459	<i>i</i>	1.39502	-0.24477957	-0.29173226
<i>P</i>	4.28	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1988 05 07	046	(5.7-	2.8-)	1998 09 27	704	0.4+	0.4-	1999 10 12	704	0.2-	0.5+
1988 05 07	046	(3.7-	3.0-)	1998 09 27	704	0.6+	0.4-	1999 10 12	704	0.0	0.7+
1988 05 09	046	(3.3+	3.1-)	1998 09 27	704	0.7+	1.0-	1999 10 12	704	0.4-	0.6+
1988 05 09	046	0.8-	2.0-	1998 09 27	704	0.7+	0.9-	1999 10 12	704	0.4-	0.9+
1988 05 12	046	(4.0+	4.7-)	1998 10 10	699	0.5+	1.4+	1999 10 12	704	0.1-	0.9+
1988 05 12	046	(6.5+	3.2-)	1998 10 10	699	1.2+	0.2+	1999 10 22	704	0.1-	0.5+
1989 09 25	809	0.1-	0.6-	1998 10 10	699	0.4-	1.4+	1999 10 22	704	0.6+	0.2+
1989 09 25	809	0.4+	0.6-	1998 10 17	699	0.4-	0.1-	1999 10 22	704	0.3+	0.6+
1989 09 25	809	0.8+	0.5-	1998 10 17	699	0.7+	0.1-	1999 10 22	704	0.6-	0.7+
1989 09 26	809	0.3-	0.1+	1998 10 17	699	0.4+	0.3+	1999 10 22	704	0.9+	0.3+
1989 09 26	809	0.4-	0.1+	1998 10 23	589	0.6-	0.1-	1999 12 07	106	1.3-	0.7-
1989 09 26	809	0.1-	0.2+	1998 10 23	589	0.6-	0.4-	1999 12 07	106	0.7+	1.1-
1993 08 15	691	0.2-	0.6+	1998 10 23	589	0.1-	0.6-	1999 12 07	106	0.4+	0.9-
1993 08 15	691	0.0	0.5+	1998 10 26	589	0.3+	0.3-	1999 12 07	704	0.2+	0.4-
1993 08 15	691	0.2-	0.4-	1998 10 26	589	0.8-	0.0	1999 12 07	704	0.2-	0.3+
1994 11 30	691	0.3+	0.9+	1998 10 26	589	0.4-	0.0	1999 12 07	704	0.1+	0.2+
1994 11 30	691	0.0	0.2+	1998 11 10	704	0.6-	0.8-	1999 12 07	704	0.2-	0.2-
1994 11 30	691	0.2+	0.8-	1998 11 10	704	0.1+	0.5+	1999 12 07	704	0.2-	0.2-
1995 11 18	691	0.1+	0.8-	1998 11 10	704	1.4-	0.0	1999 12 08	704	0.2+	0.1+
1995 11 18	691	0.6+	1.0-	1998 11 10	704	0.3+	0.4+	1999 12 08	704	0.4+	0.5+
1995 11 18	691	0.1-	0.8-	1998 11 11	704	0.1+	0.3-	1999 12 08	704	0.4-	0.4+

1998 09 26	704	0.2-	0.1-	1998 11 11	704	0.0	0.2+	1999 12 08	704	0.1+	0.1+
1998 09 26	704	0.1+	0.2-	1998 11 11	704	0.3+	0.9+	1999 12 08	704	0.4-	0.1-
1998 09 26	704	0.3-	0.9-	1998 11 11	704	0.8+	0.1+				
1998 09 26	704	0.8+	0.2+	1998 11 11	704	1.2-	1.1-				

(12916)* 1998 TL₁₅ = 1986 TL₇

Discovered 1998 Oct. 13 by the OCA-DLR Asteroid Survey at Caussols.

Id. G. V. Williams (*MPC* 33303)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	340.46188		(2000.0)	P	Q
<i>n</i>	0.08147728	ω	221.69229	+0.19357084	-0.93946878
<i>a</i>	5.2696086	Ω	219.69876	+0.97575177	+0.21436149
<i>e</i>	0.0241966	<i>i</i>	26.27044	+0.10217050	-0.26729677
<i>P</i>	12.10	<i>H</i>	11.4	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1986 10 07	675	0.8+	1.4-	1998 11 10	704	0.9-	0.2+	1999 10 19	704	0.3+	0.3-
1986 10 07	675	0.8+	0.6-	1998 11 11	704	0.3+	0.0	1999 10 19	704	0.7-	0.2-
1986 10 08	675	(5.9-	1.8-)	1998 11 11	704	0.4+	0.2-	1999 10 19	704	1.0-	0.5-
1986 10 08	675	2.0-	0.2-	1998 11 11	704	0.6+	0.7+	1999 10 19	704	0.6-	0.0
1989 01 08	413	0.5-	0.1+	1998 11 11	704	0.7+	1.1-	1999 11 05	704	0.1-	0.6-
1989 01 08	413	0.7+	0.3+	1998 11 16	566	0.6-	0.3+	1999 11 05	704	0.4-	0.2-
1998 10 13	910	0.6+	0.8+	1998 11 16	566	0.0	0.2+	1999 11 05	704	0.8-	1.2-
1998 10 13	910	0.5+	1.1+	1998 11 16	566	0.1-	0.3+	1999 11 17	699	1.6+	1.3+
1998 10 13	910	0.4+	1.1+	1998 11 19	691	0.7-	0.0	1999 11 17	699	0.1-	0.9+
1998 10 20	910	(2.2+	1.3+)	1998 11 19	691	0.1+	0.2-	1999 11 17	699	0.7+	0.4+
1998 10 20	910	(2.2+	1.4+)	1998 11 19	691	0.6-	0.0	1999 12 02	699	0.9+	0.8-
1998 10 20	910	(2.0+	1.3+)	1998 11 25	691	0.2+	1.3-	1999 12 02	699	0.5+	0.3+
1998 10 20	691	0.1+	0.4+	1998 11 25	691	0.0	0.1+	1999 12 02	699	0.5-	0.2+
1998 10 20	691	0.2+	0.1+	1998 11 25	691	0.1-	0.1-	1999 12 05	704	0.8+	0.4+
1998 10 20	691	0.4+	0.1+	1999 01 14	691	0.6-	0.1+	1999 12 05	704	0.2+	0.1+
1998 11 10	704	0.2-	0.4-	1999 01 14	691	0.8-	0.0	1999 12 05	704	0.3-	0.3-
1998 11 10	704	0.9+	0.9+	1999 01 14	691	0.5-	0.4+	1999 12 05	704	0.3-	0.2-
1998 11 10	704	0.0	1.3-	1999 10 19	704	0.3-	0.6+	1999 12 05	704	0.3-	0.5-

(12917)* 1998 TG₁₆ = 1992 HY₁

Discovered 1998 Oct. 13 by K. Korlević at Višnja.

Id. B. G. Marsden (*MPC* 33049)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden

<i>M</i>	358.72964		(2000.0)	P	Q
<i>n</i>	0.08141975	ω	227.35570	+0.31739022	-0.94449178
<i>a</i>	5.2720906	Ω	204.52813	+0.91884071	+0.32842461
<i>e</i>	0.0937935	<i>i</i>	11.79306	+0.23451054	-0.00851749
<i>P</i>	12.11	<i>H</i>	11.6	<i>G</i> 0.15	<i>U</i> 0

Residuals in seconds of arc

1951 11 28	675	1.0-	0.5+	1998 10 13	120	0.8+	0.4-	1998 11 10	704	(2.0+	0.0)
1951 11 28	675	1.0+	0.6+	1998 10 14	699	0.8-	0.2+	1998 11 10	704	(5.0-	0.5+)
1982 08 13	413	0.3-	0.0	1998 10 14	699	0.5-	0.0	1998 11 11	704	0.2-	0.4+
1982 08 13	413	1.4+	0.2-	1998 10 14	699	0.3-	0.7+	1998 11 11	704	0.9+	0.8-
1991 02 12	413	1.4-	0.8+	1998 10 20	699	0.8-	1.0+	1998 11 11	704	0.0	0.3+
1991 02 12	413	1.2-	0.8+	1998 10 20	699	0.5+	1.2+	1998 11 11	704	1.2-	1.0-
1992 04 27	691	1.1+	1.1+	1998 10 20	699	0.5+	1.6+	1999 11 05	704	0.2-	0.5+
1992 04 27	691	0.3+	0.8+	1998 10 20	120	1.0+	0.2+	1999 11 05	704	0.7-	0.1+
1992 04 27	691	0.0	1.7+	1998 10 20	120	0.5-	0.4+	1999 11 05	704	0.5-	0.3+
1992 05 06	691	0.7+	0.6+	1998 10 20	120	0.1-	0.0	1999 11 05	704	0.4-	0.5+
1992 05 06	691	0.5+	0.8+	1998 10 20	120	0.9-	0.2+	1999 11 05	704	0.3-	0.1-
1992 05 06	691	0.3+	0.4+	1998 10 27	120	0.1+	0.7-	1999 12 05	704	1.6+	0.2-
1997 10 30	704	(1.5-	2.1+)	1998 10 27	120	0.1-	0.1+	1999 12 05	704	0.6+	0.4+
1997 10 30	704	1.4-	1.6+	1998 11 08	118	1.1+	0.0	1999 12 05	704	1.1-	0.5+
1997 10 30	704	0.7-	1.1+	1998 11 08	118	0.5+	0.1+	1999 12 05	704	0.7+	0.8-
1997 10 30	704	1.4-	0.6+	1998 11 10	704	1.9+	0.5+	1999 12 05	704	(3.4-	0.4+)
1997 10 30	704	1.2-	0.2+	1998 11 10	704	0.2-	0.6-				
1998 10 13	120	0.9+	0.4-	1998 11 10	704	1.1+	1.5-				

(12918)* 1998 UF₂₁ = 1982 VB₂

Discovered 1998 Oct. 29 by K. Korlević at Višnjan.

Id. A. Gnädig (*MPC* 35636), M. E. Sansaturio (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	189.68827		(2000.0)		P		Q
<i>n</i>	0.18974018	ω	223.49437	−0.00874043	+0.98960472		
<i>a</i>	2.9993686	Ω	46.56991	−0.85479796	+0.06709687		
<i>e</i>	0.0656930	<i>i</i>	11.40055	−0.51888732	−0.12720266		
<i>P</i>	5.19	<i>H</i>	12.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1982 11 14	381	0.2+	0.4+	1998 11 11	704	1.0+	1.2−	1999 02 08	704	(2.6−	2.2+)
1982 11 14	381	0.3−	0.7+	1998 11 11	704	1.6−	0.0	1999 02 08	704	0.3+	0.3−
1992 12 16	691	0.8−	1.1+	1998 11 11	704	1.2−	0.3−	1999 02 08	704	(2.7−	1.9+)
1992 12 16	691	1.1−	1.2+	1998 11 11	704	1.6−	0.1−	1999 02 09	704	0.4+	1.2−
1992 12 16	691	0.9−	1.4+	1998 11 12	399	1.1−	2.0−	1999 02 09	704	0.4−	0.3+
1993 12 11	675	0.4−	0.1−	1998 11 12	399	0.0	0.6−	1999 02 09	704	0.4−	1.3+
1993 12 11	675	0.3−	0.9−	1998 11 18	704	0.1+	0.7+	1999 02 09	704	0.9−	1.7+
1997 08 30	566	0.1−	0.4+	1998 11 18	704	0.1−	0.0	1999 02 09	704	0.7−	0.5+
1997 08 30	566	0.0	0.6+	1998 11 18	704	0.5+	0.5−	1999 10 10	699	0.6+	1.1+
1997 08 30	566	0.4−	0.4+	1998 11 18	704	1.0+	0.8−	1999 10 10	699	0.0	0.5−
1998 10 19	699	1.1+	0.6−	1998 11 18	704	1.1+	0.1−	1999 10 10	699	0.2−	0.7+
1998 10 19	699	0.0	0.5−	1998 11 18	399	1.8+	0.8−	1999 10 20	699	0.9+	2.0+
1998 10 19	699	0.6+	0.2−	1998 11 18	399	1.3+	0.2−	1999 10 20	699	0.4+	0.9+
1998 10 29	120	0.0	0.4−	1998 11 21	704	0.8+	0.8+	1999 10 20	699	0.4−	1.2+
1998 10 30	120	0.3+	0.9−	1998 11 21	704	1.1+	0.2+	1999 11 12	699	0.7+	0.9−
1998 10 30	120	0.7+	0.7−	1998 11 21	704	1.0+	0.0	1999 11 12	699	0.8+	0.6−
1998 10 30	120	1.0−	0.8−	1998 11 21	704	1.7+	0.6+	1999 11 12	699	0.3−	0.2−
1998 10 30	120	0.3+	1.2−	1998 11 21	704	1.3+	0.4+	1999 12 08	703	0.2−	0.4+
1998 11 10	704	(2.2−	2.0−)	1998 12 16	699	1.2−	0.6+	1999 12 08	703	0.4−	0.0
1998 11 10	704	1.3−	0.8−	1998 12 16	699	0.2+	0.5+	1999 12 08	703	0.0	0.7+
1998 11 10	704	1.3−	0.6−	1998 12 16	699	0.3+	0.1+	1999 12 08	703	0.2−	0.4+
1998 11 10	704	0.6−	0.6+	1999 02 08	704	0.1+	0.9+				
1998 11 10	704	0.9−	1.7+	1999 02 08	704	1.2−	0.9+				

(12919)* 1998 VB₆ = 1974 QH = 1988 RC₁₄ = 1992 YC₅

Discovered 1998 Nov. 11 by the Catalina Sky Survey.

Id. A. Doppler (*MPC* 33515)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	98.28318		(2000.0)		P		Q
<i>n</i>	0.28759403	ω	66.45632	+0.79697567	+0.59425412		
<i>a</i>	2.2730874	Ω	256.91269	−0.58672887	+0.71914876		
<i>e</i>	0.2181907	<i>i</i>	6.37366	−0.14345384	+0.36012097		
<i>P</i>	3.43	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1974 08 17	095	1.8−	2.1+	1998 07 20	566	0.0	0.1−	1998 11 20	704	1.5−	1.8−
1988 09 15	095	2.1+	1.6+	1998 08 24	704	1.8+	0.3−	1998 11 20	704	0.9−	0.8−
1988 09 15	095	0.7+	2.1+	1998 08 24	704	0.4+	0.1+	1998 12 11	699	0.9+	0.3+
1992 12 30	033	0.6−	0.2−	1998 08 24	704	(0.6−	2.1−)	1998 12 11	699	0.6+	0.0
1992 12 30	033	0.9−	0.8−	1998 08 24	704	0.0	0.7−	1998 12 11	699	0.6+	0.7−
1993 01 01	033	0.7+	0.6−	1998 08 24	704	0.4−	1.4−	1999 10 10	704	0.2−	0.1−
1997 03 13	691	0.2+	1.0−	1998 11 11	703	0.1−	0.1+	1999 10 10	704	0.0	0.4−
1997 03 13	691	0.6+	1.0−	1998 11 11	703	1.0+	0.3−	1999 10 10	704	0.8+	0.7+
1997 03 13	691	0.5+	1.1−	1998 11 11	703	0.6+	0.5−	1999 10 10	704	0.2−	0.0
1998 06 18	699	0.9+	0.3+	1998 11 14	703	0.2+	0.6−	1999 10 21	704	0.1+	0.3−
1998 06 18	699	0.6+	0.1+	1998 11 14	703	0.2−	0.7−	1999 10 21	704	0.3+	0.2+
1998 06 18	699	0.0	0.1−	1998 11 14	703	0.0	0.7−	1999 10 21	704	0.3−	0.5+
1998 06 29	704	0.9+	0.9−	1998 11 17	699	1.4−	0.4−	1999 10 21	704	0.8−	0.2+
1998 06 29	704	0.2+	1.3−	1998 11 17	699	0.8−	0.0	1999 12 06	704	0.5−	0.5+
1998 06 29	704	(1.2+	2.4+)	1998 11 17	699	0.5−	0.5−	1999 12 06	704	0.7−	0.5+
1998 06 29	704	(2.7+	2.3+)	1998 11 17	703	0.2−	0.3−	1999 12 06	704	0.7−	0.4−
1998 06 29	704	(2.5−	4.1+)	1998 11 17	703	1.3+	0.2−	1999 12 06	704	0.7−	0.2−
1998 07 20	566	0.3−	0.1−	1998 11 20	704	0.5−	0.6−	1999 12 06	704	1.6−	0.7−
1998 07 20	566	0.2−	0.1−	1998 11 20	704	1.8−	0.2−				

(12920)* 1998 VM₁₅ = 1957 QA = 1980 KH₂ = 1982 UO₁₀ = 1990 TY₁₃ = 1991 CH₄

Discovered 1998 Nov. 10 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 33318)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	100.70937		(2000.0)		P		Q
<i>n</i>	0.12357965	ω	88.57918	+0.63507748	+0.76903287		
<i>a</i>	3.9918242	Ω	221.14478	−0.74530582	+0.58536994		
<i>e</i>	0.2029315	<i>i</i>	6.33148	−0.20296755	+0.25676933		
<i>P</i>	7.98	<i>H</i>	11.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1957 08 22	024	0.8+	0.7+	1998 11 11	704	0.6−	0.7+	1999 11 04	704	0.3−	0.2+
1980 05 18	808	1.1−	0.4+	1998 11 11	704	1.1+	1.8+	1999 11 04	704	0.0	0.5−
1980 05 18	808	0.9+	1.9+	1998 11 11	704	0.3+	1.4+	1999 11 04	704	0.8−	0.3−
1982 10 24	095	1.3−	0.2−	1998 11 11	704	0.1+	0.8+	1999 11 15	704	(1.4+	2.1−)
1990 10 14	033	0.4−	0.2−	1998 11 11	704	0.1−	0.3+	1999 11 15	704	0.1−	1.3−
1990 10 14	033	0.9−	0.5−	1998 11 15	691	0.1+	0.6−	1999 11 15	704	0.4−	0.3−
1990 10 14	033	1.0−	0.4−	1998 11 15	691	0.1−	0.4−	1999 11 15	704	0.0	0.9−
1991 02 15	493	0.6+	0.1+	1998 11 15	691	0.0	0.5−	1999 11 15	704	0.9−	0.5−
1991 02 15	493	1.1−	1.2−	1998 11 19	691	0.7−	0.0	1999 11 17	704	0.7+	0.3+
1994 03 14	675	0.5−	0.5+	1998 11 19	691	0.8−	0.1−	1999 11 17	704	0.4+	0.0
1994 03 14	675	0.1+	0.4−	1998 11 19	691	0.5−	0.1−	1999 11 17	704	0.2+	0.4+
1997 09 07	910	0.3+	0.5−	1998 11 25	691	0.1+	0.7−	1999 11 17	704	0.6−	1.4+
1997 09 07	910	0.1+	0.5−	1998 11 25	691	0.1−	0.1−	1999 12 01	106	1.3+	1.1+
1997 09 07	910	0.2+	0.4−	1998 11 25	691	0.2−	0.3−	1999 12 01	106	0.6+	0.6−
1998 11 10	704	0.0	0.7+	1998 12 08	699	0.5+	0.2−	1999 12 08	704	0.5+	0.3+
1998 11 10	704	0.8+	0.4+	1998 12 08	699	0.7+	0.3−	1999 12 08	704	0.7+	0.1+
1998 11 10	704	0.1−	0.3+	1998 12 08	699	0.1+	0.2−	1999 12 08	704	0.5−	0.1−
1998 11 10	704	0.2−	0.1−	1999 11 04	704	0.7+	0.2+	1999 12 08	704	0.2+	0.3+
1998 11 10	704	0.2−	1.0+	1999 11 04	704	0.6+	0.0	1999 12 08	704	0.9+	0.1+

(12921)* 1998 WZ₅ = 1986 WH₃ = 1996 RA₃₂

Discovered 1998 Nov. 20 by Y. Shimizu and T. Urata at the Nachi-Katsuura

Observatory.

Id. T. Urata (*MPC* 33522)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	14.67076		(2000.0)		P		Q
<i>n</i>	0.08235543	ω	272.29563	+0.29200603	−0.95347155		
<i>a</i>	5.2320820	Ω	160.22185	+0.94173807	+0.27295396		
<i>e</i>	0.0945215	<i>i</i>	12.80507	+0.16691881	+0.12801619		
<i>P</i>	11.97	<i>H</i>	10.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1986 10 08	675	1.2−	1.9−	1998 11 20	905	1.1−	0.5+	1999 10 10	704	0.2−	0.3+
1986 10 08	675	1.0+	1.1+	1998 11 23	385	0.3+	1.1+	1999 10 10	704	0.5+	0.1+
1986 11 27	033	0.5+	0.4−	1998 11 23	385	0.3−	0.0	1999 10 10	704	0.4+	0.1−
1986 11 27	033	0.2−	0.4+	1998 12 11	385	0.6−	0.4−	1999 10 10	704	0.2−	0.2−
1996 09 14	809	0.3+	0.4+	1998 12 11	385	1.2−	0.1+	1999 10 10	704	0.5−	0.1−
1996 09 15	809	0.3−	0.1−	1998 12 17	699	0.5+	0.1+	1999 10 20	704	0.2+	0.1+
1998 11 13	704	(2.4−	1.3+)	1998 12 17	699	0.2+	0.1+	1999 10 20	704	0.1−	0.0
1998 11 13	704	(2.3−	4.1+)	1998 12 17	699	0.1+	0.0	1999 10 20	704	0.3−	0.7−
1998 11 13	704	(2.4−	1.0+)	1998 12 22	704	2.0+	1.4−	1999 10 20	704	0.0	0.2+
1998 11 13	704	2.0−	0.6+	1998 12 22	704	(2.5+	2.3−)	1999 10 20	704	0.1+	1.1−
1998 11 16	699	1.4+	1.6−	1998 12 22	704	(2.1+	2.4−)	1999 12 05	704	0.5+	1.8+
1998 11 16	699	0.2−	1.0+	1998 12 22	704	1.6+	1.7−	1999 12 05	704	0.1−	0.1+
1998 11 16	699	0.5−	1.2+	1998 12 22	888	0.2+	0.4−	1999 12 05	704	0.2−	0.1−
1998 11 20	905	0.8−	1.1+	1998 12 22	888	0.3+	0.1−				

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	95.57696	(2000.0)	P		Q	
<i>n</i>	0.17378903	ω	266.65189	+0.98915841	-0.05568638	
<i>a</i>	3.1802003	Ω	96.50907	+0.10392503	+0.91920633	
<i>e</i>	0.0635659	<i>i</i>	7.86077	-0.10375561	+0.38981886	
<i>P</i>	5.67	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1975 10 30	033	0.8-	0.4-	1998 10 19	699	1.2+	1.0+	1998 11 27	426	0.1+	0.2-
1975 10 31	033	0.7+	0.4-	1998 11 11	704	0.1+	0.2-	1998 11 28	426	0.0	0.1-
1988 01 12	033	1.3+	0.1+	1998 11 11	704	0.2-	0.1-	1998 11 28	426	0.3+	0.1+
1988 01 12	033	0.5-	0.9+	1998 11 11	704	0.6-	0.1+	1998 11 28	426	0.2-	0.8-
1996 07 14	566	0.1-	0.1+	1998 11 11	704	0.0	0.7-	1998 12 18	426	0.1-	0.2+
1996 07 14	566	0.2-	0.6+	1998 11 11	699	0.7-	0.4-	1998 12 18	426	0.9-	0.1-
1996 07 14	566	0.1-	0.1+	1998 11 11	704	0.6+	0.2+	1998 12 18	426	0.4-	0.5+
1997 08 30	566	0.0	0.4-	1998 11 11	699	0.3+	0.3+	1998 12 20	426	1.4-	0.1-
1997 08 30	566	0.2+	0.2-	1998 11 11	699	0.1-	0.5+	1998 12 20	426	0.4-	0.4-
1997 08 30	566	0.1+	0.3+	1998 11 23	699	0.2-	0.5+	1998 12 20	426	0.9-	0.2-
1997 09 01	566	0.1-	0.6+	1998 11 23	699	0.1-	0.1+	1999 11 16	704	0.9-	0.5+
1997 09 01	566	0.5-	0.3+	1998 11 23	699	0.4-	0.4+	1999 11 16	704	0.5+	0.6+
1997 09 01	566	0.0	0.1-	1998 11 24	704	0.8+	0.1-	1999 11 16	704	0.5-	0.9+
1997 09 02	566	0.0	1.2+	1998 11 24	704	0.4+	0.7-	1999 11 16	704	0.8+	0.2+
1997 09 02	566	0.3+	0.6+	1998 11 24	704	0.0	0.7-	1999 11 16	704	0.3+	0.5+
1997 09 02	566	0.3+	0.2+	1998 11 24	704	1.5+	0.9-	1999 12 09	699	0.9-	0.0
1998 10 19	699	0.4+	1.7+	1998 11 27	426	0.1+	0.6-	1999 12 09	699	1.4+	0.1+
1998 10 19	699	0.3+	0.2+	1998 11 27	426	0.5-	0.4-				

(12923)* 1999 GK₄

Discovered 1999 Apr. 11 by the Lowell Observatory Near-Earth Object Search at the Anderson Mesa Station.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	352.03992	(2000.0)	P		Q	
<i>n</i>	0.35891615	ω	146.61029	+0.70854260	+0.70542808	
<i>a</i>	1.9609840	Ω	168.46826	-0.66591738	+0.67703101	
<i>e</i>	0.4920438	<i>i</i>	5.28138	-0.23349824	+0.20976233	
<i>P</i>	2.75	<i>H</i>	16.1	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1955 04 21	675	0.3-	0.9-	1999 04 18	557	0.2+	0.0	1999 05 12	704	0.7+	0.2+
1955 04 21	675	0.6+	0.6+	1999 04 18	104	0.3+	0.1-	1999 05 12	360	0.4+	0.3-
1988 02 23	413	0.1-	0.6+	1999 04 18	557	0.1+	0.1+	1999 05 12	360	0.4+	0.2-
1988 02 23	413	1.4-	0.3+	1999 04 18	104	(2.1+	0.8+)	1999 05 12	360	0.4+	0.3-
1999 02 17	910	0.3-	0.2-	1999 04 19	118	0.0	0.3+	1999 05 13	610	(0.4-	2.0-)
1999 02 17	910	0.4-	0.6+	1999 04 19	118	0.4+	0.2+	1999 05 13	610	1.2+	0.4-
1999 02 17	910	0.3+	0.2+	1999 04 19	118	0.4+	0.0	1999 05 13	610	(2.8+	1.2+)
1999 03 25	699	0.5-	0.4+	1999 04 19	557	0.5+	0.0	1999 05 14	952	0.1+	0.2-
1999 03 25	699	0.4-	0.7+	1999 04 19	704	0.1+	0.2+	1999 05 15	952	1.0+	0.1+
1999 03 25	699	0.5-	1.8+	1999 04 19	704	0.1+	0.0	1999 05 15	952	1.6+	0.2-
1999 04 11	699	0.6+	0.4+	1999 04 19	704	0.1-	0.9+	1999 05 15	704	0.2-	0.7+
1999 04 11	699	0.1+	0.6+	1999 04 19	704	0.5-	0.0	1999 05 15	704	0.3-	0.5-
1999 04 11	699	0.5+	0.3+	1999 04 19	704	0.5-	0.3+	1999 05 15	704	0.0	0.4-
1999 04 12	758	0.5+	0.0	1999 04 19	422	0.2+	0.9-	1999 05 15	704	0.5-	0.1+
1999 04 12	758	0.3+	0.5+	1999 04 19	422	0.3+	0.3-	1999 05 15	704	0.4+	0.5-
1999 04 12	758	0.6+	0.8+	1999 04 19	422	0.3+	0.4-	1999 05 16	703	0.9+	1.0+
1999 04 12	732	1.2-	0.1+	1999 04 19	557	0.1+	0.2-	1999 05 16	703	0.2+	0.6+
1999 04 12	732	1.4-	0.3+	1999 04 20	557	0.1+	0.0	1999 05 16	703	0.6-	0.1+
1999 04 12	732	0.8-	0.4+	1999 04 20	557	0.0	0.1+	1999 05 16	703	0.9-	0.4-
1999 04 12	859	0.6-	0.2+	1999 04 20	557	0.1-	0.1+	1999 05 19	118	0.1+	0.3+
1999 04 12	859	0.6-	0.1-	1999 04 20	860	1.0-	0.9+	1999 05 19	118	0.1+	0.4+
1999 04 12	859	0.6-	0.0	1999 04 20	860	0.1+	1.3+	1999 05 21	118	1.2+	0.2+
1999 04 12	704	0.2-	0.0	1999 04 20	860	0.6-	0.9+	1999 05 21	118	1.1+	0.2+
1999 04 12	704	0.8-	0.4-	1999 04 20	900	0.1+	0.2+	1999 05 23	658	0.3+	0.3+
1999 04 12	719	0.6+	0.9-	1999 04 20	900	0.0	0.1+	1999 05 23	658	0.2+	0.6+
1999 04 12	704	0.2-	0.3+	1999 04 20	557	0.4+	0.0	1999 05 23	658	0.4+	0.6+
1999 04 12	719	0.1-	1.2+	1999 04 20	557	0.0	0.0	1999 05 23	118	0.7-	0.3+
1999 04 12	704	0.2-	0.4-	1999 04 20	557	0.2+	0.0	1999 05 23	118	0.1+	0.5+

1999 04 12	719	0.1-	0.4+	1999 04 21	557	0.0	0.2+	1999 05 28	118	0.4+	0.3-
1999 04 12	704	0.3+	0.8-	1999 04 22	658	0.2-	0.6+	1999 05 28	118	0.7-	0.2+
1999 04 12	719	0.6+	0.7+	1999 04 22	658	0.2-	0.7+	1999 05 28	118	0.1+	0.3+
1999 04 12	719	0.1+	0.3+	1999 04 22	658	0.2-	0.9+	1999 05 28	046	1.5+	0.1+
1999 04 12	422	0.9-	0.2+	1999 04 23	557	0.7-	0.1-	1999 05 28	046	0.8+	0.2+
1999 04 12	422	1.0-	0.1-	1999 04 24	557	0.6-	0.2+	1999 05 28	046	1.3+	0.1-
1999 04 12	422	0.7-	0.0	1999 04 24	557	0.6-	0.1+	1999 05 28	046	0.9+	0.0
1999 04 12	422	0.6-	0.0	1999 04 25	046	0.1+	0.6+	1999 06 01	428	0.0	1.1+
1999 04 12	557	0.7-	0.1+	1999 04 25	046	0.3+	0.8+	1999 06 04	108	1.3+	0.5-
1999 04 12	557	0.0	0.0	1999 04 25	046	0.0	0.7+	1999 06 04	108	(0.6+	2.6-)
1999 04 12	118	0.3-	0.0	1999 04 25	046	0.1+	0.6+	1999 06 10	860	0.1-	0.2+
1999 04 12	118	0.2-	0.1-	1999 04 26	046	0.5+	0.5+	1999 06 10	860	0.7+	0.1+
1999 04 12	118	0.3-	0.3-	1999 04 26	046	0.5+	0.5+	1999 06 10	860	0.3+	0.0
1999 04 13	758	0.4+	0.7+	1999 05 01	151	0.5+	0.1-	1999 06 12	428	0.5+	0.2+
1999 04 13	758	0.5+	0.6+	1999 05 01	151	1.1-	0.4-	1999 06 12	428	0.1+	0.1-
1999 04 13	758	0.5+	1.0+	1999 05 01	151	0.5-	0.1-	1999 07 02	587	0.2-	0.2-
1999 04 13	428	0.8-	0.0	1999 05 01	151	0.9-	0.1+	1999 07 02	587	0.4-	0.1+
1999 04 13	426	0.1-	0.6+	1999 05 01	151	0.4+	0.9-	1999 07 03	595	0.4-	0.4-
1999 04 13	426	0.3+	0.5+	1999 05 01	151	0.4-	0.0	1999 07 03	595	0.3-	0.1-
1999 04 13	426	0.0	0.4+	1999 05 04	151	0.2+	1.2-	1999 07 03	595	0.5+	0.5-
1999 04 13	422	0.6-	0.3+	1999 05 04	151	0.6-	0.4-	1999 08 01	413	0.5+	0.1+
1999 04 13	422	0.5-	0.2+	1999 05 04	151	1.3-	0.5-	1999 08 01	413	0.0	0.2+
1999 04 13	422	0.5-	0.4+	1999 05 04	151	0.1-	1.0-	1999 08 01	118	0.6+	0.3+
1999 04 13	587	0.6-	0.1+	1999 05 04	151	0.3-	0.6-	1999 08 01	118	0.7+	0.6-
1999 04 13	587	0.6-	0.2+	1999 05 04	151	0.1-	1.1-	1999 08 02	413	0.1+	0.0
1999 04 13	587	0.7-	0.1+	1999 05 04	860	1.0-	1.2+	1999 08 02	413	0.0	0.2+
1999 04 13	108	0.8-	1.4+	1999 05 04	860	0.4-	0.7+	1999 08 05	711	0.5-	0.9-
1999 04 13	108	0.1+	0.6+	1999 05 04	860	1.1-	1.1+	1999 08 05	711	0.0	1.3-
1999 04 13	108	0.5-	1.5+	1999 05 06	711	0.2+	0.8-	1999 08 06	046	0.8+	0.3+
1999 04 13	557	0.0	0.3+	1999 05 06	360	0.4+	0.3-	1999 08 06	046	0.7-	0.3-
1999 04 13	557	0.1-	0.3+	1999 05 06	360	0.5+	0.4-	1999 08 06	046	0.0	0.1+
1999 04 13	557	0.0	0.2+	1999 05 06	360	0.4+	0.5-	1999 08 22	413	0.3-	0.2+
1999 04 14	758	0.2-	0.5-	1999 05 06	151	0.7-	1.6-	1999 08 22	413	0.3-	0.2+
1999 04 14	758	0.2-	0.4+	1999 05 06	151	0.1+	0.8-	1999 09 23	428	0.2+	0.0
1999 04 14	758	(0.3+	3.2+)	1999 05 06	151	0.4-	0.7-	1999 09 23	428	0.1+	0.3-
1999 04 14	758	0.3-	0.6+	1999 05 06	151	0.4-	0.6-	1999 09 23	428	0.4-	0.4+
1999 04 14	844	0.4+	0.0	1999 05 06	151	1.1+	0.7-	1999 10 03	360	0.5-	0.2+
1999 04 14	844	0.8-	0.2+	1999 05 06	151	1.1+	0.4-	1999 10 03	360	0.2-	0.7-
1999 04 14	426	0.2+	0.1+	1999 05 07	711	0.1-	0.7-	1999 10 03	360	0.6-	0.3-
1999 04 14	426	0.4-	0.3+	1999 05 07	711	0.0	0.6-	1999 10 03	118	0.4+	0.5+
1999 04 14	426	0.4+	0.2-	1999 05 07	046	0.7+	0.4+	1999 10 03	118	0.8+	0.1-
1999 04 14	903	0.4-	0.5-	1999 05 07	046	0.0	0.5+	1999 10 03	118	0.0	0.4+
1999 04 14	903	0.8-	0.2-	1999 05 07	046	0.1+	0.5+	1999 10 08	670	0.1-	0.6+
1999 04 14	903	0.4-	0.2-	1999 05 07	046	0.7+	0.4+	1999 10 08	670	1.1-	0.3+
1999 04 14	046	0.9+	0.5+	1999 05 08	703	0.4+	1.2+	1999 10 15	704	0.2-	0.5+
1999 04 14	046	0.8+	0.7+	1999 05 08	703	0.4-	0.3+	1999 10 15	704	0.0	0.1-
1999 04 14	046	0.8+	0.7+	1999 05 08	703	0.3+	0.7+	1999 10 15	704	0.2-	0.4+
1999 04 14	046	0.7+	0.7+	1999 05 08	703	0.6+	0.2+	1999 10 15	704	0.2-	0.2+
1999 04 14	046	1.0+	0.7+	1999 05 08	352	0.1-	1.1-	1999 10 15	704	0.4-	0.2+
1999 04 15	844	0.3+	0.1-	1999 05 08	352	0.3-	1.3-	1999 10 18	670	0.8+	0.9+
1999 04 15	844	0.0	0.1+	1999 05 08	352	0.1-	1.1-	1999 10 18	670	0.0	0.3+
1999 04 15	844	0.2-	0.2+	1999 05 09	703	0.8+	0.4+	1999 10 18	670	0.2+	0.8-
1999 04 15	704	0.7-	0.3+	1999 05 09	703	0.0	0.7+	1999 10 21	402	0.3-	0.1+
1999 04 15	704	0.5+	0.5-	1999 05 09	726	1.8+	1.7-	1999 10 21	402	0.0	0.1+
1999 04 15	704	0.3-	0.1-	1999 05 09	703	0.3+	0.2+	1999 10 21	402	0.5-	0.2-
1999 04 15	704	0.9-	1.0+	1999 05 09	726	1.1+	1.8-	1999 10 25	900	1.0+	1.5+
1999 04 15	704	0.0	0.3-	1999 05 09	726	1.0+	1.9-	1999 10 25	900	0.6-	0.9+
1999 04 15	428	0.3-	0.2-	1999 05 09	703	0.2+	0.6+	1999 11 04	900	1.1-	0.1-
1999 04 15	422	0.3-	0.4-	1999 05 09	610	0.6-	0.5-	1999 11 04	900	0.0	0.5-
1999 04 15	422	0.3-	0.4-	1999 05 09	151	0.1-	1.1-	1999 11 10	704	0.3+	0.3+
1999 04 15	422	0.2-	0.4-	1999 05 09	151	0.0	0.9-	1999 11 10	704	0.2+	0.2+
1999 04 15	428	0.1+	0.4-	1999 05 09	151	0.2+	1.2-	1999 11 10	704	0.7+	0.2+
1999 04 16	704	0.8-	0.2+	1999 05 09	610	0.6-	0.6-	1999 11 10	704	0.5+	0.1-
1999 04 16	704	0.5-	0.9-	1999 05 09	151	0.2+	1.0-	1999 11 10	704	0.2+	0.3-
1999 04 16	704	0.3-	1.7-	1999 05 09	610	0.5-	0.7-	1999 11 16	670	0.3+	0.9+
1999 04 16	704	0.3-	1.1-	1999 05 09	151	(2.3+	1.0-)	1999 11 16	670	0.4+	1.2+
1999 04 16	704	(1.4-	2.1-)	1999 05 09	151	0.8-	0.1-	1999 11 29	108	0.7+	1.1+
1999 04 16	422	0.0	0.1-	1999 05 09	610	0.5-	0.7-	1999 11 29	108	(3.0+	2.2+)

1999 DEC. 22

M.P.C. 37099

1999 04 16	422	0.1+	0.1−	1999 05 09	610	0.5−	0.7−	1999 11 29	108	(1.1−	2.9−)
1999 04 16	422	0.0	0.1−	1999 05 09	118	0.3+	0.3+	1999 12 02	704	0.0	0.3−
1999 04 17	046	0.3+	0.2+	1999 05 09	118	0.2+	0.5+	1999 12 02	704	0.2+	0.8−
1999 04 17	046	0.2+	0.2+	1999 05 12	704	0.2+	0.6−	1999 12 02	704	0.2+	0.9−
1999 04 17	046	0.4+	0.1−	1999 05 12	704	0.9+	0.2−	1999 12 02	704	0.3+	0.8−
1999 04 17	046	0.6+	0.0	1999 05 12	704	0.2+	0.3−				
1999 04 18	557	0.1+	0.1+	1999 05 12	704	0.1−	0.1+				

(12924)* 1999 RK₂₁ = 1998 FD₂₁

Discovered 1999 Sept. 7 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 36393)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.31133738	<i>ω</i>	299.35733	+0.80394372	+0.59437856		
<i>a</i>	2.1559989	<i>Ω</i>	24.19090	−0.52759511	+0.72812675		
<i>e</i>	0.1696896	<i>i</i>	2.75742	−0.27444105	+0.34138771		
<i>P</i>	3.17	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1992 05 08	691	0.3+	1.2+	1999 09 05	699	0.4−	1.3+	1999 10 02	704	0.2−	0.4+
1992 05 08	691	0.3+	0.6+	1999 09 05	699	0.0	1.0+	1999 10 02	704	0.3−	0.2+
1992 05 08	691	0.5+	1.1+	1999 09 07	704	0.3+	0.1−	1999 10 03	699	0.0	0.9+
1996 10 04	691	0.4−	0.8+	1999 09 07	704	0.3−	1.0−	1999 10 03	699	0.2−	0.4+
1996 10 04	691	0.0	0.8+	1999 09 07	704	0.4+	0.2−	1999 10 03	699	0.2−	0.6+
1996 10 04	691	0.1−	0.9+	1999 09 07	704	0.6+	0.1−	1999 10 07	704	0.3−	0.1+
1998 03 20	704	(1.1+	2.7−)	1999 09 07	704	0.1−	0.2+	1999 10 07	704	0.5−	0.0
1998 03 20	704	1.6−	1.1−	1999 09 08	704	0.2+	0.3+	1999 10 07	704	0.4−	0.1−
1998 03 20	704	0.5+	0.3+	1999 09 08	704	0.6+	0.2−	1999 10 07	704	0.5−	0.3+
1998 03 20	704	0.3+	0.4+	1999 09 08	704	0.5+	0.9−	1999 10 07	704	0.3−	0.0
1998 03 20	704	(4.2−	0.9−)	1999 09 08	704	0.6+	0.5−	1999 10 29	691	0.3+	0.1+
1998 03 22	704	1.2−	0.8+	1999 09 08	704	0.8+	0.2−	1999 10 29	691	0.1+	0.1−
1998 03 22	704	(2.6+	0.3+)	1999 09 09	704	0.5+	0.5−	1999 10 29	691	0.1+	0.1+
1998 03 22	704	(1.7+	3.9+)	1999 09 09	704	0.5+	0.5−	1999 11 04	691	0.2+	0.5+
1998 03 22	704	(0.4+	3.2+)	1999 09 09	704	0.4+	0.5−	1999 11 04	691	0.4+	0.3+
1998 03 26	704	0.9+	1.1−	1999 09 09	704	0.6+	0.6−	1999 11 04	691	0.3+	0.4+
1998 03 26	704	0.0	0.7−	1999 09 09	704	0.4+	0.3−	1999 11 07	704	0.2+	0.3−
1998 03 26	704	0.8+	0.4−	1999 09 14	704	1.6−	1.4−	1999 11 07	704	0.1−	1.0−
1998 04 17	691	0.1−	0.2−	1999 09 14	704	0.0	1.0−	1999 11 07	704	0.2−	0.1+
1998 04 17	691	0.5−	0.2−	1999 09 14	704	0.5+	0.8−	1999 11 07	704	0.3+	0.6−
1998 04 17	691	0.5−	0.2+	1999 09 14	704	0.0	0.6−	1999 11 07	704	0.0	0.1−
1998 05 02	691	0.3+	0.0	1999 09 30	723	1.0+	0.6−	1999 11 12	704	0.6−	0.7−
1998 05 02	691	0.5+	0.2+	1999 09 30	723	0.3−	0.3−	1999 11 12	704	0.7−	0.1+
1998 05 02	691	0.4+	0.4+	1999 09 30	723	0.3−	0.1−	1999 11 12	691	0.1+	0.1+
1999 07 16	704	0.5+	0.1−	1999 10 01	723	0.1−	0.1−	1999 11 12	704	0.5−	0.0
1999 07 16	704	0.9+	0.7−	1999 10 01	723	0.1+	0.1−	1999 11 12	691	0.3+	0.2+
1999 07 16	704	0.9+	1.3−	1999 10 01	723	0.2−	0.0	1999 11 12	704	1.2−	0.6+
1999 08 22	703	0.3+	1.4+	1999 10 02	723	0.2+	0.2+	1999 11 12	691	0.2+	0.1+
1999 08 22	703	0.5−	1.0+	1999 10 02	723	0.6+	0.8+	1999 12 07	704	0.5−	0.1+
1999 08 22	703	1.1−	1.3+	1999 10 02	723	1.4−	0.0	1999 12 07	704	0.5+	0.1−
1999 08 22	703	0.7−	1.2+	1999 10 02	704	0.4−	0.2−	1999 12 07	704	0.1−	0.4−
1999 09 05	699	0.1+	1.1+	1999 10 02	704	0.2−	0.1+	1999 12 07	704	0.7+	0.7−

(12925)* 1999 SN₄ = 1980 TL₃ = 1984 UL₅ = 1997 EB₂₈

Discovered 1999 Sept. 29 at Višnjan.

Id. S. Nakano (*MPC* 36834)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25949097	<i>ω</i>	61.24394	+0.28567867	−0.95754461		
<i>a</i>	2.4343772	<i>Ω</i>	12.34151	+0.80400972	+0.21751854		
<i>e</i>	0.1292291	<i>i</i>	10.42578	+0.52149406	+0.18919305		
<i>P</i>	3.80	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1980 10 14	511	0.8+	0.8+	1999 09 29	120	0.2−	0.3+	1999 11 04	703	0.2−	0.3+
1980 10 14	511	0.5−	0.5+	1999 09 29	120	0.6−	0.2+	1999 11 04	703	0.2−	0.6+
1980 10 14	511	1.7−	0.2+	1999 09 30	120	0.5−	0.2+	1999 11 04	703	0.4−	0.3+
1984 10 30	010	0.6+	0.7−	1999 09 30	120	0.3−	0.6+	1999 11 04	703	0.0	0.3+
1995 08 30	809	0.7+	0.3−	1999 10 06	704	0.1−	0.3−	1999 11 12	145	0.0	0.3+
1995 08 31	809	0.9+	0.7−	1999 10 06	704	0.1+	0.3−	1999 11 12	145	0.2−	0.1+
1995 08 31	809	0.2+	0.7+	1999 10 06	704	0.2−	0.3−	1999 11 12	145	0.1+	0.1+
1995 09 01	809	1.2−	0.4+	1999 10 06	704	0.1−	0.2−	1999 11 27	699	0.1+	0.3+
1995 09 29	809	0.1+	0.1−	1999 10 06	704	0.0	0.3−	1999 11 27	699	0.1−	0.7+
1997 03 07	691	0.0	0.1+	1999 10 06	120	1.0+	0.0	1999 11 27	699	0.0	1.4+
1997 03 07	691	0.1+	0.2+	1999 10 06	120	0.3+	0.6−	1999 12 06	704	0.2−	1.5−
1997 03 07	691	0.2+	0.2+	1999 10 07	704	0.1+	0.5−	1999 12 06	704	0.4+	0.4−
1997 03 13	691	0.0	0.1+	1999 10 07	704	0.1−	0.4−	1999 12 06	704	1.2+	0.9−
1997 03 13	691	0.1−	0.2−	1999 10 07	704	0.1+	0.6−	1999 12 06	704	(2.5+	1.7−)
1997 03 13	691	0.3−	0.3−	1999 10 07	704	0.2+	0.3−	1999 12 06	704	0.6+	0.2+
1999 09 05	699	0.1−	0.3+	1999 10 07	704	0.0	0.5−	1999 12 07	699	0.2−	0.3+
1999 09 05	699	0.7+	0.1+	1999 10 07	120	0.5+	0.4−	1999 12 07	699	0.8−	0.3+
1999 09 05	699	0.8−	0.4−	1999 10 07	120	0.2+	0.3−	1999 12 07	699	0.3−	0.4+

(12926)* 1999 SO₉ = 1982 VR = 1989 GM₈ = 1998 HM₄₀

Discovered 1999 Sept. 27 at Takapuna.

Id. S. Nakano (*MPC* 36835)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	327.85743	<i>ω</i>	308.91188	+0.98837072	+0.10639429		
<i>a</i>	2.6898086	<i>Ω</i>	45.28292	−0.03957159	+0.86980852		
<i>e</i>	0.2185352	<i>i</i>	8.79462	−0.14682443	+0.48178148		
<i>P</i>	4.41	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1951 12 01	675	0.1−	0.4−	1998 03 25	704	0.4+	0.0	1998 04 22	704	1.2−	0.6−
1951 12 01	675	0.4−	0.8+	1998 03 29	704	1.4+	0.5+	1998 05 16	704	1.4−	0.3+
1982 11 15	046	(1.6+	5.5−)	1998 03 29	704	0.2+	0.8+	1998 05 16	704	1.1−	0.2+
1982 11 15	046	(1.4+	5.9−)	1998 03 29	704	1.1+	0.2+	1998 05 16	704	0.7−	0.1+
1982 11 16	046	0.7+	1.2−	1998 03 29	704	1.0+	0.0	1998 05 16	704	0.3−	0.0
1982 11 16	046	1.8+	1.6−	1998 03 29	704	0.7+	0.4+	1999 09 27	465	0.0	2.1−
1989 04 06	033	0.2+	0.8+	1998 04 20	704	0.8−	0.4+	1999 09 27	465	0.8+	1.5−
1989 04 07	033	0.0	0.0	1998 04 20	704	(4.1−	0.3+)	1999 10 01	465	(2.6−	0.0)
1989 04 09	033	1.8−	0.3−	1998 04 20	704	0.1−	1.4−	1999 10 01	465	1.8−	0.3−
1989 04 09	033	0.3−	0.6−	1998 04 20	704	0.2+	0.2−	1999 10 01	465	0.5+	0.1−
1997 02 17	327	0.6−	0.9+	1998 04 20	704	1.8−	0.9−	1999 10 03	465	1.0−	0.2−
1997 02 17	327	0.6−	0.0	1998 04 21	704	0.4−	0.2+	1999 10 03	465	0.3−	0.3+
1997 02 17	327	0.7−	0.3+	1998 04 21	704	0.2+	0.7−	1999 10 05	465	0.0	0.5−
1998 03 25	699	1.0+	0.4+	1998 04 21	704	0.6−	0.5+	1999 10 05	465	0.2+	0.5−
1998 03 25	699	1.7+	0.6−	1998 04 21	704	0.2−	0.5−	1999 10 15	413	0.0	0.4−
1998 03 25	699	1.4+	0.5−	1998 04 21	704	0.8−	0.8−	1999 10 15	413	0.0	0.5−
1998 03 25	704	0.7+	0.2−	1998 04 22	704	1.7−	1.1−	1999 10 16	465	1.2+	0.4+
1998 03 25	704	1.5+	0.1−	1998 04 22	704	0.5−	0.4+	1999 10 16	465	1.1−	1.8+
1998 03 25	704	1.4+	0.2−	1998 04 22	704	(2.3−	0.1+)	1999 10 16	465	0.3+	0.8+
1998 03 25	704	1.0+	0.9+	1998 04 22	704	0.2−	0.9−	1999 10 16	465	0.1−	1.8+

(12927)* 1999 SU₉ = 1978 WJ₂₀

Discovered 1999 Sept. 30 by M. Tombelli and L. Tesi at San Marcello Pistoiese.

Id. G. V. Williams (*MPC* 368

Residuals in seconds of arc

1978 11 28	675	1.0−	1.0−	1999 10 04	704	0.5−	0.3+	1999 11 04	703	0.5−	0.1−
1978 11 29	675	1.0+	0.9+	1999 10 06	704	0.1+	0.1−	1999 11 04	703	0.9−	0.3+
1989 12 01	675	0.1−	0.7−	1999 10 06	704	0.2+	0.3−	1999 11 04	703	1.1−	0.2−
1989 12 01	675	0.2−	0.4−	1999 10 06	704	0.2+	0.3−	1999 11 04	703	0.5+	0.7+
1991 03 24	413	1.8−	0.5−	1999 10 06	704	0.1+	0.4−	1999 11 04	703	0.1−	0.4+
1991 03 24	413	0.6−	0.3−	1999 10 06	704	0.4+	0.1−	1999 11 04	703	0.1−	0.0
1991 04 16	413	0.7+	0.2+	1999 10 06	108	0.7+	1.6−	1999 11 04	703	0.5+	0.5−
1991 04 16	413	1.3+	0.2+	1999 10 06	108	1.0−	1.5−	1999 11 04	703	1.5−	0.3−
1999 09 05	699	1.2+	0.7+	1999 10 06	104	0.9+	0.4−	1999 11 27	699	0.5−	0.2−
1999 09 05	699	0.6+	1.6+	1999 10 06	104	0.8+	0.3−	1999 11 27	699	0.4−	0.1+
1999 09 05	699	0.0	0.4−	1999 10 06	104	0.8+	0.4−	1999 11 27	699	1.1+	0.3+
1999 09 30	104	1.7+	0.5−	1999 10 07	704	0.2+	0.6−	1999 12 05	704	0.3−	1.1+
1999 09 30	104	0.1+	0.7−	1999 10 07	704	0.0	0.5−	1999 12 05	704	0.4−	0.3+
1999 10 01	104	0.2−	0.5+	1999 10 07	704	0.5−	0.3−	1999 12 05	704	0.3+	1.0−
1999 10 01	104	0.1−	0.7+	1999 10 07	704	0.1−	1.2−	1999 12 05	704	0.0	0.8+
1999 10 01	104	1.0−	0.4+	1999 10 07	704	0.2+	0.7−	1999 12 07	704	0.0	0.1−
1999 10 02	104	0.4+	1.2+	1999 10 28	104	1.1−	0.3+	1999 12 07	704	0.1+	0.4+
1999 10 04	704	0.4+	0.7+	1999 10 28	104	0.3−	0.4+	1999 12 07	704	1.1+	0.3+
1999 10 04	704	0.7−	0.0	1999 10 28	104	0.0	0.6+	1999 12 07	704	0.3−	0.0
1999 10 04	704	0.0	0.5+	1999 10 28	104	0.1−	0.7+	1999 12 07	704	0.6+	0.2+

(12928)* 1999 SV₉ = 1993 FM₂₆ = 1998 KG₅₅

Discovered 1999 Sept. 30 by A. Boattini and G. Forti at San Marcello Pistoiese.

Id. G. V. Williams (*MPC* 36481)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	32.77555		(2000.0)		P	Q	
n	0.22507022	ω	125.45918	+0.83110161		+0.54873685	
a	2.6766445	Ω	201.70457	−0.55559999		+0.81227333	
e	0.0744611	i	14.13636	−0.02405735		+0.19773697	
P	4.38	H	14.1	G	0.15	U	1

Residuals in seconds of arc

1990 10 12	675	0.6−	1.2−	1999 10 01	104	0.5−	0.0	1999 10 19	120	0.1+	0.0
1990 10 12	675	0.2+	0.4−	1999 10 02	104	1.1−	0.3+	1999 10 19	120	0.3+	0.2−
1990 10 14	675	0.3−	1.0−	1999 10 04	704	1.1+	0.6−	1999 10 28	699	0.6−	0.9+
1990 10 14	675	1.1+	0.2−	1999 10 04	704	0.4−	0.1−	1999 10 28	699	0.4−	0.9+
1993 03 21	809	0.5+	0.3+	1999 10 04	704	0.5−	0.5+	1999 10 28	699	0.4+	0.2−
1993 03 22	809	0.5+	0.7+	1999 10 04	704	0.8−	0.5+	1999 11 01	703	0.5−	0.4−
1993 03 26	809	0.4−	1.4+	1999 10 04	704	0.5−	0.1+	1999 11 01	703	0.0	0.2−
1993 04 21	413	(3.4+)	4.0+)	1999 10 06	704	0.0	0.2+	1999 11 01	703	0.0	0.0
1998 05 23	704	1.0−	0.6+	1999 10 06	704	0.2+	0.0	1999 11 01	703	0.4+	0.1+
1998 05 23	704	(3.3−)	1.1+)	1999 10 06	704	0.1+	0.0	1999 11 06	704	0.6−	0.4+
1998 05 23	704	0.2−	0.1+	1999 10 06	704	0.1−	0.0	1999 11 06	704	0.3−	0.4+
1998 05 23	704	(3.4−)	1.0+)	1999 10 06	704	0.2−	0.2+	1999 11 06	704	0.6−	0.4−
1998 05 26	704	0.6−	1.3+	1999 10 06	108	0.6−	1.9−	1999 11 06	704	0.4−	0.2+
1998 05 26	704	0.3−	0.5+	1999 10 06	108	1.6+	0.7−	1999 11 06	704	0.2+	0.4+
1998 05 26	704	0.1−	0.8+	1999 10 06	108	1.7+	0.3+	1999 11 12	704	0.2+	0.0
1998 05 26	704	0.0	0.8−	1999 10 07	704	0.1+	0.2+	1999 11 12	704	0.8+	0.5−
1998 05 26	704	0.6−	1.3+	1999 10 07	704	0.1−	0.0	1999 11 12	704	0.2+	0.4−
1998 06 19	704	0.9+	0.4−	1999 10 07	704	0.0	0.0	1999 11 12	704	0.6+	0.2−
1998 06 19	704	1.6+	0.3+	1999 10 07	704	0.0	0.3−	1999 11 12	704	0.1+	1.3+
1998 06 19	704	0.6+	0.2−	1999 10 07	704	0.4+	0.4−	1999 11 15	704	0.2+	0.2+
1998 06 19	704	0.2−	0.6−	1999 10 13	699	0.3−	0.7+	1999 11 15	704	0.5−	0.6+
1998 06 19	704	0.4−	0.4−	1999 10 13	699	0.2−	0.2+	1999 11 15	704	0.3+	0.0
1999 09 05	703	0.4−	0.8+	1999 10 13	699	0.5−	0.3+	1999 11 15	704	0.6+	0.1−
1999 09 05	703	0.9+	0.7+	1999 10 16	104	0.1+	0.0	1999 11 15	704	0.2+	0.3−
1999 09 05	703	0.1−	0.8−	1999 10 16	104	0.4+	0.2+	1999 11 27	699	0.5−	0.5+
1999 09 05	703	0.2−	0.7+	1999 10 16	104	0.2+	0.1+	1999 11 27	699	0.5−	0.4+
1999 09 30	104	0.9−	0.6−	1999 10 16	104	0.1+	0.3−	1999 11 27	699	1.8−	1.0+
1999 09 30	104	0.2+	0.4+	1999 10 17	120	0.4−	1.3+				
1999 10 01	104	1.8+	0.1+	1999 10 17	120	0.1+	0.5+				

(12929)* 1999 TZ₁ = 1992 CF₆

Discovered 1999 Oct. 2 by C. W. Juels at Fountain Hills.

Id. DANEOPS (*MPC* 36838)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	9.41505		(2000.0)		P		Q
n	0.08341169	ω	130.19670		+0.79721015		+0.55446767
a	5.1878184	Ω	200.27319		−0.48056146		+0.82225477
e	0.0406577	i	43.56369		+0.36539931		−0.12830706
P	11.82	H	9.3	G	0.15	U	1

Residuals in seconds of arc

1953 09 16	675	1.4−	1.2−	1999 10 02	678	0.4−	0.7−	1999 10 31	678	0.8+	0.2+
1953 09 16	675	0.5+	0.1+	1999 10 02	678	0.1−	0.7−	1999 10 31	678	0.1+	0.2+
1953 12 07	675	0.7+	1.0−	1999 10 03	678	0.1+	0.4−	1999 11 01	719	0.3+	0.0
1953 12 07	675	0.2−	0.6+	1999 10 03	678	0.4+	0.3−	1999 11 01	719	0.4−	0.5+
1979 12 22	413	1.0−	0.8−	1999 10 03	704	0.1−	0.1−	1999 11 02	726	0.1+	0.5+
1979 12 22	413	0.5+	0.0	1999 10 03	704	0.2+	0.0	1999 11 03	726	0.8−	1.0+
1980 01 14	413	0.1−	0.2−	1999 10 03	704	0.2+	0.4+	1999 11 03	726	0.5−	0.2−
1980 01 14	413	0.2+	0.5+	1999 10 03	704	0.2+	0.3+	1999 11 03	719	0.6−	0.4−
1987 08 27	675	0.4−	0.3−	1999 10 03	704	0.3+	0.2−	1999 11 03	719	0.3−	0.4+
1987 08 27	675	0.4+	0.1+	1999 10 15	678	(2.4−)	0.7+)	1999 11 04	704	0.4+	0.4+
1992 02 01	413	0.0	0.5+	1999 10 15	678	0.2+	0.0	1999 11 04	704	0.2+	0.3−
1992 02 01	413	0.6+	0.7+	1999 10 19	678	0.0	0.1+	1999 11 04	704	0.4+	0.4+
1999 09 18	704	0.0	0.2−	1999 10 19	678	0.2−	1.0+	1999 12 06	704	0.2−	1.0+
1999 09 18	704	0.2+	0.0	1999 10 19	678	0.2+	0.0	1999 12 06	704	1.5+	0.1−
1999 09 18	704	0.4+	0.1−	1999 10 21	678	0.5+	0.4−	1999 12 06	704	1.3+	0.3+
1999 09 18	704	0.3+	0.2+	1999 10 21	678	0.4−	0.3−	1999 12 06	704	1.2−	1.1+
1999 09 18	704	0.3+	0.2−	1999 10 21	678	1.4−	0.2−	1999 12 07	846	0.4+	0.6+
1999 09 29	699	0.2+	0.6+	1999 10 28	678	0.8−	0.3+	1999 12 07	846	1.0+	0.7+
1999 09 29	699	0.6−	0.4+	1999 10 28	678	0.3−	0.1+	1999 12 08	846	0.0	0.8−
1999 09 29	699	0.2+	0.5+	1999 10 28	678	0.4−	0.3+	1999 12 08	846	0.0	1.2−
1999 10 02	678	0.4−	0.7−	1999 10 31	678	0.5−	0.5−	1999 12 11	846	0.1+	0.8−

**(12930)* 1999 TJ₆ = 1961 CY = 1982 VC₈ = 1990 FY₄ = 1993 SX₈
= 1996 FS₁₈**

Discovered 1999 Oct. 2 by K. Korlević and M. Jurić at Višnja.

Id. G. V. Williams (*MPC* 36485), M. E. Sansaturio (*MPC* 36840)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	291.42844		(2000.0)		P		Q
n	0.17117844	ω	57.00598		−0.28958077		−0.95695370
a	3.2124522	Ω	49.83945		+0.86941158		−0.27152724
e	0.1580311	i	1.46658		+0.40033296		−0.10253081
P	5.76	H	13.5	G	0.15	U	1

Residuals in seconds of arc

1961 02 15	033	0.9+	0.0	1999 10 03	704	0.4+	0.3−	1999 11 07	120	0.4+	0.1−
1961 02 15	033	1.1−	0.4+	1999 10 03	704	0.7+	0.9−	1999 11 08	120	0.7−	0.1−
1961 02 17	033	(5.6−	1.4+)	1999 10 03	704	0.9+	0.0	1999 11 08	120	0.7−	0.9−
1961 02 17	033	1.4+	0.5+	1999 10 03	704	0.3+	0.4−	1999 11 09	704	0.3−	0.3+
1982 11 09	095	1.7−	2.0−	1999 10 08	120	1.8+	0.5+	1999 11 09	704	0.3+	0.0
1990 03 27	675	(0.1+	2.7−)	1999 10 08	120	0.8+	0.1+	1999 11 09	704	0.1−	0.2+
1990 03 27	675	(0.9+	2.5−)	1999 10 17	120	0.1−	0.1−	1999 11 09	704	0.5−	0.3+
1993 09 17	809	1.3+	0.6+	1999 10 17	120	0.6+	0.1+	1999 11 12	704	0.2+	0.3+
1993 09 17	809	0.9−	0.1−	1999 10 20	120	0.5−	0.0	1999 11 12	704	0.8+	0.1−
1993 09 17	809	1.1−	0.2−	1999 10 20	120	1.6+	0.2+	1999 11 12	704	0.7+	0.2+
1993 09 18	809	1.1+	0.6−	1999 10 27	120	1.0−	0.2−	1999 11 12	704	0.3+	0.3+
1993 09 18	809	0.6+	0.3+	1999 10 27	120	(2.1+	1.8−)	1999 11 12	704	0.4+	0.1−
1993 09 18	809	0.3−	0.5−	1999 10 29	703	0.3−	1.0+	1999 11 16	704	0.3+	0.3+
1993 09 18	691	0.1−	0.3−	1999 10 29	703	0.4−	0.5+	1999 11 16	704	0.0	0.6+
1993 09 18	691	0.4−	0.1−	1999 10 29	703	0.2−	0.3+	1999 11 16	704	0.7+	0.0
1993 09 18	691	0.3+	0.1+	1999 10 29	703	0.2−	0.3+	1999 11 16	704	0.2−	0.2−
1996 03 24	809	1.9+	0.7+	1999 11 03	699	1.4−	0.1+	1999 11 16	704	0.3+	0.0
1996 03 24	809	1.4−	0.0	1999 11 03	699	0.3−	1.5+	1999 11 26	120	0.3−	0.1−
1996 03 24	809	0.8−	0.0	1999 11 03	699	0.4−	0.2−	1999 11 26	120	1.1−	0.2−
1996 03 26	809	0.1+	0.5+	1999 11 03	703	0.1−	0.8+	1999 11 26	120	1.8+	0.3−
1996 03 26	809	0.5−	0.4−	1999 11 03	703	(2.1−	0.3−)	1999 12 04	699	1.0−	1.1+
1996 03 26	809	0.8+	0.3+	1999 11 03	703	0.1+	0.4+	1999 12 04	699	1.0−	0.9+

1999 DEC. 22

M.P.C. 37101

1998 08 17	704	1.6+	0.5+	1999 11 03	703	0.3-	0.2+	1999 12 04	699	1.1-	0.3+
1998 08 17	704	1.4-	0.7+	1999 11 04	704	0.5-	0.4-	1999 12 07	704	0.6+	0.5+
1998 08 17	704	0.1-	1.2+	1999 11 04	704	0.3-	0.0	1999 12 07	704	0.1-	0.3+
1998 08 17	704	(2.3+ 2.8-)		1999 11 04	704	0.2-	0.1-	1999 12 07	704	0.6-	0.7-
1998 08 17	704	(3.5- 1.3-)		1999 11 04	704	0.1-	0.2+	1999 12 07	704	0.9-	1.8-
1999 10 02	120	0.2+	0.8+	1999 11 04	704	0.0	1.0-	1999 12 07	704	0.8-	1.1-
1999 10 02	120	0.1+	0.1-	1999 11 07	120	1.0+	0.4+				
1999 10 03	704	0.3+	0.1+	1999 11 07	120	0.3-	0.4-				

(12931)* 1999 TX₁₀ = 1972 TT₁₀ = 1988 GV₁ = 1992 CV = 1998 MJ₄₇

Discovered 1999 Oct. 7 by S. Sposetti at Gnosca.

Id. G. V. Williams (*MPC* 36843)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	295.84485		(2000.0)	P	Q
<i>n</i>	0.22020362	ω	322.05973	+0.06592358	-0.99663066
<i>a</i>	2.7159373	Ω	124.10957	+0.92929702	+0.04351134
<i>e</i>	0.0079147	<i>i</i>	3.37893	+0.36340215	+0.06952764
<i>P</i>	4.48	<i>H</i>	13.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1972 10 09	033	0.7+	0.4-	1998 07 01	809	0.3+	0.3+	1999 10 27	143	0.3+	0.2+
1972 10 09	033	0.8+	0.9-	1999 10 02	703	0.4-	0.1+	1999 10 27	143	0.0	0.7+
1972 10 09	033	0.1+	0.9-	1999 10 02	703	0.4-	0.5+	1999 10 27	143	0.1-	0.0
1972 10 09	033	0.2-	1.3-	1999 10 02	703	0.3-	0.8-	1999 10 30	703	0.5-	0.2+
1988 04 09	054	0.6-	0.9+	1999 10 02	703	0.1+	0.5+	1999 10 30	703	0.7-	0.2-
1992 02 06	303	1.0+	0.1-	1999 10 07	143	(6.7- 1.4-)		1999 10 30	703	0.4-	0.2-
1992 02 07	303	0.1+	0.5+	1999 10 07	143	(8.1- 1.6-)		1999 10 30	703	1.5-	0.0
1998 06 24	704	(2.4+ 1.0+)		1999 10 07	143	(8.4- 1.0-)		1999 10 31	143	0.0	0.2+
1998 06 24	704	(3.1+ 0.3-)		1999 10 09	143	0.0	0.5+	1999 10 31	143	0.1+	0.1-
1998 06 24	704	(2.8- 0.8+)		1999 10 09	143	0.1-	0.2+	1999 10 31	143	0.2+	0.0
1998 06 24	704	0.8-	1.7+	1999 10 09	143	0.9-	0.2+	1999 12 04	699	0.2-	0.4-
1998 06 28	809	0.4-	0.1+	1999 10 12	143	0.7+	0.2+	1999 12 04	699	0.2-	0.2+
1998 06 28	809	0.4+	0.2-	1999 10 12	143	0.6+	0.2+	1999 12 04	699	0.2-	0.4-
1998 06 28	809	0.4+	0.1-	1999 10 12	143	0.6+	0.0	1999 12 05	704	(0.7+ 2.3+)	
1998 07 01	809	0.1+	0.2+	1999 10 12	143	0.4+	0.1-	1999 12 05	704	0.2+	1.4+
1998 07 01	809	0.0	0.7+	1999 10 27	143	0.6+	0.5+	1999 12 05	704	0.1+	1.4+

(12932)* 1999 TC₁₂ = 1991 ND₅ = 1997 CV₁₃ = 1998 HT₉₁

Discovered 1999 Oct. 10 by S. Sposetti at Gnosca.

Id. A. Doppler (*MPC* 36844), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	13.72928		(2000.0)	P	Q
<i>n</i>	0.26109811	ω	232.38793	+0.97173750	+0.22970256
<i>a</i>	2.4243774	Ω	114.27406	-0.19337637	+0.90681944
<i>e</i>	0.2052193	<i>i</i>	3.42330	-0.13539504	+0.35343349
<i>P</i>	3.77	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1991 07 10	809	0.4-	0.6-	1998 04 22	704	(2.9+ 0.8-)		1999 10 12	143	0.0	0.4+
1991 07 10	809	0.1+	0.9-	1998 04 22	704	(0.3+ 3.1+)		1999 10 14	143	0.8-	1.0-
1991 07 10	809	0.3+	1.2-	1998 04 22	704	0.5+	0.4-	1999 10 14	143	(1.0- 2.1-)	
1991 07 11	809	0.4-	0.5+	1998 04 22	704	1.3-	1.2+	1999 10 27	143	0.5+	0.7+
1991 07 11	809	0.0	0.6+	1998 04 22	704	0.5+	1.0+	1999 10 27	143	1.2+	0.6+
1991 07 11	809	0.5+	0.8+	1998 05 01	704	0.6+	1.1+	1999 10 27	143	0.3+	0.8+
1995 08 29	809	0.0	0.5-	1998 05 01	704	1.6-	0.4+	1999 10 28	143	0.5+	1.3-
1995 08 30	809	0.2+	0.7-	1998 05 01	704	0.6+	0.3+	1999 10 28	143	0.8-	0.6-
1997 02 06	566	0.1-	0.2+	1998 05 01	704	0.3-	0.1-	1999 10 28	143	0.5+	0.9-
1997 02 06	566	0.0	0.0	1998 05 22	704	(2.8- 0.0)		1999 10 30	703	1.7-	0.5+
1997 02 06	566	0.3+	0.0	1998 05 22	704	(2.7- 3.3+)		1999 10 30	703	0.2-	0.5+
1997 02 09	046	0.1+	0.3-	1998 05 22	704	0.9-	0.4+	1999 10 30	703	0.5-	0.3+
1997 02 09	046	0.0	0.1-	1998 05 22	704	(4.8- 2.3+)		1999 10 30	703	0.5-	0.5-
1997 02 09	046	0.4-	0.6-	1999 10 07	704	0.4-	0.3-	1999 10 31	143	0.1+	0.2+
1997 02 10	046	0.2+	0.3-	1999 10 07	704	0.3-	0.2+	1999 10 31	143	0.0	0.2+
1997 02 10	046	0.6+	0.1-	1999 10 07	704	0.2-	0.2+	1999 10 31	143	0.1+	0.5+
1997 02 10	046	1.1-	0.5-	1999 10 07	704	0.4-	0.1+	1999 10 31	143	0.1+	0.3+

1997 02 10	046	1.0-	0.3-	1999 10 10	143	0.0	0.3-	1999 12 04	699	0.2-	0.3+
1997 02 10	046	0.6+	0.5-	1999 10 10	143	0.4+	0.3+	1999 12 04	699	0.3-	0.3+
1998 04 21	704	0.4+	0.6+	1999 10 10	143	0.1+	0.2-	1999 12 04	699	0.2-	0.5+
1998 04 21	704	0.1+	0.5-	1999 10 10	143	0.1+	0.3-	1999 12 05	704	1.6+	0.8+
1998 04 21	704	0.4+	1.6-	1999 10 11	143	0.4-	0.1+	1999 12 05	704	1.0+	0.5+
1998 04 21	704	1.4+	0.3-	1999 10 11	143	0.4-	0.8-	1999 12 05	704	(0.9+ 3.2+)	
1998 04 21	704	0.5+	0.5+	1999 10 12	143	0.5+	0.5+				

(12933)* 1999 TC₁₆ = 1989 TW₁₀ = 1992 OU₈ = 1998 HQ₄₄

Discovered 1999 Oct. 14 at Farra d'Isonzo.

Id. S. Nakano (*MPC* 36846)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	1.78840		(2000.0)	P	Q
<i>n</i>	0.29642438	ω	168.98051	+0.99726477	+0.07379683
<i>a</i>	2.2277175	Ω	186.79145	-0.07018825	+0.92805825
<i>e</i>	0.1573286	<i>i</i>	1.99866	-0.02316445	+0.36505057
<i>P</i>	3.32	<i>H</i>	14.9	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1989 10 08	403	(1.2+ 3.8+)		1998 04 20	704	1.0+	0.5-	1999 10 20	595	0.2+	0.7-	
1989 10 08	403	1.5+	0.0	Y	1998 04 20	704	1.5+	1.9+	1999 11 02	703	0.1-	0.1-
1989 10 08	403	1.6-	0.0		1998 04 20	704	1.6+	1.0-	1999 11 02	703	0.4-	0.5+
1992 07 24	809	0.8-	0.7-		1998 04 20	704	(2.8- 0.3+)		1999 11 02	703	0.4+	0.1+
1992 07 24	809	0.1-	0.8-		1998 04 21	704	1.5+	0.6-	1999 11 02	703	0.3-	0.0
1992 07 24	809	0.3+	1.0-		1998 04 21	704	0.0	0.9+	1999 11 08	595	0.7-	0.1+
1992 07 26	809	0.1-	1.0+		1998 04 21	704	0.2+	1.1-	1999 11 08	595	0.2-	0.6+
1992 07 26	809	0.2+	1.1+		1998 04 21	704	1.3-	0.3-	1999 11 12	704	0.4+	1.0+
1992 07 26	809	0.6+	1.3+		1998 04 21	704	0.4+	0.3+	1999 11 12	704	0.1+	0.4+
1998 03 25	704	0.1-	1.7+		1998 04 22	704	1.3-	0.8-	1999 11 12	704	0.4+	0.4+
1998 03 25	704	1.0-	0.6+		1998 04 22	704	0.3+	1.2+	1999 11 12	704	0.3+	0.4+
1998 03 25	704	0.3+	0.6-		1998 04 22	704	0.2-	0.1-	1999 11 12	704	0.0	0.1-
1998 03 25	704	0.4+	0.2-		1998 04 22	704	0.1-	0.6+	1999 12 07	704	0.5-	0.2+
1998 03 25	704	(5.7- 1.9-)			1998 04 22	704	(0.7- 2.4+)		1999 12 07	704	0.5+	0.6+
1998 03 29	704	1.5-	0.7-		1999 10 14	595	1.0-	0.0	1999 12 07	704	0.1+	0.4+
1998 03 29	704	0.0	1.9+		1999 10 14	595	0.9-	0.0	1999 12 07	704	0.3+	0.1+
1998 03 29	704	1.7-	0.0		1999 10 14	595	0.2-	0.1-	1999 12 07	704	1.0+	0.4+
1998 03 29	704	(0.5- 2.5+)			1999 10 14	595	0.4-	0.2-				
1998 03 29	704	1.0+	0.6+		1999 10 19	595	0.3+	0.6-				

(12934)* 1999 TH₁₆ = 1984 BQ₂ = 1998 HX₉₈

Discovered 1999 Oct. 11 by C. W. Juels at Fountain Hills.

Id. A. Doppler (*MPC* 36847)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	19.53091		(2000.0)	P	Q
<i>n</i>	0.29826460	ω	266.79086	+0.98445308	+0.17140955
<i>a</i>	2.2185450	Ω	83.33695	-0.14188861	+0.90476086
<i>e</i>	0.1013894	<i>i</i>	2.21292	-0.10353629	+0.38990583
<i>P</i>	3.30	<i>H</i>	15.1	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1984 01 25	675	0.5+	0.7-	1998 05 22	704	1.1-	0.6-	1999 10 31	678	0.2-	0.3-
1984 01 26	675	0.8-	0.4-	1998 05 22	704	0.5-	0.2-	1999 10 31	678	1.6-	0.1-
1996 12 08	327	0.0	0.4-	1998 05 22	704	0.2-	1.3+	1999 10 31	678	0.2+	0.3-
1996 12 08	327	0.1-	0.4-	1998 05 22	704	0.9-	0.9+	1999 11 04	704	0.2-	0.3-
1996 12 08	327	0.2+	0.4-	1998 05 22	699	0.9+	0.2-	1999 11 04	704	0.1-	0.2-
1998 04 21	704	0.1+	0.4+	1998 05 22	699	0.1-	1.0+	1999 11 04	704	0.5-	0.1+
1998 04 21	704	0.3-	0.3-	1998 05 22	699	(0.5+ 4.6-)		1999 11 04	704	0.1-	0.3-
1998 04 21	704	0.3-	0.2+	1998 05 24	704	(3.0+ 1.0-)		1999 11 04	704	0.4+	0.7-
1998 04 21	704	0.1+	0.7+	1998 05 24	704	0.4-	1.5-	1999 12 06	704	0.2-	0.5+
1998 04 21	704	0.5-	0.1-	1998 05 24	704	0.4+	0.0	1999 12 06	704	0.4+	0.9-
1998 04 22	704	0.0	0.5+	1998 05 24	704	0.2+	1.1-	1999 12 06	704	0.5-	0.9-
1998 04 22	704	1.0+	0.6+	1999 10 11	678	0.5+	0.7-	1999 12 07	704	0.2+	0.2+
1998 04 22	704	0.1+	0.6+	1999 10 11	678	0.3+	1.2-	1999 12 07	704	0.6+	0.2+
1998 04 22	704	0.3-	0.5+	1999 10 12	678	1.4+	0.0	1999 12 07	704	0.2+	0.6+
1998 04 22	704	1.0-	0.5-	1999 10 12	678	1.6+	1.2-	1999 12 07	704	0.0	0.2+

1998 05 01	704	0.8+	0.4−	1999 10 12	678	1.0+	0.1−	1999 12 07	704	0.3+	0.1+
1998 05 01	704	0.6+	0.4−	1999 10 15	678	(2.5−	0.9−)	1999 12 12	703	0.3−	0.8+
1998 05 01	704	0.8+	0.5−	1999 10 15	678	0.6−	0.7−	1999 12 12	703	1.4−	1.2+
1998 05 01	704	0.7+	0.6−	1999 10 19	678	0.7+	1.8+	1999 12 12	703	1.6−	1.3+
1998 05 22	704	(2.7−	2.0−)	1999 10 19	678	0.1+	0.8+	1999 12 12	703	1.2−	1.4+

(12935)* 1999 TV₁₇ = 7584 P-L = 1982 YL₃ = 1998 KB₆₃

Discovered 1999 Oct. 2 by the Beijing Schmidt CCD Asteroid Program at Xinglong.

Id. A. Doppler (*MPC* 36847), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams		
<i>M</i>	98.21545	(2000.0)	P	Q	
<i>n</i>	0.27977561	ω	230.83176	−0.01477838	+0.99789708
<i>a</i>	2.3152407	Ω	38.46407	−0.88324858	+0.01655650
<i>e</i>	0.0978209	<i>i</i>	5.82330	−0.46867211	−0.06266814
<i>P</i>	3.52	<i>H</i>	14.9	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1960 10 17	675	0.9−	0.3−	1999 10 02	327	0.6+	0.7+	1999 11 04	704	0.3+	0.6+
1960 10 22	675	0.0	0.0	1999 10 02	327	0.2−	0.0	1999 11 04	704	0.6−	0.3+
1960 10 25	675	0.2−	0.9+	1999 10 02	327	0.5−	0.5+	1999 11 04	704	0.0	0.5−
1960 10 26	675	0.2+	1.1+	1999 10 07	327	0.1+	0.1+	1999 11 11	703	0.2+	0.4−
1982 12 22	095	0.3+	1.2+	1999 10 07	327	0.1+	0.0	1999 11 11	703	1.4−	0.1+
1998 05 22	704	0.3+	0.3−	1999 10 07	327	0.3+	0.1+	1999 11 11	703	1.4−	0.1+
1998 05 22	704	0.2−	0.4+	1999 10 28	327	0.2+	0.4−	1999 11 11	703	0.9+	0.7−
1998 05 22	704	0.2+	0.6−	1999 10 28	327	0.1+	0.2−	1999 12 07	704	0.1+	0.1+
1998 05 22	704	0.9+	1.4−	1999 10 28	327	1.3+	0.6+	1999 12 07	704	0.9+	0.5−
1998 05 24	704	0.6−	0.1−	1999 10 29	327	0.7−	0.4−	1999 12 07	704	0.3+	0.4−
1998 05 24	704	0.7+	1.6+	1999 10 29	327	0.4+	0.2−	1999 12 07	704	0.2−	0.7−
1998 05 24	704	0.2−	0.2+	1999 10 29	327	1.5+	0.6−	1999 12 07	704	0.2−	1.3−
1998 05 24	704	0.1−	0.9−	1999 11 04	704	0.4−	0.1−				
1998 05 24	704	1.2−	0.4+	1999 11 04	704	0.4−	0.2+				

(12936)* 2549 P-L = 1998 SM₂₂

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. E. Bowell (*MPC* 32727), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams		
<i>M</i>	336.70332	(2000.0)	P	Q	
<i>n</i>	0.20685413	ω	284.24384	−0.03392533	−0.99939274
<i>a</i>	2.8315654	Ω	167.69207	+0.93073587	−0.03449139
<i>e</i>	0.0343650	<i>i</i>	2.13781	+0.36411512	−0.00494994
<i>P</i>	4.76	<i>H</i>	13.8	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1960 09 24	675	0.1−	0.5−	1998 09 16	699	0.7+	0.6−	1998 10 14	704	0.2+	0.3−
1960 09 26	675	0.4+	0.8−	1998 09 18	704	0.4−	0.3−	1998 10 14	704	(1.6+	2.6+)
1960 09 28	675	0.0	0.5+	1998 09 18	704	0.9−	1.0−	1998 10 14	704	(0.8−	3.1+)
1960 09 29	675	0.4+	0.0	1998 09 18	704	0.0	1.0−	1998 10 14	704	0.1−	0.4−
1960 10 17	675	1.0−	0.8−	1998 09 18	704	0.4+	0.8−	1998 10 15	704	0.4+	0.3−
1960 10 22	675	0.1+	0.7+	1998 09 18	704	0.1+	0.6−	1998 10 15	704	0.4−	0.1+
1960 10 25	675	0.0	0.1−	1998 09 23	120	1.1−	0.2+	1998 10 15	704	(1.4−	2.3+)
1960 10 26	675	0.2+	0.9+	1998 09 23	120	0.9−	0.1−	1998 10 15	704	0.7−	1.6−
1996 03 17	566	0.9−	0.0	1998 09 23	120	0.8−	0.5−	1998 10 15	704	0.6−	1.4−
1996 03 17	566	0.5−	0.1−	1998 09 24	120	0.6+	0.0	1998 10 18	910	0.7+	0.9+
1996 03 17	566	0.2−	1.8−	1998 09 24	120	0.2−	0.2−	1998 10 18	910	0.8+	1.1+
1996 04 20	566	0.8+	0.0	1998 09 24	120	(2.1−	2.6−)	1998 10 18	910	0.8+	1.0+
1996 04 20	566	0.3+	0.4+	1998 09 25	699	0.5−	0.5+	1998 11 22	725	0.1−	0.8+
1996 04 20	566	0.2+	0.4+	1998 09 25	699	0.1+	0.7+	1998 11 22	725	0.0	0.3+
1996 04 22	566	(2.5+	0.0)	1998 09 25	699	0.1+	0.2+	1998 11 22	725	0.4+	0.7+
1996 04 22	566	(2.8+	0.3−)	1998 09 26	704	0.8−	0.4+	1998 11 26	725	(2.2+	1.0+)
1996 04 22	566	(2.8+	0.4−)	1998 09 26	704	(2.6−	0.1−)	1998 11 26	725	0.0	0.3+
1998 08 30	691	0.4−	0.6+	1998 09 26	704	0.3−	0.8−	1999 10 22	704	0.5+	0.2−
1998 08 30	691	0.3−	0.5+	1998 09 26	704	0.9−	0.9−	1999 10 22	704	0.2−	0.5+
1998 08 30	691	0.4−	0.4+	1998 09 26	704	1.7−	1.0+	1999 10 22	704	0.5+	0.1−

1998 09 13	691	0.3+	0.4−	1998 09 27	704	0.5−	0.2+	1999 10 22	704	1.0+	0.2−
1998 09 13	691	0.3+	0.3−	1998 09 27	704	0.3+	0.4+	1999 10 22	704	0.1+	0.6−
1998 09 13	691	0.3+	0.4−	1998 09 27	704	1.1−	0.9+	1999 12 07	704	0.2−	0.7−
1998 09 14	704	1.0+	0.2−	1998 09 27	704	0.7−	1.3+	1999 12 07	704	0.2+	0.4+
1998 09 14	704	1.4+	0.6−	1998 09 27	704	0.3−	0.8+	1999 12 07	704	0.4−	0.7+
1998 09 14	704	1.2+	1.5−	1998 09 29	120	0.6+	0.3+	1999 12 07	704	0.0	0.2−
1998 09 14	704	0.8+	0.4−	1998 10 12	910	0.6+	0.3+	1999 12 08	704	0.2−	0.2+
1998 09 14	704	0.3+	0.3−	1998 10 12	910	0.8+	0.4+	1999 12 08	704	0.1−	0.5−
1998 09 16	699	0.1+	0.4−	1998 10 12	910	0.7+	0.2+	1999 12 08	704	0.4−	0.1−
1998 09 16	699	0.3−	0.3−	1998 10 14	704	1.1+	1.2+	1999 12 08	704	0.4−	0.2+

(12937)* 3024 P-L = 1993 OO₇

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 25435)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams		
<i>M</i>	249.03265	(2000.0)	P	Q	
<i>n</i>	0.23269389	ω	252.27080	−0.98194771	+0.05809135
<i>a</i>	2.6178578	Ω	290.75383	+0.03031708	−0.89103432
<i>e</i>	0.1834091	<i>i</i>	11.09887	−0.18670715	−0.45020354
<i>P</i>	4.24	<i>H</i>	13.4	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1960 09 24	675	0.5+	0.4+	1993 07 20	809	0.4−	0.6+	1998 09 19	704	0.3−	0.6+
1960 09 24	675	0.1+	0.0	1993 07 20	809	1.3−	0.6+	1998 10 15	699	1.3+	0.2+
1960 09 25	675	0.2+	0.5+	1993 07 20	809	0.0	0.9−	1998 10 15	699	0.4+	1.5+
1960 09 25	675	0.0	0.5−	1993 07 20	809	0.0	0.2−	1999 10 14	704	0.3−	0.4−
1960 09 26	675	0.1+	0.7−	1993 07 20	809	0.5−	0.8−	1999 10 14	704	0.1+	0.9−
1960 09 26	675	0.5+	0.1+	1993 07 24	809	0.1+	0.7−	1999 10 14	704	0.4+	1.8−
1960 09 27	675	0.4−	0.6−	1998 08 24	704	0.7+	0.2−	1999 10 14	704	0.6+	0.4+
1960 09 28	675	0.8−	0.2+	1998 08 24	704	0.3−	0.2−	1999 10 14	704	0.3+	0.4−
1960 09 28	675	0.4+	0.8−	1998 08 24	704	2.0−	0.4−	1999 12 01	106	0.3−	0.4+
1989 08 01	675	0.7+	1.0−	1998 08 24	704	0.2+	0.1−	1999 12 01	106	0.7−	0.2−
1989 08 01	675	0.1+	0.2−	1998 08 24	704	0.8−	1.9+	1999 12 12	704	0.1+	1.0+
1993 07 13	809	1.0+	0.4+	1998 08 27	704	0.4−	0.4−	1999 12 12	704	0.0	0.3+
1993 07 13	809	0.8+	0.5+	1998 08 27	704	0.6−	0.3−	1999 12 12	704	0.1−	0.5+
1993 07 13	809	0.7+	0.2+	1998 08 27	704	0.3+	0.5−	1999 12 12	704	0.5+	1.2+
1993 07 13	809	(2.1+	3.7+)	1998 08 27	704	0.4+	0.1−	1999 12 12	704	0.4−	0.8+
1993 07 13	809	(2.4+	2.9+)	1998 08 27	704	(2.3−	1.4−)	1999 12 13	715	0.7+	2.0−
1993 07 13	809	(1.3+	3.7+)	1998 09 19	704	0.1+	0.2−	1999 12 13	715	0.9−	0.3−
1993 07 20	809	0.3−	0.7+	1998 09 19	704	0.7−	0.9+				

(12938)* 4161 P-L = 1992 BU

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. A. Milani (*MPC* 25336)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams		
<i>M</i>	274.93318	(2000.0)	P	Q	
<i>n</i>	0.23007560	ω	156.78427	−0.70631874	−0.70633033
<i>a</i>	2.6376814	Ω	338.05721	+0.62815127	−0.59473934
<i>e</i>	0.1424867	<i>i</i>	7.22935	+0.32640439	−0.38390438
<i>P</i>	4.28	<i>H</i>	14.3	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1960 09 24	675	0.3+	0.3+	1992 02 08	399	0.1−	0.8+	1999 11 28	106	0.2−	0.4−
1960 09 25	675	0.6+	0.5−	1992 02 08	399	(2.1−	0.7+)	1999 11 28	106	0.7−	0.9−
1960 09 26	675	0.2−	0.5−	1998 08 17	704	0.2+	1.5+	1999 11 30	106	0.1+	0.9+
1960 10 22	675	0.1−	0.3−	1998 08 17	704	0.9+	0.9−	1999 11 30	106	0.2−	0.1+
1992 01 28	399	0.2−	1.5−	1998 08 17	704	0.3+	0.8−	1999 12 05	699	0.6+	0.1+
1992 01 28	399	0.6+	0.9−	1998 08 17	704	0.5−	1.5−	1999 12 05	699	0.0	0.7+
1992 01 29	399	(2.6−	0.0)	1999 10 14	704	0.4+	0.8−	1999 12 05	699	0.1+	0.1+
1992 01 29	399	1.2−	1.2−	1999 10 14	704	0.3+	0.1+	1999 12 07	703	0.4−	0.0
1992 02 05	399	(4.2+	0.9−)	1999 10 14	704	0.4+	0.1+	1999 12 07	703	0.1−	0.2+
1992 02 05	399	(3.4+	1.4−)	1999 10 14	704	0.4+	0.5+	1999 12 07	703	0.7−	0.1+

1992 02 05 372 0.4- 0.8- 1999 10 14 704 0.2- 0.7+ 1999 12 07 703 0.3- 0.0
 1992 02 05 372 0.0 1.2+ 1999 11 28 106 0.1+ 0.3-

(12939)* 4206 P-L = 1981 QQ₃

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld
 on Palomar Schmidt plates taken by T. Gehrels.

Id. H. Kaneda (*MPC* 16034)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	51.82606	(2000.0)	P	Q	
<i>n</i>	0.28009709	ω	328.55662	+0.75385775	+0.65612049
<i>a</i>	2.3134688	Ω	350.20655	-0.55252256	+0.60447362
<i>e</i>	0.1719085	<i>i</i>	11.77254	-0.35555212	+0.45179370
<i>P</i>	3.52	<i>H</i>	14.6	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1960 09 24	675	0.4-	0.2+	1981 09 03	809	0.1-	0.8-	1988 09 12	675	0.6-	1.5+
1960 09 25	675	0.1+	0.7+	1981 09 03	809	0.0	1.1-	1988 09 12	675	0.6-	1.1+
1960 09 25	675	0.9-	0.4-	1981 09 04	809	1.0+	0.0	1997 02 06	046	0.1+	0.0
1960 09 26	675	0.5-	0.8-	1981 09 04	809	0.7+	0.1-	1997 02 06	046	0.3-	0.2+
1960 09 26	675	0.6-	0.1+	1981 09 04	809	0.7+	0.7-	1997 02 06	046	0.4+	0.1-
1960 09 28	675	0.3+	1.0-	1981 09 05	809	1.1-	1.0-	1997 02 06	046	0.2+	0.1-
1960 09 28	675	2.3+	0.1-	1981 09 05	809	0.6-	0.9-	1997 02 07	046	0.1-	0.3-
1981 08 26	809	1.1-	0.4+	1981 09 05	809	0.6-	1.9-	1997 02 07	046	0.3-	0.4-
1981 08 26	809	0.2-	0.7+	1981 09 05	809	0.3-	0.4-	1997 02 07	046	0.4+	0.1+
1981 08 26	809	0.1+	0.3+	1981 09 05	809	0.2-	0.9-	1999 11 01	704	0.0	0.7+
1981 08 27	809	0.4+	0.9+	1981 09 05	809	0.8-	0.1-	1999 11 01	704	0.2-	0.8+
1981 08 27	809	0.6+	0.8+	1981 09 06	809	0.4+	1.0+	1999 11 01	704	0.2+	0.7+
1981 08 27	809	0.8+	0.7+	1981 09 06	809	0.8+	0.3+	1999 11 01	704	0.2+	0.9+
1981 08 31	809	0.8+	0.5+	1981 09 06	809	1.4+	0.7+	1999 11 01	704	0.0	0.6+
1981 08 31	809	0.9+	0.3+	1981 09 06	809	0.8-	0.4-	1999 12 12	704	0.3+	0.2+
1981 08 31	809	1.0+	0.9+	1981 09 06	809	0.9-	0.1-	1999 12 12	704	0.3+	0.2-
1981 09 02	809	0.4-	0.3-	1981 09 06	809	0.1+	0.4-	1999 12 12	704	0.4-	0.6-
1981 09 02	809	0.6+	0.5-	1987 02 25	801	0.3-	0.0	1999 12 12	704	(2.4-	0.5-)
1981 09 02	809	1.0+	0.3-	1988 08 16	675	0.7-	0.4+	1999 12 12	704	1.0-	1.5-
1981 09 03	809	0.5-	0.5-	1988 08 16	675	1.3-	0.2+				

(12940)* 4588 P-L = 1995 QC

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld
 on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 25645)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Nakano			
<i>M</i>	48.14772	(2000.0)	P	Q	
<i>n</i>	0.28067862	ω	143.51954	+0.87967984	+0.47536084
<i>a</i>	2.3102722	Ω	188.13386	-0.45634992	+0.83549726
<i>e</i>	0.1762857	<i>i</i>	5.67061	-0.13382124	+0.27563818
<i>P</i>	3.51	<i>H</i>	15.0	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1960 09 24	675	0.5+	1.4-	1998 04 22	704	(1.5-	2.9+)	1999 11 04	704	0.4+	0.3-
1960 09 25	675	0.2+	0.3-	1998 05 05	426	0.6+	0.1-	1999 11 04	704	0.7+	0.4+
1960 09 26	675	0.2-	0.0	1998 05 05	426	0.9+	0.6+	1999 11 04	704	0.2-	0.3-
1960 09 26	675	0.1+	0.5-	1998 05 05	426	0.5-	0.1-	1999 11 04	704	0.3+	0.6-
1960 09 27	675	0.6+	0.0	1998 05 16	426	0.9-	0.4-	1999 11 04	704	0.6+	0.1+
1960 09 28	675	0.1+	0.4-	1998 05 16	426	0.0	0.1-	1999 12 06	704	0.1+	0.2-
1960 09 28	675	0.5-	0.1+	1998 05 16	426	0.3-	0.2+	1999 12 06	704	0.1-	0.3-
1960 10 17	675	0.0	0.9+	1998 05 22	704	0.8+	0.9-	1999 12 06	704	0.3+	0.4-
1960 10 22	675	0.3-	0.5+	1998 05 22	704	0.4-	0.2-	1999 12 06	704	0.9-	0.1-
1960 10 25	675	0.3-	1.3+	1998 05 22	704	0.9-	0.2+	1999 12 06	704	0.1-	0.3+
1960 10 26	675	0.4-	0.5+	1998 05 22	704	0.2-	0.1-	1999 12 07	704	0.2+	0.5-
1988 09 10	675	0.9+	0.7-	1998 05 24	704	1.2+	0.2+	1999 12 07	704	0.1+	0.4-
1988 09 10	675	0.4-	1.4-	1998 05 24	704	0.6+	0.3+	1999 12 07	704	0.2+	0.2+
1995 08 17	367	0.4-	0.4+	1998 05 24	704	(0.5-	2.4+)	1999 12 07	704	0.1-	0.0
1995 08 17	367	0.4+	0.6+	1998 05 24	704	0.5-	1.0+	1999 12 08	704	0.1-	0.1-
1995 08 18	367	0.1-	0.3-	1998 05 24	704	2.0-	0.3-	1999 12 08	704	0.1-	0.1-
1995 08 18	367	0.2-	0.9+	1999 10 10	704	0.3-	0.5+	1999 12 08	704	0.3-	0.0

1998 04 22 704 1.5+ 0.6+ 1999 10 10 704 0.8- 0.5+ 1999 12 08 704 0.4- 0.1-
 1998 04 22 704 0.1- 0.1+ 1999 10 10 704 0.0 0.1+ 1999 12 08 704 0.0 0.4-
 1998 04 22 704 0.4- 0.5+ 1999 10 10 704 0.7+ 1.2+
 1998 04 22 704 0.5+ 2.0- 1999 10 10 704 0.0 0.0

(12941)* 4638 P-L = 1997 GT₅

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld
 on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 29648)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	51.53240	(2000.0)	P	Q	
<i>n</i>	0.23002481	ω	199.84601	+0.92330271	+0.38356871
<i>a</i>	2.6380696	Ω	137.58233	-0.34832375	+0.85784608
<i>e</i>	0.0858681	<i>i</i>	1.67157	-0.16181061	+0.34201629
<i>P</i>	4.28	<i>H</i>	15.0	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1960 09 24	675	0.2-	1.0-	1997 04 08	104	0.9+	1.0-	1999 11 28	049	0.7+	0.9+
1960 09 26	675	0.3-	0.2-	1997 04 09	104	0.3+	0.1-	1999 11 28	049	0.8+	0.6+
1960 09 27	675	1.3+	1.1+	1997 04 09	104	0.1+	0.6-	1999 11 29	049	0.2+	0.2-
1960 09 28	675	0.5+	0.6+	1997 04 09	104	0.6-	0.8-	1999 11 29	049	0.5+	0.4-
1960 10 17	675	1.6-	0.7+	1997 04 10	104	0.4-	0.0	1999 11 29	049	0.2+	0.3+
1960 10 22	675	0.2+	1.6-	1997 04 10	104	0.3-	0.1-	1999 12 07	704	1.2-	0.8-
1960 10 25	675	0.7+	0.6-	1997 04 10	104	0.0	0.0	1999 12 07	704	1.1-	0.2+
1960 10 26	675	0.3+	1.2-	1997 04 10	104	0.8-	0.0	1999 12 07	704	0.1+	0.2-
1994 09 03	809	0.2+	0.5+	1997 04 14	104	1.0-	1.2+	1999 12 07	704	0.6-	0.2-
1994 09 03	809	0.0	0.6+	1997 04 14	104	1.0-	1.3+	1999 12 08	704	0.9-	0.4-
1994 09 03	809	0.1-	1.2-	1997 04 14	104	0.6-	1.1+	1999 12 08	704	0.2+	0.0
1997 03 14	691	0.8+	0.4-	1999 11 15	704	0.1-	0.3-	1999 12 08	704	0.2+	0.1-
1997 03 14	691	0.8+	0.6-	1999 11 15	704	0.4-	0.5-	1999 12 08	704	0.0	0.5+
1997 03 14	691	0.7+	0.5-	1999 11 15	704	0.4+	0.1+	1999 12 08	704	0.2-	0.9-
1997 04 08	104	0.3+	0.4-	1999 11 15	704	0.4+	0.3+	1999 12 12	691	0.0	0.3+
1997 04 08	104	0.0	1.1-	1999 11 15	704	0.1-	0.4-	1999 12 12	691	0.1-	0.4+
1997 04 08	104	0.3-	0.2-	1999 11 28	049	0.8+	0.6+	1999 12 12	691	0.0	0.4+

(12942)* 6054 P-L = 1993 RD₇

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld
 on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 23985)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	13.00486	(2000.0)	P	Q	
<i>n</i>	0.18001546	ω	181.90802	+0.89035366	-0.45436558
<i>a</i>	3.1064391	Ω	205.17831	+0.41858926	+0.84176316
<i>e</i>	0.2058060	<i>i</i>	3.86482	+0.17903463	+0.29152480
<i>P</i>	5.48	<i>H</i>	14.0	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1955 12 11	675	0.4-	0.6-	1993 09 18	675	0.5-	0.1-	1999 11 15	704	0.4-	0.3-
1960 09 24	675	0.5-	0.1+	1993 09 22	809	0.1-	0.1-	1999 11 15	704	0.4+	0.8-
1960 09 25	675	1.3+	0.1-	1993 09 22	809	0.5-	0.8-	1999 11 15	704	0.8-	0.5-
1960 09 26	675	0.8+	0.1+	1993 09 22	809	0.9-	1.0-	1999 11 15	704	0.6-	0.8-
1960 09 28	675	0.0	0.1-	1993 09 22	675	1.0-	1.4-	1999 11 17	704	0.5-	0.1+
1960 10 17	675	1.0-	0.3-	1993 09 22	675	0.0	0.8-	1999 11 17	704	0.1-	0.0
1960 10 22	675	0.3-	0.7+	1993 09 24	809	0.9-	0.9+	1999 11 17	704	0.3-	0.3+
1960 10 24	675	0.7-	0.6+	1993 09 24	809	1.6-	0.9-	1999 11 17	704	0.2-	0.3-
1960 10 26	675	0.5+	0.2+	1993 09 24	809	(2.4-	0.6-)	1999 11 17	704	0.2+	0.2-
1993 09 15	809	1.4+	1.5+	1998 08 17	704	0.4+	0.7-	1999 12 07	106	0.9+	0.8+
1993 09 15	809	1.2+	1.5+	1998 08 17	704	(0.3+	2.3-)	1999 12 07	106	0.5-	0.1+
1993 09 15	809	0.9+	1.4+	1998 08 17	704	0.9+	1.2-	1999 12 07	106	0.4-	0.3+
1993 09 17	809	(2.3+	2.3+)	1998 08 17	704	0.7-	0.6-	1999 12 08	704	0.3+	0.0
1993 09 17	809	(2.9+	2.5+)	1999 11 04	704	1.4+	0.3+	1999 12 08	704	0.5+	0.0
1993 09 17	809	(1.7+	3.1+)	1999 11 04	704	0.4-	0.2+	1999 12 08	704	0.1+	0.1-
1993 09 18	809	(4.4+	4								

1993 09 18 809 (2.5+ 4.0+) 1999 11 04 704 0.0 0.2−
 1993 09 18 675 1.1+ 0.9+ 1999 11 15 704 0.5− 0.6−

(12943)* 6670 P-L = 1977 RX₁₁

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld
 on Palomar Schmidt plates taken by T. Gehrels.

Id. E. Bowell (*MPC* 17976)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23200746	ω	119.90233	−0.64706441	−0.76233282		
<i>a</i>	2.6230189	Ω	10.44643	+0.67359046	−0.57926886		
<i>e</i>	0.1300206	<i>i</i>	3.95394	+0.35718838	−0.28861090		
<i>P</i>	4.25	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1960 09 24	675	0.3+	0.5−	1998 08 17	704	0.6+	1.2+	1999 11 14	704	0.2+	0.7+
1960 09 26	675	0.5−	0.7−	1998 08 17	704	1.6−	1.6+	1999 11 16	704	0.6+	0.9+
1960 09 27	675	0.6+	0.0	1998 08 17	704	(3.0− 1.6+)		1999 11 16	704	0.0	0.5+
1960 10 17	675	0.1−	0.6+	1998 09 27	704	1.4−	0.3−	1999 11 16	704	0.1−	0.8+
1960 10 22	675	0.8−	0.2−	1998 09 27	704	0.2+	0.8−	1999 11 16	704	0.5−	0.5+
1960 10 26	675	1.2+	1.1−	1998 09 27	704	1.6+	0.0	1999 11 16	704	0.1+	0.5+
1977 09 09	675	0.4+	2.0−	1998 09 27	704	(1.6− 2.1−)		1999 11 30	596	0.5−	0.1−
1977 09 10	675	1.0+	0.0	1998 09 27	704	0.1−	0.3+	1999 11 30	596	0.6−	0.9−
1992 04 06	809	0.7−	0.0	1999 11 14	704	0.2−	0.1+	1999 11 30	596	0.7−	0.4−
1996 02 20	608	0.3+	1.6−	1999 11 14	704	0.0	0.6+	1999 12 07	106	0.5−	0.0
1996 02 20	608	0.1+	1.5−	1999 11 14	704	0.4+	0.0	1999 12 07	106	0.8+	0.7−
1998 08 17	704	0.2+	0.8−	1999 11 14	704	0.3+	0.5+				

(12944)* 6745 P-L = 1993 TH₁₈

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld
 on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 23130)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17936673	ω	324.02277	−0.23547816	−0.97160925		
<i>a</i>	3.1139248	Ω	139.58300	+0.89974083	−0.22685671		
<i>e</i>	0.1467079	<i>i</i>	2.02627	+0.36744588	−0.06716775		
<i>P</i>	5.49	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1960 09 24	675	0.1−	1.1+	1996 04 18	809	0.7−	0.3+	1999 11 17	704	0.2+	0.0
1960 09 26	675	0.2−	0.1+	1996 04 18	809	0.4+	1.0+	1999 11 17	704	0.2+	0.4+
1960 09 27	675	1.6+	1.7+	1996 04 18	809	0.0	0.4+	1999 11 17	704	0.8−	0.0
1960 09 28	675	1.2+	0.1−	1998 09 14	704	(2.9− 0.2+)		1999 11 17	704	0.5−	0.6−
1960 10 17	675	0.8−	1.5−	1998 09 14	704	(0.7+ 2.8−)		1999 12 05	120	0.5+	0.4−
1960 10 22	675	1.7−	0.8−	1998 09 14	704	1.3−	0.4−	1999 12 05	120	0.7−	0.4−
1960 10 26	675	1.4−	1.1−	1998 09 14	704	(5.0− 1.6+)		1999 12 07	106	0.2+	1.8+
1993 10 09	809	(4.0+ 1.1+)		1998 09 25	704	1.3−	0.2+	1999 12 07	106	0.4−	1.0+
1993 10 09	809	(3.0+ 0.5+)		1998 09 25	704	1.7−	0.4+	1999 12 07	106	0.8+	0.6−
1993 10 09	809	(2.6+ 1.1+)		1998 09 25	704	0.1+	0.7−	1999 12 07	704	0.4−	0.5+
1993 10 11	809	(3.7+ 0.6+)		1999 11 03	704	0.5−	1.9−	1999 12 07	704	0.8+	0.0
1993 10 11	809	2.0+	0.6+	1999 11 03	704	0.1−	0.2+	1999 12 07	704	0.4+	0.3−
1993 10 11	809	(3.1+ 0.3+)		1999 11 03	704	0.6−	0.2−	1999 12 07	704	0.3+	0.0
1993 10 20	809	1.6+	0.2−	1999 11 15	704	0.2+	0.5+	1999 12 07	704	0.0	0.4−
1993 10 20	809	1.3+	0.1−	1999 11 15	704	0.5−	0.8+	1999 12 08	704	0.3−	0.1−
1993 10 20	809	1.6+	0.2−	1999 11 15	704	0.3−	0.0	1999 12 08	704	0.1+	0.1−
1996 04 17	809	0.6+	0.3−	1999 11 15	704	0.2−	0.3+	1999 12 08	704	0.0	0.1−
1996 04 17	809	0.2+	1.2−	1999 11 15	704	0.2−	0.4+	1999 12 08	704	0.5−	0.4−
1996 04 17	809	0.3−	1.6−	1999 11 17	704	0.3−	0.2−	1999 12 08	704	0.0	0.0

(12945)* 9534 P-L = 1978 GW₃ = 1997 GH₆

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld
 on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 29937)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26042726	ω	63.02223	−0.56787807	+0.82307893		
<i>a</i>	2.4285390	Ω	172.36240	−0.77367898	−0.53066007		
<i>e</i>	0.1334234	<i>i</i>	3.21508	−0.28095432	−0.20233872		
<i>P</i>	3.78	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1960 09 24	675	0.5+	0.3+	1998 09 25	691	1.0+	0.2−	1998 10 17	046	0.8−	0.2+
1960 10 17	675	0.3−	1.0+	1998 09 25	699	0.4+	0.2+	1998 10 17	046	0.2+	0.2+
1960 10 22	675	0.8−	1.0−	1998 09 25	691	0.4+	0.2−	1998 10 17	046	1.3+	0.1+
1960 10 24	675	1.7+	0.3+	1998 09 25	699	0.1−	0.8−	1998 10 28	704	(2.1− 0.8+)	
1960 10 26	675	0.9+	1.0−	1998 09 25	691	0.3+	0.2−	1998 10 28	704	0.3+	1.5+
1978 04 11	095	1.6−	0.9+	1998 09 25	699	0.5+	0.3+	1998 10 28	704	0.2−	1.3+
1997 04 02	704	0.6+	0.9+	1998 09 26	704	0.6−	0.4+	1999 10 10	704	1.0−	0.5−
1997 04 02	704	0.5−	1.4+	1998 09 26	704	1.1−	1.1−	1999 10 10	704	0.3−	1.6+
1997 04 06	704	0.2−	1.0+	1998 09 26	704	0.6−	0.8−	1999 10 10	704	0.4−	1.2+
1997 04 06	704	0.5−	0.5+	1998 09 26	704	0.3+	0.6−	1999 10 21	704	0.3−	0.0
1997 04 07	704	0.1+	0.0	1998 09 26	704	0.3+	0.1+	1999 10 21	704	0.0	0.7+
1997 04 07	704	0.1+	1.0+	1998 09 27	704	0.3−	0.1+	1999 10 21	704	0.8−	0.3−
1997 04 08	704	0.3−	0.4+	1998 09 27	704	0.6−	0.5+	1999 12 05	704	0.4+	0.4+
1997 04 08	704	0.1−	0.4+	1998 09 27	704	0.6+	0.1+	1999 12 05	704	0.0	0.7−
1997 05 01	910	0.4+	0.6−	1998 09 27	704	0.1−	1.8+	1999 12 05	704	0.5+	0.2−
1997 05 01	910	0.4+	0.6−	1998 09 27	704	1.2+	0.5+	1999 12 05	120	0.3−	0.2+
1997 05 01	910	0.4+	0.4−	1998 10 13	046	0.4−	0.1+	1999 12 06	120	0.2+	0.0
1997 05 02	910	0.5+	0.2−	1998 10 13	046	0.1+	0.1+	1999 12 06	120	0.6−	0.2−
1997 05 02	910	0.6+	0.2−	1998 10 13	046	0.0	0.2+	1999 12 06	120	0.7+	0.4−
1997 05 03	910	0.5+	0.3−	1998 10 15	704	1.0+	0.5+	1999 12 07	120	0.9+	0.1−
1998 09 14	704	0.3+	0.7−	1998 10 15	704	1.8+	0.4+	1999 12 07	704	0.4−	0.0
1998 09 14	704	0.4+	1.6−	1998 10 15	704	1.0−	1.2−	1999 12 07	704	0.1−	0.2−
1998 09 17	699	0.6−	0.0	1998 10 15	704	0.3−	1.4+	1999 12 07	704	0.5+	0.6−
1998 09 17	699	0.3−	0.2+	1998 10 15	704	0.0	0.7+	1999 12 07	704	1.1+	0.1−
1998 09 17	699	1.0−	0.8−	1998 10 16	046	0.0	0.5+	1999 12 07	704	1.0−	0.5−
1998 09 18	704	1.5−	1.0−	1998 10 16	046	0.0	0.1+	1999 12 08	704	0.2+	0.6+
1998 09 18	704	1.1−	0.8−	1998 10 16	046	0.1+	0.1−	1999 12 08	704	0.4+	0.1+
1998 09 18	704	1.6−	0.3−	1998 10 17	699	0.8−	1.3+	1999 12 08	704	0.0	0.5+
1998 09 18	704	1.3−	0.5+	1998 10 17	699	0.4−	0.4+	1999 12 08	704	0.1+	0.2−
1998 09 18	704	(3.6− 1.2+)		1998 10 17	699	0.6+	0.7+	1999 12 08	704	0.0	0.1−

(12946)* 1290 T-1 = 1997 GE₁₃

Discovered 1971 Mar. 25 by C. J. van Houten and I. van Houten-Groeneveld
 on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 30682)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26592957	ω	282.20152	−0.45745635	−0.88878813		
<i>a</i>	2.3949234	Ω	195.11720	+0.85199904	−0.42903652		
<i>e</i>	0.0670121	<i>i</i>	6.18448	+0.25461995	−0.16119344		
<i>P</i>	3.71	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1971 03 24	675	0.5−	0.8−	1997 03 13	809	1.2+	1.6+	1998 09 17	910	1.2+	0.4+
1971 03 25	675	1.9+	0.3−	1997 03 13	809	0.5+	1.3+	1999 10 10	704	0.7−	0.5−
1971 03 25	675	0.7+	1.6−	1997 04 03	704	0.2−	0.3+	1999 10 10	704	0.4+	0.3+
1971 03 25	675	0.4−	0.9−	1997 04 03	704	0.8+	0.6+	1999 10 10	704	0.6+	0.3−
1971 03 26	675	(1.8+ 2.7−)		1997 04 05	704	0.8−	1.0+	1999 10 10	704	0.2−	0.8−
1971 03 26	675	0.9−	0.6−	1997 04 05	704	0.2−	0.9+	1999 10 10	704	0.4−	0.5−
1971 03 26	675	0.5−	1.6−	1997 04 05	704	0.4−	0.6+	1999 10 21	704	0.6−	0.3+
1971 03 27	675	(4.9+ 4.1−)		1997 04 05	704	0.6−	0.4+	1999 10 21	704	0.2−	0.7+
1971 04 02	675	2.1−	0.8−	1997 04 06	704	0.1+	0.5+	1999 10 21	704	0.4−	0.6+
1971 04 16	675	0.6−	1.7−	1997 04 06	704	0.3−	1.0+	1999 12 06	704	0.1+	0.8−
1971 04 16	675	1.2−	2.2−	1997 04 07	704	0.1+	0.7+	1999 12 06	704	0.1+	1.4−
1971 05 13	675	0.0	0.1−	1997 04 07	704	0.7+	0.6−	1999 12 06	704	0.4−	0.3+
1971 05 14	675	0.1−	0.1+	1998 08 17	704	1.4−	0.3+	1999 12 06	704	0.1+	0.4−
1971 05 16	675	0.4+	0.0	1998 08 17	704	0.6−	0.2−	1999 12 13	106	0.2−	0.8+

1997 03 11	809	(1.9+ 2.9+)	1998 08 17	704	0.2+ 1.4-	1999 12 13	106	1.1+ 0.4+
1997 03 11	809	2.0+ 1.5+	1998 08 17	704	0.8- 1.4-	1999 12 13	106	0.1+ 0.9+
1997 03 11	809	(1.9+ 2.6+)	1998 09 17	910	1.1+ 0.6+			
1997 03 13	809	(0.9+ 2.6+)	1998 09 17	910	1.2+ 0.6+			

(12947)* 3099 T-1 = 1992 RX₂

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. B. G. Marsden (*MPC* 21123)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29863164	ω	102.24817	+0.19400236	-0.98026492		
<i>a</i>	2.2167268	Ω	336.46196	+0.85901404	+0.18845659		
<i>e</i>	0.1101076	<i>i</i>	5.45966	+0.47376994	+0.05970587		
<i>P</i>	3.30	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1971 03 25	675	1.3+ 0.8+	1997 01 12	566	0.3- 1.0-	1999 11 30	106	0.1- 0.1-
1971 03 26	675	0.8- 0.4-	1997 01 12	566	0.1- 1.1-	1999 11 30	106	0.1- 0.1+
1971 03 26	675	0.8- 1.3+	1997 01 12	566	0.3- 0.9-	1999 11 30	106	0.2- 0.3+
1971 03 27	675	(1.3- 2.7+)	1999 10 05	704	0.1+ 0.6-	1999 12 01	718	0.6- 0.4+
1971 04 16	675	(0.6- 3.4-)	1999 10 05	704	0.5+ 0.0	1999 12 01	718	0.5- 0.0
1971 04 16	675	0.0 2.1-	1999 10 05	704	0.3+ 0.2+	1999 12 01	718	0.1- 0.4+
1971 05 13	675	0.4- 0.2-	1999 10 05	704	0.4+ 0.2-	1999 12 04	718	0.7- 0.4-
1971 05 14	675	0.2+ 0.2-	1999 10 05	704	0.1+ 0.5+	1999 12 04	718	0.8- 0.2-
1992 09 02	809	1.2+ 0.7-	1999 10 08	719	1.6+ 0.3-	1999 12 04	718	0.6- 0.4-
1992 09 02	809	0.5+ 0.5-	1999 10 08	719	(1.4+ 2.4-)	1999 12 05	699	0.1- 0.4+
1992 09 02	809	0.2- 1.1-	1999 10 14	704	(0.2- 2.2-)	1999 12 05	699	0.1+ 0.4+
1992 09 03	809	0.0 0.5-	1999 10 14	704	1.1+ 1.7+	1999 12 05	699	0.5+ 0.2+
1992 09 20	399	1.1- 0.4+	1999 10 14	704	(3.7+ 2.3+)	1999 12 07	703	0.0 0.1-
1992 09 20	399	(0.1- 2.7-)	1999 10 15	704	0.3+ 0.2-	1999 12 07	703	0.0 0.1-
1992 09 22	809	1.2+ 0.1-	1999 10 15	704	0.4+ 0.0	1999 12 07	703	0.3- 0.1-
1992 09 22	809	0.2- 0.1+	1999 10 15	704	0.5+ 0.4-	1999 12 07	703	0.1- 0.1-
1992 09 22	809	0.3- 0.1-	1999 10 15	704	0.0 0.6+	1999 12 13	703	0.1- 0.2-
1992 09 23	809	0.4+ 0.2-	1999 11 28	106	0.2- 0.0	1999 12 13	703	0.0 0.2-
1992 09 23	809	0.3+ 0.3-	1999 11 28	106	0.1- 0.1-	1999 12 13	703	0.0 0.0
1992 09 23	809	0.2- 0.1+	1999 11 28	106	0.2- 0.1+	1999 12 13	703	0.4- 0.0

(12948)* 4273 T-1 = 1998 PK₁

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. A. Milani (*MPC* 34269)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19551717	ω	312.59680	+0.02817222	-0.99719489		
<i>a</i>	2.9399917	Ω	135.64337	+0.94371197	+0.00366115		
<i>e</i>	0.1141541	<i>i</i>	5.69241	+0.32956645	+0.07475920		
<i>P</i>	5.04	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1971 03 24	675	1.9+ 2.2-	1998 08 17	704	0.3+ 0.8+	1999 10 20	699	1.0- 0.4-
1971 03 26	675	0.0 0.0	1998 08 17	426	0.6+ 0.1+	1999 10 20	699	0.7- 1.0+
1971 03 26	675	0.0 0.2-	1998 08 17	426	0.3+ 0.1-	1999 11 05	704	0.8- 0.3+
1971 03 27	675	1.9- 1.6-	1998 08 17	426	0.3+ 0.2+	1999 11 05	704	0.3+ 0.1-
1971 04 02	675	0.6- 2.4+	1998 08 18	426	0.4- 0.2+	1999 11 05	704	0.2+ 0.7-
1997 05 30	910	0.3+ 0.6+	1998 08 18	426	0.4- 0.2+	1999 11 05	704	0.5- 0.2+
1997 05 30	910	0.3+ 0.7+	1999 10 10	704	0.6+ 0.8+	1999 11 05	704	0.7- 0.6+
1997 05 30	910	0.1- 1.1+	1999 10 10	704	1.3+ 0.5-	1999 12 04	699	0.0 1.4+
1998 08 15	426	0.6+ 1.0-	1999 10 10	704	0.3- 0.7+	1999 12 04	699	0.3- 1.1+
1998 08 15	426	0.5- 1.3-	1999 10 10	704	0.9+ 0.0	1999 12 04	699	1.0- 0.6+
1998 08 15	426	0.1+ 0.3-	1999 10 10	704	0.9- 0.4-	1999 12 05	704	(2.5- 0.3-)
1998 08 16	426	0.2+ 0.6-	1999 10 20	704	0.6+ 0.0	1999 12 05	704	(2.4+ 0.9-)
1998 08 16	426	0.5+ 1.1-	1999 10 20	704	1.8+ 0.2-	1999 12 05	704	1.2+ 0.0
1998 08 17	704	(0.7+ 2.3-)	1999 10 20	704	1.9+ 0.5-	1999 12 05	704	1.1+ 0.6-
1998 08 17	704	1.7- 0.0	1999 10 20	704	0.9- 0.0	1999 12 05	704	1.6- 1.3-

1998 08 17	704	0.6+ 0.6+	1999 10 20	699	0.4- 0.3-
1998 08 17	704	0.3- 0.8+	1999 10 20	704	0.6- 0.5-

(12949)* 4290 T-1 = 1998 RP₇₆

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. E. Bowell (*MPC* 33056), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.15965136	ω	222.07421	-0.41200598	+0.90691972		
<i>a</i>	3.3652782	Ω	24.00035	-0.76765545	-0.29344403		
<i>e</i>	0.1272846	<i>i</i>	12.49796	-0.49087289	-0.30230319		
<i>P</i>	6.17	<i>H</i>	11.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1971 03 24	675	(0.2+ 2.7-)	1998 09 18	704	0.1+ 0.4-	1998 10 15	704	0.1+ 0.7-
1971 03 26	675	0.8- 0.0	1998 09 18	704	0.1- 0.3+	1998 10 15	704	0.0 0.4+
1971 03 26	675	0.1- 1.1-	1998 09 18	704	0.3+ 0.2+	1998 10 15	704	1.9- 0.3-
1971 03 27	675	(1.0- 2.8-)	1998 09 26	704	0.0 0.1+	1998 10 15	704	0.1+ 0.2+
1971 04 02	675	0.6- 0.7+	1998 09 26	704	0.8- 0.5-	1998 10 15	704	0.3+ 0.6+
1971 04 16	675	0.7+ 0.8-	1998 09 26	704	0.8- 0.3-	1998 10 17	699	0.1+ 0.3+
1971 04 16	675	1.5+ 0.7-	1998 09 26	704	0.5- 0.4-	1998 10 17	699	0.6+ 0.4+
1971 05 13	675	0.8- 0.7+	1998 09 26	704	0.7- 0.3-	1998 10 17	699	1.2+ 0.5+
1971 05 14	675	0.2- 0.1+	1998 09 27	704	0.0 0.2+	1998 11 15	699	1.0+ 1.7+
1971 05 16	675	0.6- 0.1+	1998 09 27	704	0.9- 0.7+	1998 11 15	699	(2.1+ 0.3+)
1971 05 16	675	(6.1+ 1.6-)	1998 09 27	704	0.1- 0.6+	1998 11 15	699	(1.1+ 2.7+)
1996 04 21	566	0.0 0.3+	1998 09 27	704	0.9+ 0.3+	1999 10 14	704	0.3+ 0.3-
1996 04 21	566	0.5+ 0.5+	1998 09 27	704	0.2- 0.8+	1999 10 14	704	0.4+ 0.5+
1996 04 21	566	0.5+ 0.5+	1998 09 29	704	0.8- 0.3+	1999 10 14	704	0.3- 0.7-
1998 09 14	704	0.2+ 0.1-	1998 09 29	704	0.3+ 0.2-	1999 10 14	704	0.1+ 0.2+
1998 09 14	704	0.4- 0.7-	1998 09 29	704	0.0 1.4-	1999 10 14	704	0.3+ 0.2+
1998 09 14	704	0.9- 0.0	1998 09 29	704	0.3- 0.1+	1999 11 28	106	0.2- 0.7-
1998 09 17	699	0.0 0.4-	1998 09 29	704	0.4- 1.0-	1999 11 28	106	0.1+ 0.0
1998 09 17	699	0.0 0.5+	1998 10 14	704	0.8+ 1.2+	1999 11 28	106	0.1- 0.9+
1998 09 17	699	0.4+ 0.4+	1998 10 14	704	0.9+ 0.6-	1999 11 30	106	0.1- 0.3+
1998 09 18	704	0.4+ 1.1-	1998 10 14	704	1.3+ 0.2+	1999 11 30	106	0.3- 0.2-
1998 09 18	704	0.9+ 0.2-	1998 10 14	704	1.0- 0.8-	1999 11 30	106	0.5- 0.1+

(12950)* 4321 T-1 = 1986 TG₇

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 19327)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23192700	ω	76.39838	-0.71888718	-0.69406458		
<i>a</i>	2.6236255	Ω	59.63288	+0.61931637	-0.66460195		
<i>e</i>	0.1489889	<i>i</i>	2.55174	+0.31567144	-0.27672840		
<i>P</i>	4.25	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1971 03 24	675	0.7+ 1.0-	1992 02 28	675	0.5- 1.9+	1999 11 09	704	0.0 0.6-
1971 03 26	675	0.3+ 1.8-	1994 09 08	691	0.3- 0.3-	1999 11 12	704	0.3+ 0.4-
1971 03 26	675	0.5- 1.6-	1994 09 08	691	0.2- 0.3+	1999 11 12	704	1.9- 0.1+
1971 03 27	675	0.4- 1.4-	1994 09 08	691	0.2- 0.4-	1999 11 12	704	0.2- 0.5-
1971 04 02	675	0.8- 0.9+	1998 09 14	704	1.0- 1.2+	1999 11 12	704	0.1+ 0.5-
1971 04 16	675	0.4- 1.1+	1998 09 14	704	1.1+ 1.9-	1999 11 16	704	0.2+ 0.1-
1971 04 16	675	1.0+ 1.1+	1998 09 14	704	0.4+ 1.9+	1999 11 16	704	0.7+ 0.4-
1986 10 07	675	0.4- 0.2-	1998 09 14	704	(1.0- 2.2+)	1999 11 16	704	0.7+ 0.6-
1986 10 07	675	0.6- 0.2+	1999 11 03	704	0.4+ 0.0	1999 11 16	704	0.0 0.6-
1986 10 08	675	(3.2- 0.2-)	1999 11 03	704	0.3+ 0.4-	1999 11 16	704	0.3+ 0.7+
1986 10 08	675	0.8- 1.0+	1999 11 03	704	0.2- 0.1+	1999 12 01	106	1.0+ 0.4+
1991 10 14	691	0.8+ 0.7+	1999 11 03	704	0.6- 0.4-	1999 12 01	106	0.1+ 0.1+
1991 10 14	691	0.6+ 0.0	1999 11 03	704	0.7- 0.3-	1999 12 01	106	0.3+ 0.2-
1991 10 14	691	0.1+ 0.6+	1999 11 09	704	0.0 0.4+	1999 12 07	704	0.3+ 0.2-
1992 02 27	675	(0.2+ 2.5+)	1999 11 09	704	0.3+ 0.0	1999 12 07	704	0.1+ 0.2+

1992 02 27 675 (1.4- 2.2+) 1999 11 09 704 0.2+ 0.3- 1999 12 07 704 0.3+ 0.9+
 1992 02 28 675 0.2- 1.5+ 1999 11 09 704 0.1+ 0.7- 1999 12 07 704 0.0 0.3+

(12951)* 1041 T-2 = 1983 RK₈ = 1988 RM₁₀

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld
 on Palomar Schmidt plates taken by T. Gehrels.
 Id. B. G. Marsden (*MPC* 15424)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Marsden	
<i>M</i>	(2000.0)	P	Q
<i>n</i>	60.81406	ω 160.98703	+0.92019019 +0.39146349
<i>a</i>	2.9445998	Ω 175.96472	-0.36364777 +0.85715272
<i>e</i>	0.1195825	<i>i</i> 2.05152	-0.14494931 +0.33473205
<i>P</i>	5.05	<i>H</i> 13.7	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1973 09 19	675	0.7+	0.4-	1997 04 08	809	(2.9- 3.0-)	1998 09 21	699	0.0	0.1-
1973 09 19	675	0.8+	0.6-	1997 04 08	809	(2.1- 2.7-)	1998 09 21	699	0.2-	0.3-
1973 09 20	675	0.9-	0.0	1997 04 11	704	0.2+	0.1-	1998 10 12	699	0.7- 0.3-
1973 09 24	675	1.1+	1.6-	1997 04 11	704	0.1+	0.5+	1998 10 12	699	0.7- 0.5-
1973 09 24	675	0.5-	1.0-	1997 05 01	704	0.0	0.5+	1998 10 12	699	0.5- 0.0
1973 09 25	675	(1.6- 2.8-)		1997 05 01	704	0.1+	0.0	1998 10 20	699	0.7+ 1.6-
1973 09 25	675	0.4-	1.4-	1997 05 01	704	0.1+	0.2+	1998 10 20	699	0.1- 0.9+
1973 09 29	675	0.1-	1.0+	1997 05 01	704	0.3-	0.2-	1998 10 20	699	0.1- 0.4-
1973 09 29	675	0.5-	0.9+	1997 05 01	704	0.0	0.0	1998 10 20	910	0.7- 0.3-
1973 09 29	675	0.3+	0.3+	1997 05 07	704	0.4+	0.5+	1998 10 20	910	0.6- 0.3-
1973 09 29	675	0.0	1.9+	1997 05 07	704	0.7+	0.2+	1998 10 20	910	0.6- 0.2-
1973 09 30	675	0.4-	0.7+	1997 05 07	704	0.4+	0.8+	1998 10 21	910	0.9- 0.1+
1973 09 30	675	0.9-	1.7+	1997 05 07	704	(0.0 2.2+)		1998 10 21	910	1.0- 0.0
1973 09 30	675	0.5+	0.4-	1998 07 26	809	(4.0+ 1.7+)		1998 10 21	910	0.8- 0.0
1973 09 30	675	1.1-	1.5+	1998 07 26	809	(4.0+ 2.1+)		1999 11 08	120	0.5+ 0.6-
1973 10 04	675	0.3+	0.3-	1998 07 26	809	(3.8+ 2.0+)		1999 11 08	120	1.1+ 0.9+
1973 10 04	675	1.5-	0.1+	1998 07 27	809	(3.2+ 0.5-)		1999 11 08	120	0.7- 0.5+
1973 10 04	675	0.1+	0.2+	1998 07 27	809	(2.4+ 0.1-)		1999 11 15	704	0.3+ 0.8-
1973 10 04	675	0.5+	0.1-	1998 07 27	809	(2.3+ 0.0)		1999 11 15	704	0.1+ 0.3-
1973 10 05	675	1.1-	2.3+	1998 08 17	704	0.5+ 0.6+		1999 11 15	704	0.1- 0.8-
1973 10 05	675	1.5-	0.9+	1998 08 17	704	0.1-	0.0	1999 11 15	704	0.1+ 0.4-
1973 10 05	675	0.5+	0.5+	1998 08 17	704	0.4+	0.3+	1999 11 15	704	0.1- 0.7-
1973 10 05	675	1.3-	0.5+	1998 08 17	704	0.2-	0.7-	1999 11 17	704	0.5- 1.0-
1983 09 11	095	0.7-	0.8+	1998 08 17	704	0.7+	0.4-	1999 11 17	704	0.2- 0.8-
1988 09 14	807	1.0+	0.1+	1998 08 21	566	0.6-	0.3-	1999 11 17	704	0.1- 0.2-
1988 09 15	807	1.4+	0.2+	1998 08 21	566	0.7-	0.6-	1999 11 17	704	0.6- 0.6-
1988 09 16	807	1.5+	0.3+	1998 08 21	566	0.7-	0.5-	1999 11 17	704	0.8+ 0.9+
1988 10 04	807	1.1+	0.1-	1998 08 22	566	1.1-	0.4-	1999 12 07	704	0.5+ 0.1-
1988 10 07	807	1.1+	0.3-	1998 08 22	566	0.6-	0.4-	1999 12 07	704	0.3+ 0.2+
1988 10 08	807	1.5+	0.4+	1998 08 22	566	0.2-	0.1-	1999 12 07	704	0.3+ 0.2-
1988 10 08	807	1.2+	0.0	1998 08 23	699	0.2+	0.6+	1999 12 07	704	0.1+ 0.1-
1988 11 03	807	0.3-	0.3-	1998 08 23	699	0.3-	0.7+	1999 12 07	704	0.1+ 0.0
1988 11 05	807	0.4-	0.4-	1998 08 23	699	0.2-	0.5+	1999 12 08	704	0.2+ 0.0
1997 04 06	704	0.9+	0.6-	1998 09 14	704	1.3+	1.2-	1999 12 08	704	0.0 0.4-
1997 04 06	704	0.0	0.5+	1998 09 14	704	1.2+	1.1-	1999 12 08	704	0.5+ 0.3+
1997 04 07	809	0.8+	0.7-	1998 09 14	704	(2.3+ 2.2-)		1999 12 08	704	1.1- 0.2-
1997 04 07	809	1.3-	0.6-	1998 09 14	704	1.7+	1.5-	1999 12 08	704	0.3- 0.2+
1997 04 07	809	1.9-	1.5-	1998 09 14	704	(2.0+ 2.8-)				
1997 04 08	809	(2.5- 2.6-)		1998 09 21	699	1.2+	0.8-			

(12952)* 1102 T-2 = 1997 JE₁₃

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld
 on Palomar Schmidt plates taken by T. Gehrels.
 Id. B. G. Marsden (*MPC* 29938)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Marsden	
<i>M</i>	(2000.0)	P	Q
<i>n</i>	0.19446358	ω 79.21089	+0.14055594 +0.99003195
<i>a</i>	2.9506013	Ω 198.87622	-0.91888285 +0.12706442
<i>e</i>	0.0753800	<i>i</i> 1.59174	-0.36864392 +0.06075662
<i>P</i>	5.07	<i>H</i> 14.7	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1973 09 19	675	1.6+	1.2-	1997 05 04	566	1.2-	0.5-	1999 11 28	691	0.1-	0.3-
1973 09 19	675	1.9+	1.3-	1997 05 07	704	0.5+	0.1-	1999 11 28	691	0.1+	0.1-
1973 09 20	675	1.0+	0.5-	1997 05 07	704	0.5+	0.5-	1999 12 04	691	1.2+	0.5-
1973 09 24	675	0.5-	1.4-	1997 05 07	704	0.4-	0.8+	1999 12 04	691	0.9+	1.6-
1973 09 24	675	1.8-	0.6-	1997 05 07	704	1.2+	1.2-	1999 12 04	691	1.2+	0.1-
1973 09 25	675	0.6+	1.0+	1998 08 17	704	0.1-	1.0-	1999 12 04	703	0.6-	0.3-
1973 09 25	675	1.3-	0.2-	1998 08 17	704	0.8+	0.6+	1999 12 04	703	(3.8+ 0.0)	
1973 09 29	675	0.3-	0.1+	1998 08 17	704	0.5+	1.0+	1999 12 04	703	0.8-	0.6+
1973 09 29	675	0.8+	2.1-	1998 08 17	704	(3.2- 2.0-)		1999 12 04	703	0.0	0.4-
1973 09 30	675	1.4-	0.6-	1998 09 14	704	0.7-	1.0-	1999 12 05	703	1.9-	0.2+
1973 09 30	675	0.2+	0.4-	1998 09 14	704	0.3+	0.0	1999 12 05	703	0.5-	0.5+
1973 10 04	675	(3.3+ 2.5-)		1998 09 14	704	0.8-	1.0+	1999 12 05	703	0.6-	0.5+
1973 10 04	675	(2.9+ 0.9-)		1998 09 14	704	0.2+	0.2+	1999 12 05	703	0.9-	0.3+
1973 10 05	675	0.7+	1.7+	1998 09 18	704	1.1+	0.4+	1999 12 07	691	0.7+	0.2-
1973 10 05	675	0.4-	2.4+	1998 09 18	704	0.0	1.0-	1999 12 07	691	0.9+	0.2-
1996 02 10	691	0.2+	0.8-	1999 11 09	704	0.1+	0.1+	1999 12 07	691	0.9+	0.2-
1996 02 10	691	0.4+	0.9-	1999 11 09	704	0.2+	0.4-	1999 12 07	704	0.6-	0.3-
1996 02 10	691	0.2+	0.7-	1999 11 09	704	0.1-	0.6-	1999 12 07	704	0.6-	0.6+
1997 05 03	809	0.3-	0.0	1999 11 09	704	0.0	0.2-	1999 12 07	704	0.3-	1.7+
1997 05 03	809	1.4-	0.1+	1999 11 09	704	0.5-	0.4-	1999 12 12	691	0.2+	0.2-
1997 05 03	809	0.8-	1.8-	1999 11 12	704	0.8-	0.2+	1999 12 12	691	0.1+	0.2-
1997 05 04	809	(1.5+ 2.3-)		1999 11 12	704	0.3-	0.1+	1999 12 12	691	0.3+	0.3-
1997 05 04	809	(0.1+ 2.7-)		1999 11 12	704	0.1-	0.7-	1999 12 12	691	0.6+	0.3+
1997 05 04	809	0.6+	0.2-	1999 11 12	704	0.7-	0.4-	1999 12 12	691	0.4+	0.3+
1997 05 04	566	0.8-	0.3-	1999 11 12	704	0.1+	0.7-	1999 12 12	691	0.5+	0.2+
1997 05 04	566	0.3-	0.5-	1999 11 28	691	0.1+	0.3-				

(12953)* 1264 T-2 = 1994 PF₂₄

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld
 on Palomar Schmidt plates taken by T. Gehrels.
 Id. B. G. Marsden (*MPC* 24578)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Marsden	
<i>M</i>	(2000.0)	P	Q
<i>n</i>	0.23205677	ω 38.15435	+0.83313084 -0.55306761
<i>a</i>	2.6226473	Ω 355.42025	+0.49763533 +0.75200162
<i>e</i>	0.1257778	<i>i</i> 2.17915	+0.24135467 +0.35862205
<i>P</i>	4.25	<i>H</i> 14.0	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1973 09 19	675	0.4-	0.8-	1992 02 26	691	0.7-	0.2-	1999 11 14	704	0.2-	0.1+
1973 09 19	675	1.4+	0.1+	1992 02 26	691	1.2+	2.0-	1999 11 14	704	0.2+	0.0
1973 09 19	675	1.2-	1.7-	1994 08 12	809	0.4+	1.5+	1999 11 14	704	0.1-	0.1-
1973 09 19	675	0.5+	1.4-	1994 08 12	809	0.3-	1.7+	1999 11 14	704	0.4-	0.0
1973 09 20	675	0.5-	0.7-	1994 08 12	809	0.1+	1.1+	1999 11 14	704	0.4-	0.5+
1973 09 24	675	0.1+	1.1-	1994 08 13	809	(0.4+ 2.8+)		1999 11 16	704	0.4-	0.3+
1973 09 24	675	0.3+	1.2-	1994 08 13	809	(0.1- 2.2+)		1999 11 16	704	0.1-	0.4+
1973 09 25	675	0.5+	1.1-	1994 08 13	809	0.1-	1.8+	1999 11 16	704	0.1-	0.0
1973 09 25	675	0.3-	0.1+	1998 08 17	704	(2.8- 1.9+)		1999 11 16	704	0.1-	0.7+
1973 09 29	675	0.4+	1.0-	1998 08 17	704	0.4+	0.8-	1999 12 01	106	0.7+	0.5+
1973 09 29	675	1.8+	1.2-	1998 08 17	704	1.4-	0.1+	1999 12 01	106	0.4+	0.8+
1973 09 30	675	0.2-	1.9+	1998 08 17	704	1.3-	1.2+	1999 12 01	106	0.7+	0.2+
1973 09 30	675	0.4-	0.9+	1998 08 17	704	(2.3- 2.1-)		1999 12 07	704	0.3+	0.2-
1973 10 04	675	0.3+	0.9-	1999 10 13	704	0.3+	0.8+	1999 12 07	704	0.1+	0.4+
1973 10 04	675	1.1+	0.8-	1999 10 13	704	0.0	0.3+	1999 12 07	704	0.1-	0.5+
1973 10 05	675	0.5-	0.5+	1999 10 13	704	0.5-	0.1+	1999 12 07	704	0.0	0.6+
1973 10 05	675	0.3+	1.1+	1999 10 13	704	0.6-	0.0				
1992 02 26	691</										

1999 DEC. 22

M.P.C. 37107

(12954)* 2040 T-2 = 1981 EM₄₂

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld
on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 15081)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
<i>M</i>	26.71687	<i>ω</i>	(2000.0)	<i>ω</i>	
<i>n</i>	0.19574587	<i>Ω</i>	201.19062	<i>Ω</i>	
<i>a</i>	2.9377014	<i>i</i>	188.21494	<i>i</i>	
<i>e</i>	0.0162790	<i>H</i>	7.29506	<i>H</i>	
<i>P</i>	5.04	<i>G</i>	14.0	<i>G</i>	
		<i>U</i>	0.15	<i>U</i>	
		<i>1</i>		<i>1</i>	

Residuals in seconds of arc

1971 03 24	675	(1.6+ 3.7-)	1981 03 11	413	(2.4+ 2.0-)	1998 08 23	704	0.8- 1.5-
1971 03 25	675	(0.8- 3.2-)	1981 03 15	413	0.5+ 0.8-	1998 08 23	704	1.5- 0.1+
1971 03 26	675	0.6- 1.7-	1981 04 05	413	1.9- 0.0	1998 09 14	704	0.4+ 1.3-
1971 03 26	675	(1.5- 3.5-)	1981 04 05	413	(4.7+ 4.7-)	1998 09 14	704	1.6- 0.7-
1971 03 27	675	1.2- 1.3-	1981 05 01	413	0.6+ 0.8-	1998 09 14	704	1.2- 0.8-
1971 04 02	675	(2.6- 0.3-)	1988 09 10	675	1.2- 1.7+	1998 09 14	704	0.1- 1.3-
1971 05 16	675	1.0+ 0.2+	1988 09 10	675	0.1- 0.8+	1998 09 18	704	0.2+ 0.1+
1973 09 19	675	0.1- 2.1-	1988 09 15	675	1.2+ 1.6-	1998 09 18	704	0.3+ 1.3+
1973 09 19	675	0.4+ 0.3-	1988 09 16	675	0.5+ 0.6+	1998 09 18	704	0.1+ 0.6-
1973 09 20	675	1.7- 1.0-	1988 09 16	675	0.3+ 1.1+	1998 09 18	704	0.1- 0.8-
1973 09 24	675	0.9- 0.6+	1988 11 03	807	0.9+ 0.6-	1998 09 18	704	0.8- 0.2+
1973 09 24	675	1.7- 0.5-	1988 11 06	807	0.9+ 0.8-	1998 09 25	704	0.3- 0.4-
1973 09 25	675	(0.8- 2.3-)	1988 11 08	807	0.5+ 0.4+	1998 09 25	704	1.0- 0.1-
1973 09 25	675	(1.0+ 2.4-)	1993 09 14	809	(2.0+ 3.7+)	1998 09 25	704	0.5+ 0.8-
1973 09 29	675	0.6+ 0.1+	1993 09 14	809	1.6+ 1.8+	1998 09 25	704	1.6- 1.7+
1973 09 29	675	0.5+ 0.5+	1993 09 14	809	(1.9+ 2.5+)	1998 09 27	704	0.9+ 1.4-
1973 09 30	675	0.9+ 0.6-	1993 09 19	809	(1.5+ 4.1+)	1998 09 27	704	0.7+ 0.5-
1973 09 30	675	0.7+ 0.6-	1993 09 19	809	0.8+ 1.9+	1998 09 27	704	(0.2- 2.3-)
1973 10 04	675	0.5+ 0.2-	1993 09 19	809	(1.6+ 3.4+)	1998 09 27	704	0.3- 0.2+
1973 10 04	675	1.9+ 0.6+	1996 03 20	566	0.4+ 0.7-	1999 11 04	704	0.4- 0.1-
1973 10 05	675	0.8+ 1.7-	1996 03 20	566	0.7+ 0.3-	1999 11 04	704	0.2- 0.5+
1973 10 05	675	(2.3+ 1.3-)	1996 03 20	566	0.8+ 0.3-	1999 11 04	704	0.2+ 0.6-
1981 02 12	413	0.2+ 1.0-	1998 08 17	704	1.1+ 0.6+	1999 11 04	704	0.4+ 0.5+
1981 02 12	413	0.0 0.7-	1998 08 17	704	0.6- 1.6-	1999 12 06	704	0.7+ 0.1-
1981 03 02	413	1.5- 1.2+	1998 08 17	704	(2.6- 0.5-)	1999 12 06	704	0.1+ 0.1+
1981 03 02	413	(3.8- 3.2+)	1998 08 17	704	0.1- 0.4+	1999 12 06	704	0.5+ 0.4-
1981 03 06	413	0.3- 0.5+	1998 08 17	704	0.7- 1.4+	1999 12 06	704	0.9+ 0.1+
1981 03 06	413	1.0- 0.5+	1998 08 23	704	0.7- 1.3-	1999 12 06	704	0.7- 0.3+
1981 03 11	413	0.1- 0.1+	1998 08 23	704	1.3+ 1.5+			

(12955)* 2162 T-2 = 1998 MX₁₃

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld
on Palomar Schmidt plates taken by T. Gehrels.

Id. A. Gnädig (*MPC* 32733)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
<i>M</i>	106.01589	<i>ω</i>	(2000.0)	<i>ω</i>	
<i>n</i>	0.23111499	<i>Ω</i>	85.21704	<i>Ω</i>	
<i>a</i>	2.6297672	<i>i</i>	193.12437	<i>i</i>	
<i>e</i>	0.0787294	<i>H</i>	4.45138	<i>H</i>	
<i>P</i>	4.26	<i>G</i>	15.2	<i>G</i>	
		<i>U</i>	0.15	<i>U</i>	
		<i>1</i>		<i>1</i>	

Residuals in seconds of arc

1973 09 19	675	0.2+ 0.5-	1997 04 02	704	0.8- 0.2+	1999 11 04	704	0.4- 0.8+
1973 09 19	675	0.5- 0.8-	1997 04 02	704	0.7+ 0.1+	1999 11 04	704	0.1- 0.8+
1973 09 20	675	0.0 2.0-	1998 06 19	910	0.3+ 0.7+	1999 11 04	704	1.3+ 0.1+
1973 09 24	675	1.7- 0.5-	1998 06 19	910	0.0 0.7+	1999 11 04	704	0.3- 1.8+
1973 09 24	675	2.5- 0.1+	1998 06 19	910	0.2+ 0.9+	1999 11 15	704	0.2- 0.1-
1973 09 25	675	2.3+ 1.9-	1998 06 26	910	0.5- 1.0+	1999 11 15	704	0.5- 0.2-
1973 09 25	675	1.0+ 0.4-	1998 06 26	910	0.6- 1.1+	1999 11 15	704	0.6- 0.0
1973 09 29	675	0.3+ 2.0+	1998 06 26	910	0.4- 1.0+	1999 11 15	704	0.4- 0.3-
1973 09 29	675	0.3- 0.2+	1999 10 07	691	0.3- 0.2+	1999 11 15	704	0.6- 0.6+
1973 09 30	675	0.4+ 0.1-	1999 10 07	691	0.3- 0.1+	1999 11 17	704	0.6+ 0.5+

1973 09 30	675	1.2- 0.4+	1999 10 07	691	0.1- 0.2+	1999 11 17	704	0.1- 1.1-
1973 10 04	675	2.0+ 2.0+	1999 10 10	704	0.5+ 1.0+	1999 11 17	704	0.3+ 1.4+
1973 10 04	675	0.0 1.1-	1999 10 10	704	0.4+ 0.5-	1999 11 17	704	1.2+ 0.0
1973 10 05	675	1.1+ 0.9-	1999 10 10	704	0.1- 0.2-	1999 12 04	703	(4.2+ 1.7+)
1973 10 05	675	0.6+ 1.8-	1999 10 11	691	0.4- 0.1+	1999 12 04	703	0.2+ 1.5+
1997 04 02	704	0.0 0.2+	1999 10 11	691	0.1+ 0.2+	1999 12 04	703	1.1- 0.3+
1997 04 02	704	0.5+ 0.2+	1999 10 11	691	0.5- 0.2+	1999 12 04	703	0.0 0.4+

(12956)* 2232 T-2 = 1991 PU₁

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld
on Palomar Schmidt plates taken by T. Gehrels.

Id. B. G. Marsden (*MPC* 18833)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
<i>M</i>	38.99204	<i>ω</i>	(2000.0)	<i>ω</i>	
<i>n</i>	0.26959436	<i>Ω</i>	178.86116	<i>Ω</i>	
<i>a</i>	2.3731700	<i>i</i>	174.91713	<i>i</i>	
<i>e</i>	0.0950872	<i>H</i>	3.88734	<i>H</i>	
<i>P</i>	3.66	<i>G</i>	14.7	<i>G</i>	
		<i>U</i>	0.15	<i>U</i>	
		<i>1</i>		<i>1</i>	

Residuals in seconds of arc

1951 08 11	675	0.2- 0.2+	1973 10 05	675	0.9+ 1.0-	1997 03 11	704	0.0 0.8+
1951 08 11	675	0.5- 0.3+	1973 10 05	675	2.2- 1.2+	1997 03 12	704	0.6+ 0.7+
1973 09 19	675	1.5- 0.6-	1991 08 10	809	0.2- 0.7+	1997 03 12	704	0.2+ 0.7+
1973 09 19	675	0.4- 0.1-	1991 08 10	809	1.3- 2.0+	1999 11 04	704	0.0 0.2-
1973 09 20	675	0.2- 2.4-	1991 08 10	809	0.5- 2.0+	1999 11 04	704	0.0 0.2-
1973 09 24	675	0.1- 0.7+	1991 08 14	809	0.7+ 0.0	1999 11 04	704	0.0 0.2+
1973 09 24	675	0.6- 0.9+	1991 08 14	809	0.7+ 0.2+	1999 11 04	704	0.1- 0.6+
1973 09 25	675	(0.1- 2.6-)	1991 08 14	809	1.3+ 0.5+	1999 11 04	704	0.1- 0.5+
1973 09 25	675	1.4+ 1.5-	1991 09 13	675	0.7+ 0.2-	1999 11 17	704	0.5+ 0.2+
1973 09 29	675	0.2+ 0.7-	1991 09 13	675	0.9- 0.6-	1999 11 17	704	0.4+ 0.2+
1973 09 29	675	0.8+ 0.4-	1991 09 14	675	0.7- 1.1-	1999 11 17	704	0.6- 0.6+
1973 09 30	675	2.3+ 0.5-	1991 09 14	675	1.0- 0.1+	1999 11 17	704	0.2+ 0.0
1973 09 30	675	1.4+ 1.4+	1994 05 14	691	0.2+ 0.1+	1999 12 06	704	0.7- 0.0
1973 09 30	675	0.6+ 0.6-	1994 05 14	691	0.2- 0.0	1999 12 06	704	0.5- 0.2+
1973 09 30	675	(2.7+ 4.0+)	1994 05 14	691	0.3- 0.2-	1999 12 06	704	0.4- 0.0
1973 10 04	675	0.2+ 0.7-	1997 03 05	691	0.4- 0.4-	1999 12 06	704	0.8- 1.1+
1973 10 04	675	(0.5+ 3.8+)	1997 03 05	691	0.8- 0.2-	1999 12 06	704	0.1+ 0.1+
1973 10 04	675	0.3+ 0.1-	1997 03 05	691	0.5- 0.5-	1999 12 07	106	0.4+ 0.3+
1973 10 04	675	(0.6- 3.8+)	1997 03 10	704	0.5+ 1.2-	1999 12 07	106	0.8+ 0.2+
1973 10 05	675	1.4+ 1.5-	1997 03 10	704	0.6+ 0.9-	1999 12 07	106	0.1- 0.3+
1973 10 05	675	2.3- 1.5+	1997 03 11	704	0.2+ 0.6+			

(12957)* 2258 T-2 = 1994 PB₁₀

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld
on Palomar Schmidt plates taken by T. Gehrels.

Id. B. G. Marsden (*MPC* 24404)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		<i>P</i>		<i>Q</i>	
<i>M</i>	52.05599	<i>ω</i>	(2000.0)	<i>ω</i>	
<i>n</i>	0.23191111	<i>Ω</i>	188.86213	<i>Ω</i>	
<i>a</i>	2.6237454	<i>i</i>	155.17825	<i>i</i>	
<i>e</i>	0.0854952	<i>H</i>	2.09005	<i>H</i>	
<i>P</i>	4.25	<i>G</i>	14.6	<i>G</i>	
		<i>U</i>	0.15	<i>U</i>	
		<i>1</i>		<i>1</i>	

Residuals in seconds of arc

1973 09 19	675	1.2- 0.9-	1994 08 10	809	0.0 0.2-	1999 11 15	704	0.3+ 0.6+
1973 09 19	675	1.2- 0.6+	1994 08 10	809	0.0 0.5-	1999 11 15	704	0.1+ 0.3+
1973 09 20	675	0.9- 1.1-	1994 08 10	809	1.9- 0.3-	1999 11 15	704	0.3- 0.4+
1973 09 24	675	0.0 0.2+	1994 08 11	809	0.5+ 0.4+	1999 11 15	704	0.1- 0.1-
1973 09 24	675	1.5- 0.9+	1994 08 11	809	0.2+ 0.4+	1999 11 15	704	0.4- 0.4+
1973 09 25	675	0.0 2.1-	1994 08 11	809	0.4+ 0.8+	1999 11 17	704	0.2- 0.3+
1973 09 25	675	2.3+ 0.5-	1994 09 03	809	0.2+ 1.5+	1999 11 17	704	0.7- 0.7+
1973 09 29	675	(2.9- 0.2+)	1994 09 03	809	(2.7+ 2.0+)	1999 11 17	704	0.9+ 0.2+
1973 09 29	675	2.2- 0.3+	1994 09 03	809	0.8+ 1.0+	1999 11 17	704	(0.9- 2.5+)
1973 09 30	675	0.4+ 0.4-	1994 09 04	809	0.9+ 0.6-	1999 11 17	704	(0.2+ 2.9+)
1973 09 30	675	1.8+ 1.3+	1994 09 04	809	1.1+ 0.1-	1999 12 07	704	0.3- 0.6+

</

1973 09 30	675	0.8−	0.9−	1994 09 04	809	1.0+	0.5−	1999 12 07	704	0.0	0.2−
1973 09 30	675	0.9+	1.3+	1997 03 10	809	0.5+	1.3+	1999 12 07	704	0.5−	0.2−
1973 10 04	675	0.2−	1.1+	1997 03 10	809	0.1+	1.2+	1999 12 07	704	0.1+	0.6+
1973 10 04	675	(2.8−	3.7+)	1997 03 10	809	1.0+	0.0	1999 12 08	704	0.3−	0.1+
1973 10 04	675	1.4+	0.8+	1997 03 11	809	0.1+	0.9+	1999 12 08	704	0.3−	0.5−
1973 10 04	675	(1.3−	3.1+)	1997 03 11	809	0.8+	0.3+	1999 12 08	704	0.3+	0.3−
1973 10 05	675	0.3+	0.2−	1997 03 11	809	(2.2+	1.2−)	1999 12 08	704	0.1−	0.1+
1973 10 05	675	(3.5−	1.7+)	1998 08 17	704	(3.5−	0.5+)	1999 12 08	704	0.3+	0.0
1973 10 05	675	0.0	0.2−	1998 08 17	704	1.9−	1.2+				
1973 10 05	675	(3.3−	1.5+)	1998 08 17	704	1.6−	1.1+				

(12958)* 2276 T-2 = 1993 FB₂₁

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 26416)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	99.29947		(2000.0)	P		Q	
<i>n</i>	0.22998792	ω	247.34515	+0.13115719		+0.99113914	
<i>a</i>	2.6383518	Ω	30.21470	−0.89355178		+0.12736508	
<i>e</i>	0.0643882	<i>i</i>	2.39160	−0.42937513		+0.03770067	
<i>P</i>	4.29	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1973 09 20	675	2.2+	1.6−	1993 03 27	809	0.2+	1.0−	1999 11 11	703	1.3−	0.3+
1973 09 24	675	0.7−	0.8−	1993 04 18	691	0.3−	0.9−	1999 11 11	703	1.0−	1.8+
1973 09 24	675	0.1−	0.4+	1993 04 18	691	0.6−	1.0−	1999 11 11	703	0.1−	0.8+
1973 09 25	675	1.5+	1.5−	1993 04 18	413	(3.4−	1.5−)	1999 12 04	703	0.5+	0.7+
1973 09 25	675	2.2+	2.0−	1998 06 24	704	0.8−	0.1−	1999 12 04	703	0.8−	0.3+
1973 09 29	675	1.7+	1.1−	1998 06 24	704	(3.1−	2.9+)	1999 12 04	703	1.0−	0.1+
1973 09 29	675	(2.7+	0.3−)	1998 06 24	704	0.9+	1.4+	1999 12 04	703	0.2+	0.3+
1973 09 30	675	0.9+	0.4+	1998 06 24	704	(4.9−	0.7+)	1999 12 06	704	0.1+	0.1−
1973 09 30	675	0.8+	1.4−	1998 06 26	704	0.5+	1.9+	1999 12 06	704	0.5+	0.3+
1973 10 04	675	0.2+	0.4+	1998 06 26	704	0.4+	0.3+	1999 12 06	704	0.3−	0.5−
1973 10 04	675	2.0−	0.0	1998 06 26	704	1.9−	1.2−	1999 12 07	704	0.7+	0.1+
1973 10 05	675	1.0−	1.4−	1998 06 26	704	0.4+	1.6+	1999 12 07	704	1.0+	0.8−
1973 10 05	675	1.5−	0.1−	1999 10 29	691	0.4+	0.7+	1999 12 07	704	1.0−	0.2+
1993 03 21	809	0.4−	0.1+	1999 10 29	691	0.2+	0.7+	1999 12 07	704	1.0−	0.9−
1993 03 22	809	0.0	0.9−	1999 10 29	691	0.2+	0.6+				
1993 03 26	809	0.6−	0.3−	1999 11 11	703	0.5+	1.1+				

(12959)* 3086 T-2 = 1982 VQ₄

Discovered 1973 Sept. 30 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 35672)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	24.49282		(2000.0)	P		Q	
<i>n</i>	0.22985379	ω	285.34029	+0.97556902		+0.20998178	
<i>a</i>	2.6393781	Ω	62.57491	−0.16308551		+0.88919478	
<i>e</i>	0.0777234	<i>i</i>	4.17343	−0.14720121		+0.40649760	
<i>P</i>	4.29	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1973 09 19	675	0.5−	1.5−	1999 10 07	704	0.5−	0.3+	1999 11 05	704	0.3−	0.1−
1973 09 19	675	0.6−	1.5−	1999 10 07	704	0.7−	0.0	1999 11 05	704	0.3+	0.9−
1973 09 20	675	1.1+	1.3−	1999 10 10	704	0.1−	0.1−	1999 11 12	704	0.1+	0.0
1973 09 24	675	0.2−	1.1−	1999 10 10	704	0.4−	0.0	1999 11 12	704	0.3−	0.3−
1973 09 24	675	0.9−	0.7−	1999 10 10	704	0.3−	0.1−	1999 11 12	704	0.1−	0.3−
1973 09 25	675	(3.6+	2.4−)	1999 10 10	704	0.2+	0.0	1999 11 12	704	0.4−	0.6−
1973 09 25	675	(3.2+	2.9−)	1999 10 10	704	0.0	0.6+	1999 11 12	704	0.0	1.3−
1973 09 29	675	0.5+	0.8+	1999 10 15	704	0.5−	0.6+	1999 11 15	704	0.2−	0.1+
1973 09 29	675	0.4+	0.6+	1999 10 15	704	0.5−	0.1+	1999 11 15	704	0.2−	0.4−
1973 09 30	675	0.4+	0.1+	1999 10 15	704	0.0	0.0	1999 11 15	704	0.1−	0.0
1973 09 30	675	0.1−	0.4−	1999 10 15	704	0.1+	0.0	1999 11 15	704	0.3+	0.1−
1973 10 04	675	0.8−	1.3+	1999 10 20	704	0.1+	0.1+	1999 11 15	704	0.6+	0.4−
1973 10 04	675	1.5+	1.5+	1999 10 20	704	0.4−	0.1+	1999 11 17	704	0.2−	0.1+

1973 10 05	675	0.4−	0.0	1999 10 20	704	0.3+	0.4+	1999 11 17	704	0.1+	1.1−
1973 10 05	675	0.9+	0.4+	1999 10 20	704	0.6+	0.3+	1999 11 17	704	0.2−	0.2+
1982 11 14	381	0.2−	0.4−	1999 10 20	704	0.8−	0.7+	1999 11 17	704	0.2−	0.8+
1982 11 14	381	0.1+	1.5−	1999 10 29	703	0.9−	0.2−	1999 11 17	704	0.5+	0.3+
1993 03 20	809	1.0−	0.4−	1999 10 29	703	0.5−	0.6+	1999 12 04	699	0.2+	1.1+
1993 03 24	809	0.8+	0.1+	1999 10 29	703	1.0−	0.6+	1999 12 04	699	0.3−	0.5−
1993 04 18	413	(3.1−	1.1+)	1999 10 29	703	0.9−	0.4+	1999 12 04	699	0.0	0.2+
1995 10 30	327	0.6+	0.2−	1999 10 31	106	0.5+	0.6+	1999 12 07	704	0.6+	0.2+
1995 10 30	327	0.3+	0.6−	1999 10 31	106	0.1+	0.3+	1999 12 07	704	0.9+	0.0
1999 10 07	704	0.3−	1.4+	1999 11 05	704	0.3+	0.4+	1999 12 07	704	0.8+	0.1+
1999 10 07	704	0.5+	0.2−	1999 11 05	704	1.0+	0.4+	1999 12 07	704	0.7+	0.2−
1999 10 07	704	0.8−	0.4−	1999 11 05	704	0.5+	0.5−	1999 12 07	704	0.5+	0.1+

(12960)* 4165 T-2 = 1994 PL₁₈

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. B. G. Marsden (*MPC* 24405)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	358.49191		(2000.0)	P		Q	
<i>n</i>	0.23239630	ω	240.62953	+0.61698015		−0.78687394	
<i>a</i>	2.6200922	Ω	171.24011	+0.74811336		+0.58136782	
<i>e</i>	0.0942351	<i>i</i>	4.83680	+0.24425784		+0.20698033	
<i>P</i>	4.24	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1973 09 19	675	0.2−	1.7−	1973 10 05	675	0.4+	0.7+	1997 04 06	704	1.5−	0.8−
1973 09 19	675	1.0+	1.8+	1973 10 05	675	0.6−	0.7−	1997 04 08	704	0.1−	0.6+
1973 09 19	675	0.3−	0.7+	1990 09 28	675	0.8−	0.1+	1997 04 08	704	0.5+	0.4+
1973 09 20	675	1.8−	0.6+	1994 08 12	809	1.1+	0.6+	1998 08 17	704	0.7−	1.1+
1973 09 20	675	0.7−	1.3+	1994 08 12	809	0.9+	1.5+	1998 08 17	704	0.4+	0.9−
1973 09 24	675	1.6−	0.6−	1994 08 12	809	0.1−	1.4+	1998 08 17	704	(2.2−	0.7+)
1973 09 24	675	0.1+	1.8+	1994 08 13	809	0.2−	1.2−	1998 08 17	704	0.1−	0.3−
1973 09 24	675	1.0−	1.4−	1994 08 13	809	(1.0−	2.0−)	1999 10 10	704	0.5−	0.0
1973 09 24	675	0.1+	1.0+	1994 08 13	809	1.3−	1.6−	1999 10 10	704	0.6−	1.3−
1973 09 25	675	1.3+	2.2−	1994 09 05	809	(1.5−	4.2+)	1999 10 10	704	0.6+	0.1−
1973 09 25	675	0.7+	1.2+	1994 09 05	809	(0.1+	4.9+)	1999 10 10	704	0.8−	0.2+
1973 09 25	675	1.5+	2.1−	1994 09 05	809	(0.9−	3.5+)	1999 10 10	704	0.9−	0.3+
1973 09 25	675	1.1−	1.6+	1994 09 06	809	(0.7+	4.5+)	1999 12 06	704	0.7+	1.1+
1973 09 29	675	2.2+	1.9−	1994 09 06	809	(0.2−	5.2+)	1999 12 06	704	0.1+	0.5+
1973 09 29	675	(1.7+	2.6−)	1994 09 06	809	(0.5+	4.3+)	1999 12 06	704	0.1+	0.8+
1973 09 30	675	0.4+	0.4−	1994 09 30	675	0.1+	1.3+	1999 12 06	704	0.4+	0.6+
1973 09 30	675	0.1−	0.4−	1994 04 02	704	1.0+	0.8+	1999 12 06	704	0.4+	1.1+
1973 10 04	675	0.3−	1.3+	1997 04 02	704	0.9+	1.1+	1999 12 07	106	0.3+	0.4−
1973 10 04	675	0.2+	0.1−	1997 04 06	704	0.1−	1.5+	1999 12 07	106	0.3−	0.7−

(12961)* 4262 T-2 = 1989 TW₈

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. T. Kobayashi (*MPC* 21126)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	153.80401		(2000.0)	P		Q	
<i>n</i>	0.30965496	ω	167.75238	−0.41071287		+0.90979901	
<i>a</i>	2.1638012	Ω	77.97357	−0.84160575		−0.35304555	
<i>e</i>	0.1339620	<i>i</i>	3.50764	−0.35073452		−0.21823059	
<i>P</i>	3.18	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1973 09 24	675	0.5+	0.4−	1992 09 02	809	0.1−	0.8−	1998 06 26	704	0.0	0.7+
1973 09 29	675	1.4−	0.6−	1992 09 02	809	0.1+	1.0−	1999 11 09	704	0.6−	0.3−
1973 09 29	675	1.0+	0.8+	1992 09 22	809	1.7+	0.4+	1999 11 09	704	0.0	0.1+
1973 09 30	675	2.5−	1.1−	1992 09 22	809	0.4+	0.8−	1999 11 09	704	0.6−	1.9+
1973 09 30	675	1.1−	0.7+	1992 09 22	809	1.2+	1.5−	1999 12 02	691	0.2+	0.0
1973 10 04	675	2.2+	0.5+	1992 09 23	809	0.9−	0.7−	1999 12 02	691	0.6+	0.0
1973 10 04	675	1.8+	0.5+	1992 09 23	809	(2.3−	0.3−)	1999 12 02	691	0.0	0.0
1973 10 05	675	0.5−	0.8+	1992 09 23	809	1.0−	0.0	1999 12 07	704	0.2+	0.4+

1999 DEC. 22

M.P.C. 37109

1973 10 05	675	0.8+	1.2+	1994 01 04	691	1.8-	0.4+	1999 12 07	704	0.3+	0.0
1989 09 29	675	2.0+	1.0-	1994 01 04	691	0.5-	0.1-	1999 12 07	704	0.4+	0.3+
1989 09 29	675	0.4+	1.9-	1994 01 04	691	0.3+	0.6-	1999 12 07	704	0.1+	0.2+
1989 10 03	809	0.7-	2.2+	1998 06 24	704	0.8+	0.9+	1999 12 08	704	0.4+	0.3+
1989 10 03	809	0.1+	1.1+	1998 06 24	704	1.0-	0.6-	1999 12 08	704	0.6+	0.3+
1989 10 03	809	(0.1- 3.5+)		1998 06 24	704	0.1+	0.5+	1999 12 08	704	0.7+	0.5+
1989 10 08	809	1.5-	0.2-	1998 06 24	704	0.1-	1.6+	1999 12 08	704	0.3+	0.2+
1989 10 08	809	2.0-	0.3-	1998 06 26	704	0.2-	0.3-	1999 12 08	704	0.3+	0.3-
1989 10 08	809	2.1-	0.0	1998 06 26	704	0.6+	0.3+				
1992 09 02	809	0.5+	0.4-	1998 06 26	704	0.1+	0.0				

(12962)* 4297 T-2 = 1991 PM₆ = 1998 SY₁₁₁

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 33327)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	292.59918		(2000.0)		P		Q
<i>n</i>	0.15844977	ω	57.37699	-0.68652798			-0.72477934
<i>a</i>	3.3822702	Ω	76.09447	+0.64545130			-0.64426723
<i>e</i>	0.0377334	<i>i</i>	3.43074	+0.33477151			-0.24416110
<i>P</i>	6.22	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1973 09 25	675	1.0-	1.7-	1998 09 26	704	0.2-	1.0-	1999 11 03	704	0.1-	0.5-
1973 09 25	675	(3.6+ 1.9-)		1998 09 26	704	1.0-	0.7+	1999 11 03	704	0.1+	1.2-
1973 09 29	675	(4.0+ 3.8-)		1998 09 26	704	0.5-	0.6+	1999 11 03	704	0.1-	0.2+
1973 09 29	675	(4.3+ 4.2-)		1998 09 26	704	0.2-	0.4-	1999 11 03	704	0.4-	0.5+
1973 09 30	675	1.9+	0.3+	1998 09 27	704	0.5+	1.2+	1999 11 09	704	0.8+	0.1+
1973 09 30	675	(2.7+ 1.7+)		1998 09 27	704	1.0+	1.3+	1999 11 09	704	0.6+	0.6-
1973 10 04	675	0.1-	1.0+	1998 09 27	704	0.5+	0.5+	1999 11 09	704	0.1+	0.0
1973 10 04	675	0.5+	1.2+	1998 09 27	704	1.0+	0.0	1999 11 09	704	0.2-	0.5-
1973 10 05	675	1.2-	0.8+	1998 09 27	704	0.6+	0.2-	1999 11 09	704	0.7-	0.5-
1973 10 05	675	1.1-	0.4+	1998 10 17	699	0.5+	0.2-	1999 11 16	704	0.5-	0.2-
1991 08 06	809	0.9+	0.6-	1998 10 17	699	0.3+	0.1-	1999 11 16	704	0.8+	0.1+
1991 08 06	809	0.5+	0.1-	1998 10 17	699	0.8-	0.1-	1999 11 16	704	0.5+	0.1-
1991 08 06	809	0.7-	1.1-	1998 10 19	699	0.7-	0.4-	1999 11 16	704	0.1+	0.5+
1991 08 14	809	(1.0+ 2.5-)		1998 10 19	699	0.3-	0.1-	1999 11 16	704	0.2+	0.5+
1991 08 14	809	0.6+	1.8-	1998 10 19	699	0.2-	0.6+	1999 12 07	106	0.1-	0.1-
1991 08 14	809	(0.3+ 2.7-)		1998 10 28	704	0.8-	0.4-	1999 12 07	106	0.2-	0.1-
1998 09 15	691	0.0	0.1-	1998 10 28	704	0.5-	1.0-	1999 12 07	106	1.6-	0.9-
1998 09 15	691	(3.1+ 2.2-)		1998 10 28	704	0.2-	0.2-	1999 12 07	704	0.4+	0.2+
1998 09 15	691	0.1-	0.1-	1998 10 28	704	(4.8- 0.1+)		1999 12 07	704	0.2-	0.0
1998 09 17	699	0.7+	0.6+	1998 10 29	704	0.6+	0.2+	1999 12 07	704	0.4+	0.1-
1998 09 17	699	0.5-	0.9-	1998 10 29	704	0.4-	0.1+	1999 12 07	704	0.1+	0.2-
1998 09 17	699	0.2+	2.1+	1998 10 29	704	0.9+	1.3-				
1998 09 26	704	1.0-	0.3-	1998 10 29	704	(3.1- 0.3+)					

(12963)* 5485 T-2 = 1982 AJ

Discovered 1973 Sept. 30 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. T. Kobayashi (*MPC* 15259)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	314.49465		(2000.0)		P		Q
<i>n</i>	0.26752216	ω	133.06477	+0.31045272			-0.94659703
<i>a</i>	2.3854091	Ω	298.65812	+0.84079057			+0.31615214
<i>e</i>	0.0891591	<i>i</i>	5.69155	+0.44349782			+0.06326046
<i>P</i>	3.68	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1954 06 30	675	0.2-	0.2+	1999 10 12	704	0.1+	0.3+	1999 11 01	732	2.0-	0.2-
1954 06 30	675	1.0-	0.1+	1999 10 12	704	0.0	0.7+	1999 11 01	732	0.3-	0.3-
1973 09 29	675	1.2+	1.9-	1999 10 12	704	0.5-	0.4+	1999 11 01	732	0.6-	0.2-
1973 09 29	675	0.9+	1.6-	1999 10 13	704	0.2+	0.1+	1999 11 01	106	0.7-	0.6+
1973 09 30	675	1.6+	0.6-	1999 10 13	704	0.1-	0.2+	1999 11 01	106	0.4+	0.6+
1973 09 30	675	2.0+	0.4-	1999 10 13	704	0.3-	0.3+	1999 11 02	732	1.4-	0.3+

1973 10 04	675	0.4-	0.2+	1999 10 13	704	0.1-	0.3+	1999 11 02	732	1.0-	0.0
1973 10 04	675	1.9-	0.9-	1999 10 13	704	0.4-	0.4+	1999 11 02	732	0.0	0.5-
1973 10 05	675	0.1-	0.4-	1999 10 15	699	0.4+	0.3+	1999 11 09	699	0.1+	0.9+
1973 10 05	675	0.3-	0.0	1999 10 15	699	0.1+	0.4+	1999 11 09	699	0.1-	0.6+
1982 01 15	046	2.4-	0.7-	1999 10 15	699	0.2+	0.5+	1999 11 09	699	0.1+	1.0+
1982 01 15	046	0.4-	0.3+	1999 10 23	718	0.4+	0.8-	1999 12 05	703	0.1+	0.5+
1982 01 16	046	0.4-	1.4-	1999 10 23	718	(0.9+ 2.8-)		1999 12 05	703	0.1-	0.3+
1982 01 16	046	2.0+	0.5-	1999 10 23	718	(0.1- 2.2-)		1999 12 05	703	0.1-	0.5+
1982 01 18	046	1.2+	0.4-	1999 10 23	718	0.1+	0.1-	1999 12 05	703	0.2-	0.4+
1982 01 18	046	(4.2- 2.2-)		1999 10 26	718	1.4+	1.6-	1999 12 07	703	0.1-	0.2+
1991 08 05	809	1.2+	0.4-	1999 10 26	718	1.7+	1.7-	1999 12 07	703	0.3-	0.3+
1991 08 05	809	1.2+	0.1-	1999 10 26	718	1.0+	0.9-	1999 12 07	703	0.2-	0.4+
1991 08 05	809	0.4+	0.2-	1999 10 30	699	0.3-	0.2+	1999 12 07	703	0.2+	0.1+
1993 01 24	675	0.6-	0.8-	1999 10 30	699	0.5-	0.3+	1999 12 13	703	0.1+	0.2+
1993 01 24	675	0.2+	1.2-	1999 10 30	699	0.4-	0.4+	1999 12 13	703	0.2+	0.3+
1998 07 13	689	1.2-	0.9+	1999 10 31	106	0.2-	0.5+	1999 12 13	703	0.1-	0.3+
1999 10 12	704	0.2+	0.2+	1999 10 31	106	0.3-	0.2+	1999 12 13	703	0.3+	0.1-
1999 10 12	704	0.1-	0.2+	1999 10 31	106	0.1-	0.1+				

(12964)* 1071 T-3 = 1998 FG₁₀₉

Discovered 1977 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. A. Doppler (*MPC* 32735)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	12.98366		(2000.0)		P		Q
<i>n</i>	0.26748786	ω	0.16973	+0.81986741			+0.56944403
<i>a</i>	2.3856131	Ω	324.90272	-0.52542954			+0.70695418
<i>e</i>	0.1478670	<i>i</i>	5.94882	-0.22746696			+0.41946308
<i>P</i>	3.68	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1977 10 07	675	0.5+	0.8-	1999 07 16	704	0.3+	0.1-	1999 10 01	699	0.3-	0.7+
1977 10 11	675	1.7-	0.8+	1999 07 16	704	0.0	0.1-	1999 10 01	699	0.2-	0.3+
1977 10 11	675	0.8-	1.4+	1999 07 16	704	0.6-	0.2+	1999 10 04	704	0.6-	0.7+
1977 10 12	675	0.0	0.7+	1999 07 16	704	0.3+	0.2+	1999 10 04	704	0.3-	0.7+
1977 10 12	675	0.3+	0.7+	1999 07 16	704	0.2-	0.4-	1999 10 04	704	0.2+	0.7+
1977 10 16	675	0.2-	1.1-	1999 08 12	699	0.0	0.4+	1999 10 04	704	0.2-	0.8+
1977 10 16	675	0.3+	0.2-	1999 08 12	699	0.5-	0.6+	1999 10 04	704	1.0-	0.7+
1977 10 17	675	0.5+	0.2+	1999 08 12	699	0.7-	0.9+	1999 10 07	704	0.2+	0.7+
1977 10 17	675	0.8+	0.7-	1999 09 07	704	0.8-	0.3-	1999 10 07	704	0.2+	0.3+
1977 10 22	675	(0.1-	5.3-)	1999 09 07	704	0.4-	0.7-	1999 10 07	704	0.1-	0.7+
1977 10 22	675	(1.0-	4.0-)	1999 09 07	704	1.4-	0.2-	1999 10 07	704	0.2+	0.4+
1994 03 10	691	0.6-	0.0	1999 09 07	704	0.6-	0.6-	1999 10 07	704	0.4+	0.7+
1994 03 10	691	1.2-	0.1+	1999 09 07	704	0.4-	1.1-	1999 10 09	704	0.9+	0.3+
1998 03 31	704	1.3+	1.3+	1999 09 09	681	0.1+	0.3-	1999 10 09	704	1.0+	0.1+
1998 03 31	704	1.6+	0.1+	1999 09 09	681	0.1-	0.4-	1999 10 09	704	0.8+	0.1-
1998 03 31	704	0.4-	0.6+	1999 09 15	681	0.2-	0.7-	1999 10 09	704	0.9+	0.2-
1998 03 31	704	0.2+	0.5+	1999 09 15	681	0.0	0.6-	1999 10 09	704	0.7+	0.3-
1998 03 31	704	0.1-	1.1+	1999 09 16	704	0.4+	1.0-	1999 10 18	145	1.5-	0.3-
1998 04 01	704	0.0	0.5+	1999 09 16	704	0.0	0.2-	1999 10 18	145	0.3-	0.0
1998 04 01	704	0.5-	0.0	1999 09 16	704	0.2+	1.4-	1999 10 18	145	0.2-	0.3+
1998 04 01	704	0.1-	0.8-	1999 09 16	704	0.1-	0.3+	1999 10 18	145	0.2+	0.1+
1998 04 01	704	0.6-	0.8-	1999 09 17	718	0.2-	0.8-	1999 10 21	716	0.4+	1.4-
1998 04 19	704	0.3-	0.2+	1999 09 17	718	0.5-	1.0-	1999 10 21	716	0.2-	0.2-
1998 04 19	704	0.2+	0.3+	1999 09 17	718	0.5+	0.2-	1999 11 16	704	0.6-	0.0
1998 04 19	704	0.5+	0.1-	1999 09 18	718	0.9+	0.5-	1999 11 16	704	0.6-	0.5-
1998 04 19	704	1.1-	0.8+	1999 09 18	718	0.3+	0.1-	1999 11 16	704	0.2-	0.3+
1998 04 19	704	0.2+	0.4-	1999 09 18	718	1.0+	0.2+	1999 11 16	704	0.7+	0.9-
1998 04 20	704	0.7+	0.1+	1999 09 29	703	0.2+	0.5+	1999 12 03	704	0.3+	0.8+
1998 04 20	704	0.6+	0.2-	1999 09 29	703	0.1+	0.4+	1999 12 03	704	0.2+	0.9+
1998 04 20	704	0.6+	0.6+	1999 09 29	703	0.1+	0.4+	1999 12 03	704	0.2+	0.9+
1998 04 20	704	0.6+	0.5+	1999 09 29	703	0.1+	0.6+	1999 12 03	704	0.5-	1.2+
1998 04 20	704	0.2+	0.6-	1999 10 01	699	0.3-	0.4+	1999 12 03	704	0.6+	0.8+

(12965)* 1080 T-3 = 1992 CB₂

Discovered 1977 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld
on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 25646)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		212.04441		(2000.0)		P		Q	
<i>n</i>	0.23458138	ω	257.31916	−0.63609313	+0.76643285				
<i>a</i>	2.6037964	Ω	332.54500	−0.61128014	−0.57112594				
<i>e</i>	0.1095656	<i>i</i>	11.16219	−0.47087377	−0.29393170				
<i>P</i>	4.20	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	2		
Residuals in seconds of arc									
1977 10 07	675	0.8+	0.6−	1996 01 05	118	0.3+	0.6+	1998 10 18	704
1977 10 11	675	1.1+	0.5+	1996 01 05	118	0.5+	0.2+	1998 10 18	704
1977 10 11	675	0.2+	0.1+	1996 03 21	801	0.0	0.5+	1998 11 20	699
1977 10 12	675	1.0−	0.6+	1996 03 21	801	0.2+	0.3+	1998 11 20	699
1977 10 12	675	0.2−	1.0+	1998 08 29	704	0.3+	0.7−	1998 11 20	699
1977 10 16	675	0.1−	1.6−	1998 08 29	704	(2.3−	0.6−)	1999 11 01	557
1977 10 16	675	0.5−	1.1−	1998 08 29	704	1.0−	0.7−	1999 11 01	557
1977 10 17	675	1.0+	1.2+	1998 09 19	699	0.2−	1.1+	1999 11 01	557
1977 10 17	675	1.0+	1.8+	1998 09 19	699	0.1−	0.9+	1999 11 02	557
1977 10 22	675	0.0	2.1−	1998 09 19	699	0.2+	1.4+	1999 11 02	557
1977 10 22	675	0.6−	2.3−	1998 10 02	704	0.9+	1.3−	1999 11 02	557
1992 02 04	675	0.2+	1.4−	1998 10 02	704	0.3+	0.7−	1999 12 12	704
1992 02 12	303	0.7+	1.8−	1998 10 02	704	0.2−	0.9+	1999 12 12	704
1992 02 13	303	1.8−	1.3−	1998 10 02	704	0.1+	0.2+	1999 12 12	704
1992 02 27	675	0.3+	1.2+	1998 10 02	704	1.4−	0.9−	1999 12 12	704
1992 02 27	675	0.8−	0.5+	1998 10 18	704	0.0	0.2−	1999 12 12	704
1992 02 28	675	0.1−	0.5+	1998 10 18	704	0.3+	0.2+		
1992 02 28	675	0.1−	0.2−	1998 10 18	704	0.0	0.3−		

(12966)* 1102 T-3 = 1998 QF₈₃

Discovered 1977 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld
on Palomar Schmidt plates taken by T. Gehrels.

Id. A. Gnädig (*MPC* 33060)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		245.80173		(2000.0)		P		Q	
<i>n</i>	0.18031191	ω	266.82937	−0.88909068	−0.41805052				
<i>a</i>	3.1030333	Ω	248.39318	+0.45729643	−0.82898908				
<i>e</i>	0.1478746	<i>i</i>	11.56659	−0.01994338	−0.37149814				
<i>P</i>	5.47	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc									
1977 10 07	675	2.0+	0.8−	1999 10 05	704	0.1+	0.4−	1999 11 03	704
1977 10 11	675	0.7+	0.6+	1999 10 05	704	0.1−	0.5−	1999 11 03	704
1977 10 11	675	0.5−	0.3−	1999 10 05	704	0.1+	0.5−	1999 11 03	704
1977 10 12	675	0.5−	1.1+	1999 10 12	704	0.6+	0.6−	1999 11 09	699
1977 10 12	675	0.4−	0.4−	1999 10 12	704	0.6−	0.6−	1999 11 09	699
1977 10 16	675	0.6−	1.9−	1999 10 12	704	0.8−	0.5−	1999 11 09	699
1977 10 16	675	0.4−	1.1−	1999 10 13	704	1.4+	0.4−	1999 11 11	703
1977 10 17	675	0.3+	1.5+	1999 10 13	704	1.2+	0.0	1999 11 11	703
1977 10 17	675	0.4−	0.6+	1999 10 13	704	0.5+	0.9−	1999 11 11	703
1977 10 22	675	(0.0	3.6−)	1999 10 13	704	0.5+	0.5−	1999 11 11	703
1977 10 22	675	(1.9	4.5−)	1999 10 13	704	0.0	0.7−	1999 12 04	703
1991 05 09	675	(3.4+	0.7−)	1999 10 21	699	0.8+	0.5+	1999 12 04	703
1991 05 09	675	0.4−	0.9+	1999 10 21	699	1.3−	1.3+	1999 12 04	703
1991 05 11	675	0.1−	0.3+	1999 10 21	699	1.7−	0.2−	1999 12 04	703
1991 05 11	675	0.6+	1.3−	1999 10 22	704	0.2+	0.2−	1999 12 08	704
1998 08 24	704	0.9−	1.1+	1999 10 22	704	0.1−	0.5+	1999 12 08	704
1998 08 24	704	1.0+	0.2+	1999 10 22	704	0.8+	0.3+	1999 12 08	704
1998 08 24	704	0.3+	0.4+	1999 10 22	704	0.9+	0.3+	1999 12 08	704
1998 08 24	704	(2.9−	1.8+)	1999 10 22	704	0.3+	0.5+	1999 12 08	704
1998 08 27	704	0.7−	0.4+	1999 11 01	699	0.2+	0.3−	1999 12 12	703
1998 08 27	704	0.5−	0.0	1999 11 01	699	0.6−	0.3−	1999 12 12	703

1998 08 27	704	0.1−	0.3−	1999 11 01	699	0.6+	0.5+	1999 12 12	703	0.6+	0.1+
1998 08 27	704	0.3+	0.8−	1999 11 03	704	0.4−	0.4+	1999 12 12	703	0.7−	0.0
1999 10 05	704	0.4−	0.3−	1999 11 03	704	0.3+	0.5−				

(12967)* 3105 T-3 = 1988 RS₈

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld
on Palomar Schmidt plates taken by T. Gehrels.

Id. B. G. Marsden (*MPC* 15425)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		349.60693		(2000.0)		P		Q	
<i>n</i>	0.26646272	ω	172.52381	+0.95846598	+0.28510863				
<i>a</i>	2.3917277	Ω	170.90034	−0.26406093	+0.89701503				
<i>e</i>	0.1809436	<i>i</i>	2.71294	−0.10777195	+0.33775302				
<i>P</i>	3.70	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	2		
Residuals in seconds of arc									
1977 10 07	675	1.5+	2.0−	1998 03 29	704	1.1+	1.0−	1999 09 09	704
1977 10 11	675	0.8−	1.2−	1998 03 29	704	0.4−	0.0	1999 09 09	704
1977 10 11	675	0.2+	0.4+	1998 03 29	704	0.2−	0.1+	1999 09 13	704
1977 10 12	675	0.5+	0.9−	1998 04 19	704	(1.9+	2.4−)	1999 09 13	704
1977 10 12	675	0.1−	0.7−	1998 04 19	704	0.7−	0.2−	1999 09 13	704
1977 10 16	675	0.1−	0.2+	1998 04 19	704	(0.2+	2.6−)	1999 09 13	704
1977 10 16	675	0.7+	1.1−	1998 04 19	704	0.0	0.4−	1999 09 13	704
1977 10 17	675	0.3−	1.7+	1998 04 20	704	(2.5+	0.6−)	1999 09 29	704
1977 10 17	675	0.9−	1.5+	1998 04 20	704	(1.7−	2.2−)	1999 09 29	704
1977 10 21	675	0.1+	0.0	1998 04 20	704	0.7+	0.5+	1999 09 29	704
1977 10 21	675	0.3−	0.5+	1998 04 20	704	1.4+	1.5−	1999 09 29	704
1977 10 22	675	0.6+	2.1−	1998 04 22	704	1.9+	0.3−	1999 09 30	704
1977 10 22	675	(0.6−	4.5−)	1998 04 22	704	(1.5−	3.7−)	1999 09 30	704
1988 09 12	071	0.5−	0.1+	1998 04 22	704	(0.3−	2.5−)	1999 09 30	704
1988 09 12	071	(34.6−	3.0−)	1998 04 22	704	(4.5−	2.4−)	1999 09 30	704
1988 09 15	675	0.4+	1.1−	1999 08 17	727	0.8−	0.2+	1999 09 30	704
1988 09 15	675	0.5+	0.8−	1999 08 17	727	0.2−	0.5+	1999 10 13	699
1988 09 16	807	1.7+	0.5+	1999 08 17	727	0.4−	0.0	1999 10 13	699
1988 09 18	807	2.0+	0.4−	1999 08 18	727	0.1−	0.1+	1999 10 13	699
1988 10 04	807	0.7−	0.3−	1999 08 18	727	0.6−	0.1+	1999 10 15	704
1988 10 05	807	1.1−	0.1−	1999 08 18	727	0.4−	0.2−	1999 10 15	704
1988 10 08	807	0.4−	0.8−	1999 08 22	699	0.1−	0.5+	1999 10 15	704
1988 11 04	807	0.5−	0.8+	1999 08 22	699	0.5−	0.8+	1999 10 15	704
1988 11 05	807	0.3+	0.4−	1999 08 22	699	0.3−	0.8+	1999 10 15	704
1988 11 06	807	0.3−	0.5+	1999 08 22	106	0.0	0.6+	1999 10 16	704
1988 11 07	807	0.5−	0.0	1999 08 22	106	0.4−	0.6+	1999 10 16	704
1991 05 18	675	1.1−	0.6−	1999 08 22	106	0.1−	0.1+	1999 10 16	704
1991 05 18	675	0.2+	0.3−	1999 08 31	951	0.3+	0.8+	1999 10 16	704
1998 03 20	704	(2.3+	0.3−)	1999 08 31	951	0.0	0.4+	1999 10 16	704
1998 03 20	704	0.6−	0.1−	1999 08 31	951	0.1+	0.0	1999 11 08	704
1998 03 20	704	1.3+	0.0	1999 09 06	951	0.7−	0.4−	1999 11 08	704
1998 03 20	704	0.3−	0.2+	1999 09 06	951	0.1−	0.1+	1999 11 08	704
1998 03 20	704	0.9−	1.1+	1999 09 07	704	0.8+	0.8−	1999 11 08	704
1998 03 28	704	0.0	1.6−	1999 09 07	704	1.1+	0.5−	1999 11 12	704
1998 03 28	704	0.3−	1.0+	1999 09 07	704	0.3+	0.6−	1999 11 12	704
1998 03 28	704	0.6−	0.4−	1999 09 07	704	0.6+	0.7−	1999 11 12	704
1998 03 28	704	1.2−	0.5+	1999 09 07	704	0.1+	0.9−	1999 11 27	699
1998 03 28	704	1.0−	0.3+	1999 09 09	704	0.6+	0.1+	1999 11 27	699
1998 03 29	704	0.2−	0.1+	1999 09 09	704	1.0+	0.8−	1999 11 27	699
1998 03 29	704	(0.0	2.1−)	1999 09 09	704	0.6+	0.5−		

(12968)* 3261 T-3 = 1991 GW₆ = 1996 FN

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld
on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 26913)

1999 DEC. 22

M.P.C. 37111

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	144.53664		(2000.0)		P		Q				
<i>n</i>	0.18637342	ω	200.11647		+0.03511581		+0.99915051				
<i>a</i>	3.0353823	Ω	71.90076		−0.91378410		+0.04083918				
<i>e</i>	0.0699224	<i>i</i>	1.30015		−0.40467950		−0.00551602				
<i>P</i>	5.29	<i>H</i>	13.9		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
1977 10 07	675	0.4+	1.0−	1996 03 19	566	0.2−	0.3+	1998 09 27	704	0.3−	1.4+
1977 10 11	675	0.6−	0.1−	1996 03 19	566	0.1−	0.2+	1998 09 27	704	1.4−	0.6+
1977 10 11	675	1.6−	0.2+	1996 03 19	566	0.4−	0.2+	1998 09 27	704	0.2−	1.1+
1977 10 12	675	1.4+	0.2+	1998 09 14	704	0.0	1.8+	1998 09 27	704	0.1−	0.8+
1977 10 12	675	0.9+	0.7−	1998 09 14	704	0.2−	0.9−	1998 09 27	704	0.2+	1.3+
1977 10 16	675	1.5+	0.1+	1998 09 14	704	0.6+	0.2+	1998 10 20	691	0.2+	0.1+
1977 10 16	675	1.5+	0.8−	1998 09 18	704	0.8−	0.7−	1998 10 20	691	0.0	0.3+
1977 10 17	675	0.3−	0.5−	1998 09 18	704	(1.4−	2.6+)	1998 10 20	691	0.4+	0.2−
1977 10 17	675	1.0−	0.9−	1998 09 18	704	0.2−	0.9+	1999 11 09	704	1.3+	0.3+
1977 10 21	675	0.7+	1.4−	1998 09 18	704	1.5−	1.8+	1999 11 09	704	0.3−	0.6+
1977 10 21	675	1.2−	2.2−	1998 09 18	704	(2.1−	1.2+)	1999 11 09	704	0.3−	0.4+
1977 10 22	675	2.3+	2.1−	1998 09 25	699	1.0+	0.1+	1999 12 05	703	0.2−	0.0
1977 10 22	675	(4.0+	0.9−)	1998 09 25	699	(2.4−	1.7+)	1999 12 05	703	0.4+	0.9+
1991 04 08	809	(0.1+	2.4−)	1998 09 25	699	0.1+	1.8+	1999 12 05	703	0.1−	1.6+
1991 04 08	809	(0.8−	2.3−)	1998 09 26	704	0.9−	0.6+	1999 12 05	703	0.1−	0.2+
1991 04 08	809	(0.7−	2.9−)	1998 09 26	704	0.9−	0.2−	1999 12 07	704	0.2−	1.0−
1996 03 17	566	0.9+	0.4+	1998 09 26	704	0.1−	0.2+	1999 12 07	704	0.1+	0.3−
1996 03 17	566	0.7+	0.3+	1998 09 26	704	0.6−	1.4−	1999 12 07	704	0.4−	0.1+
1996 03 17	566	0.3−	0.5+	1998 09 26	704	0.5+	0.2+	1999 12 07	704	0.3−	0.0

(12969)* 3482 T-3 = 1994 WX₈ = 1998 MM₃

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 32294), M. E. Sansaturio (*MPC* 34570)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	345.11031		(2000.0)		P		Q				
<i>n</i>	0.18107664	ω	73.34427		+0.64224768		-0.76649353				
<i>a</i>	3.0942906	Ω	336.69560		+0.70094911		+0.58857091				
<i>e</i>	0.1773042	<i>i</i>	0.34259		+0.31014234		+0.25704467				
<i>P</i>	5.44	<i>H</i>	14.6		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
1977 10 07	675	(1.2+	3.3-)	1999 10 12	704	0.0	0.1-	1999 11 12	699	1.4-	1.0+
1977 10 11	675	0.6+	0.2+	1999 10 12	704	0.7-	1.1-	1999 11 12	704	0.4-	0.3+
1977 10 11	675	0.5-	0.4-	1999 10 12	704	0.0	0.7-	1999 11 12	699	0.3-	0.3-
1977 10 12	675	1.1+	0.4+	1999 10 22	704	0.8-	0.6-	1999 11 12	704	0.0	0.4+
1977 10 12	675	0.9+	1.5+	1999 10 22	704	0.0	0.5+	1999 11 12	704	0.3-	0.3+
1977 10 16	675	0.3+	0.9-	1999 10 22	704	1.0-	0.8-	1999 11 12	704	0.4-	0.6+
1977 10 16	675	0.3-	1.9-	1999 10 22	704	0.1+	0.5+	1999 11 12	704	0.1-	0.4+
1977 10 17	675	1.0-	0.5-	1999 10 22	704	0.3+	0.2-	1999 11 16	704	0.9-	0.5+
1977 10 17	675	1.0-	0.8-	1999 11 03	704	0.4+	0.6-	1999 11 16	704	0.3+	0.8+
1977 10 21	675	1.0-	0.6+	1999 11 03	704	0.6+	0.3-	1999 11 16	704	0.0	0.1-
1977 10 21	675	0.8-	1.3+	1999 11 03	704	0.5+	0.2+	1999 11 16	704	0.2-	0.2-
1977 10 22	675	1.6+	1.9-	1999 11 03	704	0.9+	1.0-	1999 11 16	704	0.5+	0.3-
1977 10 22	675	1.3+	0.7-	1999 11 03	704	0.1+	0.0	1999 12 02	699	0.0	0.0
1994 11 28	691	0.1+	0.5+	1999 11 04	703	0.0	0.8-	1999 12 02	699	0.4+	0.7+
1994 11 28	691	0.2-	0.0	1999 11 04	703	0.5-	0.9+	1999 12 02	699	0.2-	0.9-
1994 11 28	691	0.0	0.3-	1999 11 04	703	0.1+	0.5+	1999 12 07	704	0.2+	0.1-
1994 12 03	691	0.2+	0.1-	1999 11 04	703	(3.2-	0.2+)	1999 12 07	704	0.1-	0.0
1994 12 03	691	0.2-	0.1-	1999 11 05	699	(0.0	2.1+)	1999 12 07	704	0.1+	0.4+
1994 12 03	691	0.1+	0.0	1999 11 05	699	0.8-	0.7+	1999 12 07	704	0.4+	0.0
1998 06 17	691	0.1-	0.6+	1999 11 05	699	1.2+	1.1+	1999 12 07	704	0.0	0.1+
1998 06 17	691	0.4-	0.4+	1999 11 09	704	0.8+	0.3+	1999 12 08	704	0.0	0.6-
1998 06 17	691	0.4-	0.2+	1999 11 09	704	1.3+	0.2-	1999 12 08	704	0.0	0.2+
1998 06 23	691	0.4+	0.9+	1999 11 09	704	(2.0+	0.1-)	1999 12 08	704	0.3-	0.4+
1998 06 23	691	0.2-	0.4+	1999 11 09	704	0.5+	0.3-	1999 12 08	704	0.4-	0.3+
1998 06 23	691	0.1-	0.4+	1999 11 12	699	0.5-	1.0+	1999 12 08	704	0.4-	0.8+

(12970)* 4012 T-3 = 1991 GF₁₀

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 29315)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	80.58615		(2000.0)		P		Q				
n	0.18495793	ω	283.94907		+0.80801613		+0.57652071				
a	3.0508492	Ω	41.03583		-0.44349062		+0.73081427				
e	0.0708267	i	10.65444		-0.38784791		+0.36542355				
P	5.33	H	13.0		G	0.15	U	1			
Residuals in seconds of arc											
1977 10 07	675	1.4+	0.6+	1991 04 19	675	0.1+	0.2+	1999 12 07	106	0.8-	0.4+
1977 10 11	675	1.0+	1.0-	1998 09 21	704	0.2-	0.6-	1999 12 07	106	0.5-	0.7+
1977 10 11	675	0.6+	0.9-	1998 09 21	704	0.4+	0.1-	1999 12 12	704	0.2-	0.4-
1977 10 12	675	0.0	1.5-	1998 09 21	704	0.8+	0.3-	1999 12 12	704	0.5+	0.2-
1977 10 12	675	0.6+	0.1+	1998 09 21	704	0.1+	0.5+	1999 12 12	704	0.1+	0.2-
1977 10 16	675	0.7-	0.2-	1998 09 22	699	1.1-	0.5-	1999 12 12	704	0.1+	0.0
1977 10 16	675	0.9-	0.1+	1998 09 22	699	0.6+	0.0	1999 12 12	704	0.5+	0.2+
1991 04 09	033	0.6-	0.1-	1998 09 22	699	0.4-	0.7+	1999 12 13	704	0.0	0.2+
1991 04 09	033	0.5-	0.3+	1999 10 13	704	0.5+	0.5-	1999 12 13	704	0.4-	0.5+
1991 04 11	033	1.0-	0.1-	1999 10 13	704	0.3+	0.7-	1999 12 13	704	0.0	0.0
1991 04 11	033	0.4-	0.6-	1999 10 13	704	0.1-	0.3-	1999 12 13	704	0.3+	0.1-
1991 04 12	033	0.2-	0.8-	1999 10 13	704	0.1-	0.5-	1999 12 13	704	0.1+	0.1-
1991 04 13	033	0.5+	1.2-	1999 10 13	704	0.1+	0.1-				
1991 04 19	675	0.3-	1.3-	1999 12 07	106	0.4-	0.5+				

(12971)* 4054 T-3 = 1964 EL = 1997 JG₁

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. A. Gnädig (*MPC* 33061)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	63.42837		(2000.0)		P		Q			
<i>n</i>	0.18161552	ω	271.73702		+0.68172601		+0.72110429			
<i>a</i>	3.0881668	Ω	42.14599		-0.57647079		+0.63341571			
<i>e</i>	0.1031819	<i>i</i>	10.60772		-0.45047873		+0.28070115			
<i>P</i>	5.43	<i>H</i>	13.1		<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc										
1964 03 11	033 (4.1-	0.1-)	1999 10 07	704	0.5+	0.3-	1999 11 14	704	0.6+	0.4-
1964 03 12	033 0.2-	0.3-	1999 10 07	704	0.2-	0.1-	1999 11 14	704	0.2-	0.4-
1977 10 07	675 1.6+	0.5+	1999 10 07	704	0.1-	0.4+	1999 11 14	703	0.4-	0.5+
1977 10 11	675 0.4+	1.3-	1999 10 10	704	0.3+	0.3+	1999 11 14	704	0.0	0.7-
1977 10 11	675 1.0-	1.0-	1999 10 10	704	0.5-	0.6+	1999 11 14	703	0.3-	0.5+
1977 10 12	675 0.6-	0.1-	1999 10 10	704	0.1+	0.0	1999 11 14	704	0.2-	0.9-
1977 10 12	675 0.4-	0.3-	1999 10 10	704	0.9-	0.0	1999 11 14	703	0.2+	0.0
1977 10 16	675 0.9-	0.5+	1999 10 19	691	0.1+	0.2+	1999 11 14	691	0.2+	0.2-
1977 10 16	675 2.0-	0.9+	1999 10 19	691	0.2+	0.3+	1999 11 14	703	0.5-	0.2-
1977 10 17	675 1.0+	0.9-	1999 10 19	691	0.2+	0.3+	1999 11 14	691	0.3+	0.2-
1977 10 17	675 0.3-	0.0	1999 10 21	704	0.5-	0.9+	1999 11 14	691	0.3+	0.3-
1977 10 21	675 0.1-	1.9+	1999 10 21	704	0.6-	1.1+	1999 11 16	704	0.4+	0.2-
1977 10 21	675 0.4-	2.0+	1999 10 21	704	0.5-	0.4+	1999 11 16	704	0.3+	0.6-
1977 10 22	675 0.7+	0.6-	1999 10 21	704	0.3-	0.0	1999 11 16	704	0.5+	0.3-
1977 10 22	675 1.7+	1.2-	1999 10 21	704	0.3+	0.9+	1999 11 16	704	0.3+	0.4-
1997 05 01	910 0.2+	0.4+	1999 10 29	703	0.7-	1.1+	1999 11 16	704	0.4+	0.3-
1997 05 01	910 0.3+	0.5+	1999 10 29	703	0.4-	0.4+	1999 12 04	703	0.7-	0.1+
1997 05 01	910 0.4+	0.5+	1999 10 29	703	0.6-	0.4+	1999 12 04	703	0.3-	0.2-
1997 05 02	910 0.2+	0.3+	1999 10 29	703	1.3-	0.7+	1999 12 04	703	0.4-	0.2-
1997 05 02	910 0.2+	0.5+	1999 10 29	691	0.4+	0.0	1999 12 04	703	0.1-	0.2+
1997 05 03	910 0.2+	0.5+	1999 10 29	691	0.5+	0.0	1999 12 06	704	0.7+	1.1+
1999 10 03	704 0.0	0.3-	1999 10 29	691	0.3+	0.1+	1999 12 06	704	(1.1+	2.3+)
1999 10 03	704 0.1-	0.2-	1999 10 31	106	0.2-	0.1-	1999 12 06	704	0.1+	0.1+
1999 10 03	704 0.5-	1.0-	1999 10 31	106	0.6-	0.0	1999 12 06	704	1.0+	0.0
1999 10 03	704 0.5-	0.1-	1999 10 31	106	0.3-	0.3+	1999 12 07	704	0.6+	0.1-

1999 10 03	703	0.3−	0.1−	1999 11 04	704	0.8+	0.1+	1999 12 07	704	0.8+	0.4−
1999 10 03	703	(2.6−	1.3−)	1999 11 04	704	0.7+	1.3+	1999 12 07	704	1.1+	0.3−
1999 10 03	703	0.8−	1.6−	1999 11 04	704	0.6+	0.5+	1999 12 07	704	0.9+	0.2+
1999 10 03	703	0.0	1.7−	1999 11 04	704	0.8+	1.0+	1999 12 07	704	0.5+	0.1−
1999 10 05	704	0.5+	0.1−	1999 11 04	704	0.3+	0.4+	1999 12 12	703	0.1−	0.6+
1999 10 05	704	0.3+	0.0	1999 11 11	703	0.5−	0.0	1999 12 12	703	1.6−	0.3+
1999 10 05	704	0.4−	0.1−	1999 11 11	703	0.2−	0.2+	1999 12 12	703	1.2−	1.0−
1999 10 05	704	0.2+	0.2−	1999 11 11	703	0.2+	0.3+	1999 12 12	703	0.2+	0.4+
1999 10 05	704	1.1−	0.1−	1999 11 11	703	0.0	0.1−				
1999 10 07	704	0.3+	0.3−	1999 11 14	704	0.1+	0.4−				

1977 UA = 1998 KE₂₆ = 1999 RW₁₉₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	305.22044		(2000.0)	P	Q		
<i>n</i>	0.26785154	ω	134.85401	+0.61079290	−0.77529692		
<i>a</i>	2.3834532	Ω	276.82394	+0.67312140	+0.61535388		
<i>e</i>	0.1897828	<i>i</i>	9.31814	+0.41694079	+0.14231754		
<i>P</i>	3.68	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1977 10 16	046	1.2−	1.0+	1998 05 24	704	0.5+	0.2+	1999 12 05	704	0.6+	0.2−
1977 10 17	046	(0.9+	5.4−)	1998 05 24	704	(2.5+	2.4+)	1999 12 05	704	0.2+	0.2−
1977 10 18	046	0.2+	1.6−	1998 05 24	704	1.0+	0.3+	1999 12 05	704	0.2+	0.1+
1977 10 18	046	1.0+	1.5+	1998 05 24	704	(1.4+	2.5+)	1999 12 05	704	0.2+	0.4+
1977 10 19	046	(0.0	2.9−)	1999 09 08	704	0.2−	0.9+	1999 12 05	704	0.5+	0.5+
1977 10 19	046	0.5+	0.8−	1999 09 08	704	0.3+	0.7+	1999 12 06	704	0.2−	0.0
1977 10 20	046	0.1+	1.0−	1999 09 08	704	0.9+	0.4−	1999 12 06	704	0.1−	0.1−
1977 10 20	046	0.5−	0.7+	1999 09 08	704	0.0	0.7+	1999 12 06	704	0.2−	0.1−
1998 05 22	704	0.3−	0.2−	1999 09 16	704	0.2−	0.6−	1999 12 06	704	0.1−	0.1−
1998 05 22	704	0.0	0.5−	1999 09 16	704	0.6−	0.6−	1999 12 06	704	0.7−	0.7−
1998 05 22	704	0.5+	1.0−	1999 09 16	704	0.4−	0.1+				
1998 05 22	704	1.6−	0.7+	1999 09 16	704	0.2−	0.5−				

1977 XF₂ = 1997 LB₁₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	319.85915		(2000.0)	P	Q		
<i>n</i>	0.17509570	ω	337.57363	+0.49819748	−0.85542093		
<i>a</i>	3.1643589	Ω	82.28882	+0.81562718	+0.40693382		
<i>e</i>	0.1431716	<i>i</i>	8.21601	+0.29419649	+0.32040583		
<i>P</i>	5.63	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1977 12 07	675	0.2+	0.5−	1997 06 08	809	0.5−	0.4+	1997 06 09	809	0.3+	0.2−
1977 12 08	675	0.2−	0.4+	1997 06 08	809	0.1+	1.1+	1997 06 09	809	0.8−	0.8−
1997 06 08	809	0.8+	0.2+	1997 06 09	809	0.2+	0.7−				

1978 VO₃ = 1996 XN₂₃ = 1999 WC₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	37.53528		(2000.0)	P	Q		
<i>n</i>	0.28102395	ω	121.60004	+0.89232870	+0.45086659		
<i>a</i>	2.3083792	Ω	211.61571	−0.42687260	+0.82730468		
<i>e</i>	0.1883875	<i>i</i>	2.36719	−0.14672858	+0.33509146		
<i>P</i>	3.51	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1978 11 05	675	0.7−	0.6−	1999 11 28	049	1.2+	0.6+	1999 12 07	704	0.3−	0.0
1978 11 06	675	2.0+	0.8+	1999 11 28	049	1.2+	0.2−	1999 12 07	704	0.6−	0.6−
1978 11 08	675	1.8−	0.2+	1999 11 28	049	0.6+	0.3+	1999 12 07	704	0.2−	0.2−
1978 11 29	675	1.6−	0.7−	1999 11 29	049	1.0+	0.8+	1999 12 07	704	0.7−	0.8−
1978 11 30	675	2.1+	0.4+	1999 11 30	049	0.9+	0.5+	1999 12 08	704	0.2−	0.2−
1996 12 12	691	0.1+	0.2+	1999 11 30	049	1.1+	0.4+	1999 12 08	704	0.5−	1.0−
1996 12 12	691	0.1−	0.2+	1999 12 04	703	1.2−	0.2+	1999 12 08	704	0.5−	0.3−
1996 12 12	691	0.2−	0.6−	1999 12 04	703	0.2−	1.3+	1999 12 08	704	0.0	0.3−
1996 12 13	691	0.2+	0.2+	1999 12 04	703	0.5−	0.2+	1999 12 08	704	0.2−	0.2+

1996 12 13	691	0.2+	0.1+	1999 12 04	703	0.1−	0.2−
1996 12 13	691	0.1−	0.0	1999 12 07	704	0.9−	0.8−

1978 VV₃ = 1983 XM = 1999 VB₆₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	265.25223		(2000.0)	P	Q		
<i>n</i>	0.18568666	ω	80.22729	−0.78127494	−0.59482025		
<i>a</i>	3.0428619	Ω	63.02671	+0.45633005	−0.75111869		
<i>e</i>	0.0940400	<i>i</i>	12.25710	+0.42587832	−0.28637316		
<i>P</i>	5.31	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1978 11 05	675	0.8−	0.2+	1999 11 12	704	0.1−	0.5−	1999 12 05	703	0.1+	0.5+
1978 11 06	675	1.8+	0.5−	1999 11 12	704	0.1−	0.7−	1999 12 05	703	0.2−	0.6+
1978 11 07	675	0.4−	0.7+	1999 11 19	327	0.1−	0.1−	1999 12 07	704	0.0	0.2−
1978 11 08	675	0.4−	0.1+	1999 11 19	327	0.2+	0.0	1999 12 07	704	0.2−	0.2−
1978 11 29	675	0.8−	0.5+	1999 11 19	327	0.4+	0.0	1999 12 07	704	0.3+	0.2−
1978 11 29	675	1.3+	0.9−	1999 11 20	327	0.4+	0.6+	1999 12 07	704	(0.6−	2.5−)
1978 11 30	675	0.5−	0.6−	1999 11 20	327	1.3+	0.2−	1999 12 07	704	0.4−	0.8−
1978 11 30	675	(3.0+	0.0)	1999 11 20	327	0.2−	0.4+	1999 12 08	704	0.2+	0.4−
1983 12 04	801	0.1+	0.1−	1999 12 02	699	0.1−	0.3+	1999 12 08	704	0.3+	0.0
1999 11 04	704	0.3−	0.4+	1999 12 02	699	0.7+	0.6+	1999 12 08	704	0.1−	0.3+
1999 11 04	704	0.5+	0.2−	1999 12 02	699	0.5+	0.7+	1999 12 08	704	0.2−	0.1+
1999 11 04	704	0.9−	0.3−	1999 12 04	703	0.6−	0.0	1999 12 08	704	0.1−	0.0
1999 11 04	704	1.1−	0.4−	1999 12 04	703	0.1−	0.3+	1999 12 12	703	0.1−	0.3+
1999 11 04	704	0.7−	0.1−	1999 12 04	703	0.2+	0.2−	1999 12 12	703	0.2+	0.2+
1999 11 12	704	0.7+	0.1+	1999 12 04	703	0.2−	0.0	1999 12 12	703	0.4−	0.2+
1999 11 12	704	0.1−	0.3−	1999 12 05	703	0.0	0.2+	1999 12 12	703	0.3−	0.7+
1999 11 12	704	0.1−	0.5−	1999 12 05	703	0.0	0.4−				

1978 VB₄ = 1999 XT₇₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	0.41542		(2000.0)	P	Q		
<i>n</i>	0.28278873	ω	144.96638	+0.79576615	−0.60047396		
<i>a</i>	2.2987654	Ω	252.12874	+0.53505097	+0.75794598		
<i>e</i>	0.1599474	<i>i</i>	4.74073	+0.28368413	+0.25485077		
<i>P</i>	3.49	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1978 11 05	675	0.8−	0.4−	1978 11 30	675	2.1−	0.5−	1999 12 08	704	0.2+	0.3+
1978 11 06	675	0.9+	0.4+	1978 11 30	675	0.6+	0.3+	1999 12 08	704	0.0	0.2+
1978 11 07	675	0.1+	0.3+	1999 12 07	704	0.1+	0.2+	1999 12 08	704	0.7−	0.3+
1978 11 08	675	0.2−	0.3−	1999 12 07	704	0.0	0.1+	1999 12 08	704	0.6−	0.9−
1978 11 29	675	1.9+	1.1+	1999 12 07	704	0.7+	0.1−	1999 12 08	704	0.2+	0.2+
1978 11 29	675	0.4−	0.9−	1999 12 07	704	0.1+	0.1−				

1978 VL₄ = 1999 VW₃₅

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	326.52315		(2000.0)	P	Q		
<i>n</i>	0.28164856	ω	202.24453	+0.30156382	−0.95186603		
<i>a</i>	2.3049651	Ω	230.24850	+0.88516453	+0.30088831		
<i>e</i>	0.2310896	<i>i</i>	4.09233	+0.35432049	+0.05845753		
<i>P</i>	3.50	<i>H</i>	16.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1978 11 05	675	0.4+	0.6−	1999 11 03	704	0.8−	0.7−	1999 12 07	704	0.1+	0.6+
1978 11 06	675	0.9+	0.7+	1999 11 03	704	0.2−	1.1−	1999 12 07	704	0.3+	0.4−
1978 11 07	675	0.2+	0.4−	1999 11 12	704	0.2+	0.1+	1999 12 07	704	0.2−	0.2−
1978 11 08	675	0.1−	0.8−	1999 11 12	704	0.1+	0.6+	1999 12 08	704	0.2+	0.2−
1978 11 29	675	0.8−	0.5−	1999 11 12	704	0.2−	0.3+	1999 12 08	704	0.2−	0.5+
1978 11 30	675	0.3−	1.0−	1999 11 12	704	0.7+	1.6+	1999 12 08	704	0.5−	0.2−
1999 11 03	704	0.4+	0.4+	1999 12 07	704	0.3+	0.0	1999 12 08	704	0.2+	0.1+
1999 11 03	704	0.9−	1.0+	1999 12 07	704	0.4+	0.3+	1999 12 08	704	0.1−	0.1+

1978 VE₈ = 1999 VA₃₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18776304	ω	62.82337	-0.54888590	-0.83449411		
<i>a</i>	3.0203873	Ω	60.54941	+0.74590312	-0.51511186		
<i>e</i>	0.0616095	<i>i</i>	3.18715	+0.37729672	-0.19565109		
<i>P</i>	5.25	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1978 11 05	675	0.7+	0.5-	1999 11 03	704	0.1+	0.2+	1999 11 12	704	0.2+	0.1+
1978 11 07	675	0.2-	0.3+	1999 11 03	704	1.3-	0.3-	1999 12 07	704	0.2-	0.1-
1978 11 08	675	0.6+	0.7+	1999 11 12	704	0.3+	0.1-	1999 12 07	704	0.0	0.0
1978 11 29	675	0.4-	0.1-	1999 11 12	704	0.2-	0.0	1999 12 07	704	0.0	0.2+
1978 11 30	675	0.6-	0.6-	1999 11 12	704	0.0	0.2-	1999 12 07	704	0.2+	0.1+
1999 11 03	704	0.3+	0.3+	1999 11 12	704	0.5+	0.0	1999 12 07	704	0.1+	0.2+

1978 VZ₈ = 1999 VT₆₆

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23296133	ω	353.68768	+0.60505030	-0.79414776		
<i>a</i>	2.6158539	Ω	59.06488	+0.73336065	+0.52802842		
<i>e</i>	0.1259403	<i>i</i>	3.80703	+0.30999403	+0.30085765		
<i>P</i>	4.23	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1978 11 05	675	1.7+	0.7+	1999 11 04	704	0.0	0.2+	1999 12 06	704	1.1+	0.1+
1978 11 06	675	0.9-	0.4-	1999 11 12	704	0.1+	0.1+	1999 12 07	704	0.2-	0.2-
1978 11 07	675	1.1-	1.3+	1999 11 12	704	0.2-	0.4-	1999 12 07	704	0.0	0.0
1978 11 08	675	0.7-	0.2+	1999 11 12	704	0.4+	0.2-	1999 12 07	704	0.1+	0.3+
1978 11 29	675	1.7+	0.6-	1999 11 12	704	0.3+	0.1-	1999 12 07	704	1.0+	0.8+
1978 11 30	675	0.8-	0.4-	1999 11 12	704	0.1+	0.2-	1999 12 12	703	0.2-	0.5+
1999 11 04	704	1.2-	0.0	1999 12 06	704	0.7+	0.1+	1999 12 12	703	0.5-	0.6+
1999 11 04	704	0.2-	0.0	1999 12 06	704	0.4+	0.1-	1999 12 12	703	1.1-	0.4-
1999 11 04	704	0.1-	0.2+	1999 12 06	704	0.1-	0.6-	1999 12 12	703	0.2-	0.7-
1999 11 04	704	0.3-	0.5-	1999 12 06	704	0.2+	0.0				

1978 VC₉ = 1978 WM₁₂ = 1999 XL₈₃Id. H. Oishi (d, *JAM* 2047), G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23666760	ω	209.47635	-0.46791331	-0.88343705		
<i>a</i>	2.5884722	Ω	268.43210	+0.81555283	-0.42098524		
<i>e</i>	0.1168538	<i>i</i>	1.39957	+0.34048599	-0.20569494		
<i>P</i>	4.16	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1978 11 05	675	0.8+	0.0	1999 12 07	704	0.3-	0.7+	1999 12 08	704	0.2-	0.2+
1978 11 06	675	0.6+	0.2-	1999 12 07	704	0.2-	0.1+	1999 12 08	704	0.5+	0.1-
1978 11 07	675	0.9+	0.5+	1999 12 07	704	0.3+	0.0	1999 12 08	704	0.3-	0.2+
1978 11 29	675	0.6+	0.0	1999 12 07	704	0.0	0.5-	1999 12 08	704	0.2+	0.5-
1978 11 30	675	1.1+	0.0	1999 12 07	704	0.0	0.0				

1978 VN₁₀ = 1999 VJ₆₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18401142	ω	259.39919	-0.30177981	-0.95307186		
<i>a</i>	3.0613021	Ω	208.20181	+0.89346876	-0.27388970		
<i>e</i>	0.1522138	<i>i</i>	2.92861	+0.33262971	-0.12899016		
<i>P</i>	5.36	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1978 11 05	675	1.9-	0.0	1999 11 04	704	0.3-	0.2+	1999 11 12	704	0.4+	0.2-
1978 11 06	675	0.8+	0.4-	1999 11 04	704	0.1-	0.4-	1999 11 12	704	0.0	0.5-
1978 11 07	675	0.3+	1.5+	1999 11 04	704	0.0	0.6+	1999 12 12	703	0.6+	0.0
1978 11 08	675	1.9+	1.5+	1999 11 04	704	0.4-	0.2-	1999 12 12	703	(3.7+	4.4-)
1978 11 29	675	0.0	1.1-	1999 11 12	704	0.2+	0.1-	1999 12 12	703	0.9-	1.4+
1978 11 30	675	1.1-	1.1-	1999 11 12	704	0.1+	0.2-	1999 12 12	703	0.1+	0.4-
1999 11 04	704	0.4+	0.0	1999 11 12	704	0.0	0.4-				

1981 EV₂ = 1999 XB₁₀₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19035719	ω	79.72739	+0.85191242	+0.50126567		
<i>a</i>	2.9928838	Ω	250.04345	-0.52100287	+0.78201278		
<i>e</i>	0.0324684	<i>i</i>	9.28055	-0.05292677	+0.37038999		
<i>P</i>	5.18	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 02	413	0.9-	0.5-	1981 03 12	413	0.7-	0.5+	1999 12 04	703	0.5-	0.0
1981 02 02	413	0.4+	1.3+	1981 03 12	413	0.4+	0.9-	1999 12 04	703	0.1+	0.3-
1981 02 09	413	0.4+	1.2-	1981 04 08	413	0.0	0.4+	1999 12 04	703	0.0	0.7+
1981 03 02	413	1.2+	0.4-	1981 04 09	413	1.8-	0.0	1999 12 12	703	0.4+	0.0
1981 03 07	413	0.9-	1.4+	1981 04 09	413	0.3-	1.0-	1999 12 12	703	0.8-	0.2-
1981 03 07	413	1.4+	0.4-	1981 04 29	413	0.6+	0.8-	1999 12 12	703	0.5+	0.1+
1981 03 10	413	0.5+	1.3+	1999 12 04	703	0.3+	0.5-	1999 12 12	703	0.2+	0.1+

1981 EU₃ = 1999 XN₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24758769	ω	310.32822	-0.99216564	-0.02809402		
<i>a</i>	2.5117901	Ω	228.43167	+0.06301154	-0.95390202		
<i>e</i>	0.1166169	<i>i</i>	9.36389	-0.10787444	-0.29880036		
<i>P</i>	3.98	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1981 02 02	413	0.3+	0.7+	1981 04 07	413	0.8+	0.3-	1999 12 04	703	1.8-	0.1-
1981 02 09	413	0.4+	0.5-	1981 04 08	413	0.2-	0.1+	1999 12 05	703	1.1+	0.7+
1981 03 02	413	0.9-	1.5+	1981 04 08	413	(2.0+	3.5-)	1999 12 05	703	0.4-	0.3+
1981 03 02	413	1.3-	1.2+	1981 04 09	413	0.4+	2.3-	1999 12 05	703	0.1-	0.8-
1981 03 07	413	0.3+	0.9+	1981 04 09	413	0.8+	1.7-	1999 12 05	703	0.3+	0.7+
1981 03 10	413	0.7-	0.7+	1981 04 29	413	0.9+	1.4-	1999 12 07	704	0.3-	0.1-
1981 03 10	413	(3.1+	1.1-)	1981 05 03	413	0.1+	0.3+	1999 12 07	704	0.6+	0.5-
1981 03 12	413	1.0-	0.6+	1999 12 04	703	0.0	0.3-	1999 12 07	704	0.0	0.5-
1981 03 12	413	0.1+	0.4-	1999 12 04	703	0.2-	0.6-	1999 12 07	704	0.6+	0.2-
1981 04 07	413	(1.5-	2.6+)	1999 12 04	703	0.6-	0.7+	1999 12 07	704	0.9+	0.4-

1981 EY₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19059236	ω	83.17954	+0.84245258	-0.51928802		
<i>a</i>	2.9904213	Ω	308.00000	+0.39365095	+0.77522121		
<i>e</i>	0.1592372	<i>i</i>	10.49784	+0.36784859	+0.35968322		
<i>P</i>	5.17	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1981 02 12	413	0.9+	0.1-	1981 03 12	413	0.6-	0.3+	1999 12 05	699	0.0	0.8+
1981 03 06	413	0.5-	0.7+	1981 04 09	413	0.3-	0.7+	1999 12 08	703	0.2+	0.8-
1981 03 06	413	0.2+	0.9-	1981 05 01	413	0.6+	0.8-	1999 12 08	703	0.8-	0.2-
1981 03 08	413	0.3+	1.1+	1981 05 02	413	0.7+	0.4-	1999 12 08	703	0.5+	0.1-
1981 03 08	413	(3.6+	0.1-)	1999 12 05	699	0.1-	0.1+	1999 12 08	703	0.0	0.4-
1981 03 12	413	1.1-	0.8-	1999 12 05	699	0.1+	0.5+				

1981 ED₉ = 1999 XG₄₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30082922	ω	184.65392	+0.16053973	-0.98423982		
<i>a</i>	2.2059180	Ω	256.12121	+0.90802918	+0.17672439		
<i>e</i>	0.1067048	<i>i</i>	4.38081	+0.38692376	-0.00636124		
<i>P</i>	3.28	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 14	413	0.5+	0.9-	1981 04 29	413	0.5-	1.4-	1999 12 08	704	0.3+	0.3-
1981 03 01	413	0.9+	1.3+	1981 04 30	413	0.7+	0.4-	1999 12 08	704	0.2+	0.5-
1981 03 01	413	0.6-	0.2-	1981 05 02	413	0.3+	1.2-	1999 12 08	704	0.6+	0.2-
1981 03 11	413	(3.7+	2.1-)	1999 12 07	704	0.4+	1.5-	1999 12 12	703	0.3-	0.9+
1981 03 15	413	0.9+	0.6+	1999 12 07	704	0.2+	0.1+	1999 12 12	703	0.5-	0.3+
1981 04 06	413	(2.6-	1.2+)	1999 12 07	704	0.1+	0.1+	1999 12 12	703	0.1-	0.5+
1981 04 06	413	0.3-	0.6-	1999 12 07	704	0.0	0.3-	1999 12 12	703	0.4-	0.0
1981 04 12	413	1.6-	1.0+	1999 12 08	704	0.5-	0.5+				
1981 04 12	413	0.5-	1.0+	1999 12 08	704	0.0	0.1+				

1981 EH₃₂ = 1999 VM₄₁

Id. A. Doppler, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18720656	ω	11.19881	-0.53549684	+0.83332250		
<i>a</i>	3.0263698	Ω	226.59559	-0.78870329	-0.55153095		
<i>e</i>	0.0692118	<i>i</i>	10.88331	-0.30197726	-0.03724550		
<i>P</i>	5.26	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 03 06	413	0.5+	0.1-	1981 05 01	413	0.3-	0.3+	1999 11 04	691	0.2-	0.4+
1981 03 08	413	0.1-	0.1+	1999 11 02	691	0.2+	0.3-	1999 11 04	691	0.1-	0.3+
1981 03 08	413	1.3+	0.7-	1999 11 02	691	0.2+	0.2-	1999 11 04	691	0.1-	0.3+
1981 03 12	413	1.4-	0.4+	1999 11 02	691	0.1-	0.3-				

1982 TJ = 1999 XT₈₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23667501	ω	273.88930	+0.97106943	-0.23584776		
<i>a</i>	2.5884182	Ω	99.75514	+0.23138551	+0.89057244		
<i>e</i>	0.3914931	<i>i</i>	2.17578	+0.05903312	+0.38891717		
<i>P</i>	4.16	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1982 09 15	688	0.3-	0.4+	1982 10 21	688	0.5-	0.2-	1999 12 08	704	0.7+	0.0
1982 09 15	688	0.5+	0.9-	1999 12 07	704	0.6-	0.5+	1999 12 08	704	0.1+	0.1+
1982 10 13	688	0.1-	0.8+	1999 12 07	704	0.0	0.2-	1999 12 08	704	0.3+	0.0
1982 10 13	688	0.5-	0.2+	1999 12 07	704	0.0	0.1+	1999 12 08	704	0.1-	0.5-
1982 10 17	688	0.6+	0.1+	1999 12 07	704	0.4-	0.0				
1982 10 21	688	0.4+	0.5-	1999 12 07	704	0.1-	0.1-				

1984 AU = A906 UH = 1972 CE

Id. T. Kobayashi (1999 observations), S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24430603	ω	86.63244	+0.53615534	-0.84366932		
<i>a</i>	2.5342333	Ω	330.89231	+0.75022730	+0.49122910		
<i>e</i>	0.1322012	<i>i</i>	3.24778	+0.38690626	+0.21660112		
<i>P</i>	4.03	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1906 10 23	024	0.8+	2.3-	1984 01 23	372	(2.5-	2.6+)	1999 12 03	411	0.3-	0.6+
1972 02 06	095	0.6-	2.1-	1984 01 25	372	(0.6-	5.4-)	Y 1999 12 10	704	0.6-	0.1-
1984 01 05	688	1.0-	0.8+	1984 01 26	688	0.5-	0.3+	1999 12 10	704	0.6+	0.6+
1984 01 05	688	0.1-	1.8+	1984 01 26	688	0.5+	1.3-	1999 12 10	704	0.7+	0.9+

1984 01 08	688	0.1+	0.4-	1999 12 02	411	0.7-	0.8+	1999 12 10	704	0.9+	0.4+
1984 01 08	688	0.8+	2.0-	1999 12 02	411	1.0-	0.7+	1999 12 10	704	0.2+	0.3+
1984 01 23	372	(0.2-	2.8+)	1999 12 03	411	0.5+	0.3-				

1984 ST₅ = 1998 HP₁₀₂ = 1999 VQ₂₇

Id. A. Doppler, S. Nakano, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26539038	ω	35.34278	+0.95073690	-0.30986420		
<i>a</i>	2.3981661	Ω	342.70136	+0.27687773	+0.86204788		
<i>e</i>	0.1887254	<i>i</i>	1.76136	+0.13942051	+0.40107060		
<i>P</i>	3.71	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1984 09 21	809	0.1-	0.7+	1984 09 27	809	0.2-	0.0	1998 04 28	809	1.0-	0.0
1984 09 21	809	0.3-	0.5+	1984 09 28	809	0.3-	0.9+	1998 04 28	809	0.3-	0.6-
1984 09 21	809	0.1-	0.5+	1984 09 28	809	0.2+	0.6+	1999 11 03	703	0.0	0.5+
1984 09 22	809	1.1-	0.2-	1984 09 28	809	0.7+	0.5+	1999 11 03	703	0.5-	0.4+
1984 09 22	809	0.8-	0.2-	1984 09 29	809	0.1+	0.8-	1999 11 03	703	0.2+	0.4+
1984 09 22	809	0.5-	0.2-	1984 09 29	809	0.4+	0.8-	1999 11 03	703	0.3-	0.4+
1984 09 23	809	0.4-	0.2+	1984 09 29	809	0.7+	0.7-	1999 11 11	703	0.1+	0.4+
1984 09 23	809	0.0	0.3+	1984 09 30	809	0.4-	1.0-	1999 11 11	703	0.1+	0.4+
1984 09 23	809	0.2+	0.0	1984 09 30	809	0.1-	0.8-	1999 11 11	703	0.1+	0.3+
1984 09 24	809	0.8+	0.9+	1984 09 30	809	0.3+	0.4-	1999 11 11	703	0.4+	0.2+
1984 09 24	809	1.1+	0.8+	1984 10 01	809	0.1+	1.0-	1999 11 13	587	0.2-	0.3-
1984 09 24	809	1.4+	0.8+	1984 10 01	809	0.2+	0.9-	1999 11 13	587	0.3-	0.3-
1984 09 26	809	0.6-	0.5+	1984 10 01	809	0.4+	0.7-	1999 11 13	587	0.1+	0.5-
1984 09 26	809	0.4-	0.4+	1998 04 25	809	0.6+	1.5+	1999 11 17	587	0.3-	0.4-
1984 09 26	809	0.2-	0.1-	1998 04 25	809	0.2-	1.4+	1999 11 17	587	0.1+	0.2-
1984 09 27	809	0.4-	0.1-	1998 04 25	809	0.9+	1.5-	1999 11 17	587	0.2+	0.1-
1984 09 27	809	0.2-	0.1-	1998 04 28	809	0.1+	0.1-				

1985 RA = 1999 XM₁₀₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21790685	ω	110.04338	+0.88786771	-0.44028282		
<i>a</i>	2.7349882	Ω	276.27590	+0.35571648	+0.84100520		
<i>e</i>	0.1755462	<i>i</i>	7.72272	+0.29181624	+0.31442215		
<i>P</i>	4.52	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1985 09 11	054	0.3+	1.6-	1985 09 18	054	0.0	0.2-	1999 12 08	905	0.5+	0.3-
1985 09 15	054	1.9+	0.3+	1985 09 22	054	1.1-	0.1-	1999 12 11	385	0.3-	0.1+
1985 09 17	054	1.1-	1.5+	1999 12 08	905	0.2+	0.2+	1999 12 11	385	0.4-	0.0

1986 QQ₃ = 1999 VL₃₄

Id. S. Nakano, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23681299	ω	324.67154	+0.98226059	-0.18201970		
<i>a</i>	2.5874127	Ω	45.88326	+0.18323589	+0.88054821		
<i>e</i>	0.1470385	<i>i</i>	3.60077	+0.03985897	+0.43761133		
<i>P</i>	4.16	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1986 08 29	809	0.5-	0.2-	1986 09 04	809	0.8+	0.5+	1999 11 28	886	1.8-	1.5+
1986 08 29	809	0.3-	0.2-	1986 09 11	809	0.7-	1.3-	1999 11 28	886	(2.4-	0.9-)
1986 08 29	809	0.3-	0.2-	1986 09 11	809	0.6-	1.4-	1999 11 29	886	1.4-	0.9-
1986 08 31	809	0.2+	0.5+	1986 09 11	809	0.8-	1.6-	1999 11 29	886	0.5+	0.2-
1986 08 31	809	0.1+	0.3+	1999 11 03	704	0.2+	0.1-	1999 12 07	704	0.0	0.2-
1986 08 31	809	0.2+	0.0	1999 11 03	704	0.8+	0.2+	1999 12 07	704	1.0-	0.3-
1986 09 01	809	0.0	0.3+	1999 11 03	704	0.1+	1.0-	1999 12 07	704	0.3-	0.4+
1986 09 01	809	0.0	0.3+	1999 11 03	704	0.8+	0.6-	1999 12 07	704	0.3-	0.4+
1986 09 01	809	0.0	0.3+	1999 11 03	704	1.0+	0.5-	1999 12 07	704	0.3-	0.6+
1986 09 02	809	0.1-	0.7+	1999 11 12	704	0.2+	0.1+	1999 12 10	704	0.7+	0.2-

1999 DEC. 22

M.P.C. 37115

1986 09 02	809	0.1+	0.7+	1999 11 12	704	0.1+	0.2+	1999 12 10	704	0.4+	0.4+
1986 09 02	809	0.2+	0.4+	1999 11 12	704	0.2-	0.1-	1999 12 10	704	0.4+	0.1+
1986 09 04	809	0.8+	0.5+	1999 11 12	704	0.2+	0.1-	1999 12 10	704	0.2+	0.2+
1986 09 04	809	0.8+	0.7+	1999 11 12	704	0.2-	0.2-				

1987 BX₁

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
P				Q			
<i>M</i>	240.74687						
<i>n</i>	0.21079012	ω	261.37747	-0.79311815	-0.60059920		
<i>a</i>	2.7962064	Ω	241.64694	+0.59421515	-0.72654359		
<i>e</i>	0.1696466	<i>i</i>	6.60423	+0.13368607	-0.33378887		
<i>P</i>	4.68	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1987 01 24	809	0.0	0.6-	1998 08 17	704	0.6+	0.2+	1999 10 01	703	0.5-	0.3-
1987 01 25	809	1.0-	0.6-	1998 08 17	704	(3.3-	0.2+)	1999 10 01	703	0.1-	0.5+
1987 01 25	809	0.7-	1.1-	1998 08 17	704	0.7-	0.1-	1999 10 03	704	0.9-	0.3+
1987 01 25	809	0.9-	0.6-	1998 08 17	704	(4.1-	0.4+)	1999 10 03	704	1.1+	0.6-
1987 01 27	809	0.2+	0.1+	1999 09 05	703	0.8-	1.0+	1999 10 03	704	0.7+	0.1-
1987 01 27	809	1.3+	1.4+	1999 09 05	703	0.5+	0.9+	1999 10 03	704	1.2+	0.4-
1987 01 29	809	0.8+	0.4-	1999 09 05	703	0.5-	0.6+	1999 10 03	704	0.3+	0.6-
1987 01 29	809	2.3+	0.2+	1999 09 05	703	0.7-	0.5+	1999 11 04	703	0.3+	0.3-
1987 01 30	809	0.0	0.3+	1999 09 18	704	0.4-	1.0-	1999 11 04	703	0.2-	0.2+
1987 01 30	809	0.8-	0.2-	1999 09 18	704	0.4+	0.4+	1999 11 04	703	0.3+	0.4+
1987 02 02	809	0.2-	0.1+	1999 09 18	704	0.4+	0.2-	1999 11 04	703	0.2+	0.1-
1987 02 02	809	0.3+	0.0	1999 09 18	704	0.4+	0.6-	1999 11 27	699	1.0-	0.7-
1987 02 06	809	0.7-	1.1+	1999 09 18	704	0.1+	0.3+	1999 11 27	699	1.0-	0.2-
1987 02 06	809	0.4-	0.8+	1999 10 01	703	0.1+	0.3+	1999 11 27	699	0.5-	0.1+
1998 08 17	704	0.0	0.3+	1999 10 01	703	0.2+	0.0				

1987 SX₁₀ = 1999 JT₃₉

Id. M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
P				Q			
<i>M</i>	196.61253						
<i>n</i>	0.22022836	ω	11.38603	+0.60837329	-0.78805377		
<i>a</i>	2.7157339	Ω	41.23813	+0.71649245	+0.49436310		
<i>e</i>	0.0969521	<i>i</i>	8.20631	+0.34135101	+0.36684654		
<i>P</i>	4.48	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1987 09 29	033	0.2+	0.4+	1999 05 10	704	0.6+	0.6-	1999 05 18	704	0.8-	2.3-
1987 09 29	033	0.7+	1.0-	1999 05 13	704	0.0	0.6+	1999 05 18	704	1.1-	0.5-
1987 09 30	033	0.2+	0.4+	1999 05 13	704	1.1-	0.2+	1999 05 18	704	0.9+	0.2-
1987 09 30	033	0.8-	0.7-	1999 05 13	704	0.2+	1.0-	1999 05 19	703	0.3+	0.7+
1987 10 01	033	0.3-	1.0+	1999 05 13	704	0.0	0.1-	1999 05 19	703	0.4+	0.9+
1999 05 10	704	1.8-	1.0-	1999 05 13	704	1.1-	1.4+	1999 05 19	703	0.2+	0.1-
1999 05 10	704	0.7+	1.4+	1999 05 18	704	0.8+	0.1+	1999 05 19	703	0.6+	1.0+
1999 05 10	704	1.6+	0.3+	1999 05 18	704	0.3-	0.9-				

1988 CB₄ = 1999 RF₁₂₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler				Doppler			
(2000.0)				(2000.0)			
P				Q			
<i>M</i>	307.57462						
<i>n</i>	0.30781421	ω	126.49280	+0.71315905	-0.69140263		
<i>a</i>	2.1724191	Ω	277.56838	+0.60008129	+0.68738175		
<i>e</i>	0.0840466	<i>i</i>	6.69765	+0.36236253	+0.22241569		
<i>P</i>	3.20	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1988 02 13	809	(0.5-	3.3+)	1988 02 21	809	0.1+	0.7+	1999 09 09	704	0.4+	0.2+
1988 02 15	809	0.1-	1.2+	1988 02 23	809	0.1-	0.1+	1999 09 09	704	0.2+	0.2+
1988 02 16	809	0.1+	1.0-	1988 02 23	809	0.0	0.3-	1999 09 10	704	0.4-	0.8-
1988 02 16	809	0.3+	1.0-	1988 02 23	809	0.5+	1.0-	1999 09 10	704	0.2-	0.1-
1988 02 16	809	(0.2+	1.5-)	1999 09 09	704	0.3+	0.0	1999 09 10	704	0.1-	0.3+

1988 02 21	809	0.6-	0.6+	1999 09 09	704	0.0	0.1-	1999 09 10	704	0.5-	0.3+
1988 02 21	809	0.2-	0.9+	1999 09 09	704	0.4+	0.0				

1988 SU₁ = 1999 XC₂₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
P				Q			
<i>M</i>	194.85068						
<i>n</i>	0.18939349	ω	146.71163	-0.98273620	+0.12960809		
<i>a</i>	3.0030278	Ω	41.37914	-0.18034583	-0.83034350		
<i>e</i>	0.0366064	<i>i</i>	11.52103	+0.04129090	-0.54196994		
<i>P</i>	5.20	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1988 09 15	675	0.4-	0.6+	1999 12 06	704	0.7+	0.2-	1999 12 07	704	0.1+	0.3-
1988 09 15	675	0.9-	0.2+	1999 12 06	704	0.4+	0.5+	1999 12 07	704	0.1-	0.7-
1988 09 16	807	0.5+	0.3-	1999 12 06	704	0.1-	0.0	1999 12 07	704	0.4+	0.7+
1988 09 18	807	1.6+	0.7-	1999 12 06	704	0.7-	0.3+	1999 12 12	703	0.0	0.2+
1988 10 05	807	0.4-	0.3+	1999 12 06	704	0.8-	0.1-	1999 12 12	703	0.4-	0.1+
1988 10 06	807	0.4-	0.4+	1999 12 07	704	0.7+	0.1-	1999 12 12	703	0.7-	0.3+
1988 10 07	807	0.1-	0.4-	1999 12 07	704	0.5+	0.5-	1999 12 12	703	0.1+	0.2-

1988 TV₁ = 1999 VE₂₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
P				Q			
<i>M</i>	350.57612						
<i>n</i>	0.27384230	ω	167.73863	+0.77007756	-0.63707890		
<i>a</i>	2.3485638	Ω	231.88704	+0.58167094	+0.72264031		
<i>e</i>	0.2418455	<i>i</i>	2.42802	+0.26199135	+0.26818177		
<i>P</i>	3.60	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1988 10 03	399	0.4-	2.6-	1988 10 13	399	1.7+	0.8-	1999 11 13	411	1.4+	0.1+
1988 10 03	399	0.1+	1.1-	1988 10 13	399	0.9-	0.8-	1999 11 16	411	1.3-	0.6-
1988 10 03	399	0.1+	1.9+	1988 10 16	399	1.5+	1.9+	1999 11 16	411	0.4-	0.4+
1988 10 07	675	0.8+	0.3-	1988 10 16	399	1.9+	1.0+	1999 12 08	704	0.3+	0.1-
1988 10 07	675	0.8+	1.5-	1988 10 18	399	1.6-	1.4+	1999 12 08	704	0.3-	0.5+
1988 10 13	675	1.9-	0.2+	1988 10 19	399	0.8+	0.9+	1999 12 08	704	0.1+	0.2-
1988 10 13	675	1.2-	0.1+	1988 10 19	399	1.3-	0.8+	1999 12 08	704	0.0	0.5-
1988 10 13	399	0.4-	1.1-	1999 11 13	411	0.4+	0.9+	1999 12 08	704	0.1-	0.8-

1989 AG₆ = 1999 XX₇₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
P				Q			
<i>M</i>	264.41109						
<i>n</i>	0.17335924	ω	73.01974	-0.99599641	-0.07666809		
<i>a</i>	3.1854544	Ω	102.56501	+0.05292625	-0.92016571		
<i>e</i>	0.1220520	<i>i</i>	2.69945	+0.07204133	-0.38394931		
<i>P</i>	5.69	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1989 01 11	033	0.0	0.1+	1989 02 03	033	0.3+	0.1-	1999 12 07	704	0.1-	0.3-
1989 01 11	033	0.2-	0.1+	1999 12 07	704	0.9+	0.2+	1999 12 08	704	1.7-	0.4-
1989 01 14	033	0.3+	0.2-	1999 12 07	704	0.2+	0.0	1999 12 08	704	0.2+	0.7+
1989 02 02	033	0.4-	0.1+	1999 12 07	704	0.1-	0.1-	1999 12 08	704	0.7+	0.2-

1989 BH = 1999 XP₉

Id. G. V. Williams, E. Bowell (1998 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	306.48382		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.27174621	ω	47.77815	-0.91053366	-0.37935142
a	2.3606253	Ω	109.32665	+0.30906767	-0.88864539
e	0.1721134	i	10.03193	+0.27460085	-0.25768560
P	3.63	H	13.2	G 0.15	U 4

Residuals in seconds of arc

1989 01 29	552	(1.3– 3.2–)	1989 03 05	552	0.7+ 0.1–	1999 12 07	704	0.1+ 0.2+
1989 01 29	552	(1.7– 5.2+)	1989 03 05	552	0.3– 0.9+	1999 12 07	704	0.1+ 0.4–
1989 01 30	552	(1.0– 4.1–)	1989 03 06	552	0.8+ 0.8–	1999 12 08	704	0.0 0.6–
1989 01 30	552	(2.2– 2.9–)	1989 03 06	552	0.5– 0.1+	1999 12 08	704	0.1– 0.1+
1989 02 01	552	1.0+ 0.2–	1999 12 06	704	0.4+ 0.3+	1999 12 08	704	0.2– 0.2–
1989 02 01	552	0.8+ 0.6–	1999 12 06	704	0.2+ 0.4+	1999 12 08	704	0.2+ 0.0
1989 02 02	552	(0.5– 3.1+)	1999 12 06	704	0.6– 0.3+	1999 12 08	704	0.1– 0.2+
1989 02 02	552	(0.8– 2.7+)	1999 12 06	704	0.1– 0.2+	1999 12 15	704	0.0 0.1–
1989 02 07	552	0.8– 0.4–	1999 12 06	704	0.7– 0.6+	1999 12 15	704	0.2+ 1.2+
1989 02 07	552	1.1– 0.2–	1999 12 07	704	0.3+ 0.4–	1999 12 15	704	0.3+ 0.8–
1989 02 08	552	0.1– 0.6+	1999 12 07	704	0.0 0.2–	1999 12 15	704	0.2+ 0.5+
1989 02 08	552	0.4– 0.2+	1999 12 07	704	0.0 0.6–			

1989 WU

Id. S. Nakano (1992 observations), T. Kobayashi (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	316.84008		(2000.0)	P	Q
n	0.29544722	ω	174.23557	+0.09330513	−0.99188128
a	2.2326267	Ω	270.38903	+0.90999279	+0.12017018
e	0.1551203	i	4.95689	+0.40398921	−0.04160107
P	3.34	H	14.0	G 0.15	U 4

Residuals in seconds of arc

1989 11 20	385	1.4+ 1.4+	1989 12 08	385	0.3– 1.2–	1999 12 07	704	0.1– 1.1+
1989 11 20	385	0.4– 1.5+	1989 12 08	385	0.2– 1.6+	1999 12 07	704	0.3+ 1.1+
1989 11 24	875	(2.6– 0.1–)	1989 12 28	385	0.7– 1.0+	1999 12 07	704	0.2+ 1.1+
1989 11 24	875	0.5– 0.1–	1989 12 28	385	1.1– 0.8–	1999 12 07	704	0.1+ 0.8+
1989 11 25	875	0.8– 0.5–	1989 12 30	385	1.3+ 0.2–	1999 12 10	704	0.3– 0.4–
1989 11 25	875	0.2+ 0.8+	1989 12 30	385	0.3– 0.8+	1999 12 10	704	0.3– 0.1–
1989 11 25	385	(3.6+ 1.6+)	1992 09 28	399	0.4– 1.4–	1999 12 10	704	0.3– 0.2–
1989 11 25	385	(6.0+ 0.8+)	1992 09 28	399	0.5+ 1.2+	1999 12 10	704	0.3– 0.1–
1989 11 28	675	0.0 0.1–	1999 11 28	411	0.1+ 0.1–	1999 12 10	704	0.3– 0.5–
1989 11 28	675	0.1– 0.4–	1999 11 28	411	0.2+ 0.3–	1999 12 13	704	0.3+ 0.1–
1989 11 29	385	1.1– 0.1+	1999 11 29	411	0.5+ 0.5–	1999 12 13	704	0.2+ 0.3–
1989 11 29	385	0.3– 0.6+	1999 11 29	411	0.2– 0.2–	1999 12 13	704	0.3+ 0.7–
1989 12 02	385	1.0+ 0.6–	1999 12 04	385	0.5– 0.3–	1999 12 13	704	0.3– 1.0–
1989 12 02	385	0.7+ 0.6–	1999 12 04	385	0.2+ 0.6–	1999 12 13	704	0.2+ 1.0–
1989 12 04	385	0.4+ 1.4–	1999 12 04	385	0.5+ 0.7–			
1989 12 04	385	0.6+ 0.2+	1999 12 07	704	0.3– 0.9+			

1990 SQ₁ = 1990 QC₁₈ = 1990 RE₁₇ = 1999 XN₁₁₄Id. S. Nakano (d, *MPC* 20913), G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	19.03314		(2000.0)	P	Q
n	0.22571844	ω	8.98302	+0.99301590	+0.10497804
a	2.6715175	Ω	344.67556	−0.11688981	+0.81349266
e	0.1966321	i	11.75517	−0.01600612	+0.57202211
P	4.37	H	13.4	G 0.15	U 4

Residuals in seconds of arc

1990 08 27	095	0.0 0.0	1990 09 20	675	0.6+ 0.3+	1999 12 11	704	0.3– 0.0
1990 09 15	095	0.2– 1.3+	1990 09 20	675	0.9– 1.2+	1999 12 12	704	0.3– 1.0–
1990 09 15	095	(0.2– 3.9+)	1999 12 11	704	(0.2– 2.8+)	1999 12 12	704	0.1+ 0.2+
1990 09 18	675	0.2– 1.3–	1999 12 11	704	0.1+ 0.7+	1999 12 12	704	0.4+ 0.5–
1990 09 18	675	0.7+ 1.6–	1999 12 11	704	0.0 0.5+			

1990 ST₇ = 1999 XJ₁

Id. T. Kobayashi

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	358.69321		(2000.0)	P	Q
n	0.23266332	ω	350.29883	+0.65278256	-0.75520906
a	2.6180872	Ω	58.92311	+0.69960399	+0.57089433
e	0.1703634	i	3.98018	+0.29056700	+0.32208530
P	4.24	H	14.5	G 0.15	U 5

Residuals in seconds of arc

1990 09 14	809	0.7– 0.1+	1990 09 25	809	0.1+ 1.1+	1999 12 07	704	0.1– 0.3–
1990 09 14	809	0.7+ 0.7+	1990 09 25	809	0.4– 0.4+	1999 12 07	704	0.3– 0.6–
1990 09 14	809	0.2– 0.2–	1999 12 02	411	0.2– 1.0+	1999 12 07	704	0.4– 0.6–
1990 09 22	809	0.3+ 0.5–	1999 12 02	411	0.2– 0.7+	1999 12 10	704	0.7+ 0.0
1990 09 22	809	0.3+ 1.6–	1999 12 03	411	0.2– 0.0	1999 12 10	704	0.0 0.2–
1990 09 22	809	0.6– 0.9–	1999 12 03	411	0.0 0.2+	1999 12 10	704	0.6+ 0.2+
1990 09 25	809	0.5+ 0.9+	1999 12 07	704	0.1– 0.3–	1999 12 10	704	0.2+ 0.0

1990 SU₁₆ = 1999 XW₁₅

Id. G. V. Williams, E. Bowell (1998 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	146.79882		(2000.0)	P	Q
n	0.25363091	ω	175.01831	+0.26171295	+0.95976445
a	2.4717314	Ω	110.12490	−0.88920598	+0.28077735
e	0.1290047	i	6.22280	−0.37525866	+0.00403424
P	3.89	H	13.5	G 0.15	U 6

Residuals in seconds of arc

1990 09 14	675	0.2+ 0.6+	1999 12 06	120	0.4– 0.7–	1999 12 08	704	0.1– 0.3–
1990 09 14	675	0.0 0.6–	1999 12 07	120	(6.1+ 2.0–)	1999 12 08	704	0.1– 0.0
1990 09 17	675	0.9– 0.5–	1999 12 07	120	0.1– 0.3+	1999 12 08	704	0.3– 0.1–
1990 09 17	675	0.2+ 0.3+	1999 12 08	120	1.1+ 0.2+	1999 12 08	691	0.1+ 0.1+
1990 09 20	675	0.0 0.1–	1999 12 08	704	0.1– 0.1–	1999 12 08	691	0.0 0.4+
1990 09 20	675	0.4+ 0.3+	1999 12 08	704	0.1+ 0.2–			
1999 12 06	120	0.4– 0.4+	1999 12 08	691	0.1+ 0.1+			

1990 VE₄ = 1999 XE₂₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	324.71147		(2000.0)	P	Q
n	0.21653141	ω	16.08108	+0.35329028	−0.91913420
a	2.7465580	Ω	53.55407	+0.83267548	+0.22402588
e	0.2182651	i	12.51356	+0.42642412	+0.32404433
P	4.55	H	13.5	G 0.15	U 4

Residuals in seconds of arc

1990 11 13	675	0.2+ 0.4–	1990 12 18	887	1.2– 1.2–	1999 12 12	703	0.1– 0.4+
1990 11 13	675	0.4– 0.1+	1990 12 18	887	1.7+ 1.4+	1999 12 12	703	0.3– 0.1+
1990 11 14	675	0.2+ 0.5–	1999 12 06	704	0.5+ 0.0	1999 12 12	703	0.1– 0.1+
1990 11 14	675	0.0 0.8–	1999 12 06	704	0.1+ 0.2+	1999 12 12	703	0.2– 0.4+
1990 11 15	887	0.1+ 1.1–	1999 12 06	704	0.0 0.3+	1999 12 12	385	0.3– 0.8–
1990 11 15	887	1.1– 0.9+	1999 12 06	704	0.1+ 0.2+	1999 12 12	385	0.0 1.0–
1990 11 21	887	0.5– 0.9+	1999 12 06	704	0.2– 0.2+	1999 12 12	385	0.3+ 0.8–
1990 11 21	887	0.9– 1.4+	1999 12 07	704	0.6+ 0.0	1999 12 13	888	0.3– 0.4–
1990 11 22	898	(2.7– 1.1+)	1999 12 07	704	0.4+ 0.1–	1999 12 13	888	0.4– 0.0
1990 11 22	898	(5.0– 1.2+)	1999 12 07	704	0.1+ 0.0	1999 12 13	888	0.0 0.2+
1990 12 14	887	0.8+ 0.6+	1999 12 07	704	0.2+ 0.4–			
1990 12 14	887	1.1+ 0.5–	1999 12 07	704	0.1– 0.4+			

1990 WG₁ = 1999 VY₇

Id. S. Nakano, M. E. Sansaturio

1999 DEC. 22

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Williams						
<i>M</i>	334.60779		(2000.0)		P			Q			
<i>n</i>	0.22303908	ω	3.84533		+0.29941781		-0.88234080				
<i>a</i>	2.6928701	Ω	69.02771		+0.86469027		+0.09008526				
<i>e</i>	0.0391303	<i>i</i>	22.88198		+0.40331093		+0.46190839				
<i>P</i>	4.42	<i>H</i>	13.5		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1990 11 11	809	1.3+	0.5-	1999 11 03	704	0.6-	0.1+	1999 11 12	704	0.1-	0.2+
1990 11 11	809	0.0	0.6-	1999 11 03	704	0.6-	0.2-	1999 11 12	704	0.5+	0.1-
1990 11 11	809	1.6-	1.2-	1999 11 08	120	0.3+	0.3+	1999 11 12	704	0.2+	0.3+
1990 11 18	809	1.2+	0.5+	1999 11 08	120	0.0	1.3+	1999 11 12	704	0.2+	0.2+
1990 11 18	809	0.5+	0.1+	1999 11 08	120	0.1-	0.5-	1999 12 07	704	0.4+	0.3-
1990 11 18	809	0.1-	0.4+	1999 11 09	120	0.2+	0.2-	1999 12 07	704	0.2-	0.2-
1990 11 20	809	0.3-	0.6+	1999 11 09	120	0.1+	0.1-	1999 12 07	704	0.1+	0.0
1990 11 20	809	0.4-	0.2+	1999 11 10	120	0.2+	0.1+	1999 12 07	704	0.6+	0.2+
1990 11 20	809	0.5-	0.3+	1999 11 10	120	(2.6+	0.8+)				
1999 11 03	704	1.5-	0.3+	1999 11 12	704	0.0	1.0-				

1990 WN₃ = 1992 GB₇ = 1992 HB₆

Id. M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Williams						
<i>M</i>	158.73983		(2000.0)		P			Q			
<i>n</i>	0.27204884	ω	214.09894		+0.62506942			-0.77992834			
<i>a</i>	2.3588743	Ω	197.28320		+0.73779897			+0.60356086			
<i>e</i>	0.1152309	<i>i</i>	6.11016		+0.25483504			+0.16560821			
<i>P</i>	3.62	<i>H</i>	14.6		<i>G</i>	0.15		<i>U</i>	5		
Residuals in seconds of arc											
1990 11 14	675	0.6-	1.0+	1990 11 18	809	0.6-	0.7+	1990 11 22	809	0.7+	0.7+
1990 11 14	675	0.2-	0.6+	1990 11 18	809	0.2+	0.5+	1992 04 04	809	0.4+	0.8+
1990 11 15	809	0.7-	1.8-	1990 11 18	809	1.1+	1.4+	1992 04 04	809	0.1+	0.1-
1990 11 15	809	0.3+	0.9-	1990 11 19	809	0.2+	0.5+	1992 04 04	809	0.3+	1.2-
1990 11 15	809	0.2+	1.2-	1990 11 19	809	0.1-	0.1+	1992 04 25	809	1.9-	0.3+
1990 11 16	809	0.2+	1.2-	1990 11 19	809	0.9-	0.1+	1992 04 25	809	0.5+	0.4-
1990 11 16	809	0.9-	0.6-	1990 11 22	809	0.3+	0.5+	1992 04 25	809	0.6+	0.5+
1990 11 16	809	0.1-	0.6-	1990 11 22	809	0.9+	0.2+				

1991 FU₃ = 1999 VU₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Williams						
M	180.46670		(2000.0)		P		Q				
n	0.30269678	ω	190.88477		-0.89168464		+0.45207633				
a	2.1968354	Ω	16.05226		-0.40882921		-0.78257556				
e	0.0755877	i	4.75545		-0.19431209		-0.42802159				
P	3.26	H	15.0		G	0.15	U	4			
Residuals in seconds of arc											
1991 03 09	675	0.5+	1.5-	1999 11 04	621	0.2-	0.2+	1999 12 05	703	0.1-	0.1-
1991 03 09	675	0.1-	1.4-	1999 11 04	621	0.1-	0.2+	1999 12 05	703	1.4+	0.1-
1991 03 22	809	0.3-	0.7+	1999 11 04	621	0.0	0.1+	1999 12 05	703	1.6-	1.0+
1991 03 22	809	0.1-	0.6+	1999 11 04	621	0.0	0.2+	1999 12 05	703	0.4-	0.7-
1991 03 22	809	0.4+	0.6+	1999 11 04	621	0.2-	0.1+	1999 12 08	704	0.3-	0.0
1991 03 23	809	0.3-	0.3+	1999 11 04	621	0.2-	0.0	1999 12 08	704	1.5-	0.2+
1991 03 23	809	0.2-	0.5+	1999 11 04	621	0.3-	0.1+	1999 12 08	704	0.2+	0.1+
1991 03 23	809	0.0	0.3+	1999 11 04	621	0.3-	0.1+	1999 12 08	704	0.0	0.7+
1999 11 03	704	0.1-	0.3-	1999 11 04	704	0.6+	0.4+	1999 12 08	704	(0.9-	2.7+)
1999 11 03	704	0.2+	0.3+	1999 11 04	704	0.3+	0.6-	1999 12 13	703	0.2-	1.0-
1999 11 03	704	0.8+	0.7+	1999 11 04	704	0.6+	0.8-	1999 12 13	703	0.2-	0.2-
1999 11 03	704	0.1-	0.2+	1999 11 04	704	1.4+	0.2-	1999 12 13	703	0.1-	0.9-
1999 11 03	704	0.4+	0.0	1999 11 05	621	0.1-	0.4+	1999 12 13	703	0.1-	0.2-

1991 LY₁ = 1999 VT₃₈

Id. A. Doppler

M.P.C. 37117

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Williams						
<i>M</i>	162.23670		(2000.0)		P		Q				
<i>n</i>	0.17283634	ω	159.97823		-0.47609592		+0.87824215				
<i>a</i>	3.1918759	Ω	81.56822		-0.81289423		-0.42000495				
<i>e</i>	0.1183259	<i>i</i>	2.60635		-0.33546332		-0.22866257				
<i>P</i>	5.70	<i>H</i>	13.5		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1991 05 18	809	0.7+	1.1-	1999 11 10	704	0.3-	0.3+	1999 11 12	704	0.8-	1.3+
1991 05 18	809	0.1+	0.3+	1999 11 10	704	0.3+	0.2+	1999 12 07	704	0.7+	1.2-
1991 05 18	809	0.4-	0.2-	1999 11 10	704	0.3-	0.6-	1999 12 07	704	0.9+	0.4+
1991 06 06	809	0.1+	0.7+	1999 11 10	704	0.6-	0.7+	1999 12 07	704	0.4+	0.9-
1991 06 06	809	0.1-	0.5+	1999 11 10	704	0.6+	0.4+	1999 12 07	704	0.1-	0.8-
1991 06 06	809	0.2+	0.7+	1999 11 12	704	0.1-	0.2-	1999 12 08	704	0.3+	0.6-
1991 06 08	809	0.0	1.1-	1999 11 12	704	1.3+	0.0	1999 12 08	704	0.4-	0.0
1991 06 08	809	0.5-	1.0-	1999 11 12	704	0.1+	0.5+	1999 12 08	704	0.6-	1.0-
1991 06 08	809	0.5-	0.7-	1999 11 12	704	0.8-	0.4+	1999 12 08	704	0.0	1.1-

1991 PE₈ = 1999 XH₇₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
<i>M</i>	37.08782			(2000.0)		P			Q		
<i>n</i>	0.26664619			ω 223.70486		+0.97706709			+0.21058570		
<i>a</i>	2.3906305			Ω 124.11302		−0.18340075			+0.90750016		
<i>e</i>	0.1990231			<i>i</i> 2.18188		−0.10818533			+0.36345169		
<i>P</i>	3.70			<i>H</i> 14.8		<i>G</i>	0.15		<i>U</i>	5	
Residuals in seconds of arc											
1991 08 05	809	0.6+	0.4+	1991 08 14	809	0.0	0.1−	1999 12 07	704	0.5+	0.2−
1991 08 05	809	0.9−	1.0+	1991 08 14	809	0.6−	0.4−	1999 12 07	704	0.1+	0.4+
1991 08 05	675	0.5−	0.5−	1991 09 04	809	0.4+	0.4+	1999 12 07	704	0.2+	0.2−
1991 08 05	809	0.1−	0.2+	1991 09 04	809	0.9−	0.5+	1999 12 07	704	0.1−	0.2−
1991 08 05	675	0.9+	0.9+	1991 09 04	809	1.4−	0.1−	1999 12 08	704	0.4−	0.2+
1991 08 07	675	1.9+	1.3−	1991 09 07	809	0.9+	0.5−	1999 12 08	704	0.7−	0.0
1991 08 07	675	0.5−	0.1−	1991 09 07	809	0.4+	0.1+	1999 12 08	704	0.4+	0.1+
1991 08 14	809	0.7−	0.2−	1991 09 07	809	0.6+	0.3−				

1991 RK₃ = 1977 DR₉ = 1981 DC = 1987 SG₂₄ = 1999 UN₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Williams						
<i>M</i>	320.84155		(2000.0)		P				Q		
<i>n</i>	0.24601051		ω	56.46058	+0.73810855				−0.67229816		
<i>a</i>	2.5225142		Ω	345.50678	+0.51922899				+0.61966398		
<i>e</i>	0.1652565		<i>i</i>	13.08642	+0.43080973				+0.40500832		
<i>P</i>	4.01		<i>H</i>	13.7	<i>G</i>	0.15		<i>U</i>	3		
Residuals in seconds of arc											
1977 02 19	381	1.2−	0.9−	1991 09 14	675	0.1−	0.4+	1999 12 05	704	0.4+	0.4−
1977 02 19	381	0.1+	1.0−	1991 09 14	033	0.5−	0.6+	1999 12 05	704	0.4+	0.4−
1981 02 28	801	0.7+	1.3+	1999 10 28	703	0.1+	0.4−	1999 12 05	704	0.5+	0.1−
1987 09 23	095	1.8+	1.5−	1999 10 28	703	0.1+	0.0	1999 12 05	704	0.2+	0.3−
1991 09 12	675	0.4+	1.5−	1999 10 28	703	0.3−	0.1−	1999 12 05	704	0.4+	0.4−
1991 09 12	675	0.1+	0.1−	1999 10 28	703	0.1+	0.2+	1999 12 08	699	1.3−	1.1+
1991 09 12	033	0.7−	0.1−	1999 10 31	703	0.3+	0.1+	1999 12 08	699	0.5−	0.9+
1991 09 12	033	0.5−	0.8+	1999 10 31	703	0.1+	0.4−	1999 12 08	699	1.2−	1.0+
1991 09 13	033	0.7−	1.0+	1999 10 31	703	0.0	0.2+				
1991 09 14	675	0.1+	0.4−	1999 10 31	703	0.5+	0.3−				

1991 RL₉ = 1968 QT₁ = 1972 TW₈

Id. T. Kobayashi (1999 observations), S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	29.53560		(2000.0)	P	Q
<i>n</i>	0.25912854	ω	149.83738	+0.99903175	-0.03980836
<i>a</i>	2.4366466	Ω	212.46029	+0.03004453	+0.92833936
<i>e</i>	0.1781658	<i>i</i>	2.00001	+0.03213857	+0.36959618
<i>P</i>	3.80	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1968 08 28	095	0.4+	1.1-	1991 10 08	691	0.1+	1.4+	1999 12 07	704	0.1+	0.3-
1972 10 05	095	0.4-	1.0+	1999 11 30	411	0.3-	0.0	1999 12 07	704	0.1-	0.4-
1991 09 11	675	0.1-	0.6-	1999 11 30	411	0.1+	0.5+	1999 12 08	704	0.1-	0.4-
1991 09 11	675	0.5-	0.9-	1999 12 02	411	0.9+	0.7+	1999 12 08	704	0.3-	0.6-
1991 09 14	675	0.1-	1.2-	1999 12 02	411	0.8-	0.3+	1999 12 08	704	0.1+	0.4-
1991 09 14	675	0.5+	0.2+	1999 12 07	704	0.2+	0.2-	1999 12 08	704	0.1-	0.1-
1991 10 08	691	0.1-	1.1+	1999 12 07	704	0.2+	0.5-				

1991 RA₁₄

Id. A. Doppler (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	352.80032		(2000.0)	P	Q
<i>n</i>	0.12495941	ω	37.88992	+0.95450623	-0.29415277
<i>a</i>	3.9623856	Ω	339.05783	+0.22906789	+0.82832049
<i>e</i>	0.2659140	<i>i</i>	7.86472	+0.19090774	+0.47682210
<i>P</i>	7.89	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1991 09 13	675	0.3-	0.7-	1999 07 23	704	0.1-	0.5+	1999 10 03	704	0.0	0.6+
1991 09 13	675	0.5-	0.9-	1999 09 18	704	0.3+	0.1-	1999 10 03	704	0.1-	0.1+
1991 09 15	675	0.2+	0.2+	1999 09 18	704	0.2+	0.1-	1999 10 03	704	0.0	0.1+
1991 09 15	675	0.2+	0.4-	1999 09 18	704	0.3+	0.2+	1999 10 30	703	(7.6-	0.8+)
1991 10 04	303	1.1+	0.3-	1999 09 18	704	0.1-	0.3+	1999 10 30	703	0.8-	0.2-
1991 10 05	303	1.2+	1.3-	1999 09 18	704	0.0	0.4-	1999 10 30	703	0.2-	0.6+
1991 10 07	691	0.3-	0.6+	1999 10 01	703	0.2-	0.4+	1999 10 30	703	0.1+	0.2-
1991 10 07	691	0.3-	0.6+	1999 10 01	703	0.1-	0.5+	1999 11 04	704	0.9+	0.1+
1991 10 07	691	0.6-	0.9+	1999 10 01	703	0.2-	0.6+	1999 11 04	704	0.3+	0.6-
1999 07 23	704	0.2-	0.0	1999 10 01	703	0.7-	0.5+	1999 11 04	704	0.2+	0.5-
1999 07 23	704	0.6-	0.1+	1999 10 03	704	0.5+	0.2+	1999 11 04	704	0.5-	0.5-
1999 07 23	704	0.0	0.1-	1999 10 03	704	0.5+	0.1+	1999 11 04	704	0.5-	1.1-

1991 RJ₂₉ = 1996 TL₅₄ = 1999 CO₈₀

Id. M. E. Sansaturio, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	141.76935		(2000.0)	P	Q
<i>n</i>	0.17561718	ω	92.15035	+0.87703224	-0.43743784
<i>a</i>	3.1580915	Ω	293.84238	+0.30691575	+0.82825220
<i>e</i>	0.2039283	<i>i</i>	12.54383	+0.36961760	+0.35020911
<i>P</i>	5.61	<i>H</i>	12.7	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1991 09 13	675	0.3-	0.1+	1996 10 23	327	0.4-	0.3+	1999 02 14	699	0.9+	0.4+
1991 09 13	675	0.4+	0.1-	1996 10 23	327	0.2-	0.4-	1999 02 14	699	0.2+	0.0
1991 09 14	675	0.1-	0.2-	1996 10 23	327	0.7-	1.3+	1999 02 14	699	0.2-	1.0+
1991 09 15	675	0.1+	0.6+	1999 02 12	704	0.6-	1.3-	1999 02 16	704	0.4-	0.4-
1991 09 16	675	0.1-	0.5-	1999 02 12	704	0.2+	0.3+	1999 02 16	704	0.1-	0.1-
1996 10 14	327	0.1+	0.5-	1999 02 12	704	0.6+	0.2-	1999 02 16	704	0.3+	0.3+
1996 10 14	327	0.7+	0.2-	1999 02 12	704	0.6-	1.0-	1999 02 16	704	0.4+	2.0+
1996 10 14	327	0.3+	0.2-	1999 02 12	704	0.7-	0.4-	1999 02 16	704	0.1+	0.3-

1991 SE₁ = 1999 XD₈₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	44.62419		(2000.0)	P	Q
<i>n</i>	0.27040403	ω	274.12496	+0.97757062	-0.16612359
<i>a</i>	2.3684303	Ω	95.47289	+0.20382824	+0.90097183
<i>e</i>	0.1368610	<i>i</i>	7.47236	-0.05300689	+0.40081505
<i>P</i>	3.64	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1991 09 05	413	0.3-	1.1-	1991 10 12	413	0.6-	0.3+	1999 12 08	704	0.4+	0.1+
1991 09 05	413	0.0	0.1+	1991 11 02	413	0.2+	0.5-	1999 12 08	704	0.7-	0.1+
1991 09 30	413	1.7+	0.7+	1999 12 07	704	0.1-	0.1-	1999 12 08	704	1.2-	0.0
1991 10 01	413	1.0-	0.1+	1999 12 07	704	0.7+	1.0-	1999 12 08	704	0.2-	0.5+
1991 10 02	413	0.4-	0.4-	1999 12 07	704	0.1-	0.4-	1999 12 12	691	1.0+	0.0
1991 10 05	413	0.3+	0.3+	1999 12 07	704	0.8-	0.6+	1999 12 12	691	0.9+	0.1+
1991 10 09	413	0.1+	0.4+	1999 12 08	704	0.1-	0.1-	1999 12 12	691	0.0	0.0

1991 SV₁ = 1984 WA₃ = 1999 XN₁₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	81.28167		(2000.0)	P	Q
<i>n</i>	0.26920343	ω	317.22140	+0.90497841	+0.42390497
<i>a</i>	2.3754669	Ω	17.79770	-0.35116974	+0.79242305
<i>e</i>	0.1518938	<i>i</i>	6.82308	-0.24019552	+0.43860037
<i>P</i>	3.66	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1984 11 27	010	2.0+	1.7+	1991 09 16	095	(3.3-	2.1+)	1999 12 10	704	0.0	0.2-
1984 11 28	010	2.1-	0.8-	1991 10 08	675	1.4-	0.3+	1999 12 10	704	0.3+	0.0
1991 09 10	675	0.3-	0.2+	1991 10 08	675	0.8+	1.2+	1999 12 12	704	0.6+	0.1-
1991 09 10	675	0.3+	0.2-	1991 11 08	675	0.2+	0.9-	1999 12 12	704	0.0	0.1+
1991 09 16	675	1.5+	0.0	1991 11 08	675	1.1-	0.4-	1999 12 12	704	0.4-	0.9-
1991 09 16	675	0.1+	0.1+	1999 12 10	704	1.9-	0.5-	1999 12 12	704	0.3+	0.5+
1991 09 16	095	0.1+	0.9-	1999 12 10	704	0.6+	0.2+				

1992 CN₂ = 1999 XT₃₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	279.81630		(2000.0)	P	Q
<i>n</i>	0.23704955	ω	221.62179	-0.74618558	-0.63972883
<i>a</i>	2.5856910	Ω	277.63680	+0.64932332	-0.63826989
<i>e</i>	0.1274753	<i>i</i>	10.71451	+0.14692278	-0.42820388
<i>P</i>	4.16	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1992 01 30	809	0.1-	0.6-	1992 02 06	809	0.1+	0.1+	1999 12 07	046	0.1+	0.4-
1992 01 30	809	0.0	0.1-	1992 02 06	809	0.5-	1.1+	1999 12 07	046	0.2+	0.1-
1992 01 30	809	0.6-	0.6+	1992 02 12	809	0.9+	0.1+	1999 12 07	046	0.2-	0.2+
1992 02 02	809	1.3+	0.3+	1992 02 12	809	0.1-	1.0-	1999 12 09	046	0.2-	0.1-
1992 02 02	809	0.9+	0.8-	1992 02 12	809	0.4-	0.1-	1999 12 09	046	0.1-	0.2+
1992 02 02	809	0.4-	0.7-	1999 12 07	046	0.0	0.1-	1999 12 09	046	0.0	0.2+
1992 02 06	809	0.4-	0.9+	1999 12 07	046	0.0	0.0	1999 12 09	046	0.2+	0.0

1992 DD₈ = 1999 UO₂₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	34.20453		(2000.0)	P	Q
<i>n</i>	0.21450709	ω	91.45920	+0.96364687	+0.25457196
<i>a</i>	2.7638106	Ω	253.79775	-0.26615530	+0.88810787
<i>e</i>	0.1051257	<i>i</i>	4.84487	-0.02336795	+0.38269771
<i>P</i>	4.59	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1992 02 29	809	0.1+	0.9-	1999 11 04	703	0.4-	0.0	1999 12 08	704	0.6-	1.4+
1992 03 03	809	1.4+	0.3+	1999 11 04	703	0.2-	0.3+	1999 12 08	704	0.3+	0.0
1992 03 05	809	1.5-	0.8+	1999 11 04	703	0.2-	0.1-	1999 12 08	704	0.1+	0.3-

1999 DEC. 22

1992 03 08	809	0.0	0.2−	1999 12 07	704	0.1−	0.2−	1999 12 08	704	0.0	0.0
1999 10 29	703	0.1+	0.3−	1999 12 07	704	1.2+	0.8−	1999 12 12	703	0.4−	0.7+
1999 10 29	703	0.3−	0.5+	1999 12 07	704	0.8+	1.0−	1999 12 12	703	0.4−	0.1+
1999 10 29	703	0.6+	0.4−	1999 12 07	704	0.0	0.9−	1999 12 12	703	0.3−	0.1+
1999 10 29	703	0.5+	0.1+	1999 12 07	704	0.1+	0.0	1999 12 12	703	0.9−	0.1+
1999 11 04	703	0.6−	0.3+	1999 12 08	704	0.6+	0.2+				

1992 EO₁₂

Id. A. Doppler (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	354.51402		(2000.0)	P	Q		
<i>n</i>	0.21195588	ω	258.50727	+0.95762022	−0.27956055		
<i>a</i>	2.7859442	Ω	117.69437	+0.28524122	+0.88699134		
<i>e</i>	0.1068517	<i>i</i>	4.49215	+0.04001194	+0.36754900		
<i>P</i>	4.65	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 02 29	809	(2.9+ 2.8+)	1999 10 04	703	0.4−	0.1−	1999 11 02	703	0.1−	0.1+
1992 03 06	809	0.3− 0.7−	1999 10 04	703	0.0	0.1+	1999 11 02	703	0.3+	0.4−
1992 03 08	809	0.6+ 0.1+	1999 10 04	703	0.1−	0.1−	1999 11 02	703	0.0	0.3+
1992 03 09	809	0.3− 0.6+	1999 10 04	703	0.5+	0.0	1999 11 02	703	0.2−	0.0

1992 EM₁₃ = 1999 VC₄₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Doppler			
<i>M</i>	199.25872		(2000.0)	P	Q		
<i>n</i>	0.21185485	ω	210.14609	−0.99333079	+0.08534344		
<i>a</i>	2.7868298	Ω	334.40107	−0.03014911	−0.84126128		
<i>e</i>	0.1256133	<i>i</i>	10.33668	−0.11128777	−0.53385012		
<i>P</i>	4.65	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1992 03 02	809	0.7+ 0.4+	1999 11 03	704	0.1+	0.4+	1999 11 04	704	0.0	1.2−
1992 03 05	809	0.6− 0.5−	1999 11 03	704	0.0	0.7+	1999 11 04	704	0.4−	0.1−
1992 03 09	809	(0.3− 3.0−)	1999 11 03	704	0.3+	0.1−	1999 11 04	704	0.5−	0.1−
1992 04 07	809	0.1− 0.1+	1999 11 03	704	1.0+	0.4−	1999 11 04	704	0.8−	0.1+
1999 11 03	704	0.7+ 1.5+	1999 11 04	704	0.4−	0.8−				

1992 GE₅ = 1999 VO₂₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	49.36643		(2000.0)	P	Q		
<i>n</i>	0.19683395	ω	287.25792	+0.91747403	+0.39601608		
<i>a</i>	2.9268652	Ω	49.42994	−0.34359061	+0.83652525		
<i>e</i>	0.0789129	<i>i</i>	2.83614	−0.20046669	+0.37867766		
<i>P</i>	5.01	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 04 06	809	0.5+ 1.7−	1999 11 03	704	0.1+	0.8+	1999 12 07	704	0.7−	0.4+
1992 04 06	809	0.3+ 1.6−	1999 11 12	704	0.1−	0.4+	1999 12 07	704	0.6−	0.1−
1992 04 06	809	(0.7− 2.8−)	1999 11 12	704	0.1+	0.3+	1999 12 08	704	0.1−	0.5−
1992 04 25	809	(2.4+ 1.9+)	1999 11 12	704	0.7−	0.1+	1999 12 08	704	0.5+ 0.5+	
1992 04 25	809	1.5+ 1.3+	1999 11 12	704	0.1−	0.3+	1999 12 08	704	0.1−	0.5−
1992 04 25	809	1.3− 1.6+	1999 11 12	704	0.3+	0.3+	1999 12 08	704	0.5−	0.8+
1992 05 07	691	0.1+ 0.4+	1999 12 04	703	0.3+	0.3−	1999 12 08	704	0.3+ 0.9+	
1992 05 07	691	(0.2+ 2.2+)	1999 12 04	703	0.1−	0.0	1999 12 12	703	0.2+ 0.2−	
1992 05 07	691	0.7− 0.7+	1999 12 04	703	0.7+ 0.1−		1999 12 12	703	0.8+ 0.0	
1999 11 03	704	0.3+ 0.2−	1999 12 04	703	0.3+ 0.1+		1999 12 12	703	0.4+ 0.5−	
1999 11 03	704	0.6− 0.4−	1999 12 07	704	0.1− 0.3−		1999 12 12	703	0.8+ 0.1−	
1999 11 03	704	0.0 0.1+	1999 12 07	704	0.8− 0.4−					
1999 11 03	704	0.2− 0.3−	1999 12 07	704	0.5− 0.3−					

1992 HC₂ = 1999 XE₂

Id. S. Nakano

M.P.C. 37119

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	37.12510		(2000.0)	P	Q		
<i>n</i>	0.19899364	ω	230.00123	+0.99911960	−0.00596302		
<i>a</i>	2.9056496	Ω	130.29876	+0.02072091	+0.93082498		
<i>e</i>	0.1008512	<i>i</i>	3.12119	−0.03647829	+0.36541661		
<i>P</i>	4.95	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 04 27	691	0.1− 0.7+	1992 05 06	691	0.4− 0.2−	1999 12 04	888	0.3− 0.1−
1992 04 27	691	0.2+ 0.2−	1992 05 06	691	0.6+ 0.7−	1999 12 08	704	0.4+ 0.4−
1992 04 27	691	0.0 0.0	1999 12 03	888	0.2− 0.2−	1999 12 08	704	0.1+ 0.3−
1992 04 30	691	0.1− 0.4+	1999 12 03	888	0.5− 0.1+	1999 12 08	704	0.1− 0.3−
1992 04 30	691	0.2+ 0.3+	1999 12 03	888	0.5+ 0.4+	1999 12 08	704	0.1− 0.1−
1992 04 30	691	0.1+ 0.2+	1999 12 04	888	0.1+ 0.5+	1999 12 08	704	0.1+ 0.1+
1992 05 06	691	0.5− 0.6−	1999 12 04	888	0.0 0.2+			

1992 LQ

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	98.58819		(2000.0)	P	Q		
<i>n</i>	0.18967432	ω	212.79528	+0.30322830	+0.93326543		
<i>a</i>	3.0000629	Ω	75.48723	−0.82583281	+0.35817684		
<i>e</i>	0.0721858	<i>i</i>	11.47129	−0.47545007	−0.02692543		
<i>P</i>	5.20	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1992 04 28	675	1.3− 1.5−	1992 06 25	675	1.1+ 0.4−	1999 12 06	704	0.5− 0.0
1992 04 28	675	1.1− 1.1−	1992 06 26	675	0.2− 1.5+	1999 12 06	704	0.4− 0.2−
1992 05 03	809	0.9+ 1.0+	1992 06 26	675	0.1− 1.0−	1999 12 06	704	0.4− 0.3−
1992 05 03	809	1.3+ 0.5+	1992 06 28	675	(2.3− 1.7−)	1999 12 06	704	0.2− 0.6−
1992 05 03	809	1.3+ 1.3+	1992 08 22	413	0.1− 0.1+	1999 12 12	703	0.7+ 0.1+
1992 06 03	675	0.7− 0.5+	1992 08 22	413	0.1− 0.0	1999 12 12	703	0.0 0.5+
1992 06 03	675	1.6− 0.4+	1999 12 02	699	0.6+ 0.3+	1999 12 12	703	0.2− 0.5+
1992 06 05	675	0.2+ 0.9+	1999 12 02	699	0.5− 0.3+	1999 12 12	703	0.2+ 0.2+
1992 06 05	675	0.7− 0.5−	1999 12 02	699	0.1+ 0.0	1999 12 12	703	0.1+ 0.1−
1992 06 06	675	0.1+ 0.4+	1999 12 04	703	0.3+ 0.1+	1999 12 12	703	0.6+ 0.1+
1992 06 06	675	1.0+ 0.4+	1999 12 04	703	0.2− 0.1−	1999 12 12	703	0.5+ 0.2−
1992 06 08	675	0.4− 0.8−	1999 12 04	703	0.3− 0.0	1999 12 12	703	0.1+ 0.4−
1992 06 08	675	0.6+ 1.0−	1999 12 04	703	0.1− 0.5+			
1992 06 25	675	0.3− 0.5−	1999 12 06	704	0.5− 0.7−			

1992 PT₃ = 1982 SJ₅ = 1999 XF₁₀₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	40.01868		(2000.0)	P	Q		
<i>n</i>	0.29397615	ω	223.48507	+0.59134293	+0.80537662		
<i>a</i>	2.2400686	Ω	82.80877	−0.72809991	+0.55508364		
<i>e</i>	0.2749285	<i>i</i>	2.36916	−0.34667572	+0.20796789		
<i>P</i>	3.35	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1982 09 16	095	0.3+ 0.7−	1992 08 02	809	0.2+ 0.7+	1999 12 04	703	0.6− 1.2+
1992 06 28	675	0.4− 0.3−	1992 08 05	675	0.2+ 0.9−	1999 12 04	703	0.1+ 0.1−
1992 06 28	675	0.4+ 1.1+	1992 08 05	675	0.1+ 1.0−	1999 12 04	703	0.2− 0.0
1992 08 01	809	(3.8− 1.1+)	1992 08 06	675	0.2+ 0.6−	1999 12 12	703	(1.0+ 2.4+)
1992 08 01	809	(3.4− 0.9+)	1992 08 06	675	0.3+ 0.4−	1999 12 12	703	0.3− 0.1−
1992 08 01	809	(2.9− 0.6+)	1992 08 24	675	0.3− 0.6+	1999 12 12	703	0.2+ 0.7−
1992 08 02	809	1.1− 1.0+	1992 08 24	675	0.5+ 0.2−	1999 12 12	703	0.5+ 0.3+
1992 08 02	809	0.4− 0.8+	1999 12 04	703	0.1− 0.4+			

1992 PZ₃ = 1972 TV₅ = 1999 XT₂

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	349.66773		(2000.0)	P	Q
<i>n</i>	0.29299114	ω	53.66823	+0.95373788	-0.29230123
<i>a</i>	2.2450864	Ω	323.18068	+0.22424680	+0.84744095
<i>e</i>	0.1822749	<i>i</i>	6.73792	+0.20024344	+0.44317471
<i>P</i>	3.36	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1972 10 06	095	0.2-	0.3+	1992 08 02	675	0.4+	0.6-	1999 12 05	678	0.7-	0.1+
1992 07 27	809	0.5-	0.3-	1992 08 06	675	0.4+	0.1-	1999 12 05	678	0.2+	0.5-
1992 07 27	809	0.1-	0.3-	1992 08 06	675	0.4-	0.3-	1999 12 08	704	0.6-	0.7+
1992 07 27	809	0.1+	0.3-	1999 12 03	699	0.1-	0.3+	1999 12 08	704	0.1-	0.5-
1992 07 28	809	0.7-	0.8+	1999 12 03	699	0.1-	0.3+	1999 12 08	704	1.3+	0.7+
1992 07 28	809	0.1+	0.4+	1999 12 03	699	0.2-	0.2+	1999 12 08	704	0.6+	0.2+
1992 07 28	809	0.4+	0.2+	1999 12 04	678	0.2+	0.2-	1999 12 08	704	0.3+	1.4-
1992 08 02	675	0.5+	0.3+	1999 12 04	678	0.7-	0.2-				

1992 RP₅ = 1999 XE₆₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	23.79224		(2000.0)	P	Q
<i>n</i>	0.29416801	ω	270.62536	+0.98275336	+0.17849360
<i>a</i>	2.2390945	Ω	79.09337	-0.14396494	+0.90253446
<i>e</i>	0.2302566	<i>i</i>	2.82124	-0.11606007	+0.39188210
<i>P</i>	3.35	<i>H</i>	16.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 09 02	809	0.4+	0.5+	1992 09 23	809	0.2+	0.5-	1999 12 07	704	0.1-	0.6-
1992 09 02	809	0.2-	0.1-	1992 09 23	809	1.0-	0.2+	1999 12 08	704	0.2+	0.1+
1992 09 02	809	0.2-	0.3-	1992 09 23	809	0.2-	0.3+	1999 12 08	704	0.0	0.4+
1992 09 03	809	0.0	0.2-	1999 12 07	704	0.1-	0.6-	1999 12 08	704	0.4+	0.0
1992 09 22	809	0.7+	0.4+	1999 12 07	704	0.7-	0.4+	1999 12 08	704	0.0	0.4-
1992 09 22	809	0.8+	0.1+	1999 12 07	704	0.1+	1.0+	1999 12 08	704	0.2+	0.4-
1992 09 22	809	0.4-	0.4-	1999 12 07	704	(3.0-	1.0+)				

1992 UR₄ = 1999 XW₉₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	328.78382		(2000.0)	P	Q
<i>n</i>	0.28591094	ω	140.40694	+0.31411174	-0.94902273
<i>a</i>	2.2819994	Ω	291.27162	+0.86374427	+0.29714851
<i>e</i>	0.2346861	<i>i</i>	1.61490	+0.39405539	+0.10515999
<i>P</i>	3.45	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1992 10 21	675	0.1+	0.4-	1992 11 01	033	0.6+	0.4-	1999 12 10	704	0.1+	0.3+
1992 10 21	675	0.9+	0.1+	1992 11 23	033	0.5+	1.1-	1999 12 10	704	0.1-	0.4+
1992 10 27	372	1.4-	1.3+	1992 11 23	033	0.0	1.0-	1999 12 10	704	0.1-	0.2+
1992 10 27	372	1.2-	0.4+	1999 12 07	704	0.1-	0.2-	1999 12 10	704	0.1+	0.1-
1992 10 30	372	0.6-	1.2+	1999 12 07	704	0.0	0.2+	1999 12 10	704	0.3+	0.1+
1992 10 31	033	0.7+	0.1-	1999 12 07	704	0.3-	0.6-				
1992 10 31	033	0.4+	0.6-	1999 12 07	704	0.0	0.3+				

1992 UC₆ = 1991 KC₂ = 1999 WX₁

Id. G. V. Williams, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	1.24948		(2000.0)	P	Q
<i>n</i>	0.28380916	ω	143.91798	+0.90490150	-0.41212147
<i>a</i>	2.2932520	Ω	240.75122	+0.35635237	+0.87022725
<i>e</i>	0.1128085	<i>i</i>	7.00085	+0.23273647	+0.26992672
<i>P</i>	3.47	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1991 05 17	809	1.3+	1.4+	1992 11 27	399	0.2+	0.4-	1999 12 04	703	0.2-	0.5+
1991 05 17	809	(1.1-	2.5+)	1992 11 27	399	0.1+	0.5-	1999 12 04	703	0.6-	0.4+
1991 05 17	809	1.2-	1.0+	1999 11 25	120	0.7-	0.2-	1999 12 04	703	0.4-	0.8+

1992 10 25	675	0.4+	0.0	1999 11 25	120	1.0+	0.2+	1999 12 07	704	0.4+	0.3-
1992 10 25	675	1.1-	0.3+	1999 11 26	120	1.5+	0.2-	1999 12 07	704	0.8+	0.4-
1992 10 28	399	0.4+	1.0+	1999 11 26	120	0.1+	0.1-	1999 12 07	704	1.0-	1.0-
1992 10 28	399	0.9-	0.0	1999 11 26	120	0.2-	0.1+	1999 12 07	704	0.3+	0.2-
1992 11 02	399	1.9+	0.3+	1999 11 27	120	0.6-	0.1-	1999 12 08	704	0.5-	0.0
1992 11 02	399	1.3+	0.8+	1999 11 27	120	0.4-	0.0	1999 12 08	704	0.2+	0.2-
1992 11 16	399	(3.1+	1.4+)	1999 12 03	699	0.4+	0.9+	1999 12 08	704	0.3-	0.0
1992 11 16	399	(3.0+	0.2+)	1999 12 03	699	0.5+	1.2+	1999 12 08	704	0.2+	0.3-
1992 11 18	399	1.3-	1.2-	1999 12 03	699	0.1+	1.5+	1999 12 08	704	0.6-	0.2-
1992 11 18	399	0.8-	1.3-	1999 12 04	703	0.4-	0.6+				

1992 UG₇ = 1999 UP₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	16.02915		(2000.0)	P	Q
<i>n</i>	0.28113211	ω	301.44599	+0.90735579	+0.42018517
<i>a</i>	2.3077871	Ω	33.71218	-0.37780338	+0.82791382
<i>e</i>	0.1657309	<i>i</i>	1.26400	-0.18430974	+0.37148771
<i>P</i>	3.51	<i>H</i>	17.0	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1992 10 18	691	0.1-	0.2+	1992 10 22	691	0.1-	0.4-	1999 10 29	327	0.2-	0.2+
1992 10 18	691	0.0	0.5+	1992 10 22	691	0.3+	0.5-	1999 10 31	327	0.1-	0.3+
1992 10 21	691	0.4-	0.0	1992 10 22	691	0.7+	0.4-	1999 10 31	327	0.5-	0.0
1992 10 21	691	0.1-	0.0	1999 10 29	327	0.3-	0.3+	1999 10 31	327	0.2+	0.1-
1992 10 21	691	0.2+	0.3-	1999 10 29	327	0.6+	0.2+				

1992 WE₁ = 1978 TM₁ = 1978 VS₁₂ = 1999 XD₅₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	22.02308		(2000.0)	P	Q
<i>n</i>	0.28425478	ω	263.91471	+0.98950081	+0.11653522
<i>a</i>	2.2908546	Ω	89.37072	-0.07342391	+0.91479786
<i>e</i>	0.2020991	<i>i</i>	4.90421	-0.12448726	+0.38673560
<i>P</i>	3.47	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1978 10 04	095	1.4+	0.4-	1999 12 07	704	0.1-	0.1-	1999 12 08	704	0.0	0.1+
1978 11 02	095	1.7-	0.7+	1999 12 07	704	0.1-	0.1-	1999 12 08	704	0.0	0.3+
1992 11 16	400	0.8-	0.1-	1999 12 07	704	0.3-	0.1-	1999 12 10	704	0.1-	0.2-
1992 11 16	400	0.9-	0.6-	1999 12 07	704	0.1-	0.2+	1999 12 10	704	0.7+	0.1-
1992 11 17	400	0.3+	0.3-	1999 12 07	704	0.1-	0.1+	1999 12 10	704	0.2-	0.0
1992 11 17	400	3.2-	0.4+	1999 12 08	704	0.2+	0.1+	1999 12 10	704	0.4-	0.1-
1992 11 27	400	2.8+	0.8+	1999 12 08	704	0.1-	0.1-				
1992 11 27	400	2.6+	0.8-	1999 12 08	704	0.2+	0.3+				

1992 YC

Id. T. Kobayashi (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	356.38784		(2000.0)	P	Q
<i>n</i>	0.28570635	ω	129.66411	+0.75419980	-0.50962690
<i>a</i>	2.2830887	Ω	264.88906	+0.39876268	+0.85646934
<i>e</i>	0.2830592	<i>i</i>	24.56555	+0.52170009	+0.08210175
<i>P</i>	3.45	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 12 17	010	0.3-	0.7-	1993 01 18	010	0.1+	0.3+	1999 12 08	704	0.1-	0.2-
1992 12 17	010	0.7-	0.4+	1999 11 30	411	0.6+	1.4+	1999 12 14	704	0.1-	0.0
1992 12 20	010	0.1-	0.7-	1999 11 30	411	0.7+	0.9+	1999 12 14	704	0.1-	0.3+
1992 12 20	010	0.5+	1.4+	1999 12 02	411	0.4-	1.0-	1999 12 14	704	0.1+	0.0
1992 12 20	010	0.1+	0.4+	1999 12 02	411	0.1+	0.8+	1999 12 14	704	0.1+	0.0
1992 12 26	010	0.3-	1.9-	1999 12 07	704	1.0-	1.1-	1999 12 14	704	0.0	0.4+
1992 12 26	010	0.2+	1.5+	1999 12 07	704	0.2-	0.3-	1999 12 15	704	0.2+	0.2+
1992 12 26	010	1.5+	0.8-	1999 12 07	704	0.1-	0.8-	1999 12 15	704	0.0	0.5+
1993 01 16	010	0.1+	1.5-	1999 12 07	704	0.1+	0.8-	1999 12 15	704	0.0	0.1+
1993 01 16	010	0.9-	1.3+	1999 12 08	704	0.3-	0.2-	1999 12 15	704	0.0	0.4+
1993 01 16	010	0.3+	0.2-	1999 12 08	704	0.1+	0.2-	1999 12 15	704	0.3+	0.7+

1999 DEC. 22

M.P.C. 37121

1993 01 18 010 0.1+ 1.4- 1999 12 08 704 0.2+ 0.6-
 1993 01 18 010 1.0- 1.1+ 1999 12 08 704 0.1+ 0.2-

1992 YY₁ = 1999 XK₈₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	37.23589		(2000.0)	P	Q
<i>n</i>	0.28423801	ω	277.64853	+0.98729202	-0.13224425
<i>a</i>	2.2909448	Ω	89.98070	+0.15655006	+0.90469476
<i>e</i>	0.1512397	<i>i</i>	5.05572	-0.02732311	+0.40501709
<i>P</i>	3.47	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1992 12 18	010	0.4-	0.2-	1993 01 16	010	0.5-	0.1+	1999 12 07	704	1.3-	1.3+
1992 12 19	010	0.9+	0.5+	1993 01 16	010	0.9-	0.6+	1999 12 07	704	0.2-	0.2-
1992 12 19	010	0.8+	0.2+	1993 01 17	010	0.1+	0.6-	1999 12 08	704	0.1-	0.6-
1992 12 19	010	0.2+	0.0	1993 01 17	010	0.1+	0.2+	1999 12 08	704	0.1-	0.3-
1992 12 19	010	0.5-	0.2-	1993 01 17	010	0.9+	0.1-	1999 12 08	704	0.3+	0.1+
1992 12 20	010	0.8-	0.4-	1999 12 07	704	0.4-	0.2-	1999 12 08	704	1.0+	0.2-
1993 01 16	010	0.2+	0.1-	1999 12 07	704	0.8+	0.2+				

1993 BD

Id. E. Bowell (1998, 1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	312.79760		(2000.0)	P	Q
<i>n</i>	0.27720292	ω	6.93166	-0.49728619	-0.86040334
<i>a</i>	2.3295437	Ω	112.94288	+0.79007453	-0.50216443
<i>e</i>	0.1378037	<i>i</i>	6.94878	+0.35845318	-0.08681571
<i>P</i>	3.56	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1993 01 16	372	(3.4-	1.1-)	1993 01 26	372	1.0+	2.5-	1999 12 05	699	0.3-	0.0
1993 01 16	372	1.5-	0.1-	1993 01 28	372	0.6-	1.3+	1999 12 05	699	0.1+	0.7+
1993 01 18	372	0.8-	0.2+	1993 01 28	372	(4.1+	6.3-)	1999 12 07	704	0.3+	2.5-
1993 01 18	372	(3.2+	0.0)	1993 02 10	399	1.5-	0.5-	1999 12 07	704	0.1+	0.2-
1993 01 22	372	(0.6-	3.7-)	1993 02 10	399	1.0+	1.5+	1999 12 07	704	0.4-	0.7-
1993 01 22	372	0.4+	1.8+	1993 02 13	399	0.9-	0.6+	1999 12 07	704	0.4+	2.1+
1993 01 25	372	2.6+	1.1-	1993 02 13	399	0.3-	1.7-				
1993 01 26	372	1.3+	0.6+	1999 12 05	699	0.2-	0.6+				

1993 BQ₅ = 1993 DO₂ = 1999 WS₇Id. G. V. Williams (d, *MPC* 22200; unpublished)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	234.17723		(2000.0)	P	Q
<i>n</i>	0.26470610	ω	72.99632	-0.99744274	+0.06098547
<i>a</i>	2.4022973	Ω	110.48761	-0.07064370	-0.92033969
<i>e</i>	0.1433340	<i>i</i>	2.27995	+0.01083691	-0.38633615
<i>P</i>	3.72	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1993 01 27	010	0.6+	1.0+	1993 02 22	010	1.7-	0.7+	1999 12 07	704	0.1-	0.1-
1993 01 27	010	0.8+	0.6+	1993 02 23	010	0.2+	0.7-	1999 12 07	704	0.3+	0.4-
1993 01 27	010	0.7+	0.6+	1999 11 28	120	1.8+	0.6+	1999 12 07	704	1.1-	0.3-
1993 01 28	010	0.2+	0.3+	1999 11 28	120	0.2-	0.5-	1999 12 08	704	0.3-	0.2-
1993 01 28	010	0.2+	0.4+	1999 11 29	120	0.7+	0.1+	1999 12 08	704	0.4-	0.1-
1993 01 28	010	1.8-	1.0+	1999 11 29	120	0.2+	0.3+	1999 12 08	704	0.6-	0.5-
1993 01 29	691	0.0	1.3-	1999 12 05	120	0.2+	1.0+	1999 12 08	704	0.5-	0.7-
1993 01 29	691	0.0	1.1-	1999 12 05	120	0.8+	0.1-	1999 12 08	704	0.1-	0.4-
1993 01 29	691	0.8-	1.2-	1999 12 06	120	1.6-	0.3-	1999 12 13	120	2.0+	0.6-
1993 02 20	010	0.5+	0.0	1999 12 06	120	0.2-	1.4+	1999 12 13	120	1.7-	1.3+
1993 02 20	010	0.7+	0.1-	1999 12 07	704	0.2+	0.1-	1999 12 13	120	0.3+	0.1-
1993 02 20	010	0.4+	0.1-	1999 12 07	704	0.3+	0.4-				

1993 FC₁₃ = 1999 XF₈₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	261.99094		(2000.0)	P	Q
<i>n</i>	0.26574869	ω	88.95080	-0.99819444	+0.00603790
<i>a</i>	2.3960100	Ω	91.39327	-0.02924443	-0.91790020
<i>e</i>	0.1313335	<i>i</i>	3.42712	+0.05246545	-0.39676538
<i>P</i>	3.71	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1993 03 17	809	0.9-	0.0	1999 12 03	699	0.0	0.5+	1999 12 08	704	0.7+	0.9-
1993 03 18	809	0.5-	0.2+	1999 12 07	704	0.6+	0.3+	1999 12 08	704	0.2+	0.2-
1993 03 23	809	1.8+	0.2-	1999 12 07	704	0.0	0.1+	1999 12 08	704	1.6-	0.9-
1993 04 16	413	0.5-	0.2+	1999 12 07	704	0.3+	0.9+	1999 12 12	691	0.0	0.0
1999 12 03	699	0.0	0.5+	1999 12 07	704	0.5+	0.4-	1999 12 12	691	0.0	0.0
1999 12 03	699	1.2-	1.0+	1999 12 08	704	0.7+	0.7-	1999 12 12	691	0.3-	0.2-

1993 FD₁₆ = 1999 VU₆₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	60.55782		(2000.0)	P	Q
<i>n</i>	0.22294043	ω	251.69754	+0.56413540	+0.81812384
<i>a</i>	2.6936645	Ω	53.16022	-0.69517226	+0.54346034
<i>e</i>	0.1669543	<i>i</i>	8.00603	-0.44551856	+0.18794742
<i>P</i>	4.42	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1993 03 17	809	0.5-	0.0	1999 11 04	704	0.0	0.6-	1999 11 28	691	0.4-	0.4+
1993 03 18	809	0.1-	0.1+	1999 11 04	704	0.1+	0.3-	1999 11 28	691	0.3-	0.4+
1993 03 23	809	(3.2-	1.5-)	1999 11 12	704	0.1-	0.2+	1999 12 07	704	0.4+	1.9-
1993 04 16	413	0.6+	0.1-	1999 11 12	704	1.1+	0.4+	1999 12 07	704	0.2-	0.1+
1999 11 04	704	0.5+	0.3-	1999 11 12	704	0.1+	0.8+	1999 12 07	704	0.2+	0.0
1999 11 04	704	0.1+	0.3-	1999 11 12	704	0.4-	0.7+				
1999 11 04	704	0.6-	0.3-	1999 11 28	691	0.6-	0.4+				

1993 FJ₂₀ = 1999 XH₁₀₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	268.37095		(2000.0)	P	Q
<i>n</i>	0.26579825	ω	287.15440	-0.98946145	-0.14260784
<i>a</i>	2.3957121	Ω	244.65276	+0.14114951	-0.91132967
<i>e</i>	0.1328523	<i>i</i>	1.59029	+0.03229313	-0.38618809
<i>P</i>	3.71	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1993 03 19	809	0.6+	0.4-	1993 04 15	691	0.0	0.5-	1999 12 11	684	0.5-	0.3-
1993 03 20	809	0.1+	0.8+	1993 04 15	691	0.0	0.7-	1999 12 12	684	0.2-	0.2-
1993 03 24	809	0.4-	1.8+	1993 04 17	413	0.2-	0.5-	1999 12 12	684	0.5+	0.6+
1993 04 15	691	0.2-	0.7-	1999 12 11	684	0.1+	0.5-				

1993 FV₃₃

Id. A. Doppler (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	305.49182		(2000.0)	P	Q
<i>n</i>	0.24014771	ω	266.52396	+0.36014055	-0.93210283
<i>a</i>	2.5634041	Ω	162.21768	+0.89815831	+0.33527346
<i>e</i>	0.1669769	<i>i</i>	7.24427	+0.25221109	+0.13702563
<i>P</i>	4.10	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1993 03 19	809	0.4+	0.1+	1999 09 14	704	0.2-	0.0	1999 10 02	704	0.4+	0.0
1993 03 20	809	0.4+	0.3+	1999 09 14	704	0.2+	0.3-	1999 10 02	704	0.1+	0.2-
1993 03 24	809	0.2-	1.4+	1999 09 14	704	0.1+	0.2-	1999 10 02	704	0.5+	0.3+
1999 08 13	699	0.3-	0.1-	1999 09 14	704	0.2-	0.5-	1999 10 02	704	0.3-	0.1-
1999 08 13	699	0.0	0.2+	1999 09 14	704	0.1+	0.6-	1999 12 02	704	0.8-	0.5+
1999 08 13	699	0.3-	0.3+	1999 09 21	699	0.8-	0.7+	1999 12 02	704	0.1-	0.0

1999 09 08	699	0.3−	0.5+	1999 09 21	699	0.2−	0.3+	1999 12 02	704	0.2+	0.2−
1999 09 08	699	0.2+	0.6+	1999 09 21	699	0.2+	0.0	1999 12 02	704	0.7+	0.3+
1999 09 08	699	0.2−	0.3+	1999 10 02	704	0.3+	0.2+				

1993 FW₄₀ = 1994 NE₉ = 1999 JM₁₁

Id. A. Doppler (*MPC* 33684), S. Nakano; 1993 FW₄₀ = 1978 VG₁₆ (*ibid.*) is invalid

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Nakano			
<i>M</i>	309.01157		(2000.0)	P	Q		
<i>n</i>	0.17022851	ω	205.43407	+0.42602176	+0.90391769		
<i>a</i>	3.2243921	Ω	89.80085	−0.82344448	+0.40477640		
<i>e</i>	0.1620315	<i>i</i>	2.17346	−0.37475945	+0.13816251		
<i>P</i>	5.79	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1993 03 19	809	0.5−	0.2+	1994 07 09	809	0.5+	1.4+
1993 03 20	809	0.3+	0.4+	1994 07 09	809	0.3+	0.3+
1993 03 24	809	0.7+	0.6+	1994 07 09	809	0.1+	0.6−
1994 07 08	809	0.2+	1.1−	1999 05 08	703	0.1+	0.6−
1994 07 08	809	1.0−	0.1−	1999 05 08	703	0.6−	0.4+
1994 07 08	809	0.2−	0.5+	1999 05 08	703	0.0	0.2−

1993 FP₄₈ = 1999 VP₆₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Doppler			
<i>M</i>	108.97872		(2000.0)	P	Q		
<i>n</i>	0.23346399	ω	25.05728	−0.01562353	+0.99977508		
<i>a</i>	2.6120979	Ω	244.05029	−0.92003625	−0.01999110		
<i>e</i>	0.0810593	<i>i</i>	0.91392	−0.39152166	+0.00708139		
<i>P</i>	4.22	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1993 03 19	809	0.1−	0.7−	1999 11 04	704	0.2+	0.2+
1993 03 20	809	0.4−	0.3+	1999 11 04	704	0.1−	0.6+
1993 03 24	809	0.4+	0.1+	1999 11 04	704	0.2+	0.1+
1993 04 17	413	0.2+	0.4+	1999 11 04	704	0.7−	0.3−
				1999 11 12	704	0.2+	0.6−

1993 FW₄₉ = 1999 VY₄₉

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Williams			
<i>M</i>	65.31349		(2000.0)	P	Q		
<i>n</i>	0.23510026	ω	338.36548	+0.70126543	+0.71279693		
<i>a</i>	2.5999639	Ω	336.15774	−0.64959058	+0.63188195		
<i>e</i>	0.0822966	<i>i</i>	1.72074	−0.29369861	+0.30437762		
<i>P</i>	4.19	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1993 03 19	809	0.1+	0.6−	1999 11 03	704	0.1+	0.4+
1993 03 20	809	0.1−	0.2−	1999 11 04	704	0.3−	0.1+
1993 03 24	809	0.3+	0.8+	1999 11 04	704	0.9+	0.2−
1993 04 17	691	0.1+	0.5−	1999 11 04	704	1.0+	0.2+
1993 04 17	691	0.5−	0.3+	1999 11 04	704	0.1+	0.5−
1993 04 17	691	0.1−	0.2+	1999 11 04	704	0.2+	0.4−
1999 11 03	704	1.7−	1.6−	1999 12 04	703	1.1+	0.9+
1999 11 03	704	0.2−	0.2−	1999 12 04	703	0.2−	0.3−
1999 11 03	704	0.1−	0.7+	1999 12 04	703	0.9−	0.3−
1999 11 03	704	0.2+	0.5+	1999 12 04	703	0.5−	0.9−

1993 FN₆₂ = 1991 XU₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	326.96124		(2000.0)	P	Q		
<i>n</i>	0.23872151	ω	345.34183	+0.73793927	−0.67066510		
<i>a</i>	2.5736038	Ω	57.02941	+0.62785043	+0.64139456		
<i>e</i>	0.2399444	<i>i</i>	5.14216	+0.24748629	+0.37258736		
<i>P</i>	4.13	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1991 12 10	033	0.8−	0.1−	1993 03 24	691	0.4−	0.4−
1991 12 10	033	0.8+	0.1+	1993 03 24	691	0.0	0.6−
1991 12 11	033	0.0	0.1+	1993 03 24	691	0.5−	0.3−
1993 03 19	809	(2.7+	4.0−)	1999 12 03	704	0.3−	0.2−
1993 03 20	809	1.0+	0.2−	1999 12 03	704	0.1+	0.3+
1993 03 23	809	0.1−	1.2+	1999 12 03	704	0.6−	0.0
				1999 12 07	704	0.2−	0.1−

1993 FD₆₇ = 1999 XX₂₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Williams			
<i>M</i>	4.55892		(2000.0)	P	Q		
<i>n</i>	0.22307423	ω	72.96360	+0.98496207	+0.17011525		
<i>a</i>	2.6925873	Ω	277.23406	−0.16782038	+0.90052724		
<i>e</i>	0.2069639	<i>i</i>	1.74302	−0.04106131	+0.40013933		
<i>P</i>	4.42	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1993 03 21	809	(4.8−	0.9+)	1999 11 27	699	0.5−	1.5+
1993 03 22	809	1.1−	0.1−	1999 12 05	704	0.8−	0.1−
1993 03 26	809	1.2+	0.4−	1999 12 05	704	1.7+	0.3+
1993 04 17	413	0.1+	0.7+	1999 12 05	704	1.1−	0.9+
1999 11 27	699	0.1+	0.1+	1999 12 05	704	0.9+	0.1−
1999 11 27	699	0.3−	0.0	1999 12 07	704	0.2+	0.1+

1993 LF = 1999 XE₃₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Williams			
<i>M</i>	156.61672		(2000.0)	P	Q		
<i>n</i>	0.24171585	ω	183.58644	+0.54471698	+0.80535344		
<i>a</i>	2.5523054	Ω	119.55586	−0.76257458	+0.59170630		
<i>e</i>	0.1096625	<i>i</i>	15.59526	−0.34894615	−0.03590954		
<i>P</i>	4.08	<i>H</i>	12.1	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1993 06 14	675	0.5+	0.0	1993 06 26	675	0.1+	0.4+
1993 06 17	675	0.4−	0.9+	1999 12 06	704	0.3−	0.0
1993 06 20	675	1.0+	0.0	1999 12 06	704	0.4+	0.1−
1993 06 22	675	1.1−	1.2−	1999 12 06	704	0.6+	0.5+
1993 06 22	675	0.0	0.7−	1999 12 06	704	0.2+	0.5−
1993 06 26	675	0.0	0.6+	1999 12 06	704	0.3+	0.4+
				1999 12 07	704	0.7−	0.2+
				1999 12 07	704	0.5−	0.4−
				1999 12 07	704	0.0	0.1−
				1999 12 07	704	0.0	0.3−
				1999 12 07	704	0.1+	0.2+

1993 PF = 1995 AD

Id. M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Williams			
<i>M</i>	56.73126		(2000.0)	P	Q		
<i>n</i>	0.23932938	ω	138.80666	+0.46987727	−0.85038985		
<i>a</i>	2.5692441	Ω	281.91672	+0.73319318	+0.52533635		
<i>e</i>	0.0582053	<i>i</i>	14.00276	+0.49157208	+0.02930564		
<i>P</i>	4.12	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1993 08 12	595	2.8+	0.1−	1993 08 15	595	1.4−	0.4−
1993 08 12	595	0.2+	0.2−	1993 08 16	595	0.4−	1.4+
1993 08 12	595	0.0	0.4−	1993 08 16	595	1.7+	0.9−
1993 08 14	595	1.1−	1.3+	1993 08 16	595	0.6+	0.5−
1993 08 14	595	0.9−	0.0	1993 08 20	595	0.0	0.2−
1993 08 15	595	2.9−	0.3+	1993 08 20	595	0.3+	0.5+
1993 08 15	595	1.2+	0.9−	1995 01 03	587	0.7−	0.0
				1995 01 04	587	0.2−	0.3−
				1995 01 04	587	0.0	0.4−
				1995 01 06	587	0.5+	0.4+
				1995 01 06	587	0.1+	0.3+
				1995 01 06	587	0.2+	0.1−

1999 DEC. 22

M.P.C. 37123

1993 QH₄

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17370038	ω	248.27162	+0.95725153	−0.28768580		
<i>a</i>	3.1812822	Ω	128.43502	+0.27756060	+0.88425823		
<i>e</i>	0.2274321	<i>i</i>	2.20267	+0.08142248	+0.36786447		
<i>P</i>	5.67	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 08 18	010	0.3+	0.8−	1993 09 19	010	1.6−	0.0	1999 10 01	703	1.0−	0.4+
1993 08 19	010	0.9+	1.6−	1993 09 20	010	0.7−	0.9−	1999 10 01	703	0.9−	0.4+
1993 08 19	010	0.7+	1.8−	1993 09 20	010	0.2−	1.3−	1999 10 29	703	0.4+	0.1+
1993 08 19	010	(0.3+ 2.7−)		1993 09 20	010	0.9−	1.0+	1999 10 29	703	0.2+	0.5+
1993 08 20	809	0.9+	1.2+	1997 05 01	704	0.0	0.6+	1999 10 29	703	0.3+	0.6+
1993 08 20	809	0.3+	1.2+	1997 05 01	704	0.5+	0.3+	1999 10 29	703	0.0	0.3+
1993 08 20	809	0.2−	1.1+	1997 05 01	704	0.1+	0.5−	1999 12 04	699	0.5+	0.0
1993 08 24	809	0.9+	0.5+	1997 05 01	704	0.8+	1.4+	1999 12 04	699	0.4+	0.2+
1993 08 24	809	0.7+	0.3+	1997 05 01	704	0.8−	0.5+	1999 12 04	699	0.7+	0.1−
1993 08 24	809	0.1+	0.4+	1999 10 01	703	0.8−	0.1−				
1993 09 19	010	0.8−	0.3+	1999 10 01	703	0.5−	0.2−				

1993 RC₅ = 1999 VL₅₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17235524	ω	182.40152	+0.81599235	−0.57741257		
<i>a</i>	3.1978129	Ω	212.91575	+0.53119929	+0.76769766		
<i>e</i>	0.1085180	<i>i</i>	2.89109	+0.22799955	+0.27791191		
<i>P</i>	5.72	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 09 15	809	0.1−	1.0+	1993 09 18	809	0.5−	0.5−	1999 11 12	704	0.1+	0.4+
1993 09 15	809	0.0	0.1−	1993 09 18	675	(0.8− 3.0−)		1999 11 12	704	0.2−	0.6+
1993 09 15	809	0.4−	0.5+	1993 09 22	675	(1.0− 2.8−)		1999 11 12	704	0.3−	0.1−
1993 09 16	809	(0.7− 3.5−)		1993 09 23	809	(2.5− 4.8−)		1999 11 12	704	0.5+	1.1+
1993 09 16	809	(1.2− 3.2−)		1993 09 23	809	(4.4− 5.9−)		1999 11 12	704	0.2+	0.9+
1993 09 16	809	(2.7− 3.8−)		1993 09 23	809	(3.9− 4.2−)		1999 11 25	120	0.6−	0.4+
1993 09 17	809	0.1+ 0.5−		1999 11 04	704	0.2−	0.3−	1999 11 25	120	0.4+	0.2−
1993 09 17	809	0.0	0.3+	1999 11 04	704	0.3+	0.7+	1999 11 25	120	0.0	0.3−
1993 09 17	809	0.4−	1.0−	1999 11 04	704	0.1−	0.4−	1999 11 26	120	0.4−	0.6−
1993 09 18	809	0.9+	0.3+	1999 11 04	704	0.2−	0.8−	1999 11 26	120	0.4+	0.1−
1993 09 18	809	0.4+	0.0	1999 11 04	704	0.2−	0.9−	1999 11 26	120	0.3+	0.5−

1993 UY₂ = 1999 XD₂₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17451416	ω	296.26872	+0.92097092	+0.22538892		
<i>a</i>	3.1713848	Ω	52.43092	+0.00533993	+0.80832767		
<i>e</i>	0.1780305	<i>i</i>	23.63947	−0.38959473	+0.54388070		
<i>P</i>	5.65	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 10 09	675	0.4−	0.5+	1993 10 27	413	0.2−	0.0	1999 12 07	704	0.1+	0.1−
1993 10 09	675	(2.4− 0.8−)		1999 12 06	704	0.2+	0.6+	1999 12 07	704	0.2+	0.3−
1993 10 14	675	0.1+ 0.2−		1999 12 06	704	0.1−	0.2+	1999 12 07	704	0.2+	0.1−
1993 10 14	675	0.0	0.7−	1999 12 06	704	0.2−	0.1+	1999 12 12	703	0.1−	0.1+
1993 10 20	413	0.3−	0.4+	1999 12 06	704	0.0	0.1−	1999 12 12	703	0.1−	0.2−
1993 10 20	413	0.1+ 0.2−		1999 12 06	704	0.3−	0.6−	1999 12 12	703	0.3−	0.2+
1993 10 23	413	0.9+	0.1+	1999 12 07	704	0.5+	0.3+	1999 12 12	703	0.4−	0.2−
1993 10 27	413	0.2−	0.1+	1999 12 07	704	0.3+	0.1−				

1994 AW₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.84886860	ω	37.15099	+0.79498791	+0.47075572		
<i>a</i>	1.1046950	Ω	290.44725	−0.60659771	+0.62291384		
<i>e</i>	0.0752999	<i>i</i>	24.09983	+0.00578271	+0.62479388		
<i>P</i>	1.16	<i>H</i>	17.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1994 01 07	412	(1.3− 2.7−)	1994 01 19	046	0.2− 0.3+	1994 02 01	657	1.3− 0.7+
1994 01 07	412	(0.9− 4.2−)	1994 01 19	046	0.1− 0.4+	1994 02 01	657	0.7− 1.2+
1994 01 08	675	(1.6− 2.2−)	1994 01 19	046	0.1− 0.3+	1994 02 01	657	0.6+ 1.0−
1994 01 08	675	2.0+ 1.3−	1994 01 19	046	0.1+ 0.4+	1994 02 02	657	0.4− 0.4+
1994 01 11	675	0.6+ 0.1−	1994 01 19	046	0.2− 0.4+	1994 02 02	657	0.4− 0.3+
1994 01 11	675	0.9− 0.9+	1994 01 19	046	0.1− 0.3+	1994 02 02	657	0.3− 0.3+
1994 01 11	675	0.4− 1.9−	1994 01 19	046	0.0 0.2+	1994 02 08	658	1.2− 0.4−
1994 01 12	675	0.0 1.2−	1994 01 19	046	0.0 0.3+	1994 02 08	658	1.0− 0.2+
1994 01 12	675	(0.9+ 3.1+)	1994 01 19	046	0.0 0.2+	1994 02 08	658	1.3− 0.2−
1994 01 13	675	(3.0+ 2.5+)	1994 01 19	046	0.1− 0.4+	1994 02 09	385	0.5− 0.7−
1994 01 13	670	1.3+ 0.7+	1994 01 19	540	0.2+ 0.5+	1994 02 09	385	0.7− 0.4−
1994 01 13	670	1.4+ 1.0+	1994 01 19	540	0.1+ 0.3+	1994 02 09	385	0.1− 1.2−
1994 01 13	670	0.6+ 0.2−	1994 01 19	540	0.6− 1.4+	1994 02 09	557	0.4− 0.1−
1994 01 14	557	0.4+ 0.4−	1994 01 19	540	1.0− 0.3−	1994 02 09	557	0.8− 0.7−
1994 01 14	557	0.4+ 0.3−	1994 01 20	557	0.3+ 0.4+	1994 02 09	557	1.3− 0.2+
1994 01 14	557	0.3+ 0.3−	1994 01 20	557	0.2+ 0.2+	1994 02 09	557	0.6− 0.2+
1994 01 14	557	0.8+ 0.4+	1994 01 20	557	0.3+ 0.4+	1994 02 12	809	0.5− 0.2−
1994 01 14	557	1.2+ 1.0+	1994 01 20	657	0.0 0.2+	1994 02 12	587	0.9− 1.8−
1994 01 14	046	0.3+ 0.5−	1994 01 20	729	0.2− 1.0+	1994 02 12	587	0.4− 0.4−
1994 01 14	046	0.4+ 0.6−	1994 01 20	657	0.2− 0.6+	1994 02 13	809	0.2− 1.4+
1994 01 14	046	0.4+ 0.5−	1994 01 20	729	0.2− 1.0+	1994 02 14	557	0.7− 0.0
1994 01 15	046	0.1+ 0.4−	1994 01 20	657	0.2+ 0.7+	1994 02 14	557	0.5− 0.0
1994 01 15	046	0.0 0.3−	1994 01 20	729	0.5− 1.0+	1994 02 14	557	0.6− 0.2+
1994 01 15	046	0.1− 0.1−	1994 01 20	657	0.1− 0.2+	1994 02 14	557	0.4− 0.2+
1994 01 15	046	0.0 0.2−	1994 01 20	729	0.4− 0.9+	1994 02 15	474	0.9− 0.2+
1994 01 15	046	0.0 0.0	1994 01 20	729	0.1− 1.1+	1994 02 15	474	1.0− 0.3+
1994 01 15	046	0.0 0.1−	1994 01 21	413	0.7+ 0.7+	1994 02 19	809	0.3− 0.0
1994 01 15	046	0.0 0.1−	1994 01 21	413	0.5+ 1.2+	1994 02 20	413	1.0− 0.3+
1994 01 15	046	0.0 0.0	1994 01 21	046	0.4+ 0.7+	1994 02 20	413	0.8− 0.2+
1994 01 15	046	0.2+ 0.1−	1994 01 21	046	0.1+ 0.3+	1994 02 20	413	0.5− 0.2+
1994 01 15	046	0.1+ 0.1−	1994 01 21	046	0.4+ 0.3+	1994 02 21	413	0.2+ 0.4−
1994 01 15	046	0.2+ 0.2+	1994 01 21	046	0.4+ 0.5+	1994 02 21	413	0.2+ 0.0
1994 01 15	046	0.3− 0.5−	1994 01 21	046	0.2+ 0.4+	1994 03 18	413	0.2− 0.7+
1994 01 15	046	0.0 0.5−	1994 01 21	046	0.4+ 0.3+	1994 03 18	413	0.7− 0.6+
1994 01 15	046	0.0 0.4−	1994 01 21	046	0.4+ 0.2+	1994 03 18	413	0.0 0.0
1994 01 15	046	0.1− 0.3−	1994 01 21	046	0.2+ 0.5+	1994 03 22	413	0.0 0.2+
1994 01 16	046	0.2+ 0.5−	1994 01 22	104	(0.4+ 2.3−)	1994 03 22	413	0.0 0.2+
1994 01 16	046	0.2+ 0.4−	1994 01 22	104	1.4+ 0.1−	1994 04 02	413	0.3+ 0.8+
1994 01 16	046	0.0 0.5−	1994 01 22	104	0.3+ 1.6−	1994 05 02	413	0.1+ 0.2+
1994 01 16	046	0.1+ 0.6−	1994 01 22	104	(0.8− 2.6−)	1994 05 04	413	0.9+ 0.1+
1994 01 16	046	0.1+ 0.6−	1994 01 22	587	0.1− 0.2+	1994 05 04	413	0.3+ 0.3−
1994 01 16	675	(2.5+ 2.1−)	1994 01 22	587	0.7− 0.3+	1994 06 17	413	1.6+ 0.0
1994 01 16	675	(0.8+ 2.1−)	1994 01 22	587	0.8− 0.9−	1994 06 17	413	1.4+ 0.1−
1994 01 16	385	0.4+ 0.9−	1994 01 23	413	0.1− 0.9−	1994 06 18	413	1.7+ 0.2−
1994 01 16	385	0.5+ 0.7−	1994 01 23	413	0.0 0.9−	1994 06 18	413	0.7+ 0.2+
1994 01 16	385	0.5+ 0.8−	1994 01 25	360	1.7− 0.9−	1994 07 25	413	0.2+ 0.7+
1994 01 16	385	0.5+ 0.7−	1994 01 25	360	1.5− 0.8−	1994 07 25	413	0.4+ 0.9+
1994 01 16	098	0.7− 1.0+	1994 01 26	104	0.6− 0.8+	1994 08 15	413	0.3+ 0.1+
1994 01 16	098	1.7− 1.7−	1994 01 26	104	0.1+ 0.4+	1994 08 16	413	0.9+ 0.5−
1994 01 16	098	(3.3− 0.7−)	1994 01 26	104	(0.6− 2.2+)	1994 08 16	413	0.1− 0.6−
1994 01 16	098	(3.2− 0.8−)	1994 01 26	104	0.3− 1.4+	1994 08 26	413	0.3+ 0.4+
1994 01 17	323	0.6+ 0.8+	1994 01 27	104	1.0+ 0.5+	1994 08 26	413	0.3+ 0.7+
1994 01 18	540	0.8− 1.0−	1994 01 27	104	(2.5+ 1.0−)	1994 09 17	413	0.0 0.1+
1994 01 18	540	0.1+ 0.3−	1994 01 27	104	0.2+ 0.2+	1994 09 17	413	0.3+ 0.6+
1994 01 18	540	0.9+ 0.7−	1994 01 27	104	(0.9− 2.1−)	1994 10 04	658	1.4− 0.5−
1994 01 18	540	0.2− 0.0	1994 01 29	104	0.3+ 0.6−	1994 10 04	658	1.2− 0.8−
1994 01 18	540	0.2− 1.2−	1994 01 29	104	0.2− 0.7−	1994 10 04	658	1.4− 0.5+
1994 01 18	540	0.9+ 1.2+	1994 01 29	104	0.1− 0.7+	1994 10 04	658	0.7− 0.3−

M.P.C. 37124

1994 01 19	385	0.1−	0.3+	1994 01 29	587	0.2−	0.6−	1999 10 08	104	0.5−	1.0+
1994 01 19	385	0.2−	0.4+	1994 01 29	587	0.1−	0.8−	1999 10 08	104	0.4+	0.6+
1994 01 19	385	0.2+	0.3+	1994 01 30	360	0.3−	0.5−	1999 10 08	104	0.7+	0.8−
1994 01 19	557	0.1−	0.3+	1994 01 30	360	0.0	0.3−	1999 12 08	675	0.0	0.0
1994 01 19	557	0.1+	0.3+	1994 01 30	897	0.3+	0.5−	1999 12 08	675	0.5+	0.2−
1994 01 19	046	0.3−	0.4+	1994 01 30	897	0.4+	0.3−	1999 12 08	675	0.1−	0.0
1994 01 19	046	0.0	0.4+	1994 01 30	897	0.0	0.3−				

1994 CN₉ = 1992 UX₈ = 1998 HP₆₀ = 1999 RX₃₉

Id. A. Doppler; 4565 P-L = 1999 RX₃₉ (*MPC* 36867) is invalid
Epoch 1999 Aug. 10.0 TT = JDT 2451400.5 Doppler

<i>M</i>	46.61548		(2000.0)	P	Q
<i>n</i>	0.27673210	ω	313.12168	+0.60812057	+0.79379975
<i>a</i>	2.3321851	Ω	354.31306	−0.70135215	+0.53225276
<i>e</i>	0.1142705	<i>i</i>	4.88936	−0.37187973	+0.29426001
<i>P</i>	3.56	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1992 10 31	033	0.5+	0.2−	1994 02 12	809	0.7−	0.1+	1998 04 22	704	1.2+	0.9+
1992 10 31	033	0.5−	0.5−	1994 02 15	675	(0.6−	5.1−)	1998 04 22	704	0.0	1.3+
1992 11 01	033	0.3+	0.3−	1994 02 15	675	(0.7−	5.2−)	1999 09 12	703	0.1−	0.2−
1994 02 07	809	0.6+	0.2−	1998 04 21	704	0.1−	0.9−	1999 09 12	703	0.2−	1.7+
1994 02 07	809	0.1−	0.6−	1998 04 21	704	0.4+	0.1−	1999 09 12	703	0.5+	0.5+
1994 02 07	809	1.4−	0.7−	1998 04 21	704	0.1+	0.2+	1999 09 12	703	0.4−	1.3+
1994 02 09	809	0.8+	1.3+	1998 04 21	704	(0.7−	2.3+)	1999 09 14	703	0.5−	0.4+
1994 02 09	809	0.2+	0.3+	1998 04 21	704	0.2−	0.2−	1999 09 14	703	0.4−	0.9+
1994 02 09	809	0.6+	0.5+	1998 04 22	704	0.6−	0.0	1999 09 14	703	0.3−	0.5+
1994 02 12	809	1.3+	0.5+	1998 04 22	704	1.1+	0.6+	1999 09 14	703	0.7−	0.0
1994 02 12	809	0.4−	0.5+	1998 04 22	704	0.5−	0.6+				

1994 EC₇

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	260.50604		(2000.0)	P	Q
<i>n</i>	0.29221126	ω	78.75129	−0.42365031	−0.90383537
<i>a</i>	2.2490792	Ω	36.50243	+0.78674303	−0.39998573
<i>e</i>	0.1129059	<i>i</i>	5.79060	+0.44894969	−0.15196390
<i>P</i>	3.37	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1994 02 08	809	1.6+	0.5+	1994 03 09	010	0.1−	0.6+	1999 11 27	699	0.3−	0.9+
1994 02 08	809	0.5+	1.0+	1994 03 09	010	0.8+	0.7+	1999 12 07	704	0.1+	0.7−
1994 02 08	809	0.5+	0.2+	1994 03 10	010	0.7−	0.0	1999 12 07	704	0.4+	0.5−
1994 02 10	809	0.7+	0.9−	1994 03 10	010	1.1−	0.5−	1999 12 07	704	0.3−	1.1−
1994 02 10	809	0.2−	0.4−	1994 03 10	010	1.3−	0.7−	1999 12 07	704	0.0	1.0−
1994 02 10	809	1.0−	0.3−	1999 11 27	699	0.3+	1.1+	1999 12 07	704	0.2+	0.3−
1994 03 09	010	0.5+	0.1−	1999 11 27	699	0.3−	1.2+				

1994 JV₄ = 1999 VT₆₇

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	283.66398		(2000.0)	P	Q
<i>n</i>	0.28911271	ω	302.26501	−0.47994062	−0.87730045
<i>a</i>	2.2651202	Ω	176.41611	+0.80999627	−0.44354157
<i>e</i>	0.1749084	<i>i</i>	0.88189	+0.33699115	−0.18334340
<i>P</i>	3.41	<i>H</i>	15.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1994 05 04	691	0.6−	0.4−	1999 11 12	704	0.8−	0.7−	1999 12 06	704	0.3−	0.5−
1994 05 04	691	0.3−	0.4−	1999 11 12	704	0.1−	0.2+	1999 12 06	704	0.2−	0.1−
1994 05 11	691	0.1+	0.3−	1999 11 12	704	0.4−	0.2+	1999 12 06	704	0.2+	0.7+
1994 05 11	691	0.2−	0.2−	1999 11 12	704	0.5+	0.1+	1999 12 06	704	0.6−	0.5+
1994 05 11	691	0.0	0.0	1999 11 12	704	0.0	0.2+	1999 12 07	704	0.7−	0.6+
1994 05 17	691	0.4+	0.1−	1999 12 03	691	0.6+	0.0	1999 12 07	704	0.6−	0.4+

1999 DEC. 22

1994 05 17	691	0.1−	0.2+	1999 12 03	691	0.3+	0.1−	1999 12 07	704	0.2−	0.8+
1994 05 17	691	0.3+	0.4−	1999 12 03	691	0.5+	0.1+	1999 12 07	704	0.8−	0.9−
1999 11 04	704	0.6+	0.2−	1999 12 04	703	0.2+	0.1−	1999 12 07	704	0.4−	0.8+
1999 11 04	704	0.9+	0.9−	1999 12 04	703	0.2−	0.0	1999 12 12	703	0.2+	0.4−
1999 11 04	704	0.4−	0.1−	1999 12 04	703	0.2+	0.1−	1999 12 12	703	0.4+	0.5−
1999 11 04	704	0.0	0.4−	1999 12 04	703	0.3−	0.1+	1999 12 12	703	0.2+	0.3−
1999 11 04	704	0.4+	0.3−	1999 12 06	704	0.8+	1.0−	1999 12 12	703	0.4+	0.3+

1994 LB₈ = 1979 WC₃ = 1998 KN₃₆ = 1999 OV₂

Id. A. Doppler, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	88.32134		(2000.0)	P	Q
<i>n</i>	0.24219969	ω	13.27308	−0.05639052	+0.96003625
<i>a</i>	2.5489050	Ω	254.02003	−0.94009286	−0.14352079
<i>e</i>	0.0974933	<i>i</i>	16.56811	−0.33622243	+0.24027523
<i>P</i>	4.07	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1979 11 16	095	(1.9+	3.3+)	1998 05 24	704	0.1−	0.6−	1999 07 23	704	0.5+	0.4+
1994 06 08	809	0.3−	0.4−	1998 05 24	704	0.5−	0.2+	1999 07 23	704	0.5+	0.6−
1994 06 08	809	0.6−	0.3+	1998 05 24	704	0.0	0.7+	1999 07 23	704	0.7+	1.4−
1994 06 08	809	1.1−	0.3+	1998 05 24	704	0.1+	0.8+	1999 12 08	704	0.1+	0.9+
1994 06 09	809	1.5+	1.3+	1998 05 24	704	0.2−	0.4−	1999 12 08	704	0.2+	0.0
1994 06 09	809	0.3+	0.4+	1999 07 22	704	0.4−	0.0	1999 12 08	703	0.0	0.7+
1994 06 09	809	0.2−	0.4+	1999 07 22	704	0.5−	0.6−	1999 12 08	704	0.0	0.0
1998 05 22	704	0.3+	0.9−	1999 07 22	704	0.5−	0.2−	1999 12 08	703	0.2−	1.1+
1998 05 22	704	0.0	0.4−	1999 07 22	704	0.8−	0.5−	1999 12 08	704	0.0	0.4−
1998 05 22	704	0.0	0.5−	1999 07 22	704	0.4−	0.2−	1999 12 08	703	0.2−	0.8+
1998 05 22	704	0.4+	0.5−	1999 07 23	704	0.0	0.0	1999 12 08	704	0.1+	0.4−
1998 05 22	704	0.0	0.5+	1999 07 23	704	0.4+	0.1−	1999 12 08	703	0.2+	0.7+

1994 PJ₁₂ = 1999 XM₇₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	32.52988		(2000.0)	P	Q
<i>n</i>	0.22604391	ω	117.39090	+0.99912559	−0.03392773
<i>a</i>	2.6689525	Ω	244.56211	+0.02184004	+0.92183400
<i>e</i>	0.2606813	<i>i</i>	1.55038	+0.03565209	+0.38609711
<i>P</i>	4.36	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1994 08 10	809	1.4+	0.3−	1994 09 03	809	0.6−	1.0−	1999 12 07	704	0.2−	0.2+
1994 08 10	809	0.5+	0.7−	1994 09 03	809	1.2−	0.4−	1999 12 07	704	0.1−	0.0
1994 08 10	809	0.3−	0.1−	1994 09 04	809	1.1+	1.2+	1999 12 08	704	0.5−	1.2−
1994 08 11	809	0.1−	0.8+	1994 09 04	809	0.6+	1.2+	1999 12 08	704	0.7+	0.2−
1994 08 11	809	0.2−	0.0	1994 09 04	809	0.4+	0.2+	1999 12 08	704	0.5+	0.3+
1994 08 11	809	1.2−	0.2+	1999 12 07	704	0.3−	0.2+				
1994 09 03	809	0.4−	1.1−	1999 12 07	704	0.1−	0.6+				

1994 PA₁₃ = 1999 VD₃₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	61.99647		(2000.0)	P	Q
<i>n</i>	0.22773237	ω	33.42712	+0.81972234	+0.57235946
<i>a</i>	2.6557440	Ω	291.64353	−0.53042447	+0.74447073
<i>e</i>	0.0900754	<i>i</i>	1.32209	−0.21611377	+0.34375570
<i>P</i>	4.33	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1994 08 10	809	1.8+	0.1+	1994 09 03	809	1.3−	1.4+	1999 11 12	704	0.6−	0.2−
1994 08 10	809	0.6+	0.2−	1994 09 04	809	0.5+	1.1+	1999 11 12	704	0.4+	1.5+
1994 08 10	809	0.9−	1.1−	1994 09 04	809	0.4−	0.1−	1999 11 12	704	0.0	0.1+
1994 08 11	809	0.8+	0.2−	1994 09 04	809	0.7−	1.4−	1999 12 08	704	0.1−	0.1−
1994 08 11	809	(0.8+	2.1−)	1999 11 03	704	0.7+	0.2−	1999 12 08	704	0.0	0.2+
1994 08 11	809	0.7−	1.4−	1999 11 03	704	0.2+	0.7−	1999 12 08	704	1.5+	0.1+

1994 09 03 809 (1.1+ 2.5+) 1999 11 03 704 1.1- 0.0 1999 12 08 704 0.7- 0.6-
 1994 09 03 809 0.3+ 1.7+ 1999 11 03 704 0.4- 0.4-

1994 PP₁₅ = 1999 XF₅₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams	
<i>M</i>	9.51309	(2000.0)	
		P	Q
<i>n</i>	0.23289085	ω 198.39246	+0.85178038 -0.52383136
<i>a</i>	2.6163817	Ω 193.20705	+0.48517465 +0.79478226
<i>e</i>	0.0112370	<i>i</i> 2.11188	+0.19767584 +0.30646675
<i>P</i>	4.23	<i>H</i> 14.5	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1994 08 10	809	0.8+	0.4-	1994 09 03	809	1.0-	0.2+	1999 12 07	704	0.5-	0.1-
1994 08 10	809	1.1+	1.0-	1994 09 04	809	0.1-	0.7+	1999 12 08	704	0.1+	0.2+
1994 08 10	809	0.6-	0.6-	1994 09 04	809	0.2+	0.3-	1999 12 08	704	0.1+	0.1-
1994 08 11	809	0.8-	1.4+	1994 09 04	809	0.7-	0.7-	1999 12 08	704	0.5-	0.2+
1994 08 11	809	0.0	0.7-	1999 12 07	704	1.3+	1.0+	1999 12 08	704	0.4-	0.5-
1994 08 11	809	0.6-	1.4+	1999 12 07	704	0.7-	0.3+	1999 12 08	704	0.8+	0.4-
1994 09 03	809	0.9+	0.1+	1999 12 07	704	0.1-	0.2-				
1994 09 03	809	0.8+	0.1-	1999 12 07	704	0.2-	0.4-				

1994 PA₂₃ = 1999 VU₇₂ = 1999 XP₄₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams	
<i>M</i>	215.39102	(2000.0)	
		P	Q
<i>n</i>	0.23532326	ω 135.82689	-0.98869489 +0.14884624
<i>a</i>	2.5983210	Ω 52.74172	-0.14309867 -0.90065419
<i>e</i>	0.0735350	<i>i</i> 1.30230	-0.04477934 -0.40824848
<i>P</i>	4.19	<i>H</i> 14.2	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1994 08 12	809	0.2+	0.7+	1994 09 06	809	0.6+	0.3+	1999 12 07	704	0.6-	0.1-
1994 08 12	809	0.7+	1.1+	1994 09 06	809	0.1-	0.4+	1999 12 07	704	0.0	0.3-
1994 08 12	809	0.2+	0.4+	1994 09 06	809	0.4+	0.8+	1999 12 07	704	0.3+	0.2-
1994 08 13	809	0.7+	0.5-	1999 11 10	704	0.1-	1.0-	1999 12 07	704	0.6-	0.3-
1994 08 13	809	1.2-	1.2-	1999 11 10	704	0.1+	0.6+	1999 12 08	704	0.0	0.6+
1994 08 13	809	0.3-	1.3-	1999 11 10	704	0.1-	0.0	1999 12 08	704	0.7+	0.0
1994 09 05	809	0.1+	0.4-	1999 11 10	704	0.2+	0.2+	1999 12 08	704	0.2-	0.0
1994 09 05	809	0.1-	0.6-	1999 11 10	704	0.0	0.2-	1999 12 08	704	0.0	0.1+
1994 09 05	809	1.3-	0.4+	1999 12 07	704	0.1-	0.1-	1999 12 08	704	0.4+	0.6+

1994 PD₃₂ = 1999 VW₂₇

Id. A. Doppler, S. Nakano, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams	
<i>M</i>	211.56091	(2000.0)	
		P	Q
<i>n</i>	0.24138160	ω 320.23184	-0.96705103 +0.24964043
<i>a</i>	2.5546610	Ω 234.29425	-0.21512910 -0.90617084
<i>e</i>	0.1421673	<i>i</i> 3.52450	-0.13613148 -0.34137087
<i>P</i>	4.08	<i>H</i> 14.5	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1994 08 12	809	1.5+	0.5-	1999 11 12	704	0.4-	0.1+	1999 12 04	703	1.5-	0.2+
1994 08 12	809	0.4-	1.5-	1999 11 12	704	0.4-	0.1-	1999 12 04	703	0.1-	0.4+
1994 08 12	809	0.4-	0.5-	1999 11 12	704	0.4-	0.0	1999 12 04	703	0.9-	0.8+
1994 08 13	809	0.1-	1.6-	1999 11 12	704	0.0	0.5-	1999 12 04	703	0.8-	0.4-
1994 08 13	809	0.7-	0.2-	1999 11 15	734	0.1-	0.3+	1999 12 07	691	0.4+	0.4-
1994 08 13	809	0.5-	0.4+	1999 11 15	734	0.0	0.3+	1999 12 07	704	0.6+	0.3-
1994 09 05	809	0.3-	1.2+	1999 11 15	734	0.4-	0.1+	1999 12 07	704	0.2-	0.9+
1994 09 05	809	1.2+	1.6+	1999 11 15	734	0.1+	0.1+	1999 12 07	691	0.5+	0.4-
1994 09 05	809	1.4+	0.7+	1999 11 15	734	0.0	0.6+	1999 12 07	704	0.5+	0.6+
1994 09 06	809	0.2-	0.5+	1999 11 17	734	0.7-	0.0	1999 12 07	691	0.4+	0.5-
1994 09 06	809	1.5-	0.6+	1999 11 17	734	0.8-	0.0	1999 12 07	704	0.1+	0.1+
1994 09 06	809	0.2-	0.7-	1999 11 17	734	0.2-	0.5-	1999 12 07	704	0.1+	0.0
1999 11 03	704	1.2+	0.1-	1999 11 18	734	0.6-	0.2-	1999 12 08	704	0.0	0.4+
1999 11 03	704	0.6+	0.4+	1999 11 18	734	0.3-	0.0	1999 12 08	704	0.3-	0.0
1999 11 03	704	0.9+	1.3-	1999 11 18	734	0.5-	0.1+	1999 12 08	704	0.1+	0.9-

1999 11 03 704 0.6+ 0.4- 1999 11 29 691 0.3+ 0.2- 1999 12 08 704 0.1- 1.0+
 1999 11 03 704 1.9+ 0.8- 1999 11 29 691 0.3+ 0.3- 1999 12 08 704 0.2- 0.7+
 1999 11 12 704 0.0 0.1- 1999 11 29 691 0.4+ 0.2-

1994 PA₃₆

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams	
<i>M</i>	59.15823	(2000.0)	
		P	Q
<i>n</i>	0.22751812	ω 155.79322	+0.78662147 +0.61736483
<i>a</i>	2.6574110	Ω 166.07078	-0.57262933 +0.73511451
<i>e</i>	0.0913184	<i>i</i> 2.22477	-0.23091624 +0.28012019
<i>P</i>	4.33	<i>H</i> 14.8	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1994 08 10	809	0.9+	0.1-	1994 09 04	809	0.6-	0.4-	1999 12 07	704	1.4+	0.9-
1994 08 10	809	0.2+	0.1+	1994 09 04	809	0.8-	0.7-	1999 12 07	704	0.9+	0.2+
1994 08 10	809	0.1-	0.6-	1999 12 02	699	0.8-	1.3-	1999 12 07	704	1.0+	0.1+
1994 08 11	809	0.1+	0.6+	1999 12 02	699	1.2-	0.1-	1999 12 07	704	1.3+	0.5-
1994 08 11	809	0.0	1.4+	1999 12 02	699	0.8-	0.5-	1999 12 12	703	0.3-	0.3+
1994 08 11	809	0.3-	1.3+	1999 12 04	703	1.5-	0.3-	1999 12 12	703	0.2+	0.9+
1994 09 03	809	0.3+	0.1-	1999 12 04	703	0.4-	0.2-	1999 12 12	703	0.5+	0.6+
1994 09 03	809	0.5+	0.6-	1999 12 04	703	0.2+	0.3+	1999 12 12	703	0.5-	0.3+
1994 09 03	809	0.5-	0.7-	1999 12 04	703	0.2-	1.3+				
1994 09 04	809	0.3+	0.1-	1999 12 07	704	0.3+	0.1+				

1994 SS₈ = 1995 YB₂₅ = 1999 VR₆₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams	
<i>M</i>	272.39778	(2000.0)	
		P	Q
<i>n</i>	0.21794994	ω 315.77340	-0.70920887 -0.70499842
<i>a</i>	2.7346277	Ω 179.39715	+0.64984601 -0.65379091
<i>e</i>	0.1239902	<i>i</i> 0.63217	+0.27335497 -0.27483573
<i>P</i>	4.52	<i>H</i> 15.1	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1994 09 28	691	0.5+	0.4-	1995 12 27	566	0.9-	0.6+	1999 12 05	691	0.1+	0.4+
1994 09 28	691	0.6+	0.6-	1999 11 04	704	0.4-	0.2-	1999 12 05	691	0.2-	0.3+
1994 09 28	691	0.5+	0.3-	1999 11 04	704	0.0	0.6+	1999 12 05	691	0.3-	0.3+
1994 10 04	691	0.1+	0.6-	1999 11 04	704	0.4-	0.2-	1999 12 07	704	0.2-	0.0
1994 10 04	691	0.0	0.6-	1999 11 12	704	0.5+	0.2+	1999 12 07	704	0.2-	0.5+
1994 10 11	691	0.1-	0.1-	1999 11 12	704	0.0	0.1-	1999 12 07	704	0.1-	0.1+
1994 10 11	691	0.3-	0.2-	1999 11 12	704	0.6+	0.1-	1999 12 07	704	0.3-	0.1+
1994 10 11	691	0.1-	0.1-	1999 11 12	704	0.4-	0.0	1999 12 08	704	0.0	0.5-
1995 12 25	566	0.9+	1.4-	1999 11 12	704	0.1+	0.5-	1999 12 08	704	0.3+	0.6+
1995 12 25	566	0.2+	1.6-	1999 12 04	703	0.4-	1.3+	1999 12 08	704	1.2+	0.0
1995 12 25	566	0.7+	1.6-	1999 12 04	703	(4.0- 0.1-)		1999 12 08	704	0.5-	0.1+
1995 12 27	566	0.8-	0.3+	1999 12 04	703	0.6-	0.4+				
1995 12 27	566	0.8-	0.7+	1999 12 04	703	0.0	0.5+				

1994 TD₃ = 1980 TK₃ = 1999 XL₁₂₉

Id. G. V. Williams, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams	
<i>M</i>	49.25324	(2000.0)	
		P	Q
<i>n</i>	0.21252558	ω 325.87663	+0.96015954 +0.27533028
<i>a</i>	2.7809632	Ω 18.32211	-0.21019964 +0.82432727
<i>e</i>	0.1064814	<i>i</i> 8.75004	-0.18414607 +0.49464915
<i>P</i>	4.64	<i>H</i> 12.7	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1980 10 14	511	0.6+	1.3-	1994 10 28	400	0.2+	0.7+	1999 12 13	704	0.0	0.1+
1980 10 14	511	0.5+	0.5-	1994 11 29	675	0.3+	0.4-	1999 12 13	704	0.0	0.2+
1980 10 14	511	0.3-	0.3+	1994 11 29	675	1.8+	0.4+	1999 12 13	704	0.2+	0.0
1994 10 02	400	1.2-	0.4-	1999 12 12	704	0.0	0.1-	1999 12 13	704	0.1+	0.0
1994 10 02	400	1.1-	1.0-	1999 12 12	704	0.3-	0.0	1999 12 13	704	0.2+	0.3+

M.P.C. 37126

1994 10 03	400	0.1−	0.6+	1999 12 12	704	0.1−	0.0	1999 12 13	704	0.0	0.2+
1994 10 03	400	0.9−	1.1+	1999 12 12	704	0.0	0.3−	1999 12 13	704	0.4+	0.5−
1994 10 07	400	0.3+	1.6+	1999 12 12	704	0.3−	0.2+	1999 12 13	704	0.0	0.2−
1994 10 07	400	0.0	1.1−	1999 12 13	704	0.2−	0.3+				
1994 10 28	400	(3.6+	2.8+)	1999 12 13	704	0.1+	0.1−				

1994 VP₇

Id. A. Gnädig (1989 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Gnädig			
<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.19012002	ω	8.09114	+0.41337044	−0.88899109		
<i>a</i>	2.9953724	Ω	57.69817	+0.82183223	+0.27108242		
<i>e</i>	0.1837285	<i>i</i>	13.47970	+0.39206716	+0.36906526		
<i>P</i>	5.18	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 10 02	675	0.2+	0.5−	1994 10 31	399	1.6+	0.6−	1994 11 23	399	(2.5−	1.2−)
1989 10 02	675	0.2−	0.6+	1994 10 31	399	(3.2+	0.9−)	1994 11 23	399	2.0−	0.3−
1989 11 24	675	1.3−	0.2+	1994 11 07	399	0.9−	0.1+				
1989 11 24	675	1.3+	0.5−	1994 11 07	399	1.2+	0.9+				

1994 WV₁

Id. A. Doppler (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.18227231	ω	318.59865	+0.26142593	−0.96447984		
<i>a</i>	3.0807438	Ω	116.21525	+0.89631270	+0.22801118		
<i>e</i>	0.1444492	<i>i</i>	2.42011	+0.35816202	+0.13337741		
<i>P</i>	5.41	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 11 28	596	0.6−	0.6+	1994 11 30	596	(3.9+	1.8+)	1999 11 01	703	0.2+	0.4−
1994 11 28	596	0.1−	0.3+	1994 12 02	596	0.3+	1.0+	1999 11 01	703	0.5+	0.2−
1994 11 28	596	0.4+	0.0	1994 12 02	596	0.2+	0.7+	1999 11 01	703	0.1+	0.0
1994 11 29	596	0.8−	1.1−	1999 10 03	703	0.1+	0.2−	1999 11 27	699	0.7−	0.8+
1994 11 29	596	0.3+	0.9−	1999 10 03	703	0.0	0.4−	1999 11 27	699	0.5−	0.2+
1994 11 29	596	0.5+	1.1−	1999 10 03	703	0.2−	0.3−	1999 11 27	699	0.1+	0.9+
1994 11 30	596	(1.9+	3.2+)	1999 10 03	703	0.1−	0.2−				
1994 11 30	596	(3.3+	2.3+)	1999 11 01	703	0.3+	0.3+				

1994 WC₂

Id. T. Kobayashi (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.21291814	ω	248.09938	+0.90959179	+0.37516511		
<i>a</i>	2.7775440	Ω	89.49496	−0.28367406	+0.87476658		
<i>e</i>	0.1710663	<i>i</i>	10.28797	−0.30359809	+0.30665055		
<i>P</i>	4.63	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 11 24	400	1.1−	0.5+	1999 12 03	411	0.4+	0.4−	1999 12 08	704	0.2+	0.1−
1994 11 24	400	0.1+	0.3−	1999 12 06	411	0.4+	0.5+	1999 12 08	704	0.9−	0.0
1994 11 30	400	0.6+	1.3+	1999 12 06	411	0.9−	0.4−	1999 12 08	704	0.1−	0.1+
1994 11 30	400	0.8−	0.9−	1999 12 07	704	0.0	0.1−	1999 12 08	704	0.1+	0.1−
1994 12 03	400	0.7+	0.5−	1999 12 07	704	0.0	1.6+	1999 12 08	704	0.0	0.1−
1994 12 03	400	0.6+	0.1−	1999 12 07	704	0.1−	0.4−				
1999 12 03	411	0.8+	0.1+	1999 12 07	704	0.2+	0.5−				

1999 DEC. 22

1994 YL = 1999 WG₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.18546262	ω	33.95878	+0.07102941	−0.98251420		
<i>a</i>	3.0453120	Ω	52.57348	+0.86024448	−0.02700035		
<i>e</i>	0.0734694	<i>i</i>	12.51660	+0.50491015	+0.18421952		
<i>P</i>	5.31	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 12 27	817	0.5−	0.4−	1994 12 30	817	0.0	0.2−	1999 11 30	897	0.3+	0.2−
1994 12 27	817	0.2+	0.1+	1994 12 30	817	0.1+	0.3+	1999 12 04	703	0.5+	1.0−
1994 12 27	817	0.0	0.6+	1994 12 31	817	1.2−	0.1+	1999 12 04	703	0.4−	0.5−
1994 12 27	817	0.4−	0.3+	1994 12 31	817	0.2−	0.2+	1999 12 04	703	0.7−	0.3+
1994 12 27	817	0.3−	0.6−	1994 12 31	817	0.3−	0.3+	1999 12 04	703	0.1+	0.3+
1994 12 27	817	0.2+	0.6−	1995 01 03	817	0.2−	0.3+	1999 12 07	704	0.4−	0.0
1994 12 27	817	0.2+	0.1−	1995 01 03	817	0.2−	0.4−	1999 12 07	704	0.2+	0.1+
1994 12 27	817	0.1+	1.1−	1995 01 03	817	0.3+	0.3−	1999 12 07	704	0.6−	0.5−
1994 12 27	360	0.7+	0.0	1995 01 06	817	0.7−	0.5−	1999 12 07	704	0.1−	0.5+
1994 12 27	360	0.2−	0.2+	1995 01 06	817	0.3−	0.3+	1999 12 07	704	0.1+	0.2−
1994 12 27	360	0.3+	0.1+	1995 01 06	817	0.2−	0.3−	1999 12 12	703	0.6+	0.2−
1994 12 28	360	0.2−	0.3+	1999 11 28	897	0.8+	0.1+	1999 12 12	703	0.3+	0.2+
1994 12 28	360	0.1+	0.7+	1999 11 28	897	0.0	0.5−	1999 12 12	703	0.4−	0.2+
1994 12 28	360	0.3+	0.3+	1999 11 29	897	0.3+	0.7+	1999 12 12	703	0.3−	0.4+
1994 12 30	817	1.8+	0.8+	1999 11 29	897	0.0	0.3+	1999 12 12	360	0.3+	0.1+
1994 12 30	817	0.8+	0.5−	1999 11 30	897	0.6−	0.2−	1999 12 12	360	0.0	0.2+

1994 YK₂ = 1999 XN₃₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.20628837	ω	70.54736	−0.81001544	−0.57232328		
<i>a</i>	2.8367401	Ω	74.34193	+0.47586965	−0.76884398		
<i>e</i>	0.1386339	<i>i</i>	7.62435	+0.34267048	−0.28517537		
<i>P</i>	4.78	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 12 31	411	1.1−	0.4−	1995 01 10	411	0.2+	0.4+	1999 12 08	704	1.3+	0.0
1994 12 31	411	0.3+	0.3+	1995 01 10	411	0.0	0.5+	1999 12 08	704	0.3+	0.0
1995 01 01	411	1.2−	0.4−	1995 01 19	411	0.4−	0.8−	1999 12 08	704	0.5−	0.0
1995 01 01	411	0.3−	0.2+	1995 01 19	411	0.2+	0.2+	1999 12 09	704	1.1+	0.4−
1995 01 05	411	1.1+	0.4+	1999 12 08	704	0.3−	0.3+	1999 12 09	704	0.8−	0.1−
1995 01 05	411	1.2+	0.3−	1999 12 08	704	0.8−	0.5+	1999 12 09	704	0.3−	0.3−

1995 CB

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.17938413	ω	296.68577	+0.36663196	−0.92060555		
<i>a</i>	3.1137234	Ω	131.13930	+0.90439354	+0.31875984		
<i>e</i>	0.2194726	<i>i</i>	10.28092	+0.21829643	+0.22556061		
<i>P</i>	5.49	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 02 01	411	1.1−	0.9+	1995 02 19	411	1.3−	0.9+	1999 12 05	704	0.0	0.3−
1995 02 01	411	0.3+	0.7−	1999 12 02	699	0.7+	0.1−	1999 12 05	704	0.6−	0.4−
1995 02 03	411	0.7+	0.4−	1999 12 02	699	0.4+	0.4−	1999 12 06	704	0.2+	0.1−
1995 02 03	411	0.2+	0.3+	1999 12 02	699	0.5+	0.3+	1999 12 06	704	0.0	0.2−
1995 02 06	411	0.6+	0.3−	1999 12 05	704	0.5−	0.2−	1999 12 06	704	0.2+	1.1+
1995 02 06	411	0.4−	0.2+	1999 12 05	704	0.5−	0.2+	1999 12 06	704	0.4−	0.2+
1995 02 19	411	1.1+	0.8−	1999 12 05	704	0.2−	0.2−	1999 12 06	704	0.0	0.1+

1999 DEC. 22

M.P.C. 37127

1995 DR₁₃ = 1999 XB₈₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17929571	<i>ω</i>	63.39053	−0.98729774	+0.15688463		
<i>a</i>	3.1147471	<i>Ω</i>	125.62550	−0.15453677	−0.91153522		
<i>e</i>	0.1446195	<i>i</i>	1.77006	−0.03689928	−0.38011940		
<i>P</i>	5.50	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1995 02 22	033	0.2+	0.1−	1995 03 04	033	0.3−	0.1+
1995 02 23	033	0.4−	0.7+	1995 03 23	033	0.3−	0.2+
1995 02 24	033	0.0	1.1+	1995 03 23	033	0.4+	0.1−
1995 02 26	691	0.4+	0.5−	1999 12 07	704	0.7−	0.5−
1995 02 26	691	0.4+	0.6−	1999 12 07	704	0.0	0.5−
1995 02 26	691	0.3+	0.4−	1999 12 07	704	0.1−	0.5+
1995 03 04	033	0.6−	0.4−	1999 12 07	704	0.3+	0.0

1995 QH = 1999 XU₈₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28563540	<i>ω</i>	137.52725	+0.63652256	−0.76751319		
<i>a</i>	2.2834668	<i>Ω</i>	272.79469	+0.68563355	+0.60818207		
<i>e</i>	0.1576036	<i>i</i>	4.35878	+0.35319351	+0.20257856		
<i>P</i>	3.45	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1995 08 17	358	0.8+	0.7+	1995 12 19	704	(2.4−	1.6+)
1995 08 17	358	0.3+	0.2−	1995 12 19	704	1.7−	0.3+
1995 08 18	358	(1.0+	2.4+)	1995 12 19	704	1.3−	1.6+
1995 08 19	358	(2.6+	0.3+)	1995 12 20	704	0.0	0.7+
1995 08 19	358	(1.1+	3.1−)	1995 12 20	704	0.3+	1.1+
1995 08 31	358	(1.9−	2.2−)	1995 12 20	704	0.0	0.5+
1995 08 31	358	1.2+	1.2−	1995 12 20	704	1.1+	0.3+
1995 09 01	358	0.6+	1.1−	1995 12 22	704	0.2+	0.3−
1995 09 01	358	0.7−	1.1−	1995 12 22	704	0.6+	0.2−
1995 09 21	399	(2.8−	1.9+)	1995 12 22	704	0.7−	0.3+
1995 09 21	399	1.4−	0.3+	1999 12 07	704	0.3+	0.1+

1995 QV₃ = 1999 WL₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27318297	<i>ω</i>	318.33406	+0.87410398	−0.27470234		
<i>a</i>	2.3523411	<i>Ω</i>	61.94190	+0.46925195	+0.69060451		
<i>e</i>	0.2721275	<i>i</i>	26.99760	−0.12547844	+0.66903216		
<i>P</i>	3.61	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	3
Residuals in seconds of arc							
1995 08 26	413	0.3−	0.7−	1999 11 29	691	0.1−	0.3−
1995 08 28	422	0.4−	0.4−	1999 12 07	704	0.1+	0.2−
1995 08 28	422	0.0	0.8+	1999 12 07	704	0.3+	0.2−
1995 09 06	413	0.4+	0.2+	1999 12 07	704	0.0	0.1+
1995 09 06	413	0.4+	0.2+	1999 12 07	704	0.1−	0.1+
1999 11 28	691	0.1+	0.2−	1999 12 07	704	0.2+	0.3+
1999 11 28	691	0.2+	0.2−	1999 12 08	704	0.1−	0.0
1999 11 28	691	0.3+	0.3−	1999 12 08	704	0.1+	0.2+
1999 11 29	691	0.0	0.1−	1999 12 08	704	0.3+	0.3+
1999 11 29	691	0.6−	0.5+	1999 12 08	704	0.4+	0.5+

1995 RD = 1999 VK₅₃

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28666203	<i>ω</i>	335.64201	+0.50129381	−0.85406069		
<i>a</i>	2.2780116	<i>Ω</i>	84.00590	+0.81502389	+0.41216099		
<i>e</i>	0.1059202	<i>i</i>	8.02663	+0.29058661	+0.31733839		
<i>P</i>	3.44	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1995 09 07	608	1.3+	0.4+	1999 11 03	704	0.9+	0.7−
1995 09 07	608	0.5+	0.6+	1999 11 04	704	0.4−	0.1+
1995 09 08	608	0.8−	0.8−	1999 11 04	704	0.6−	0.0
1995 09 08	608	0.2+	0.6+	1999 11 04	704	0.0	0.5+
1995 09 14	608	0.5−	0.2−	1999 11 30	411	0.8−	0.4+
1995 09 14	608	0.8−	0.2−	1999 11 30	411	0.4−	0.5+
1999 11 03	704	0.1−	0.3−	1999 12 02	411	0.0	0.5−
1999 11 03	704	0.0	1.4−	1999 12 02	411	0.0	0.5+
1999 11 03	704	1.4+	0.8−	1999 12 07	704	0.1−	0.3+

1995 SA₁ = 1999 XL₁₀₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27796802	<i>ω</i>	220.19022	−0.53444940	−0.75322339		
<i>a</i>	2.3252670	<i>Ω</i>	265.53751	+0.83999394	−0.42307853		
<i>e</i>	0.1564670	<i>i</i>	22.61864	+0.09366977	−0.50364579		
<i>P</i>	3.55	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1995 09 18	693	0.1+	0.3+	1995 10 06	608	0.9+	0.4+
1995 09 18	693	0.9−	1.5+	1995 10 06	608	0.8+	0.3+
1995 09 19	693	0.2−	0.1−	1995 12 23	693	0.1−	0.3−
1995 09 19	693	1.5−	0.1−	1995 12 23	693	0.0	0.0
1995 09 27	693	0.0	0.7−	1995 12 23	693	0.0	0.1+
1995 09 27	693	0.0	1.1−	1999 12 07	704	0.1−	0.2+
1995 10 05	608	0.5+	0.1−	1999 12 07	704	0.1−	0.2+
1995 10 05	608	0.4+	0.2−	1999 12 07	704	0.3−	0.1+

1995 SE₁ = 1999 VH₇

Id. M. E. Sansaturio, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27236019	<i>ω</i>	188.81952	+0.69341870	−0.71925520		
<i>a</i>	2.3570763	<i>Ω</i>	217.29770	+0.66532291	+0.66201735		
<i>e</i>	0.1270472	<i>i</i>	4.06204	+0.27661512	+0.21072492		
<i>P</i>	3.62	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1995 09 20	966	0.6+	0.1+	1999 11 11	703	0.6−	0.3+
1995 09 20	966	1.7+	0.8+	1999 11 11	703	0.8−	0.0
1995 09 20	966	1.0−	0.1+	1999 11 12	704	0.2−	0.2+
1995 09 22	966	0.7+	0.1−	1999 11 12	704	0.1+	0.0
1995 09 22	966	0.3−	0.7+	1999 11 12	704	0.2+	0.0
1995 09 22	966	1.8−	0.2+	1999 11 12	704	0.1−	0.0
1995 09 24	966	1.9+	0.0	1999 11 12	704	0.1−	0.1+
1995 09 24	966	1.8−	1.7−	1999 11 12	120	0.0	0.1+
1999 11 07	120	1.4+	0.3−	1999 11 12	120	0.7−	0.2+
1999 11 07	120	0.5+	0.9−	1999 11 13	120	0.6−	0.2+
1999 11 08	120	0.6+	0.0	1999 11 13	120	0.2−	0.1+
1999 11 08	120	0.9+	0.0	1999 11 25	120	0.4+	0.6−
1999 11 11	703	0.6−	0.3+	1999 11 25	120	0.5+	0.2−
1999 11 11	703	0.6−	0.2−	1999 12 04	703	0.0	0.2+

1995 SO₁₆ = 1999 VQ₆₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	356.92810		(2000.0)	P	Q
<i>n</i>	0.26029749	ω	73.76623	+0.96708908	-0.25440460
<i>a</i>	2.4293461	Ω	300.97192	+0.23156627	+0.88675905
<i>e</i>	0.2051876	<i>i</i>	0.27568	+0.10543142	+0.38592317
<i>P</i>	3.79	<i>H</i>	16.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 09 18	809	1.3+	0.4-	1995 09 29	691	0.2+	0.2+	1999 11 12	704	0.7+	0.1-
1995 09 18	691	0.8-	0.1-	1995 09 29	691	0.5+	0.4+	1999 11 12	704	0.7+	0.2+
1995 09 18	691	1.0-	0.1+	1995 09 29	691	0.0	0.4+	1999 11 12	704	0.1-	0.3-
1995 09 18	691	0.8-	0.0	1999 11 04	704	0.1-	0.2+	1999 11 12	704	0.2+	0.4-
1995 09 19	809	1.6+	0.0	1999 11 04	704	0.6+	0.4+	1999 12 04	691	0.3+	0.3-
1995 09 19	809	0.1+	0.6-	1999 11 04	704	0.4-	0.4-	1999 12 04	691	0.5-	0.2+
1995 09 28	327	0.1-	0.2+	1999 11 04	704	0.3-	0.0	1999 12 04	691	0.1-	0.4-
1995 09 28	327	0.7-	0.0	1999 11 04	704	1.1-	0.1-				
1995 09 28	327	0.4-	0.2-	1999 11 12	704	0.1+	0.9+				

1995 SZ₂₉

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	344.74714		(2000.0)	P	Q
<i>n</i>	0.24049405	ω	326.78421	+0.99750564	+0.04011029
<i>a</i>	2.5609425	Ω	31.07429	-0.00702895	+0.87521632
<i>e</i>	0.3361850	<i>i</i>	6.46130	-0.07023602	+0.48206594
<i>P</i>	4.10	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1995 09 21	033	1.2+	0.5-	1995 10 20	367	0.2+	0.0	1999 09 30	704	0.1+	0.5+
1995 09 21	033	0.1-	0.1+	1995 11 01	900	0.4-	1.7+	1999 09 30	704	0.3+	0.4+
1995 09 22	400	1.0-	0.8-	1995 11 01	900	0.5+	0.6+	1999 09 30	704	0.0	0.5+
1995 09 22	400	(2.9+	1.8-)	1995 11 02	900	0.2-	0.0	1999 09 30	704	0.1+	0.5+
1995 09 23	033	0.2+	0.2+	1999 09 09	699	0.3-	0.2-	1999 09 30	704	0.4-	1.4+
1995 09 30	400	0.8+	1.8-	1999 09 09	699	0.0	0.4-	1999 12 07	704	0.3+	0.1-
1995 09 30	400	1.1+	0.2+	1999 09 09	699	0.3-	0.6-	1999 12 07	704	0.2+	0.0
1995 10 12	400	0.4-	0.5-	1999 09 11	704	0.0	0.1+	1999 12 07	704	0.2-	1.2-
1995 10 12	400	1.2-	0.4+	1999 09 11	704	0.0	0.5+	1999 12 07	704	0.0	0.6-
1995 10 20	367	0.0	0.1+	1999 09 11	704	0.1-	0.4-				
1995 10 20	367	0.3-	0.1-	1999 09 11	704	0.2+	0.3-				

1995 SU₅₂ = 1999 XW₁₀₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	72.92131		(2000.0)	P	Q
<i>n</i>	0.28892542	ω	41.59669	+0.86089120	+0.50128400
<i>a</i>	2.2660990	Ω	288.12022	-0.48765009	+0.76413759
<i>e</i>	0.1565946	<i>i</i>	5.25627	-0.14513350	+0.40596563
<i>P</i>	3.41	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1995 09 20	400	1.1+	1.9-	1995 10 12	400	0.1-	1.1-	1999 12 07	704	0.1+	0.3-
1995 09 20	400	0.1-	0.3-	1999 12 07	704	0.7+	0.8-	1999 12 10	704	0.8-	0.1-
1995 09 30	400	0.1-	1.2+	1999 12 07	704	0.3-	0.5-	1999 12 10	704	0.2+	1.6+
1995 09 30	400	0.7-	1.4+	1999 12 07	704	0.6+	0.2-	1999 12 10	704	0.2-	0.6+
1995 10 12	400	0.1-	0.7+	1999 12 07	704	0.4-	0.5-				

1995 SE₅₃ = 1991 PF₂₅ = 1999 UV₇

Id. A. Doppler, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	343.72554		(2000.0)	P	Q
<i>n</i>	0.26023275	ω	211.28469	+0.82321986	-0.56771940
<i>a</i>	2.4297490	Ω	183.30859	+0.52755584	+0.76623114
<i>e</i>	0.2071311	<i>i</i>	1.92133	+0.20974722	+0.30097264
<i>P</i>	3.79	<i>H</i>	15.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1991 08 03	809	0.8-	1.0-	1995 09 29	327	0.8+	0.1+	1999 11 01	703	0.4-	0.3+
1991 08 03	809	0.5+	0.3-	1995 09 29	327	0.2-	0.4+	1999 11 01	703	0.3-	0.3-
1991 08 03	809	0.7+	0.4-	1995 09 29	327	0.2+	0.1-	1999 11 04	704	0.2+	0.5-
1995 09 24	691	0.6-	0.5+	1999 10 29	703	0.5+	0.5+	1999 11 04	704	0.1+	0.6-
1995 09 24	691	0.1-	0.4+	1999 10 29	703	0.7-	0.2+	1999 11 04	704	0.0	0.4-
1995 09 24	691	0.1-	0.3+	1999 10 29	703	0.0	0.4+	1999 11 04	704	0.5+	0.8-
1995 09 28	327	0.6+	0.2+	1999 10 29	703	0.1+	0.4-	1999 11 04	704	0.0	0.6-
1995 09 28	327	0.6-	0.3+	1999 11 01	703	0.3+	0.3+				
1995 09 28	327	0.7-	0.1-	1999 11 01	703	0.2+	0.5+				

1995 UG₂ = 1999 XO₁₂₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	26.44952		(2000.0)	P	Q
<i>n</i>	0.26190105	ω	324.69836	+0.99620795	+0.08490650
<i>a</i>	2.4194198	Ω	30.44770	-0.06869877	+0.90157318
<i>e</i>	0.1900612	<i>i</i>	2.14756	-0.05338723	+0.42421302
<i>P</i>	3.76	<i>H</i>	16.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1995 10 23	046	0.7-	0.5+	1995 10 26	046	0.1+	0.5-	1999 12 07	704	0.2+	0.3+
1995 10 23	046	0.6-	0.1-	1995 10 26	046	0.2+	0.1-	1999 12 07	704	0.6-	1.8+
1995 10 23	046	0.0	0.1-	1995 11 17	691	0.0	0.2+	1999 12 13	704	1.2+	0.6+
1995 10 23	046	0.2-	1.1+	1995 11 17	691	0.0	0.0	1999 12 13	704	0.1-	1.2-
1995 10 24	046	0.0	0.3-	1995 11 17	691	0.1-	0.1-	1999 12 13	704	0.5-	0.8-
1995 10 24	046	0.4+	0.1-	1995 11 23	691	0.1-	0.0	1999 12 13	704	0.6+	1.5-
1995 10 24	046	0.3+	0.1+	1995 11 23	691	0.1+	0.0	1999 12 13	704	0.1-	0.6-
1995 10 24	046	0.3+	0.3-	1995 11 23	691	0.1+	0.1-				
1995 10 26	046	0.2+	0.2-	1999 12 07	704	0.7-	1.6+				

1995 UG₇ = 1991 RC₁₇ = 1999 XK₁₂₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	64.64344		(2000.0)	P	Q
<i>n</i>	0.25905955	ω	278.23535	+0.67781690	+0.73233133
<i>a</i>	2.4370792	Ω	34.72759	-0.62142193	+0.61805253
<i>e</i>	0.1291539	<i>i</i>	6.57510	-0.39293642	+0.28583544
<i>P</i>	3.80	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1991 09 15	675	0.3-	0.3-	1995 10 27	399	(3.2-	0.0)	1999 12 05	703	0.1+	0.2+
1991 09 15	675	0.7-	0.1-	1995 10 27	399	0.1+	1.1-	1999 12 05	703	0.3-	0.5+
1991 09 17	675	(1.9-	3.3-)	1995 10 28	399	1.9-	0.5+	1999 12 13	703	0.1+	0.7-
1991 09 17	675	1.0+	0.2+	1995 10 28	399	0.5-	0.4+	1999 12 13	703	0.1+	0.3-
1995 10 25	033	1.4+	0.2+	1999 12 05	703	0.4-	0.2+	1999 12 13	703	0.3+	0.0
1995 10 25	033	0.7+	0.2+	1999 12 05	703	0.5+	0.0	1999 12 13	703	0.3-	0.0

1995 UY₄₀ = 1999 XB₆₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	4.54290		(2000.0)	P	Q
<i>n</i>	0.26360964	ω	156.17846	+0.94881597	-0.31081315
<i>a</i>	2.4089541	Ω	222.05944	+0.27465740	+0.89966144
<i>e</i>	0.2045137	<i>i</i>	4.80090	+0.15592165	+0.30660150
<i>P</i>	3.74	<i>H</i>	16.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 10 23	691	0.0	0.1-	1996 01 21	691	0.3-	0.0	1999 12 07	704	0.4-	0.3+
1995 10 23	691	0.1+	0.2+	1996 01 21	691	0.1+	0.5+	1999 12 07	704	0.0	0.9+
1995 10 23	691	0.0	0.2+	1996 01 21	691	0.0	0.3+	1999 12 08	704	0.7+	1.0-
1995 10 28	691	0.8+	0.8-	1999 12 07	704	1.8+	0.4+	1999 12 08	704	0.5-	0.4-
1995 10 28	691	0.4-	0.1+	1999 12 07	704	0.1-	0.2-	1999 12 08	704	0.9-	1.3-
1995 10 28	691	0.4-	0.2+	1999 12 07	704	0.1-	0.9+	1999 12 08	704	0.3-	0.1+

1999 DEC. 22

M.P.C. 37129

1995 UO₄₄ = 1999 XA₁₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	349.40726		(2000.0)	P	Q
<i>n</i>	0.23657235	ω	347.54183	+0.99573893	-0.05288835
<i>a</i>	2.5891670	Ω	16.07841	+0.08855070	+0.77706311
<i>e</i>	0.1342376	<i>i</i>	15.82895	-0.02574391	+0.62719673
<i>P</i>	4.17	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 10 26	408	0.5-	0.2+	1999 11 28	699	0.2+	0.3-	1999 12 07	704	0.3+	0.3-
1995 10 26	408	1.2+	0.1-	1999 11 28	699	0.1-	0.3+	1999 12 07	704	0.5-	0.1-
1995 10 27	408	0.9-	0.3+	1999 11 28	699	0.7-	0.6+	1999 12 07	704	0.2-	0.1-
1995 10 27	408	0.5+	0.4-	1999 12 03	704	1.0+	0.2+	1999 12 07	704	0.0	0.8+
1995 11 09	409	1.3-	0.2-	1999 12 03	704	0.0	1.0-				
1995 11 09	409	1.1+	0.2+	1999 12 03	704	(2.5+	3.2-)				

1995 UP₄₄ = 1998 MY₂₅ = 1999 WQ₄

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	92.26552		(2000.0)	P	Q
<i>n</i>	0.27542289	ω	64.97139	+0.55605861	+0.82661158
<i>a</i>	2.3395699	Ω	239.08687	-0.79433129	+0.49784186
<i>e</i>	0.1270837	<i>i</i>	5.79809	-0.24461526	+0.26242481
<i>P</i>	3.58	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 10 22	408	0.4-	0.1-	1998 06 26	704	1.2+	0.5-	1999 12 07	704	0.4-	0.3+
1995 10 22	408	1.8-	1.9+	1998 06 26	704	0.1+	1.6-	1999 12 07	704	0.5-	0.2+
1995 10 26	408	0.2+	0.3-	1998 06 26	704	0.6-	0.0	1999 12 07	411	0.5+	1.0+
1995 10 26	408	0.1+	1.1-	1998 06 26	704	0.6+	0.1-	1999 12 07	411	1.0+	0.8-
1995 10 27	408	1.0+	0.4+	1999 11 28	411	0.6+	0.3-	1999 12 08	704	0.4-	0.0
1995 10 27	408	0.9+	0.7-	1999 11 28	411	0.9+	0.3-	1999 12 08	704	0.4-	0.3-
1998 06 24	704	0.4-	0.2+	1999 11 29	411	0.2-	0.5+	1999 12 08	704	0.2-	0.6+
1998 06 24	704	0.3-	1.7+	1999 11 29	411	1.0+	0.1-	1999 12 08	704	0.2-	0.0
1998 06 24	704	(1.0+	3.2+)	1999 12 07	704	0.4-	0.5-	1999 12 08	704	0.9-	0.2-
1998 06 24	704	0.6-	0.3+	1999 12 07	704	0.6-	0.1-				

1995 VA

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	327.77045		(2000.0)	P	Q
<i>n</i>	0.24128401	ω	184.99270	+0.62456991	-0.75974584
<i>a</i>	2.5553498	Ω	226.50274	+0.72487796	+0.65012375
<i>e</i>	0.0924026	<i>i</i>	14.43477	+0.29062755	+0.01119648
<i>P</i>	4.08	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 10 27	411	0.0	0.2+	1995 11 11	411	0.0	0.2+	1999 12 06	704	0.0	0.1-
1995 10 27	411	0.7+	0.5-	1995 11 11	411	0.2-	1.0+	1999 12 06	704	0.5-	0.6-
1995 11 01	411	0.6+	0.0	1995 11 18	411	1.4-	0.9-	1999 12 06	704	0.4-	0.9-
1995 11 01	411	0.0	1.7+	1995 11 18	411	0.3-	0.1+	1999 12 06	704	0.8-	0.0
1995 11 02	411	0.2+	0.1+	1999 12 04	699	0.4+	0.5-	1999 12 07	704	0.2+	0.2+
1995 11 02	411	0.2+	0.4-	1999 12 04	699	0.4+	0.2+	1999 12 07	704	0.3+	0.6+
1995 11 03	411	0.7-	1.1-	1999 12 04	699	0.5+	0.1-	1999 12 07	704	0.1-	0.5+
1995 11 03	411	0.8+	0.0	1999 12 06	704	0.3+	0.2-	1999 12 07	704	0.2-	0.6+

1995 VZ₆ = 1999 XX₆₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	338.81683		(2000.0)	P	Q
<i>n</i>	0.25231600	ω	206.60298	+0.44676609	-0.89446264
<i>a</i>	2.4803113	Ω	216.86868	+0.82617718	+0.42035419
<i>e</i>	0.1802945	<i>i</i>	1.75243	+0.34326568	+0.15244325
<i>P</i>	3.91	<i>H</i>	16.4	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 11 14	691	0.1-	0.2-	1995 12 18	691	0.2-	0.1-	1999 12 07	704	0.4+	0.5-
1995 11 14	691	0.2+	0.2+	1996 01 12	691	0.1-	0.0	1999 12 07	704	0.6+	0.6-
1995 11 14	691	0.2+	0.1-	1996 01 12	691	0.2-	0.2+	1999 12 07	704	0.0	0.5-
1995 11 19	691	0.0	0.0	1996 01 12	691	0.1+	0.1+	1999 12 07	704	0.2+	0.9-
1995 11 19	691	0.0	0.0	1996 01 24	691	0.2+	0.3-	1999 12 08	704	0.3-	1.2+
1995 11 19	691	0.3-	0.0	1996 01 24	691	0.0	0.3-	1999 12 08	704	0.6+	0.5-
1995 12 18	691	0.2+	0.3+	1996 01 24	691	0.1+	0.3-	1999 12 08	704	0.6-	1.3+
1995 12 18	691	0.0	0.0	1999 12 07	704	0.3+	0.5-	1999 12 08	704	1.1-	1.4+

1995 VG₁₀ = 1999 WA₁₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	153.87790		(2000.0)	P	Q
<i>n</i>	0.25861276	ω	51.01938	-0.64546960	+0.76378589
<i>a</i>	2.4398854	Ω	178.77956	-0.70568270	-0.59619378
<i>e</i>	0.1426702	<i>i</i>	0.92992	-0.29220015	-0.24735420
<i>P</i>	3.81	<i>H</i>	17.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1995 09 26	691	0.3-	0.5+	1995 11 19	691	1.2-	1.0+	1999 11 29	691	0.1+	0.1-
1995 09 26	691	0.1+	0.3-	1995 11 19	691	0.1+	0.0	1999 11 29	691	0.1+	0.5+
1995 09 26	691	0.1+	0.0	1995 11 19	691	0.2-	0.4-	1999 11 29	691	0.1-	0.2+
1995 11 15	691	0.5+	0.2+	1995 11 25	691	0.5+	0.1-	1999 12 06	691	0.1+	0.2-
1995 11 15	691	0.2+	0.4-	1995 11 25	691	0.1+	0.2-	1999 12 06	691	0.5-	0.1-
1995 11 15	691	0.2+	0.2-	1995 11 25	691	0.1+	0.3-	1999 12 06	691	0.2+	0.1-

1995 VY₁₀ = 1999 XH₇₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	301.52663		(2000.0)	P	Q
<i>n</i>	0.26628430	ω	10.14298	-0.43441961	-0.89868980
<i>a</i>	2.3927960	Ω	105.62656	+0.82193763	-0.42291798
<i>e</i>	0.1243869	<i>i</i>	3.58996	+0.36837228	-0.11617669
<i>P</i>	3.70	<i>H</i>	16.0	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1995 11 15	691	0.3+	0.2-	1995 11 25	691	0.1-	0.3+	1999 12 07	704	0.3+	0.3+
1995 11 15	691	0.4+	0.2-	1995 11 25	691	0.1-	0.2+	1999 12 08	704	1.0-	0.3+
1995 11 15	691	0.2+	0.2-	1995 11 25	691	0.1+	0.2+	1999 12 08	704	0.3+	0.7-
1995 11 19	691	0.7-	0.0	1999 12 07	704	1.3+	0.2+	1999 12 08	704	0.3-	0.2-
1995 11 19	691	0.2-	0.0	1999 12 07	704	0.4-	0.2+	1999 12 08	704	0.3-	0.4-
1995 11 19	691	0.1+	0.1-	1999 12 07	704	0.0	0.2+				

1995 VF₁₃ = 1976 UL₁₈ = 1999 XD₃₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	61.69967		(2000.0)	P	Q
<i>n</i>	0.25998237	ω	176.34124	+0.65030761	+0.75878554
<i>a</i>	2.4313088	Ω	134.21904	-0.69827679	+0.61606446
<i>e</i>	0.2026341	<i>i</i>	2.93273	-0.29918145	+0.21144524
<i>P</i>	3.79	<i>H</i>	15.8	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1976 10 22	381	0.4+	1.1+	1995 11 28	691	0.6+	0.2-	1999 12 07	704	0.8-	0.3-
1976 10 22	381	0.9-	0.0	1995 11 28	691	0.1+	0.1-	1999 12 07	704	0.7+	0.4-
1995 11 15	691	0.1-	0.1-	1995 11 28	691	0.2+	0.0	1999 12 09	691	0.5+	0.1+
1995 11 15	691	0.1-	0.3-	1999 12 06	704	0.2-	0.8-	1999 12 09	691	0.2+	0.4+
1995 11 15	691	0.0	0.3-	1999 12 06	704	0.6+	1.3+	1999 12 09	691	0.1-	0.5+
1995 11 20	691	0.1-	0.7-	1999 12 06	704	0.1-	0.2-				
1995 11 20	691	0.1+	0.3-	1999 12 07	704	0.8-	0.2+				

1995 WJ₁

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	0.56585	(2000.0)	P	Q
<i>n</i>	0.23848378	ω 317.44026	+0.98864459	+0.14070054
<i>a</i>	2.5753137	Ω 34.57617	-0.10019450	+0.87893147
<i>e</i>	0.2500007	<i>i</i> 5.33598	-0.11199523	+0.45572231
<i>P</i>	4.13	<i>H</i> 14.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 10 15	327	0.3+	0.3+	1995 11 27	411	0.1+	0.2-	1999 12 05	704	0.4-	0.6-
1995 10 15	327	0.4+	0.1-	1995 11 30	327	0.3-	0.2+	1999 12 05	704	0.1-	0.3-
1995 10 15	327	0.0	0.0	1995 11 30	327	0.0	0.5+	1999 12 05	704	0.2-	0.5-
1995 11 02	411	1.4-	0.6+	1995 11 30	327	0.5-	0.0	1999 12 05	704	0.6+	0.1-
1995 11 02	411	0.1-	0.6-	1995 12 02	327	0.6+	0.1-	1999 12 07	704	0.3+	0.3+
1995 11 11	411	0.3+	0.3+	1995 12 02	327	0.2+	0.2+	1999 12 07	704	0.1+	0.3-
1995 11 11	411	0.2+	1.1-	1995 12 02	327	0.4-	0.2+	1999 12 07	704	0.3-	0.3+
1995 11 18	411	0.7-	0.1-	1999 11 27	699	0.7-	0.5+	1999 12 07	704	0.2-	0.1+
1995 11 18	411	0.2-	0.2+	1999 11 27	699	0.1+	0.5-	1999 12 07	704	0.2+	0.5+
1995 11 27	411	1.6+	0.2-	1999 11 27	699	0.7+	0.6+				

1995 WZ₁

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	330.62207	(2000.0)	P	Q
<i>n</i>	0.23930843	ω 153.50853	+0.71567795	-0.68426165
<i>a</i>	2.5693941	Ω 250.40876	+0.61154498	+0.71073712
<i>e</i>	0.1287873	<i>i</i> 8.54400	+0.33736894	+0.16321377
<i>P</i>	4.12	<i>H</i> 14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 11 18	411	0.2-	0.2+	1995 11 25	411	0.3+	0.1-	1999 12 06	704	0.1+	0.6+
1995 11 18	411	0.7+	0.7+	1995 12 09	411	0.7-	0.6+	1999 12 06	704	0.0	0.1+
1995 11 20	411	0.6-	0.1+	1995 12 09	411	0.3+	0.0	1999 12 06	704	0.1+	0.1+
1995 11 20	411	0.1+	0.3-	1995 12 09	411	0.1-	0.3-	1999 12 06	704	0.6+	1.1-
1995 11 24	411	0.4-	0.3-	1999 12 03	699	0.4+	0.2+	1999 12 06	704	0.0	1.2-
1995 11 24	411	0.8+	0.4-	1999 12 03	699	0.5-	0.6+				
1995 11 25	411	0.3-	0.1-	1999 12 03	699	0.7-	0.5+				

1995 WA₂ = 1999 XY₂₁

Id. G. V. Williams, E. Bowell (1998 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	328.54462	(2000.0)	P	Q
<i>n</i>	0.27330601	ω 255.29263	-0.36764789	-0.92940562
<i>a</i>	2.3516351	Ω 216.33036	+0.87280287	-0.33287047
<i>e</i>	0.1921400	<i>i</i> 3.12072	+0.32101430	-0.15938142
<i>P</i>	3.61	<i>H</i> 14.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1995 11 18	411	0.1+	0.3+	1995 11 24	411	0.1+	0.0	1999 12 05	704	0.3+	0.1+
1995 11 18	411	0.4-	0.9+	1995 11 26	411	0.0	0.2-	1999 12 07	704	0.2-	0.4-
1995 11 20	411	1.2+	0.3-	1995 11 26	411	0.5-	0.4+	1999 12 07	704	0.4-	0.3+
1995 11 20	411	0.5-	0.1-	1995 11 26	411	0.6+	0.1+	1999 12 07	704	0.6-	0.8-
1995 11 24	411	0.1-	1.1-	1999 12 05	704	(2.1-	2.7+)	1999 12 07	704	0.3+	0.1-
1995 11 24	411	0.4-	0.1+	1999 12 05	704	0.2+	0.5+	1999 12 07	704	0.5+	0.5+

1995 WA₃ = 1999 VA₆₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	185.35143	(2000.0)	P	Q
<i>n</i>	0.24199131	ω 147.92593	-0.84857323	+0.50348963
<i>a</i>	2.5503681	Ω 63.14794	-0.51571858	-0.71853841
<i>e</i>	0.0974085	<i>i</i> 10.49747	-0.11814321	-0.47979239
<i>P</i>	4.07	<i>H</i> 15.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1995 11 20	595	0.1+	0.8+	1995 12 01	595	0.2+	0.8-	1999 11 12	704	0.0	1.2-
1995 11 20	595	0.9+	1.5+	1999 11 04	704	0.7+	0.2+	1999 11 12	704	1.3-	1.2-
1995 11 21	595	0.2+	1.1-	1999 11 04	704	0.3+	0.3+	1999 12 04	691	0.2-	0.3+
1995 11 21	595	0.6-	1.4-	1999 11 04	704	0.1+	1.5+	1999 12 04	691	0.0	0.0
1995 11 22	595	0.5+	1.0+	1999 11 12	704	0.1+	0.0	1999 12 04	691	0.0	0.6+
1995 11 22	595	0.1-	1.2+	1999 11 12	704	0.3+	0.1+				
1995 12 01	595	1.2-	1.1-	1999 11 12	704	0.0	0.8-				

1995 WP₃ = 1999 VD₆₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	7.53046	(2000.0)	P	Q
<i>n</i>	0.23953632	ω 138.52276	+0.99688996	-0.07609028
<i>a</i>	2.5677642	Ω 225.85373	+0.06265549	+0.92312963
<i>e</i>	0.1700107	<i>i</i> 1.63792	+0.04779844	+0.37688455
<i>P</i>	4.11	<i>H</i> 15.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1995 11 21	595	0.2+	0.5-	1999 11 04	704	0.3-	0.4+	1999 12 05	691	0.4+	0.2-
1995 11 21	595	0.0	0.1+	1999 11 12	704	0.1+	0.1+	1999 12 05	691	0.5+	0.1-
1995 11 22	595	0.5-	0.5-	1999 11 12	704	0.2+	0.4-	1999 12 05	691	0.3+	0.0
1995 11 22	595	0.0	0.1+	1999 11 12	704	0.4-	0.1+	1999 12 07	704	0.8+	0.7-
1995 11 28	595	0.5+	0.4+	1999 11 12	704	0.4+	0.9-	1999 12 07	704	0.4-	0.2-
1995 11 28	595	0.1-	0.2-	1999 11 12	704	0.1+	0.1-	1999 12 07	704	0.6-	0.1-
1999 11 04	704	0.1+	0.2-	1999 12 04	703	0.7-	0.9+	1999 12 07	704	1.0+	0.6-
1999 11 04	704	0.4-	0.3-	1999 12 04	703	1.6-	1.1+	1999 12 07	704	0.7+	0.1-
1999 11 04	704	0.1+	0.3+	1999 12 04	703	0.2+	1.2+				
1999 11 04	704	0.5+	0.0	1999 12 04	703	0.9-	0.2+				

1995 WK₄ = 1999 XP

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	12.33865	(2000.0)	P	Q
<i>n</i>	0.26057821	ω 291.97045	+0.77726756	-0.62676267
<i>a</i>	2.4276011	Ω 106.88474	+0.59637630	+0.70608722
<i>e</i>	0.1752047	<i>i</i> 3.29434	+0.20047556	+0.32955939
<i>P</i>	3.78	<i>H</i> 15.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1995 11 20	411	0.8+	0.7-	1999 12 03	691	0.4-	0.2-	1999 12 08	704	0.9+	0.6-
1995 11 20	411	0.1-	0.5-	1999 12 03	691	0.3-	0.2-	1999 12 08	704	0.0	0.3-
1995 11 24	411	1.0-	1.7+	1999 12 03	691	0.3-	0.2-	1999 12 08	704	0.4-	0.0
1995 11 24	411	0.5-	1.1+	1999 12 06	703	0.5+	0.9+	1999 12 08	704	0.5-	0.1+
1995 12 01	411	0.9+	0.2-	1999 12 06	703	0.8+	0.4+	1999 12 08	704	0.7-	0.0
1995 12 01	411	0.0	0.0	1999 12 06	703	0.2+	0.2+	1999 12 09	691	0.2+	0.1-
1995 12 09	411	1.1+	1.0-	1999 12 06	703	0.8+	0.8+	1999 12 09	691	0.4-	0.2-
1995 12 09	411	0.4+	0.3-	1999 12 07	704	0.5-	0.4+	1999 12 09	691	0.0	0.2-
1999 12 02	691	0.5+	0.3+	1999 12 07	704	0.2-	0.4-	1999 12 12	691	0.1+	0.0
1999 12 02	691	0.2+	0.1+	1999 12 07	704	0.1+	0.5-	1999 12 12	691	0.1+	0.3-
1999 12 02	691	0.4+	0.1+	1999 12 07	704	1.2-	0.2+	1999 12 12	691	0.1+	0.1-

1995 WT₆

Id. T. Kobayashi (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	320.94927	(2000.0)	P	Q
<i>n</i>	0.26571938	ω 145.43349	-0.14969364	-0.98648166
<i>a</i>	2.3961862	Ω 313.07544	+0.88529843	-0.10370009
<i>e</i>	0.1140899	<i>i</i> 5.23728	+0.44027095	-0.12688664
<i>P</i>	3.71	<i>H</i> 14.6	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1995 11 28	589	0.2-	0.1-	1995 11 29	589	0.8+	0.2+	1995 12 12	595	0.6+	0.3+
1995 11 28	589	0.2-	1.5-	1995 11 30	589	1.3+	0.2+	1995 12 12	595	1.1-	0.0
1995 11 28	589	1.4-	0.3-	1995 11 30	589	0.4-	0.1+	1999 12 07	411	0.7-	0.3+
1995 11 28	589	1.0-	0.3+	1995 11 30	589	0.6+	0.2-	1999 12 07	411	0.7-	0.5+

1999 DEC. 22

M.P.C. 37131

1995 11 29 589 0.4+ 0.2+ 1995 12 10 595 0.4+ 0.5+ 1999 12 09 411 0.7+ 0.7-
 1995 11 29 589 0.4+ 0.0 1995 12 10 595 0.2- 0.4+ 1999 12 09 411 0.7+ 0.2-

1995 XV = 1999 XG₆₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	357.16807	(2000.0)	P	Q		
<i>n</i>	0.24358616	ω	297.89747	+0.81153669	-0.58073001	
<i>a</i>	2.5392238	Ω	97.67366	+0.55636343	+0.73428203	
<i>e</i>	0.1977750	<i>i</i>	3.73188	+0.17851590	+0.35154312	
<i>P</i>	4.05	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1995 12 12	411	0.9-	0.4+	1995 12 30	411	1.2-	1.1+	1999 12 07	704	0.2-	0.1+
1995 12 12	411	0.6+	0.1+	1995 12 30	411	0.8+	0.5+	1999 12 08	704	0.0	0.2-
1995 12 14	411	0.4-	0.5+	1996 01 09	411	0.0	0.6-	1999 12 08	704	0.1+	0.1+
1995 12 14	411	0.3+	0.1-	1996 01 09	411	0.2+	0.2-	1999 12 08	704	0.3-	0.3-
1995 12 20	411	0.3-	0.7+	1999 12 07	704	0.3-	0.3-	1999 12 08	704	0.1-	0.0
1995 12 20	411	0.3+	0.5-	1999 12 07	704	0.2-	0.3-	1999 12 08	704	1.5+	0.4+
1995 12 25	411	1.0+	1.3-	1999 12 07	704	0.3-	0.0				
1995 12 25	411	0.5-	0.1-	1999 12 07	704	0.2-	0.0				

1995 YJ = 1978 YQ₁ = 1999 XM₂₄

Id. G. V. Williams, S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	289.57511	(2000.0)	P	Q		
<i>n</i>	0.23190916	ω	233.68347	-0.42142373	-0.90493368	
<i>a</i>	2.6237600	Ω	241.34264	+0.85213812	-0.37283973	
<i>e</i>	0.1758816	<i>i</i>	3.86416	+0.31026226	-0.20514768	
<i>P</i>	4.25	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1978 12 22	095(30.1+	3.8+)	1995 12 26	411	0.4-	0.5+	1999 12 06	704	0.1-	0.0	
1995 12 17	411	0.4+	0.0	1995 12 30	411	1.1+	1.0+	1999 12 07	704	0.1+	0.1-
1995 12 17	411	0.9+	0.5-	1995 12 30	411	0.7-	0.2+	1999 12 07	704	0.1+	0.2+
1995 12 19	411	0.2-	0.3+	1995 12 30	411	0.3-	1.1-	1999 12 07	704	0.0	0.1-
1995 12 19	411	0.2-	0.1-	1996 01 09	411	0.4+	0.4-	1999 12 07	704	0.1-	0.2-
1995 12 23	411	0.7-	0.9+	1996 01 09	411	0.8-	0.4-	1999 12 07	704	0.3-	0.4-
1995 12 23	411	(0.8+	3.1+)	1999 12 06	704	0.4-	0.9+	1999 12 12	703	0.1-	0.4+
1995 12 24	411	0.5+	0.1-	1999 12 06	704	0.2+	0.3-	1999 12 12	703	0.6+	0.4-
1995 12 24	411	0.5+	0.3+	1999 12 06	704	0.4+	0.0	1999 12 12	703	0.2-	0.5-
1995 12 26	411	0.6-	0.5-	1999 12 06	704	0.7-	0.6+	1999 12 12	703	0.6+	0.2-

1995 YT₂ = 1999 XB₅₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	335.69879	(2000.0)	P	Q		
<i>n</i>	0.23725209	ω	342.21888	+0.48151121	-0.87178851	
<i>a</i>	2.5842192	Ω	78.91405	+0.81486798	+0.40742446	
<i>e</i>	0.2807450	<i>i</i>	5.27240	+0.32270286	+0.27201121	
<i>P</i>	4.15	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1995 12 22	867	0.6+	0.4-	1996 01 12	867	0.1-	0.3-	1996 03 13	867	0.3+	0.7+
1995 12 22	867	0.1+	0.0	1996 01 12	867	0.4-	0.1-	1999 12 03	699	0.1-	0.6+
1995 12 22	867	0.1+	0.0	1996 01 12	867	0.1+	0.2-	1999 12 03	699	1.2+	1.6-
1995 12 22	867	0.1+	0.1+	1996 01 13	867	0.1-	0.4-	1999 12 03	699	0.4+	0.3+
1995 12 23	867	0.4-	0.3-	1996 01 13	867	0.1-	0.2+	1999 12 07	704	0.1-	0.1+
1995 12 23	867	0.8-	1.5+	1996 01 13	867	0.4-	0.2+	1999 12 07	704	0.2-	0.1+
1995 12 23	867	0.6+	0.1+	1996 01 18	867	0.9+	0.4+	1999 12 07	704	0.7-	0.3+
1995 12 23	867	0.0	0.1-	1996 01 18	867	0.4+	0.2-	1999 12 07	704	0.3-	0.6-
1995 12 23	867	1.0-	1.0+	1996 02 07	867	0.1-	0.9-	1999 12 07	704	0.4-	0.5-
1995 12 23	867	0.2+	0.1+	1996 02 20	867	0.2+	0.4-	1999 12 08	704	0.1+	0.3+
1995 12 23	867	0.3+	0.1+	1996 02 20	867	0.2-	0.1-	1999 12 08	704	0.9+	0.3+
1996 01 02	867	0.0	0.1+	1996 02 20	867	1.0-	0.5-	1999 12 08	704	0.2+	0.1-
1996 01 02	867	0.4+	0.3-	1996 03 13	867	0.1+	0.0	1999 12 08	704	0.6-	0.1-
1996 01 02	867	0.1+	0.2+	1996 03 13	867	0.4+	0.1-	1999 12 08	704	0.3-	0.2+

1995 YM₄ = 1999 XO₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	332.16845	(2000.0)	P	Q		
<i>n</i>	0.23783903	ω	320.76133	+0.44958247	-0.88913393	
<i>a</i>	2.5799659	Ω	102.36942	+0.83998699	+0.38826757	
<i>e</i>	0.2743455	<i>i</i>	5.02377	+0.30380498	+0.24225844	
<i>P</i>	4.14	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1995 12 22	905	0.1-	0.4-	1996 01 13	385	0.0	0.6+	1999 12 06	704	0.2+	0.5-
1995 12 22	905	0.9+	0.8+	1999 12 04	703	0.1+	0.1+	1999 12 06	704	0.1+	0.2-
1995 12 27	905	0.1+	0.4-	1999 12 04	703	0.3-	0.0	1999 12 06	704	0.0	0.2-
1995 12 27	905	0.7-	0.4-	1999 12 04	703	0.0	0.1+	1999 12 06	704	0.3+	0.2+
1996 01 09	905	0.9+	1.5-	1999 12 04	703	0.2-	0.1-	1999 12 06	704	0.2+	0.2+
1996 01 09	905	0.5-	0.4-	1999 12 05	703	0.3-	0.1+	1999 12 10	888	0.1+	0.1-
1996 01 09	905	0.4-	0.4+	1999 12 05	703	0.1-	0.2+	1999 12 10	888	0.1-	0.1-
1996 01 13	385	0.1+	0.6+	1999 12 05	703	0.1-	0.1+	1999 12 10	888	0.2+	0.1-
1996 01 13	385	0.3-	0.7+	1999 12 05	703	0.1+	0.3+				

1996 AZ

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	317.08151	(2000.0)	P	Q		
<i>n</i>	0.20859483	ω	327.93092	+0.37746225	-0.92322925	
<i>a</i>	2.8157906	Ω	99.80618	+0.86427817	+0.32335112	
<i>e</i>	0.0829219	<i>i</i>	4.18453	+0.33248382	+0.20758566	
<i>P</i>	4.72	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1996 01 11	411	0.6-	0.2+	1996 01 29	411	0.4-	0.8+	1999 12 05	704	0.0	0.2-
1996 01 11	411	0.2+	1.3-	1996 01 29	411	0.5-	1.1+	1999 12 05	704	1.0+	0.4+
1996 01 13	411	0.8-	0.1-	1996 02 12	411	1.1-	0.7-	1999 12 05	704	0.4+	0.8-
1996 01 13	411	0.2+	0.6-	1996 02 12	411	1.9+	1.4-	1999 12 05	704	0.2-	0.3-
1996 01 18	411	0.2-	1.2+	1999 12 04	699	0.6-	0.3-	1999 12 05	704	0.3-	0.1-
1996 01 18	411	1.0+	0.2-	1999 12 04	699	0.6-	0.4+				
1996 01 27	411	0.3+	1.0+	1999 12 04	699	0.4+	0.8+				

1996 AF₁₈ = 1999 XY₆₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	352.42105	(2000.0)	P	Q		
<i>n</i>	0.22671311	ω	170.73091	+0.69688960	-0.71659488	
<i>a</i>	2.6636979	Ω	235.08454	+0.65571762	+0.65298481	
<i>e</i>	0.1950317	<i>i</i>	2.02151	+0.29048113	+0.24515835	
<i>P</i>	4.35	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1996 01 13	691	0.1+	0.2+	1996 01 27	691	0.1+	0.2+	1999 12 08	704	0.2+	0.6-
1996 01 13	691	0.1+	0.2+	1996 01 27	691	0.1+	0.1+	1999 12 08	704	0.8-	0.1-
1996 01 13	691	0.0	0.1+	1999 12 07	704	0.2-	0.1-	1999 12 08	704	0.1+	0.4+
1996 01 20	691	0.3+	0.3+	1999 12 07	704	0.1+	0.5-	1999 12 08	704	0.1+	0.2+
1996 01 20	691	0.1+	0.1+	1999 12 07	704	0.1+	0.2-	1999 12 08	704	0.1+	0.7+
1996 01 20	691	0.8-	1.2-	1999 12 07	704	0.3+	0.2+				
1996 01 27	691	0.1-	0.1+	1999 12 07	704	0.0	0.1+				

1996 BF₁ = 1999 VD₄₉

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	53.36171	(2000.0)	P	Q		
<i>n</i>	0.21646241	ω	14.51481	+0.76352829	+0.64354064	
<i>a</i>	2.7471417	Ω	305.30072	-0.59884899	+0.67449738	
<i>e</i>	0.1166429	<i>i</i>	3.77027	-0.24167009	+0.36181311	
<i>P</i>	4.55	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1996 01 22	709	0.4+	1.4+	1996 01 25	709	0.7−	0.7−	1999 11 04	704	0.5−	0.1+
1996 01 22	709	0.2+	1.0+	1996 01 25	709	0.6−	0.0	1999 11 04	704	0.1−	0.2−
1996 01 22	709	0.2+	1.0+	1996 01 25	709	0.4−	0.4−	1999 12 05	703	1.2−	0.9+
1996 01 22	709	0.2+	0.8+	1996 01 25	709	0.5−	0.2−	1999 12 05	703	1.4+	0.3−
1996 01 24	709	0.3+	0.4+	1999 11 03	704	0.2+	0.5+	1999 12 05	703	0.0	0.7−
1996 01 24	709	0.3−	0.6−	1999 11 03	704	0.3+	0.5+	1999 12 05	703	0.9+	1.4−
1996 01 24	709	0.4+	0.4−	1999 11 03	704	0.1+	0.3+	1999 12 12	703	1.3−	0.9+
1996 01 24	709	0.2+	0.5−	1999 11 03	704	0.3−	1.4+	1999 12 12	703	2.0−	1.2−
1996 01 24	709	0.3+	0.4−	1999 11 03	704	0.6+	0.6+	1999 12 12	703	0.7+	1.1−
1996 01 24	709	0.4+	0.5−	1999 11 04	704	0.2+	0.3+	1999 12 12	703	0.2+	0.6−
1996 01 24	709	0.0	0.3−	1999 11 04	704	0.8+	0.5−				

1996 BO₃ = 1999 XK₃₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
299.65904							
<i>n</i>	0.21590937	ω	334.55133	−0.36758174	−0.91706037		
<i>a</i>	2.7518308	Ω	136.55031	+0.88704884	−0.39564747		
<i>e</i>	0.0968341	<i>i</i>	12.98645	+0.27933495	+0.04963211		
<i>P</i>	4.56	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 01 27	385	0.3+	0.4+	1996 01 30	887	0.5−	0.5−	1996 02 10	385	0.2+	0.2+
1996 01 27	385	0.3+	0.1−	1996 02 01	887	0.0	1.2+	1996 02 10	385	0.2+	0.1−
1996 01 27	385	0.3+	0.3−	1996 02 01	887	0.6+	0.2+	1999 12 07	888	0.1−	0.2+
1996 01 29	887	0.2−	0.4−	1996 02 01	887	0.1−	0.6+	1999 12 07	888	0.3+	0.2−
1996 01 29	887	0.5+	0.5−	1996 02 09	887	0.4−	0.0	1999 12 07	888	0.1−	0.2−
1996 01 29	887	0.5−	0.4+	1996 02 09	887	0.5−	0.3−	1999 12 09	888	0.1−	0.4−
1996 01 30	887	0.1−	0.5−	1996 02 09	887	0.2−	0.2−	1999 12 09	888	0.0	0.3+
1996 01 30	887	0.7−	0.1−	1996 02 10	385	0.9+	0.1−	1999 12 09	888	0.1−	0.2+

1996 BJ₄ = 1999 XQ₂

Id. G. V. Williams, E. Bowell

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
64.03337							
<i>n</i>	0.22978138	ω	244.44756	+0.94934987	+0.21727072		
<i>a</i>	2.6399326	Ω	102.32579	−0.13137421	+0.93069793		
<i>e</i>	0.2086814	<i>i</i>	13.43571	−0.28543938	+0.29426993		
<i>P</i>	4.29	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 01 22	704	0.1−	0.1+	1996 01 25	704	0.6+	0.1−	1999 12 03	691	0.6+	0.1−
1996 01 22	704	0.5+	0.5+	1996 01 26	704	1.4−	0.2−	1999 12 03	691	0.6+	0.1−
1996 01 22	704	0.0	0.3+	1996 01 26	704	0.2−	0.6+	1999 12 03	691	0.7+	0.0
1996 01 22	704	0.9−	0.4+	1996 01 26	704	0.4+	1.3−	1999 12 04	691	1.0−	0.3−
1996 01 22	704	0.3−	0.7+	1996 01 26	704	0.5−	0.7−	1999 12 04	691	0.8−	0.1−
1996 01 24	704	0.6+	0.0	1996 04 18	704	0.0	0.4−	1999 12 04	691	0.8−	0.3−
1996 01 24	704	0.1+	0.1+	1996 04 18	704	0.1−	0.2+	1999 12 06	120	1.2+	0.1+
1996 01 24	704	0.3+	0.8+	1996 04 18	704	0.3−	1.0−	1999 12 06	120	0.2+	0.3+
1996 01 24	704	0.5−	0.5+	1996 04 19	704	0.1−	0.3+	1999 12 07	704	0.3−	0.3−
1996 01 24	704	0.3+	0.1−	1996 04 19	704	0.9+	0.5+	1999 12 07	704	0.4+	0.4−
1996 01 25	704	0.5+	1.1−	1996 04 19	704	0.2−	0.0	1999 12 07	704	0.0	1.1+
1996 01 25	704	0.3+	0.8−	1996 04 19	704	0.1+	0.1+	1999 12 07	704	0.7−	0.1+
1996 01 25	704	0.3+	0.1+	1996 04 19	704	0.2−	0.4+				

1996 CD₂

Id. E. Bowell (1998, 1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
172.84165							
<i>n</i>	0.22346284	ω	323.69563	−0.01845616	+0.98429506		
<i>a</i>	2.6894646	Ω	304.60410	−0.85974452	−0.10526031		
<i>e</i>	0.1357960	<i>i</i>	12.31562	−0.51039076	+0.14171625		
<i>P</i>	4.41	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 02 15	566	0.5+	0.4+	1996 03 16	566	0.0	0.0	1999 12 03	699	0.9−	0.8−
1996 02 15	566	0.0	0.6+	1996 03 16	566	0.5−	0.2+	1999 12 10	704	0.6−	0.3+
1996 02 15	566	0.2−	0.4+	1996 03 21	566	0.3+	0.1+	1999 12 10	704	0.5−	0.1+
1996 02 16	566	0.0	0.3−	1996 03 21	566	0.6+	0.1+	1999 12 10	704	0.1+	0.2−
1996 02 16	566	0.2−	0.5−	1996 03 21	566	0.3+	0.6−	1999 12 10	704	0.7−	0.1+
1996 02 16	566	0.1−	0.6−	1999 12 03	699	1.8+	0.3+				
1996 03 16	566	0.8−	0.2+	1999 12 03	699	0.9+	0.1+				

1996 DH₁

Id. A. Gnädig (1987, 1991 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
317.92270							
<i>n</i>	0.17615343	ω	253.85151	+0.74107215	−0.66019864		
<i>a</i>	3.1516790	Ω	147.16786	+0.66924598	+0.71165490		
<i>e</i>	0.1181432	<i>i</i>	13.03314	+0.05405446	+0.24017713		
<i>P</i>	5.60	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1987 07 29	413	1.5−	0.8−	1996 02 17	587	0.1+	1.7+	1996 02 24	587	0.2−	1.0−
1987 07 29	413	1.5+	0.2−	1996 02 22	587	0.1+	0.4+	1996 03 01	587	0.1−	0.3−
1991 03 18	675	0.5−	0.2+	1996 02 22	587	0.5+	0.3−	1996 03 01	587	0.6−	0.9−
1991 03 18	675	0.8+	1.0+	1996 02 22	587	0.5+	0.1−	1996 03 11	587	1.8−	0.5−
1996 02 17	587	0.8+	0.4+	1996 02 23	587	0.0	0.7−	1996 03 11	587	0.3+	0.3−

1996 EK₉ = 1999 VY₄

Id. M. E. Sansaturio, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
125.84568							
<i>n</i>	0.17551335	ω	193.21666	−0.19911882	+0.97979950		
<i>a</i>	3.1593369	Ω	65.30044	−0.89724124	−0.17465746		
<i>e</i>	0.0410301	<i>i</i>	1.17085	−0.39409371	−0.09740488		
<i>P</i>	5.62	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 03 12	691	0.0	0.1+	1999 11 04	704	1.4−	0.9−	1999 11 11	703	0.3−	0.3+
1996 03 12	691	0.2−	0.1+	1999 11 04	704	0.2−	0.1−	1999 11 12	704	0.2+	0.1−
1996 03 12	691	0.0	0.0	1999 11 05	120	1.1−	0.5+	1999 11 12	704	0.6+	0.2+
1996 03 17	691	1.1+	0.0	1999 11 05	120	1.7+	0.8−	1999 11 12	704	0.4+	0.3−
1996 03 17	691	0.7+	0.0	1999 11 07	120	0.0	0.2+	1999 11 12	704	0.7+	0.2−
1996 03 17	691	0.3+	0.0	1999 11 07	120	1.1+	0.1+	1999 11 12	704	0.3+	0.0
1996 03 24	691	0.6−	0.2−	1999 11 10	120	1.9+	0.0	1999 12 07	704	1.1−	0.4+
1996 03 24	691	0.9−	0.3−	1999 11 10	120	0.0	0.1−	1999 12 07	704	0.8−	1.0+
1996 03 24	691	0.5−	0.2−	1999 11 11	703	0.5−	0.7+	1999 12 07	704	0.6+	0.4+
1999 11 04	704	0.4−	0.6−	1999 11 11	703	0.3−	0.3+	1999 12 07	704	0.3−	0.3+
1999 11 04	704	1.0−	1.6−	1999 11 11	703	0.3−	0.3+				

1996 GN₇ = 1999 XQ₆₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
2.01548							
<i>n</i>	0.17218789	ω	253.40711	+0.71701902	−0.69683199		
<i>a</i>	3.1998846	Ω	150.75906	+0.65246735	+0.66206928		
<i>e</i>	0.1691661	<i>i</i>	2.06197	+0.24529589	+0.27584316		
<i>P</i>	5.72	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1996 04 12	691	0.2−	0.1+	1996 04 24	691	0.5−	0.0	1999 12 08	704	0.5+	0.0
1996 04 12	691	0.4−	0.1−	1996 04 24	691	0.4−	0.1+	1999 12 08	704	0.3−	0.4−
1996 04 12	691	0.0	0.3+	1999 12 07	704	0.4+	0.2+	1999 12 08	704	0.3+	0.2+
1996 04 19	691	0.6+	0.1−	1999 12 07	704	0.2−	0.2+	1999 12 08	704	0.2+	0.2+
1996 04 19	691	0.6+	0.1−	1999 12 07	704	0.1+	0.0	1999 12 08	704	0.3−	0.1+
1996 04 19	691	0.6+	0.3−	1999 12 07	704	0.3−	0.2−				
1996 04 24	691	0.3−	0.1+	1999 12 07	704	0.3−	0.4−				

1996 JC = 1999 VF₇₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	232.85497		(2000.0)		P		Q				
<i>n</i>	0.18073561	ω	136.47158		−0.99060382		−0.13645272				
<i>a</i>	3.0981818	Ω	35.68884		+0.12075824		−0.90428944				
<i>e</i>	0.1371960	<i>i</i>	0.90406		+0.06419905		−0.40452597				
<i>P</i>	5.45	<i>H</i>	14.6		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1996 05 07	684	0.3−	0.0	1996 05 15	684	0.1+	0.1+	1999 11 12	704	0.3+	0.3−
1996 05 07	684	0.1−	0.0	1996 05 15	684	0.1−	0.0	1999 11 12	704	0.1+	0.6+
1996 05 08	684	0.0	0.2+	1996 05 15	684	0.3−	0.3−	1999 11 12	704	0.5−	0.4+
1996 05 08	684	0.0	0.1−	1999 11 04	704	0.1−	0.8−	1999 11 12	704	0.0	0.8+
1996 05 10	684	0.2+	0.0	1999 11 04	704	0.8−	0.6−	1999 11 12	704	0.4−	1.0+
1996 05 10	684	0.4+	0.3+	1999 11 04	704	1.1+	1.0−				
1996 05 10	684	0.1+	0.3−	1999 11 04	704	0.3+	0.2−				

1996 RN₂ = 1999 XY₁₃₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	60.55380			(2000.0)			P			Q					
<i>n</i>	0.36890334			ω	41.05050			+0.77838071			+0.54771230				
<i>a</i>	1.9254297			Ω	283.13847			−0.62610981			+0.64151275				
<i>e</i>	0.0529585			<i>i</i>	18.36450			−0.04593451			+0.53709648				
<i>P</i>	2.67 <th><i>H</i></th> <td colspan="3">14.5</td> <th><i>G</i></th> <td colspan="3">0.15</td> <th><i>U</i></th> <td colspan="3">4</td>			<i>H</i>	14.5			<i>G</i>	0.15			<i>U</i>	4		
Residuals in seconds of arc															
1996 09 12	693	0.1−	0.4+	1996 10 06	693	0.2−	0.2−	1999 12 14	704	0.3−	0.0				
1996 09 12	693	1.6−	0.6+	1996 10 06	693	0.7+	0.3+	1999 12 14	704	0.2+	0.2+				
1996 09 13	693	0.5−	0.4−	1996 12 15	696	0.3−	0.5+	1999 12 14	704	0.0	0.1−				
1996 09 13	693	0.3+	1.2+	1996 12 15	696	0.1−	0.5+	1999 12 14	704	(3.0−	0.1−				
1996 09 19	696	0.7+	1.0−	1996 12 15	696	0.0	0.7+	1999 12 14	704	0.4−	0.1−				
1996 09 19	696	0.7+	1.1−	1999 12 13	704	0.3−	0.1−	1999 12 15	704	0.1−	0.4−				
1996 09 25	658	0.1−	0.2−	1999 12 13	704	0.3−	0.1+	1999 12 15	704	0.2+	0.6−				
1996 09 25	658	0.4+	0.0	1999 12 13	704	0.2−	0.5+	1999 12 15	704	0.1+	0.7−				
1996 09 25	658	0.1−	0.3−	1999 12 13	704	0.1−	0.5+	1999 12 15	704	1.4+	0.5+				
1996 09 25	658	0.0	0.2−	1999 12 13	704	0.1−	0.2−								

1996 XG₃

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	296.03273		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$				
n	0.28158351	ω	359.15711		+0.60625747		−0.79259588				
a	2.3053201	Ω	53.52071		+0.73011778		+0.52224999				
e	0.1610562	i	4.64701		+0.31524579		+0.31471688				
P	3.50	H	15.0	G	0.15	U	4				
Residuals in seconds of arc											
1996 12 03	411	(3.8−	0.5−)	1998 04 21	704	0.6+	0.1−	1999 09 13	704	0.2−	0.1+
1996 12 03	411	(2.6−	0.6−)	1998 04 21	704	0.8−	0.4−	1999 09 13	704	0.0	0.7+
1996 12 06	411	0.6+	0.0	1998 05 02	327	0.3+	0.3+	1999 09 30	704	0.5−	1.0+
1996 12 06	411	1.1+	0.0	1998 05 02	327	0.4+	0.1+	1999 09 30	704	1.1+	1.0+
1996 12 12	411	0.0	0.1−	1998 05 02	327	0.6+	0.2−	1999 09 30	704	0.5+	0.1−
1996 12 12	411	1.2+	0.1+	1999 09 07	699	0.6−	0.4−	1999 09 30	704	0.1−	0.6+
1996 12 28	411	1.9−	0.6+	1999 09 07	699	1.1+	1.7−	1999 09 30	704	0.7+	1.1+
1996 12 28	411	1.2−	0.0	1999 09 07	699	0.6−	0.8−	1999 11 10	704	0.5−	0.3−
1998 04 21	704	0.0	0.6−	1999 09 13	704	0.5−	0.2−	1999 11 10	704	1.0+	0.6+
1998 04 21	704	0.1−	0.4+	1999 09 13	704	0.7−	0.0	1999 11 10	704	0.1+	0.6−
1998 04 21	704	0.5−	1.6+	1999 09 13	704	0.7−	0.1−				

1996 XH₃₃

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	323.20854		(2000.0)		P		Q				
n	0.28640843	ω	325.47921		+0.53963707		−0.83231080				
a	2.2793561	Ω	91.55043		+0.79817955		+0.45792692				
e	0.1565835	i	7.28109		+0.26777086		+0.31234861				
P	3.44 <th>H</th> <td>15.2</td> <th>G</th> <td>0.15<th>U</th><td>4<th></th><th></th></td></td>	H	15.2	G	0.15 <th>U</th> <td>4<th></th><th></th></td>	U	4 <th></th> <th></th>				
Residuals in seconds of arc											
1996 12 08	327	0.3+	0.5−	1996 12 18	327	0.6+	0.3+	1999 12 04	699	0.7−	0.3+
1996 12 08	327	0.5+	0.4−	1997 01 04	327	1.3−	0.6−	1999 12 04	699	0.0	0.0
1996 12 08	327	0.4+	0.6−	1997 01 04	327	0.4+	0.2+	1999 12 05	704	0.0	0.3−
1996 12 12	327	0.3+	0.1+	1997 01 04	327	0.3+	1.0−	1999 12 05	704	0.7+	0.5−
1996 12 12	327	1.0−	0.4+	1997 01 11	327	0.1+	0.4+	1999 12 05	704	0.1+	0.2+
1996 12 12	327	0.7−	0.8+	1997 01 11	327	0.1+	0.4+	1999 12 05	704	0.3−	0.1+
1996 12 18	327	0.0	0.1+	1997 01 11	327	0.4+	0.5+	1999 12 05	704	0.7−	0.1−
1996 12 18	327	0.3−	0.1−	1999 12 04	699	0.7+	0.4+				

1996 YP

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	270.99418		(2000.0)		P		Q				
n	0.28184473	ω	168.32645		−0.25312056		−0.96251669				
a	2.3038955	Ω	296.27220		+0.87863037		−0.18657001				
e	0.0546758	i	6.23739		+0.40489338		−0.19685845				
P	3.50	H	14.5		G	0.15	U	4			
Residuals in seconds of arc											
1996 12 20	411	0.1+	0.1−	1997 01 11	566	0.0	0.6+	1999 12 03	699	0.8+	0.6−
1996 12 20	411	0.1+	0.1−	1997 01 11	566	0.1−	0.3+	1999 12 03	699	0.8−	0.1−
1996 12 21	411	0.1+	0.6−	1997 01 11	566	0.3+	0.3+	1999 12 03	699	0.6−	0.1−
1996 12 21	411	0.1−	0.3−	1997 01 26	411	0.2+	0.0	1999 12 08	704	0.7−	0.1−
1996 12 29	411	0.4−	0.1+	1997 01 26	411	0.9+	0.4+	1999 12 08	704	0.3+	0.0
1996 12 29	411	0.8−	0.2−	1997 02 11	327	0.4+	0.3−	1999 12 08	704	0.6+	1.2+
1997 01 07	411	0.3+	0.1+	1997 02 11	327	0.7−	0.3−	1999 12 08	704	0.3+	0.3−
1997 01 07	411	0.2−	0.4+	1997 02 11	327	0.0	0.4−				

1996 YW = 1999 XO₆₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	323.62529	(2000.0)		P		Q					
n	0.31077132	ω	1.90465	+0.27278991		−0.95957951					
a	2.1586162	Ω	72.26998	+0.88172160		+0.22056896					
e	0.0911315	i	4.16808	+0.38490607		+0.17480418					
P	3.17	H	15.0	G	0.15	U	5				
Residuals in seconds of arc											
1996 12 20	411	1.0+	0.4−	1997 01 07	411	0.3+	0.4+	1999 12 07	704	0.2+	0.4−
1996 12 20	411	0.7−	0.2+	1997 01 26	411	0.5+	0.9−	1999 12 08	704	0.0	0.3+
1996 12 21	411	0.5+	0.6+	1997 01 26	411	0.7+	1.0−	1999 12 08	704	0.1+	0.4+
1996 12 21	411	0.1−	0.3+	1999 12 07	704	0.3−	0.2−	1999 12 08	704	0.4−	0.0
1996 12 29	411	0.2+	0.2−	1999 12 07	704	0.1−	0.1−	1999 12 08	704	0.4+	0.0
1996 12 29	411	0.2+	0.5+	1999 12 07	704	0.2+	0.1−	1999 12 08	704	0.1+	0.1−
1997 01 07	411	0.4+	0.5+	1999 12 07	704	0.0	0.3−				

1996 YA₂

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	226.84270		(2000.0)	P	Q
n	0.25832920	ω	32.67252	−0.77190109	−0.61506490
a	2.4416705	Ω	108.52561	+0.54077977	−0.76824660
e	0.2153366	i	9.76523	+0.33425432	−0.17746080
P	3.82	H	13.7	G	0.15
				U	4

Residuals in seconds of arc

1996 12 20	327	0.5+	0.2-	1997 01 02	327	0.8-	0.4+	1999 09 30	704	0.4+	1.1+
1996 12 20	327	0.0	0.3-	1997 01 02	327	0.2+	0.3+	1999 09 30	704	0.9+	0.1-
1996 12 20	327	0.2-	0.2-	1999 09 11	699	0.1+	0.8-	1999 09 30	704	0.3+	0.6-
1996 12 22	327	0.6-	0.1+	1999 09 11	699	0.5-	0.1+	1999 11 10	704	0.0	0.5-
1996 12 22	327	0.4+	0.0	1999 09 11	699	0.1-	0.5-	1999 11 10	704	0.3-	0.0
1996 12 22	327	0.7+	0.6-	1999 09 30	704	0.1-	0.5-	1999 11 10	704	0.3-	1.1+
1997 01 02	327	0.2-	0.2+	1999 09 30	704	0.2-	0.3+	1999 11 10	704	0.3-	0.6+

1997 AW₁

Id. P. V. Sada (1999 observations), E. Howell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	294.62480		(2000.0)	P	Q		
<i>n</i>	0.28318677	ω	24.23616	+0.16821094	-0.98319338		
<i>a</i>	2.2966109	Ω	56.15249	+0.88988418	+0.12049020		
<i>e</i>	0.1185148	<i>i</i>	4.90159	+0.42404153	+0.13716006		
<i>P</i>	3.48	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 01 03	411	0.2+	0.0	1997 01 08	411	0.1-	0.8+	1999 11 27	699	0.1+	0.2-
1997 01 03	411	0.6+	0.2+	1997 01 14	411	0.2-	0.2+	1999 11 27	699	0.1+	0.5+
1997 01 03	408	0.5-	1.7-	1997 01 14	411	0.3-	0.3+	1999 12 03	704	0.2-	1.7-
1997 01 03	408	1.0-	0.9-	1997 01 26	411	0.0	0.9+	1999 12 03	704	0.1+	0.1+
1997 01 03	408	(2.1+ 2.9-)		1997 01 26	411	0.0	0.4+	1999 12 03	704	0.1+	1.3+
1997 01 04	411	0.4+	0.1+	1999 10 30	720	0.8-	0.6+	1999 12 07	704	0.1+	0.2-
1997 01 04	411	0.2+	0.3+	1999 10 30	720	1.5-	0.7+	1999 12 07	704	1.0+	0.5-
1997 01 04	408	0.4+	0.2+	1999 10 30	720	0.3+	0.6+	1999 12 07	704	0.6-	0.2-
1997 01 04	408	0.5+	0.4-	1999 11 01	720	0.7+	0.5+	1999 12 07	704	0.5+	0.1-
1997 01 04	408	0.4-	0.6-	1999 11 01	720	0.5+	1.6-	1999 12 07	704	0.3-	0.6+
1997 01 08	411	0.2+	0.4+	1999 11 27	699	0.3+	0.4-				

1997 AJ₂

Id. E. Howell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	296.96011		(2000.0)	P	Q		
<i>n</i>	0.28487706	ω	344.31445	-0.01555437	-0.99674375		
<i>a</i>	2.2875174	Ω	106.52612	+0.92601799	-0.04420819		
<i>e</i>	0.0739640	<i>i</i>	4.73396	+0.37715878	+0.06743542		
<i>P</i>	3.46	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 12 02	327	0.3-	0.4+	1997 01 10	411	0.1+	0.4-	1999 12 04	699	0.1+	0.6+
1996 12 02	327	0.1+	0.2-	1997 01 10	411	0.0	0.1+	1999 12 04	699	0.5+	0.0
1996 12 02	327	0.4+	0.0	1997 01 15	411	0.1+	0.0	1999 12 05	704	0.6+	0.3+
1997 01 03	411	0.1-	0.0	1997 01 15	411	0.3-	0.2-	1999 12 05	704	0.2-	0.1+
1997 01 03	411	0.3-	0.2-	1997 01 27	411	0.1+	0.7+	1999 12 05	704	0.1+	0.4-
1997 01 04	411	0.1+	0.2-	1997 01 27	411	0.1+	0.4+	1999 12 05	704	0.7-	0.2+
1997 01 04	411	0.0	0.3-	1999 12 04	699	0.3+	0.4+	1999 12 05	704	0.7-	1.0-

1997 AN₂ = 1985 UW₁

Id. E. Howell (1999 observations), S. Nakano, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	344.31872		(2000.0)	P	Q		
<i>n</i>	0.27990113	ω	51.29170	+0.91957277	-0.38932601		
<i>a</i>	2.3145485	Ω	331.50595	+0.31710837	+0.81503771		
<i>e</i>	0.1220726	<i>i</i>	6.38094	+0.23200904	+0.42911397		
<i>P</i>	3.52	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1985 10 16	010	1.4-	0.5+	1997 01 14	411	0.2-	0.2+	1999 12 03	699	0.2-	0.4-
1985 10 16	010	1.5+	0.7-	1997 01 14	411	0.2+	0.4-	1999 12 03	699	0.1-	0.0
1997 01 03	411	0.6+	0.4+	1997 01 26	411	1.4-	1.4-	1999 12 08	704	0.9-	1.7+
1997 01 03	411	0.3+	0.3+	1997 01 26	411	1.0-	0.8-	1999 12 08	704	0.1-	0.1-
1997 01 04	411	1.5-	0.2-	1997 02 06	657	0.8+	0.7-	1999 12 08	704	0.4+	0.1+

1997 01 04	411	0.4+	0.8+	1997 02 06	657	1.4+	0.5+	1999 12 08	704	1.0+	0.7-
1997 01 08	411	0.2-	0.2-	1997 02 06	657	1.2+	1.8+				
1997 01 08	411	0.5-	0.1-	1999 12 03	699	0.1-	0.3-				

1997 AT₂ = 1964 TJ₁

Id. T. Kobayashi (1999 observations), S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	28.17146		(2000.0)	P	Q		
<i>n</i>	0.31267524	ω	345.03510	+0.99852107	-0.04879505		
<i>a</i>	2.1498445	Ω	17.81389	+0.05434522	+0.88363938		
<i>e</i>	0.1716723	<i>i</i>	4.49446	+0.00150619	+0.46561840		
<i>P</i>	3.15	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1964 10 08	330	0.1+	0.1-	1997 01 14	411	0.9-	0.6-	1999 12 09	411	0.1+	0.1-
1997 01 03	411	0.2-	1.0+	1997 01 14	411	0.5-	0.3+	1999 12 12	704	0.2+	0.0
1997 01 03	411	0.5+	0.3-	1997 01 26	411	0.1-	0.2+	1999 12 12	704	0.1+	0.3-
1997 01 04	411	0.6+	1.1-	1997 01 26	411	1.5+	0.1-	1999 12 12	704	0.1+	0.5+
1997 01 04	411	0.7-	0.8-	1999 12 07	411	0.3-	0.5+	1999 12 12	704	0.3+	0.8+
1997 01 08	411	0.0	0.7+	1999 12 07	411	0.2-	0.1+				
1997 01 08	411	0.3-	0.3+	1999 12 09	411	0.3-	0.9-				

1997 AV₅ = 1999 XH₁₂₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	203.66675		(2000.0)	P	Q		
<i>n</i>	0.28040032	ω	249.41175	-0.96918925	+0.24121325		
<i>a</i>	2.3118007	Ω	304.51503	-0.19738522	-0.88170831		
<i>e</i>	0.0930597	<i>i</i>	3.47080	-0.14734745	-0.40547087		
<i>P</i>	3.52	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 12 10	327	0.2+	0.1-	1997 01 18	327	0.2+	0.1-	1997 02 07	098	0.4+	0.3-
1996 12 10	327	0.1-	0.2-	1997 01 27	327	1.0+	0.0	1999 12 05	703	0.4+	0.3-
1996 12 10	327	0.4-	0.3-	1997 01 27	327	0.4-	0.2-	1999 12 05	703	0.2+	0.3-
1997 01 01	327	0.7+	0.2-	1997 01 27	327	0.0	0.2+	1999 12 05	703	1.0+	0.1-
1997 01 01	327	0.1+	0.4-	1997 01 30	098	0.4+	0.3+	1999 12 05	703	0.6-	0.5-
1997 01 01	327	0.6+	0.3-	1997 01 30	098	0.4+	1.2+	1999 12 13	703	0.3+	0.3+
1997 01 04	327	0.3+	0.6+	1997 01 31	098	1.6-	0.2-	1999 12 13	703	0.9-	0.5+
1997 01 04	327	0.7-	0.2-	1997 01 31	098	(1.1+ 2.6-)		1999 12 13	703	0.1-	0.3+
1997 01 04	327	0.8+	0.3+	1997 02 07	098	0.5-	0.2-	1999 12 13	703	0.3-	0.1-
1997 01 18	327	0.3-	0.9+	1997 02 07	098	0.3-	1.9-				
1997 01 18	327	0.2+	0.6+	1997 02 07	098	1.0-	0.2+				

1997 AS₁₃ = 1999 XQ₁₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	6.76868		(2000.0)	P	Q		
<i>n</i>	0.30076696	ω	34.09985	+0.99879457	+0.00040423		
<i>a</i>	2.2062224	Ω	325.77518	-0.02308563	+0.88633806		
<i>e</i>	0.1615334	<i>i</i>	5.00654	+0.04331807	+0.46303853		
<i>P</i>	3.28	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 01 10	566	0.3-	0.3-	1999 12 05	703	0.3-	1.0+	1999 12 07	699	0.6+	0.0
1997 01 10	566	0.0	0.1+	1999 12 05	703	0.0	0.4+	1999 12 07	699	0.4+	0.1-
1997 01 10	566	0.1+	0.1-	1999 12 05	703	0.4-	0.7-	1999 12 10	704	0.1-	0.7+
1997 01 12	566	0.2-	0.1+	1999 12 05	703	1.1-	0.2+	1999 12 10	704	0.5+	0.4-
1997 01 12	566	0.2-	0.2-	1999 12 07	703	0.3+	0.0	1999 12 10	704	0.7+	0.9-
1997 01 12	566	0.0	0.0	1999 12 07	703	0.5-	0.1-	1999 12 13	703	0.1+	0.2+
1997 01 14	910	0.3+	0.2+	1999 12 07	703	0.6+	0.0	1999 12 13	703	0.3-	0.2-
1997 01 14	910	0.3+	0.2+	1999 12 07	703	0.2-	0.1-	1999 12 13	703	0.2-	0.3+
1997 01 14	910	0.1+	0.0	1999 12 07	699	0.4+	0.3-	1999 12 13	703	0.7-	0.1-

1997 AS₂₂ = 1999 XZ₁₀₄

Id. A. Doppler

1999 DEC. 22

M.P.C. 37135

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	213.42725		(2000.0)	P	Q
<i>n</i>	0.27232051	ω	159.95309	-0.99545224	-0.09022364
<i>a</i>	2.3573052	Ω	14.96855	+0.06293983	-0.86380078
<i>e</i>	0.0478532	<i>i</i>	6.79728	+0.07150819	-0.49568932
<i>P</i>	3.62	<i>H</i>	13.7	<i>G</i>	0.15

Residuals in seconds of arc

1997 01 11	327	0.6-	0.2-	1999 10 12	704	1.0+	0.1-	1999 11 13	703	0.7-	0.1+
1997 01 11	327	0.8+	0.2-	1999 10 12	704	0.4+	0.8-	1999 12 05	703	0.5-	0.5-
1997 01 11	327	0.8+	0.3-	1999 10 12	704	0.2+	0.0	1999 12 05	703	0.6-	0.3-
1997 01 18	327	0.6-	0.3+	1999 10 12	704	0.3+	0.5-	1999 12 05	703	0.8-	0.5-
1997 01 18	327	0.2-	0.7+	1999 10 12	704	0.3-	0.6-	1999 12 05	703	0.3-	0.5-
1997 01 18	327	0.5+	0.3+	1999 10 15	704	0.1+	0.1-	1999 12 07	699	0.0	0.2+
1997 02 06	327	0.9-	0.3-	1999 10 15	704	0.2+	0.3-	1999 12 07	699	0.5-	1.0+
1997 02 06	327	0.3+	0.2-	1999 10 15	704	0.2-	0.3-	1999 12 07	699	0.3+	0.9+
1997 02 06	327	0.1-	0.1-	1999 10 15	704	0.2-	0.5-	1999 12 08	704	0.5+	0.3+
1999 10 03	704	1.1+	0.5-	1999 10 21	699	0.5-	0.4+	1999 12 08	704	0.4+	0.1-
1999 10 03	704	0.2+	0.4-	1999 10 21	699	0.5+	0.4+	1999 12 08	704	0.4+	0.3-
1999 10 03	704	0.2-	0.6-	1999 10 21	699	0.6-	0.3-	1999 12 08	704	1.0+	0.2-
1999 10 03	704	0.8-	0.5-	1999 10 30	699	0.2+	0.4+	1999 12 08	704	0.8+	0.1-
1999 10 03	704	0.4-	1.3+	1999 10 30	699	0.2+	0.8+	1999 12 09	678	0.3+	0.8+
1999 10 03	703	0.4-	0.2+	1999 10 30	699	0.3-	1.3+	1999 12 09	678	0.8+	0.2+
1999 10 03	703	0.1+	0.5+	1999 11 03	704	0.1-	0.3-	1999 12 11	678	1.0+	0.3-
1999 10 03	703	0.0	0.7+	1999 11 03	704	0.1+	0.2-	1999 12 11	678	0.8+	0.8-
1999 10 03	703	0.7-	0.2+	1999 11 03	704	0.2+	0.2-	1999 12 13	703	0.6-	0.1-
1999 10 07	704	0.9+	1.0-	1999 11 03	704	0.1+	0.1-	1999 12 13	703	1.1-	0.2-
1999 10 07	704	0.1+	0.5-	1999 11 03	704	0.5+	0.2+	1999 12 13	703	0.7-	0.1+
1999 10 07	704	0.1+	0.5+	1999 11 13	703	0.5-	0.4-	1999 12 13	703	0.8-	0.1-
1999 10 07	704	0.4+	1.4+	1999 11 13	703	0.6-	0.2-				
1999 10 07	704	0.0	0.3+	1999 11 13	703	0.5-	0.1+				

1997 AN₂₃ = 1999 XU₁₁₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	320.27820		(2000.0)	P	Q
<i>n</i>	0.29471128	ω	117.35303	+0.38833908	-0.91996000
<i>a</i>	2.2363419	Ω	309.69276	+0.81898972	+0.37118273
<i>e</i>	0.0844951	<i>i</i>	3.98972	+0.42243176	+0.12608327
<i>P</i>	3.34	<i>H</i>	15.3	<i>G</i>	0.15

Residuals in seconds of arc

1997 01 14	966	0.3-	0.2+	1997 02 02	966	0.1+	1.7-	1999 12 05	703	0.3-	0.2+
1997 01 14	966	0.1+	0.5-	1997 02 02	966	0.9+	0.2+	1999 12 05	703	0.3-	0.6-
1997 01 14	966	0.5-	0.2-	1997 02 13	966	0.7+	0.1+	1999 12 13	703	0.3-	0.1+
1997 01 28	966	0.1-	0.5-	1997 02 13	966	0.5-	0.1+	1999 12 13	703	0.2-	0.2+
1997 01 28	966	0.6+	1.5+	1997 02 14	966	0.4-	0.1+	1999 12 13	703	0.0	0.1+
1997 01 28	966	1.1-	0.8+	1999 12 05	703	0.7+	0.2-	1999 12 13	703	0.6+	0.3+
1997 02 02	966	0.4+	0.1-	1999 12 05	703	0.3-	0.1+				

1997 BD₃ = 1999 WM₁₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	287.11498		(2000.0)	P	Q
<i>n</i>	0.28926644	ω	334.98040	-0.42988716	-0.90244378
<i>a</i>	2.2643177	Ω	140.46329	+0.83563946	-0.40948288
<i>e</i>	0.0804048	<i>i</i>	2.53423	+0.34191186	-0.13386181
<i>P</i>	3.41	<i>H</i>	14.7	<i>G</i>	0.15

Residuals in seconds of arc

1997 01 30	411	0.9+	0.1-	1997 02 26	411	0.2+	0.2-	1999 12 06	120	0.1-	0.4-
1997 01 30	411	0.4+	0.9+	1997 02 26	411	0.1-	0.5+	1999 12 08	704	0.2+	0.1-
1997 01 31	411	0.1+	0.3+	1999 11 30	120	0.6+	0.2-	1999 12 08	704	0.2-	0.0
1997 01 31	411	1.1-	0.6-	1999 11 30	120	0.4-	0.2-	1999 12 08	704	0.0	0.6-
1997 02 06	411	0.2+	0.5-	1999 12 03	699	0.1+	0.1+	1999 12 08	704	0.0	0.3-
1997 02 06	411	0.1+	0.9-	1999 12 03	699	0.1-	0.8+	1999 12 08	704	0.2-	0.0

1997 02 14	411	0.1+	0.1-	1999 12 03	699	0.1-	1.6+
1997 02 14	411	0.8-	0.7+	1999 12 06	120	0.3+	0.7-

1997 BG₃ = 1999 XV₃₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	247.03457		(2000.0)	P	Q
<i>n</i>	0.28960583	ω	56.96936	-0.93815620	-0.32368888
<i>a</i>	2.2625483	Ω	103.88672	+0.26016740	-0.89321397
<i>e</i>	0.0525475	<i>i</i>	7.26932	+0.22842040	-0.31208060
<i>P</i>	3.40	<i>H</i>	15.6	<i>G</i>	0.15

Residuals in seconds of arc

1997 01 30	411	0.5-	0.2+	1997 02 14	411	0.1+	0.2-	1999 12 06	704	(1.7+	2.9-)
1997 01 30	411	1.5-	0.8+	1997 02 14	411	0.1+	0.1+	1999 12 08	704	0.7-	0.7+
1997 01 31	411	0.4-	0.1+	1997 02 26	411	0.7+	0.9-	1999 12 08	704	0.0	0.2+
1997 01 31	411	0.1-	0.2+	1997 02 26	411	0.0	0.2+	1999 12 08	704	0.1-	0.2-
1997 02 06	411	0.7+	0.3-	1999 12 06	704	(1.2+	2.5+)	1999 12 08	704	0.0	0.8-
1997 02 06	411	1.0+	0.0	1999 12 06	704	1.0+	0.1-	1999 12 08	704	0.2-	0.1+

1997 BC₅ = 1999 XX₁₂₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	75.31618		(2000.0)	P	Q
<i>n</i>	0.26499895	ω	87.08947	+0.62264225	+0.78228499
<i>a</i>	2.4005271	Ω	221.43904	-0.72865128	+0.57094872
<i>e</i>	0.2076815	<i>i</i>	1.61246	-0.28527869	+0.24909387
<i>P</i>	3.72	<i>H</i>	16.0	<i>G</i>	0.15

Residuals in seconds of arc

1997 01 31	691	0.0	0.1-	1997 02 02	691	0.1+	0.2+	1999 12 13	376	0.3-	1.0+
1997 01 31	691	0.1+	0.2-	1997 02 11	691	0.0	0.3-	1999 12 13	376	0.3+	0.7-
1997 01 31	691	0.0	0.1+	1997 02 11	691	0.2-	0.3-	1999 12 13	376	0.2-	0.4+
1997 02 02	691	0.0	0.4+	1999 12 11	376	0.7+	0.5-				
1997 02 02	691	0.1+	0.1+	1999 12 11	376	0.5-	0.3-				

1997 CX = 1999 XC₉₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	233.31135		(2000.0)	P	Q
<i>n</i>	0.29518909	ω	86.68870	-0.95776454	+0.27881039
<i>a</i>	2.2339281	Ω	109.49145	-0.28445491	-0.88280660
<i>e</i>	0.1429798	<i>i</i>	4.28096	-0.04210100	-0.37804401
<i>P</i>	3.34	<i>H</i>	14.3	<i>G</i>	0.15

Residuals in seconds of arc

1997 02 01	411	0.2+	0.1+	1997 02 16	411	0.1-	0.4-	1999 12 07	704	0.1-	0.1+
1997 02 01	411	0.1-	0.4+	1997 03 01	411	0.6+	0.3+	1999 12 08	704	0.7-	0.7+
1997 02 03	411	0.2-	0.3+	1997 03 01	411	0.6-	0.3-	1999 12 08	704	0.4-	0.1-
1997 02 03	411	0.0	0.5-	1999 12 07	704	0.3+	0.5+	1999 12 08	704	0.1-	0.2-
1997 02 16	411	0.1+	0.0	1999 12 07	704	0.7+	1.0-	1999 12 08	704	0.2+	0.0

1997 CO₁ = 1999 XT₄₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	210.63867		(2000.0)	P	Q
<i>n</i>	0.27222580	ω	245.81843	-0.96115692	+0.27522234
<i>a</i>	2.3578519	Ω	310.14997	-0.24236226	-0.87756985
<i>e</i>	0.1549267	<i>i</i>	1.55465	-0.13205269	-0.39258607
<i>P</i>	3.62	<i>H</i>	14.6	<i>G</i>	0.15

Residuals in seconds of arc

1997 02 01	411	0.7+	0.5-	1997 02 13	905	0.0	0.0	1999 12 08	704	0.4+	0.2+
1997 02 01	411	0.5-	0.6+	1997 03 01	411	0.7-	1.1-	1999 12 08	704	0.1-	0.2-
1997 02 03	411	0.6+	0.1-	1997 03 01	411	0.2-	0.3-	1999 12 08	704	0.0	0.0
1997 02 03	411	0.8+	0.2+	1999 12 07	704	0.1-	0.0	1999 12 08	704	0.3-	0.1+
1997 02 11	411	0.3-	0.1+	1999 12 07	704	0.4-	0.1-	1999 12 13	703	0.9+	1.2-
1997 02 11	411	0.2-	0.0	1999 12 07	704	0.0	0.8+	1999 12 13	703	0.5-	0.3-

M.P.C. 37136

1997 02 12	905	0.0	0.3+	1999 12 07	704	0.0	0.6+	1999 12 13	703	0.1+	0.2+
1997 02 12	905	0.1+	0.2+	1999 12 07	704	0.3-	0.0	1999 12 13	703	0.2-	0.4-
1997 02 13	905	0.3-	0.5+	1999 12 08	704	0.6+	0.2+				

1997 CZ₂ = 1999 XX₅₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	216.09497		(2000.0)	P	Q	Williams					
<i>n</i>	0.27403100	ω	95.04312	-0.95783926	+0.28220891						
<i>a</i>	2.3474855	Ω	101.35674	-0.28054115	-0.87825668						
<i>e</i>	0.1610144	<i>i</i>	3.14980	-0.06197265	-0.38603541						
<i>P</i>	3.60	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	6				

Residuals in seconds of arc

1997 02 03	411	0.9-	0.3-	1997 03 01	411	0.6-	0.2+	1999 12 07	704	0.2-	0.4+
1997 02 03	411	0.0	0.9+	1997 03 01	411	0.6+	0.6+	1999 12 08	704	0.0	0.7-
1997 02 04	411	1.1+	1.4-	1999 12 07	704	0.7+	0.4+	1999 12 08	704	0.6+	0.4+
1997 02 04	411	0.5+	0.6-	1999 12 07	704	0.3+	0.1-	1999 12 08	704	0.4-	0.0
1997 02 11	411	0.1-	0.5-	1999 12 07	704	0.3-	0.2-	1999 12 08	704	0.2-	0.5-
1997 02 11	411	0.6-	1.1+	1999 12 07	704	0.1+	0.2+	1999 12 08	704	0.7-	0.3+

1997 CD₄ = 1999 XP₈₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	46.30590		(2000.0)	P	Q	Williams					
<i>n</i>	0.27818700	ω	145.05739	+0.99370219	+0.11035063						
<i>a</i>	2.3240466	Ω	208.62577	-0.10982084	+0.92461141						
<i>e</i>	0.1353240	<i>i</i>	2.32793	-0.02225609	+0.36457714						
<i>P</i>	3.54	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5				

Residuals in seconds of arc

1997 02 03	566	0.7-	0.3+	1997 03 03	691	0.1+	0.1-	1999 12 07	704	0.2+	0.1+
1997 02 03	566	0.1+	0.3+	1997 03 10	691	0.1+	0.0	1999 12 07	704	0.2+	0.6+
1997 02 03	566	0.6+	0.5+	1997 03 10	691	0.4+	0.2-	1999 12 07	704	1.2-	0.2-
1997 02 06	566	0.2-	0.2-	1997 03 10	691	0.5+	0.0	1999 12 08	704	0.8+	0.6+
1997 02 06	566	0.3+	0.2-	1997 03 11	691	0.3-	0.2+	1999 12 08	704	0.7-	0.0
1997 02 06	566	0.1+	0.2-	1997 03 11	691	0.6-	0.1-	1999 12 08	704	0.4-	0.1+
1997 03 03	691	0.1+	0.1-	1997 03 11	691	0.6-	0.1+	1999 12 08	704	0.9+	1.2-
1997 03 03	691	0.1+	0.1-	1999 12 07	704	0.1+	0.5+	1999 12 08	704	0.0	0.5-

1997 CK₄ = 1999 XE₉₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	170.33001		(2000.0)	P	Q	Williams					
<i>n</i>	0.27811434	ω	172.67615	-0.54018454	+0.83327855						
<i>a</i>	2.3244513	Ω	64.56080	-0.77856119	-0.44176565						
<i>e</i>	0.0623943	<i>i</i>	7.48752	-0.31944193	-0.33240031						
<i>P</i>	3.54	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5				

Residuals in seconds of arc

1997 02 04	411	1.6+	1.3+	1997 02 14	411	0.3-	0.1-	1999 12 07	704	0.1+	0.2+
1997 02 04	411	0.6+	0.2-	1997 03 01	411	0.2-	0.8+	1999 12 07	704	0.4-	0.3-
1997 02 06	411	0.1-	1.1-	1997 03 01	411	0.7-	0.5+	1999 12 10	704	0.4-	1.5-
1997 02 06	411	0.1-	0.8-	1999 12 07	704	0.1+	0.5-	1999 12 10	704	0.3-	0.8+
1997 02 06	411	0.5-	0.1-	1999 12 07	704	0.0	0.3+	1999 12 10	704	0.3+	0.4+
1997 02 14	411	0.4-	0.4-	1999 12 07	704	0.6+	0.8+				

1997 CJ₅ = 1999 XR₅₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	161.20401		(2000.0)	P	Q	Williams					
<i>n</i>	0.26657826	ω	306.66070	-0.53638927	+0.84394070						
<i>a</i>	2.3910366	Ω	290.89965	-0.77187701	-0.49396233						
<i>e</i>	0.1506867	<i>i</i>	0.43645	-0.34130986	-0.20920161						
<i>P</i>	3.70	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	6				

1999 DEC. 22

Residuals in seconds of arc

1997 01 02	691	0.1+	0.3+	1997 02 03	566	0.4-	0.2-	1999 12 07	704	0.3-	0.2-
1997 01 02	691	0.1+	0.2+	1997 02 06	369	0.1-	0.4-	1999 12 07	704	0.2+	0.4-
1997 01 02	691	0.1+	0.1-	1997 02 06	369	0.5-	0.9-	1999 12 07	704	0.2-	0.5-
1997 02 01	369	0.2-	1.3+	1997 02 09	369	0.3+	0.5+	1999 12 08	704	0.5-	0.6+
1997 02 01	369	0.6+	0.1+	1997 02 09	369	0.5+	0.6-	1999 12 08	704	0.3+	0.5-
1997 02 01	369	0.8+	0.6+	1997 02 13	369	0.0	0.7-	1999 12 08	704	0.1+	0.2+
1997 02 03	566	0.4-	0.2-	1997 02 13	369	0.6-	0.3+	1999 12 08	704	0.3+	0.7+
1997 02 03	566	0.1-	0.1-	1999 12 07	704	0.1+	0.1+				

1997 CE₆ = 1999 VP₅₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	27.93906		(2000.0)	P	Q	Williams					
<i>n</i>	0.27059640	ω	155.35495	+0.99468516	+0.10295167						
<i>a</i>	2.3673077	Ω	198.73608	-0.09524589	+0.91433497						
<i>e</i>	0.0408154	<i>i</i>	0.27525	-0.03911071	+0.39165358						
<i>P</i>	3.64	<i>H</i>	16.2	<i>G</i>	0.15	<i>U</i>	6				

Residuals in seconds of arc

1997 02 06	540	1.1-	1.0+	1997 02 08	540	0.4-	0.4-	1999 11 12	704	0.2+	0.2-
1997 02 06	540	1.1-	0.2-	1999 11 04	704	0.3+	0.4-	1999 11 12	704	0.4-	0.4+
1997 02 06	540	0.4+	0.6-	1999 11 04	704	0.3-	0.3+	1999 11 12	704	0.4+	0.1-
1997 02 07	540	0.0	1.5-	1999 11 04	704	0.1+	0.2+	1999 12 04	691	0.3+	0.5-
1997 02 08	540	0.9+	0.5+	1999 11 04	704	0.1-	0.8+	1999 12 04	691	0.4-	0.1-
1997 02 08	540	1.5+	1.7+	1999 11 12	704	0.0	0.2-	1999 12 04	691	0.3+	0.1-
1997 02 08	540	0.1-	0.3-	1999 11 12	704	0.3-	0.2-				

1997 CD₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	232.39660		(2000.0)	P	Q	Williams					
<i>n</i>	0.26594584	ω	157.68947	-0.89317746	-0.44969056						
<i>a</i>	2.3948257	Ω	355.58191	+0.40537917	-0.80172374						
<i>e</i>	0.1120099	<i>i</i>	2.62225	+0.19468371	-0.39372255						
<i>P</i>	3.71	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	4				

Residuals in seconds of arc

1997 02 04	566	0.1-	0.2-	1997 02 14	587	0.4+	0.0	1997 03 10	587	1.1-	0.1-
1997 02 04	566	0.1+	0.1+	1997 02 14	587	0.1-	1.0-	1997 03 10	587	0.7-	0.3+
1997 02 04	566	0.3-	0.1-	1997 02 14	587	0.1-	0.0	1997 03 31	587	0.2-	0.9+
1997 02 07	587	(1.3+	3.1+)	1997 02 27	587	0.2-	0.2-	1997 03 31	587	0.1+	0.3-
1997 02 07	587	0.2-	0.3+	1997 02 27	587	1.4-	0.7-	1999 11 13	587	0.7+	0.3+
1997 02 08	587	0.5-	0.1+	1997 03 04	704	1.1+	0.4+	1999 11 13	587	0.1+	0.1-
1997 02 08	587	0.4-	0.4+	1997 03 04	704	1.4+	0.5+	1999 11 17	587	0.1+	0.2-
1997 02 08	587	0.5-	0.3+	1997 03 05	704	1.5+	0.4+	1999 11 17	587	0.0	0.4+
1997 02 10	587	0.3-	0.2-	1997 03 05	704	1.2+	0.2-	1999 11 17	587	0.1-	0.1+
1997 02 10	587	0.5-	0.8-	1997 03 06	704	0.6+	0.2-	1999 11 27	587	1.0-	0.1-
1997 02 10	587	0.6-	0.4+	1997 03 06	704	0.8+	0.2+				

1997 CZ₁₆ = 1999 XO₁₃₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	326.77110		(2000.0)	P	Q	Williams					
<i>n</i>	0.28608847	ω	133.99264	+0.08844146	-0.99266125						
<i>a</i>	2.2810553	Ω	310.74706	+0.87990467	+0.11666358						
<i>e</i>	0.0472616	<i>i</i>	6.24964	+0.46684674	-0.03183149						
<i>P</i>	3.45	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5				

Residuals in seconds of arc

1997 02 06	369	0.2-	1.5-	1997 03 01	369	0.2+	0.8+	1999 12 12	704	0.6+	0.8-
1997 02 06	369	0.6-	1.0+	1997 03 01	369	0.5-	0.6+	1999 12 13	704	0.5+	0.2-
1997 02 06	369	0.0	0.1-	1997 03 01	369	0.2-	1.5-	1999 12 13	704	0.2-	0.5+
1997 02 09	369	0.2+	0.3+	1999 12 12	704	0.6-	0.3-	1999 12 13	704	0.2-	1.7+
1997 02 09	369	0.1-	0.1-	1999 12 12	704	0.1+	0.5-	1999 12 13	704	(0.7-	2.7+)
1997 02 13	369	0.1+	0.2+	1999 12 12	704	0.4-	0.4-				
1997 02 13	369	1.1+	0.4+	1999 12 12	704	0.1+	0.0				

1999 DEC. 22

M.P.C. 37137

1997 CH₁₇ = 1999 XT₁₁₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	5.60606		(2000.0)	P	Q
<i>n</i>	0.28750796	ω	102.14614	+0.96979187	-0.23941972
<i>a</i>	2.2735410	Ω	271.71971	+0.20167185	+0.89466372
<i>e</i>	0.2063038	<i>i</i>	2.67853	+0.13723046	+0.37716712
<i>P</i>	3.43	<i>H</i>	16.8	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1997 02 01	691	0.1-	0.2-	1997 02 15	691	0.1-	0.4+	1997 12 12	704	0.1-	0.2-
1997 02 01	691	0.2-	0.3-	1997 12 07	704	0.9-	0.3-	1997 12 12	704	0.4-	0.2-
1997 02 01	691	0.2-	0.3-	1997 12 07	704	0.5-	0.7-	1997 12 12	704	0.4-	0.5-
1997 02 11	691	0.0	0.4-	1997 12 07	704	0.3+	0.1+	1997 12 12	704	0.9+	1.1+
1997 02 11	691	0.4+	0.5+	1997 12 07	704	0.0	0.4-	1997 12 12	704	1.0-	0.3+
1997 02 11	691	0.1+	0.1+	1997 12 07	704	0.1+	0.2-	1997 12 12	704	1.1+	0.7+
1997 02 15	691	0.1-	0.2+	1997 12 12	704	0.4-	0.1-	1997 12 12	704	0.8+	0.3+
1997 02 15	691	0.0	0.0	1997 12 12	704	0.6+	0.2+				

1997 CG₁₉ = 1999 VR₁₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	258.91886		(2000.0)	P	Q
<i>n</i>	0.27056392	ω	130.47638	-0.64419206	-0.76486373
<i>a</i>	2.3674971	Ω	359.62845	+0.68910361	-0.58023745
<i>e</i>	0.1466724	<i>i</i>	2.29011	+0.33189276	-0.27983562
<i>P</i>	3.64	<i>H</i>	17.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 02 02	327	0.4-	0.4-	1997 02 06	327	0.3+	0.5+	1997 11 02	691	0.3-	0.0
1997 02 02	327	0.1-	0.1-	1997 02 14	327	0.4+	0.3-	1997 11 02	691	0.4-	0.1+
1997 02 02	327	0.1-	0.2+	1997 02 14	327	0.7-	0.0	1997 11 03	691	0.2+	0.0
1997 02 06	327	1.0+	0.2-	1997 02 14	327	0.1-	0.0	1997 11 03	691	0.4+	0.1-
1997 02 06	327	0.2-	0.2+	1997 11 02	691	0.1-	0.3-	1997 11 03	691	0.2+	0.2+

1997 CS₁₉ = 1999 XS₂₇

Id. G. V. Williams, E. Howell

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	184.57866		(2000.0)	P	Q
<i>n</i>	0.25296625	ω	134.30467	-0.84544966	+0.52616070
<i>a</i>	2.4760591	Ω	77.64402	-0.51277245	-0.75188019
<i>e</i>	0.1206303	<i>i</i>	5.37396	-0.14926249	-0.39727963
<i>P</i>	3.90	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 02 11	411	0.5-	0.1-	1997 03 05	691	0.1-	0.3-	1997 12 06	704	1.1-	0.2+
1997 02 11	411	0.9+	0.6-	1997 03 05	691	0.1-	0.1-	1997 12 06	704	0.6+	0.2+
1997 02 12	411	0.9-	0.2+	1997 03 09	411	0.1-	0.2+	1997 12 07	704	0.3-	1.2-
1997 02 12	411	0.0	0.3+	1997 03 09	411	0.3-	0.1-	1997 12 07	704	0.4-	0.2-
1997 02 14	411	0.1-	0.4+	1997 03 12	691	0.0	0.4-	1997 12 07	704	0.8-	0.3+
1997 02 14	411	0.2+	0.2+	1997 03 12	691	0.1+	0.1-	1997 12 07	704	0.6+	0.3+
1997 03 01	411	0.2+	0.6-	1997 03 12	691	0.0	0.1-	1997 12 07	704	0.2-	0.6-
1997 03 01	411	0.7+	1.0+	1997 12 06	704	1.1+	0.8+				
1997 03 05	691	0.0	0.0	1997 12 06	704	0.5+	0.1+				

1997 CD₂₂ = 1999 XV₂₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	245.88941		(2000.0)	P	Q
<i>n</i>	0.27318635	ω	36.12838	-0.94347810	-0.32852470
<i>a</i>	2.3523217	Ω	124.63513	+0.29022568	-0.88277085
<i>e</i>	0.1377811	<i>i</i>	3.05322	+0.16005662	-0.33583796
<i>P</i>	3.61	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 02 13	411	1.4+	0.3-	1997 03 03	400	0.3-	1.3-	1997 12 06	704	0.6-	0.2-
1997 02 13	411	0.2-	0.1-	1997 03 03	400	1.7+	0.6+	1997 12 06	704	0.5-	0.3+

1997 02 14	411	0.7-	1.0-	1997 03 04	400	1.2+	0.5+	1997 12 07	704	1.2+	0.3+
1997 02 14	411	0.0	0.7+	1997 03 04	400	0.7+	0.1+	1997 12 07	704	0.0	0.1+
1997 02 16	411	0.8+	0.7-	1997 03 09	411	0.2-	0.1+	1997 12 07	704	0.3-	0.5+
1997 02 16	411	0.2-	0.5+	1997 03 09	411	0.6-	0.3-	1997 12 07	704	0.6+	0.7+
1997 02 26	411	1.0-	0.2+	1997 12 06	704	0.8+	0.4-	1997 12 07	704	0.3+	0.8-
1997 02 26	411	0.1+	0.1-	1997 12 06	704	0.0	0.0				

1997 CL₂₆ = 1999 XX₂₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	235.77714		(2000.0)	P	Q
<i>n</i>	0.26705042	ω	92.53254	-0.96676681	-0.24101508
<i>a</i>	2.3882175	Ω	73.53091	+0.18460174	-0.88886549
<i>e</i>	0.1515575	<i>i</i>	5.10231	+0.17687320	-0.38965353
<i>P</i>	3.69	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 02 14	411	0.8+	0.9+	1997 03 09	411	0.1-	0.8+	1997 12 12	691	0.4+	0.7-
1997 02 14	411	0.2-	0.5-	1997 12 06	704	(0.0	2.8+)	1997 12 12	691	0.3+	0.7-
1997 02 16	411	0.6-	0.5-	1997 12 06	704	0.0	0.1+	1997 12 12	691	0.2+	0.6-
1997 02 16	411	0.0	0.6-	1997 12 06	704	1.3+	0.5+	1997 12 12	703	0.7-	0.3-
1997 02 26	411	0.6+	0.1-	1997 12 07	704	0.3-	0.1+	1997 12 12	703	1.0-	1.2+
1997 02 26	411	0.0	0.2-	1997 12 07	704	0.0	0.1-	1997 12 12	703	0.0	0.7+
1997 03 09	411	0.3-	0.1+	1997 12 07	704	0.2-	0.2-	1997 12 12	703	0.1+	0.2+

1997 EH = 1999 XS₂₂

Id. G. V. Williams, E. Howell (1998 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	250.85559		(2000.0)	P	Q
<i>n</i>	0.26162429	ω	64.59739	-0.80614102	-0.58863840
<i>a</i>	2.4211257	Ω	79.28575	+0.51843662	-0.75177502
<i>e</i>	0.1180907	<i>i</i>	3.52106	+0.28523697	-0.29721905
<i>P</i>	3.77	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1997 03 01	411	0.9-	0.5+	1997 03 12	411	0.1+	0.4-	1997 12 07	704	0.2-	0.4-
1997 03 01	411	1.7-	1.9+	1997 12 06	704	0.9+	0.2-	1997 12 07	704	0.1-	0.3+
1997 03 02	411	1.9+	0.0	1997 12 06	704	0.6+	0.8-	1997 12 12	703	0.0	0.1+
1997 03 02	411	0.9+	0.0	1997 12 06	704	0.2-	0.4-	1997 12 12	703	0.1+	0.1-
1997 03 07	411	0.4-	0.1-	1997 12 07	704	0.4-	0.1+	1997 12 12	703	0.4+	0.3+
1997 03 07	411	0.1+	1.4-	1997 12 07	704	0.2-	0.4+	1997 12 12	703	0.6-	0.4+
1997 03 12	411	0.1+	0.7-	1997 12 07	704	0.3-	0.0				

1997 ER₅ = 1999 WS₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	354.97595		(2000.0)	P	Q
<i>n</i>	0.25204871	ω	232.10329	+0.79692959	-0.60398751
<i>a</i>	2.4820645	Ω	165.04398	+0.56580138	+0.74047024
<i>e</i>	0.1430471	<i>i</i>	2.24626	+0.21159401	+0.29479301
<i>P</i>	3.91	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 03 04	691	0.3+	0.0	1997 11 28	120	0.1+	0.3-	1997 12 07	704	0.3-	0.3-
1997 03 04	691	0.1-	0.0	1997 11 28	120	0.4+	0.1+	1997 12 07	704	0.2-	0.1+
1997 03 04	691	0.2+	0.1+	1997 11 29	120	0.1+	0.3-	1997 12 07	704	0.2-	1.1-
1997 03 07	691	0.3-	0.2+	1997 11 29	120	0.4+	0.3-	1997 12 07	704	0.3-	0.3+
1997 03 07	691	0.0	0.1+	1997 11 30	120	0.2-	0.4+	1997 12 08	704	0.1+	0.0
1997 03 07	691	0.1-	0.0	1997 11 30	120	0.0	0.1+	1997 12 08	704	0.2+	0.2+
1997 03 14	691	0.0	0.2-	1997 12 06	120	0.4+	0.4+	1997 12 08	704	0.5+	0.1-
1997 03 14	691	0.2+	0.1-	1997 12 06	120	0.5-	0.0	1997 12 08	704	0.1-	0.2+
1997 03 14	691	0.2-	0.1-	1997 12 07	704	0.2-	0.1+	1997 12 08	704	0.0	0.6+

1997 EK₁₆

Id. E. Howell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	338.93378		(2000.0)	P			Q				
<i>n</i>	0.26311379	ω	228.30366		+0.60228571		-0.79827623				
<i>a</i>	2.4119797	Ω	184.66487		+0.74172926		+0.56084079				
<i>e</i>	0.1963820	<i>i</i>	1.86383		+0.29510954		+0.21957385				
<i>P</i>	3.75	<i>H</i>	16.1	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1997 03 05	691	0.2+	0.3+	1997 04 09	691	0.3-	0.1-	1999 12 07	704	0.8-	0.2-
1997 03 05	691	0.2+	0.3+	1999 12 03	699	0.3-	1.0+	1999 12 07	704	0.3-	0.1-
1997 03 05	691	0.2+	0.5+	1999 12 03	699	0.5+	0.4-	1999 12 08	704	0.1-	0.2-
1997 03 10	691	0.1+	0.1+	1999 12 03	699	0.6+	0.8+	1999 12 08	704	0.3-	0.2-
1997 03 10	691	0.1+	0.0	1999 12 04	703	0.2+	0.2+	1999 12 08	704	0.1+	0.1+
1997 03 10	691	0.3+	0.1-	1999 12 04	703	0.1+	0.3+	1999 12 08	704	0.0	0.1+
1997 03 13	691	0.2-	0.0	1999 12 04	703	0.4+	0.1-	1999 12 08	704	0.1-	0.0
1997 03 13	691	0.5-	0.3-	1999 12 04	703	0.6-	0.3+	1999 12 12	691	0.1+	0.2-
1997 03 13	691	0.0	0.2-	1999 12 07	704	0.0	0.3-	1999 12 12	691	0.1+	0.2-
1997 04 09	691	0.0	0.3-	1999 12 07	704	0.0	0.3-	1999 12 12	691	0.3+	0.2-
1997 04 09	691	0.1+	0.0	1999 12 07	704	0.1+	0.3-				

1997 EF₂₃

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	319.46641		(2000.0)		P		Q				
<i>n</i>	0.29348677	ω	80.10370		+0.61156543		-0.78923733				
<i>a</i>	2.2425581	Ω	331.95771		+0.67164077		+0.55501993				
<i>e</i>	0.0931311	<i>i</i>	6.79298		+0.41819421		+0.26278759				
<i>P</i>	3.36	<i>H</i>	14.4		<i>G</i>	0.15	<i>U</i>	3			
Residuals in seconds of arc											
1997 02 13	327	0.1+	0.1+	1999 09 12	703	0.0	0.6+	1999 11 03	704	0.1+	0.3-
1997 02 13	327	0.7+	0.1+	1999 10 03	704	0.2+	1.4-	1999 11 03	704	0.3+	0.3-
1997 02 13	327	0.2-	0.1-	1999 10 03	704	0.2-	0.0	1999 11 03	704	0.2-	0.5-
1997 03 07	327	1.0-	0.1+	1999 10 03	704	0.3-	0.3-	1999 11 11	703	0.4-	0.3+
1997 03 07	327	0.9-	0.1-	1999 10 03	704	0.2-	0.0	1999 11 11	703	0.2+	0.4+
1997 03 07	327	0.5-	0.2+	1999 10 03	704	0.2-	0.3+	1999 11 11	703	0.0	0.1+
1997 03 11	327	0.5+	1.3-	1999 10 28	703	0.4+	0.5+	1999 11 11	703	0.1+	0.2+
1997 03 11	327	0.2+	0.6+	1999 10 28	703	0.0	0.3+	1999 12 03	699	0.4-	0.1-
1997 03 11	327	1.0+	0.2+	1999 10 28	703	0.1+	0.1+	1999 12 03	699	0.3-	0.1+
1999 09 12	703	0.3+	0.7-	1999 10 28	703	0.1-	0.1+	1999 12 03	699	0.1+	0.1+
1999 09 12	703	0.5-	0.2-	1999 11 03	704	0.5+	0.1+				
1999 09 12	703	0.1-	0.7+	1999 11 03	704	0.3+	0.0				

1997 EO₃₀

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	326.34870		(2000.0)		P		Q				
<i>n</i>	0.27181045	ω	312.14564		+0.44858239		-0.88632121				
<i>a</i>	2.3602533	Ω	110.86387		+0.85198634		+0.38522847				
<i>e</i>	0.0881380	<i>i</i>	7.06488		+0.26998723		+0.25697030				
<i>P</i>	3.63	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1997 03 11	104	0.6-	0.5+	1997 03 15	104	0.0	0.1+	1997 04 13	104	0.1-	0.3-
1997 03 11	104	0.1-	0.8+	1997 03 15	104	0.3+	0.1+	1997 04 13	104	0.0	0.3-
1997 03 11	104	0.3+	0.2+	1997 03 15	104	0.1-	0.1+	1997 04 13	104	0.2+	0.4-
1997 03 11	104	0.5-	0.5-	1997 03 16	104	0.1+	0.9-	1999 12 04	699	0.1+	0.2+
1997 03 12	104	0.3-	0.5-	1997 03 16	104	0.1+	0.8-	1999 12 04	699	0.1+	0.5+
1997 03 12	104	0.1-	0.3-	1997 03 16	104	0.1+	0.7-	1999 12 04	699	0.1+	0.2+
1997 03 12	104	0.1+	0.0	1997 04 03	104	0.5-	0.0	1999 12 05	704	0.1-	0.4-
1997 03 13	104	0.4+	0.6+	1997 04 03	104	0.2+	0.1+	1999 12 05	704	0.1-	0.0
1997 03 13	104	0.2+	0.6+	1997 04 06	104	0.3-	0.8+	1999 12 05	704	0.1-	0.2-
1997 03 13	104	0.1+	0.3+	1997 04 06	104	0.6+	0.6+	1999 12 05	704	0.1+	0.1-
1997 03 15	104	0.2+	0.0	1997 04 13	104	0.3-	0.1-	1999 12 05	704	0.2-	0.2-

1997 EE₃₂ = 1999 XF₂₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	231.00193		(2000.0)		P		Q				
n	0.25843848	ω	351.37090		-0.99580021		-0.09152423				
a	2.4409821	Ω	183.38033		+0.08614659		-0.92823169				
e	0.1299892	i	2.22676		+0.03099516		-0.36056794				
P	3.81	H	15.5		G	0.15	U	5			
Residuals in seconds of arc											
1997 03 05	809	0.2+	0.8+	1997 04 07	691	0.3-	0.5-	1997 04 13	691	0.8+	0.6-
1997 03 05	809	0.3+	0.5+	1997 04 07	691	0.6-	0.5-	1997 04 13	691	0.6+	0.4-
1997 03 05	809	0.3-	0.9+	1997 04 11	816	0.0	0.5+	1997 04 13	691	0.4+	0.7-
1997 03 06	809	1.1-	0.4+	1997 04 11	816	0.3-	0.6+	1999 12 06	704	1.7+	0.1-
1997 03 06	809	0.4+	0.3+	1997 04 11	816	0.2-	0.7+	1999 12 06	704	0.3+	1.2+
1997 03 06	809	0.8+	0.7+	1997 04 11	816	0.1-	0.4+	1999 12 06	704	0.7-	0.7+
1997 03 11	691	0.6+	0.7-	1997 04 11	816	0.0	0.7+	1999 12 07	704	0.1-	0.1+
1997 03 11	691	0.0	0.6-	1997 04 11	816	0.0	0.9+	1999 12 07	704	1.0-	0.6-
1997 03 11	691	0.0	0.8-	1997 04 12	816	0.2-	0.1-	1999 12 07	704	0.2-	0.5-
1997 03 15	691	0.2-	0.8-	1997 04 12	816	0.1-	0.0	1999 12 07	704	0.1+	0.9-
1997 03 15	691	0.2-	0.8-	1997 04 12	816	0.1-	0.1-				
1997 04 07	691	0.4-	0.6-	1997 04 12	816	0.4+	0.1-				

1997 EP₃₅ = 1999 UQ₂₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	298.74562		(2000.0)	P			Q				
n	0.26498540	ω	97.05513	+0.36540005		-0.92933255					
a	2.4006089	Ω	331.33221	+0.80433405		+0.34395641					
e	0.1345482	i	6.35970	+0.46853978		+0.13429448					
P	3.72	H	15.9	G	0.15	U	6				
Residuals in seconds of arc											
1997 03 04	704	1.0-	1.0+	1997 03 06	704	0.6+	0.8-	1999 11 04	703	0.6+	0.7-
1997 03 04	704	0.7-	0.4+	1999 10 28	703	0.4-	0.9+	1999 11 04	703	0.6+	1.1-
1997 03 05	704	0.1-	0.6+	1999 10 28	703	1.3-	0.3+	1999 11 04	703	0.4+	0.3-
1997 03 05	704	0.0	0.1+	1999 10 28	703	(2.8-	2.0+)	1999 11 04	703	0.2-	0.2+
1997 03 06	704	1.3+	1.3-	1999 10 28	703	0.3+	0.6+				

1997 ET₄₁ = 1999 XW₄₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	313.69099		(2000.0)		P		Q				
<i>n</i>	0.28628972	<i>ω</i>	165.92478		+0.11708495		−0.99258272				
<i>a</i>	2.2799862	<i>Ω</i>	277.34374		+0.90795029		+0.12033496				
<i>e</i>	0.1439695	<i>i</i>	1.89061		+0.40238960		+0.01729253				
<i>P</i>	3.44	<i>H</i>	15.9	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1997 03 03	691	0.8−	1.0−	1997 03 12	704	0.4−	1.0+	1999 12 08	704	1.6+	0.2−
1997 03 03	691	0.6−	1.0−	1999 12 07	704	0.6−	0.1+	1999 12 08	704	0.1+	0.6−
1997 03 03	691	0.5−	1.0−	1999 12 07	704	0.1−	0.1−	1999 12 13	703	0.4−	0.6−
1997 03 10	704	0.7+	0.1+	1999 12 07	704	1.0−	0.1+	1999 12 13	703	0.2+	0.4−
1997 03 10	704	0.9+	0.5−	1999 12 07	704	0.2−	0.3+	1999 12 13	703	0.4−	0.3+
1997 03 11	704	1.0+	0.9+	1999 12 07	704	0.1+	0.5+	1999 12 13	703	0.2−	0.2+
1997 03 11	704	0.8+	0.3+	1999 12 08	704	0.3+	0.6+				
1997 03 12	704	1.1−	1.2+	1999 12 08	704	0.5+	0.1−				

1997 EF₄₆ = 1999 XU₈₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	236.33119		(2000.0)	P	Q	Williams			
<i>n</i>	0.26828915	ω	96.84562	-0.98316311	+0.13217579				
<i>a</i>	2.3808606	Ω	90.80479	-0.17187694	-0.90334478				
<i>e</i>	0.0574723	<i>i</i>	7.24927	+0.06203728	-0.40804138				
<i>P</i>	3.67	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1997 03 09	327	1.0−	0.1+	1997 03 29	327	0.5−	0.0	1999 12 07	704	0.3−	0.8+
1997 03 09	327	1.1+	0.1−	1997 03 29	327	0.5+	0.3−	1999 12 07	704	0.1+	0.8−
1997 03 09	327	0.0	0.6+	1997 03 29	327	0.1+	0.6−	1999 12 07	704	0.5−	1.2+
1997 03 19	327	0.2−	0.2+	1997 04 02	327	0.1+	0.1−	1999 12 08	704	0.0	0.9−
1997 03 19	327	0.0	0.2+	1997 04 02	327	0.6−	0.5+	1999 12 08	704	0.7+	0.3+
1997 03 19	327	0.0	0.5+	1997 04 02	327	0.9+	0.5−	1999 12 08	704	0.4+	1.2−
1997 03 29	327	0.4−	0.4−	1999 12 07	704	0.4−	0.5+				

1997 EM₅₄ = 1998 UP₁₇ = 1998 UH₁₈Id. M. E. Sansaturio, S. Nakano (d, *MPC* 36125)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
<i>M</i>	174.84366	(2000.0)		P	Q		
<i>n</i>	0.28825961	ω	269.90099	+0.11383266	+0.99346117		
<i>a</i>	2.2695871	Ω	6.65451	−0.87873885	+0.10480139		
<i>e</i>	0.1169117	<i>i</i>	4.34365	−0.46353010	+0.04529431		
<i>P</i>	3.42	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1997 03 08	809	1.1+	0.4+	1997 03 10	809	0.9−	0.4−	1998 10 19	327	0.3−	0.1+
1997 03 08	809	0.8+	0.5−	1997 03 11	809	0.0	0.3+	1998 10 19	327	0.1+	0.0
1997 03 08	809	0.4+	0.4−	1997 03 11	809	0.2−	0.2+	1998 10 20	327	0.3−	0.0
1997 03 09	809	0.6+	1.0+	1997 03 11	809	0.1−	0.9−	1998 10 20	327	0.1−	0.3−
1997 03 09	809	0.3+	0.9+	1998 10 18	327	0.1−	0.1+	1998 10 20	327	0.5+	0.4+
1997 03 09	809	0.8+	0.7+	1998 10 18	327	0.4−	0.6+	1998 10 22	327	0.6+	1.1−
1997 03 10	809	1.9−	0.1−	1998 10 18	327	0.4−	0.5+	1998 10 22	327	0.8+	0.0
1997 03 10	809	0.7−	1.3−	1998 10 19	327	0.6−	0.2+	1998 10 22	327	0.4+	0.6−

1997 EB₅₇

Id. A. Doppler (1997, 1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
<i>M</i>	14.80448	(2000.0)		P	Q		
<i>n</i>	0.19402734	ω	199.85022	+0.98043636	+0.19547931		
<i>a</i>	2.9550223	Ω	148.84876	−0.17403380	+0.91564621		
<i>e</i>	0.1075232	<i>i</i>	2.55644	−0.09196073	+0.35125470		
<i>P</i>	5.08	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 03 10	809	0.2−	1.2+	1999 09 05	699	1.0−	1.1+	1999 10 04	704	1.3+	0.2−
1997 03 10	809	0.2+	1.0+	1999 09 05	699	0.0	0.9+	1999 11 01	703	0.7−	0.8−
1997 03 10	809	1.2−	0.8+	1999 10 03	703	0.0	0.7+	1999 11 01	703	0.3−	0.7−
1997 03 11	809	0.4+	0.3+	1999 10 03	703	0.3−	0.8+	1999 11 01	703	0.2−	0.6−
1997 03 11	809	0.2−	1.2+	1999 10 03	703	0.5+	0.4+	1999 11 01	703	0.2−	0.8−
1997 03 11	809	0.1+	1.4+	1999 10 03	703	0.3−	1.0+	1999 11 27	699	0.5−	0.2−
1997 05 02	910	0.7+	1.4−	1999 10 04	704	0.6+	0.5−	1999 11 27	699	0.3−	0.3−
1997 05 02	910	0.5+	1.3−	1999 10 04	704	(0.2−	2.1+)	1999 11 27	699	0.8−	1.1−
1997 05 02	910	0.5+	1.4−	1999 10 04	704	0.8+	0.2+				
1999 09 05	699	1.3−	0.9+	1999 10 04	704	1.8+	0.8+				

1997 FM₃ = 1999 XA₁₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
<i>M</i>	283.23107	(2000.0)		P	Q		
<i>n</i>	0.23094499	ω	72.22812	−0.01358699	−0.99736907		
<i>a</i>	2.6310576	Ω	18.98094	+0.81430778	−0.05236374		
<i>e</i>	0.1461441	<i>i</i>	12.64593	+0.58027428	+0.05012966		
<i>P</i>	4.27	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 03 31	704	0.4−	0.2−	1997 05 03	691	0.2+	0.1−	1999 12 03	704	0.4+	0.4−
1997 03 31	704	1.0+	0.3−	1997 05 09	691	0.2−	0.3+	1999 12 03	704	0.5−	0.3−
1997 04 03	704	0.2+	0.4+	1997 05 09	691	0.3−	0.0	1999 12 07	704	0.3−	0.3−
1997 04 03	704	0.5+	0.2+	1999 11 27	699	0.7−	0.6+	1999 12 07	704	0.1+	0.2+
1997 04 06	566	0.4−	0.2+	1999 11 27	699	0.6+	0.5+	1999 12 07	704	0.2−	0.1+
1997 04 06	566	0.8−	0.0	1999 11 27	699	0.6−	0.4+	1999 12 07	704	0.2−	0.1−
1997 04 06	566	0.3−	0.3−	1999 12 03	704	0.5+	0.2+	1999 12 07	704	0.5−	0.1−

1997 05 03	691	0.3+	0.1+	1999 12 03	704	0.2+	0.0
1997 05 03	691	0.2+	0.0	1999 12 03	704	0.8+	0.6−

1997 FM₄

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
<i>M</i>	287.36170	(2000.0)		P	Q		
<i>n</i>	0.24385507	ω	257.87091	−0.17285177	−0.98149047		
<i>a</i>	2.5373567	Ω	202.59233	+0.96639458	−0.15282846		
<i>e</i>	0.1478818	<i>i</i>	12.39376	+0.19027291	−0.11541197		
<i>P</i>	4.04	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 03 11	809	0.1−	0.4+	1997 04 06	704	0.7+	0.9+	1999 10 02	703	0.5+	0.1−
1997 03 11	809	0.7−	0.4−	1997 04 07	704	1.1+	0.5+	1999 10 02	703	0.7−	0.2−
1997 03 11	809	0.8−	0.7−	1997 04 07	704	1.8+	0.3−	1999 10 02	703	0.4−	0.4+
1997 03 13	809	0.0	0.6−	1997 05 05	691	1.2−	0.4+	1999 10 02	703	0.1+	0.0
1997 03 13	809	0.9−	0.8−	1997 05 05	691	0.7−	0.2−	1999 11 02	703	0.5+	0.3+
1997 03 13	809	0.7−	0.3−	1997 05 05	691	0.6−	0.2+	1999 11 02	703	0.4+	0.0
1997 03 31	704	0.8+	0.7−	1997 05 08	691	1.2−	0.3+	1999 11 02	703	0.0	0.1−
1997 03 31	704	0.6+	0.0	1997 05 08	691	1.4−	0.3+	1999 11 02	703	0.3+	0.1+
1997 04 03	704	1.2+	0.6−	1997 05 08	691	1.0−	0.1+	1999 12 02	699	0.2+	0.1−
1997 04 03	704	1.0+	0.2+	1999 09 14	703	0.6−	0.4−	1999 12 02	699	0.0	0.6+
1997 04 05	704	1.1+	0.4+	1999 09 14	703	0.1+	0.3−	1999 12 02	699	0.1+	0.3+
1997 04 05	704	0.6+	0.6+	1999 09 14	703	0.3−	0.5−				
1997 04 06	704	0.2−	0.1+	1999 09 14	703	0.5−	0.1−				

1997 FR₄ = 1999 XA₆₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
<i>M</i>	235.25113	(2000.0)		P	Q		
<i>n</i>	0.25511169	ω	171.03890	−0.99333590	−0.11524316		
<i>a</i>	2.4621574	Ω	2.34541	+0.10304513	−0.89452129		
<i>e</i>	0.1297165	<i>i</i>	2.34716	+0.05162845	−0.43191514		
<i>P</i>	3.86	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 03 11	809	1.3+	0.5−	1997 03 31	704	0.5−	0.9−	1999 12 07	704	0.5+	0.2−
1997 03 11	809	0.8+	0.5−	1997 04 03	704	0.3+	0.1+	1999 12 08	704	0.2+	0.6+
1997 03 11	809	0.6+	1.1−	1997 04 03	704	0.2−	0.2−	1999 12 08	704	0.7−	0.2−
1997 03 13	809	0.3+	1.7+	1997 04 05	704	0.8+	0.2+	1999 12 08	704	0.1−	0.4−
1997 03 13	809	0.6+	1.6+	1997 04 05	704	0.8+	0.6−	1999 12 08	704	0.3−	0.2−
1997 03 13	809	1.4−	1.1+	1997 04 06	704	0.7+	0.9+	1999 12 08	704	0.3+	1.0−
1997 03 29	327	1.1−	0.5−	1997 04 06	704	0.7+	0.7+	1999 12 13	703	0.0	0.8+
1997 03 29	327	1.5−	0.5−	1997 04 07	704	0.7+	0.4+	1999 12 13	703	0.1+	0.1−
1997 03 29	327	1.0−	0.3−	1997 04 07	704	0.1−	0.3+	1999 12 13	703	0.7−	0.7+
1997 03 29	327	1.4−	0.8−	1999 12 07	704	0.3−	0.8−	1999 12 13	703	0.8+	0.7+
1997 03 31	704	0.4−	0.9−	1999 12 07	704	0.5−	0.4−				

1997 GU₃ = 1999 VZ₄₉

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
<i>M</i>	43.37096	(2000.0)		P	Q		
<i>n</i>	0.21293089	ω	306.64815	+0.94442317	+0.32236793		
<i>a</i>	2.7774331	Ω	34.67760	−0.25377108	+0.83942545		
<i>e</i>	0.0653656	<i>i</i>	6.49639	−0.20896197	+0.43754295		
<i>P</i>	4.63	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 04 03	400	0.8+	0.4+	1999 11 03	704	0.1−	0.1+	1999 12 05	703	0.3−	0.1+
1997 04 03	400	1.0−	0.2+	1999 11 03	704	0.2−	0.2−	1999 12 05	703	0.3−	0.2+
1997 04 04	400	0.3+	0.6−	1999 11 03	704	0.8+	1.0+	1999 12 08	704	0.2+	0.1−
1997 04 04	400	0.4−	1.1+	1999 11 03	704	0.1−	1.2+	1999 12 08	704	0.2+	0.3−
1997 04 10	400	0.2−	0.5−	1999 11 04	704	0.3−	0.0	1999 12 08	704	0.4+	0.6−
1997 04 10	400	0.0	0.1−	1999 11 04	704	0.0	0.2−	1999 12 08	704	0.1+	0.1−
1997 04 11	704	0.9+	0.4+	1999 11 04	704	0.1+	0.5−	1999 12 08	704	0.0	0.5−

1997 04 11	704	0.3+	0.5+	1999 11 04	704	0.5-	0.7-	1999 12 13	703	0.1+	0.1+
1997 04 15	400	0.6-	0.0	1999 11 04	704	0.5+	0.7-	1999 12 13	703	0.1-	0.1+
1997 04 15	400	0.2-	1.6-	1999 12 05	703	0.0	0.2+	1999 12 13	703	0.2+	0.2+
1999 11 03	704	0.3-	0.3-	1999 12 05	703	0.5-	0.6+	1999 12 13	703	0.0	0.3+

1997 GH₇ = 1999 XU₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22451042	ω	64.74397	-0.85073227	-0.52261165		
<i>a</i>	2.6810920	Ω	83.70322	+0.45970514	-0.79146316		
<i>e</i>	0.0389677	<i>i</i>	3.22752	+0.25480541	-0.31695918		
<i>P</i>	4.39	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 04 02	704	0.5+	0.9+	1997 05 01	704	0.2+	0.5-	1999 12 07	704	0.6-	0.3-
1997 04 02	704	1.5+	1.3-	1997 05 01	704	0.2+	0.4-	1999 12 07	691	0.0	0.0
1997 04 06	704	0.0	0.4+	1997 05 01	704	0.5+	0.7-	1999 12 07	704	0.1+	0.8-
1997 04 06	704	0.5-	0.0	1997 05 26	910	0.7-	0.2-	1999 12 07	691	0.0	0.0
1997 04 08	704	0.1-	0.1+	1997 05 26	910	0.1+	0.2+	1999 12 07	704	1.2+	0.4-
1997 04 08	704	1.1-	1.4+	1997 05 26	910	0.4-	0.5-	1999 12 07	704	0.2+	0.4+
1997 04 08	704	0.1+	0.3+	1999 12 04	703	0.2+	0.4+	1999 12 07	691	0.1+	0.0
1997 04 08	704	0.4-	0.6+	1999 12 04	703	0.9-	0.4+	1999 12 07	704	0.7+	0.1-
1997 04 30	704	0.3-	0.3-	1999 12 04	703	0.8+	0.3+	1999 12 08	704	0.8+	0.3-
1997 04 30	704	0.3-	0.8+	1999 12 04	703	1.9-	0.2+	1999 12 08	704	0.1-	0.6-
1997 04 30	704	0.2+	0.5-	1999 12 05	703	0.7-	0.8+	1999 12 08	704	0.5+	0.7-
1997 04 30	704	0.1+	0.5-	1999 12 05	703	0.5-	0.4+	1999 12 08	704	0.4+	0.3-
1997 05 01	704	0.2+	0.5-	1999 12 05	703	0.8+	0.1+	1999 12 08	704	0.8-	0.7-
1997 05 01	704	0.0	0.4+	1999 12 05	703	0.1-	0.6+				

1997 GZ₉ = 1999 XQ₁₁₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26287321	ω	81.45322	-0.21803329	-0.97532762		
<i>a</i>	2.4134511	Ω	21.23653	+0.85362285	-0.20777401		
<i>e</i>	0.1740200	<i>i</i>	5.48223	+0.47306396	-0.07460565		
<i>P</i>	3.75	<i>H</i>	16.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 04 03	704	0.3+	0.3-	1997 04 07	704	0.3+	0.3-	1999 12 05	703	1.4-	0.7-
1997 04 03	704	0.5-	0.6-	1997 04 07	704	0.4+	0.9-	1999 12 05	703	0.7+	1.1+
1997 04 05	704	(2.2-	0.1+)	1997 04 30	691	0.2-	0.1-	1999 12 05	703	1.7+	0.2+
1997 04 05	704	1.6+	0.4+	1997 04 30	691	0.2-	0.5-	1999 12 05	703	1.3-	1.1+
1997 04 05	704	0.1+	1.5+	1997 04 30	691	0.3-	1.0-	1999 12 13	703	(0.9+	2.4-)
1997 04 05	704	0.3+	0.9+	1997 05 08	691	0.8-	0.3+	1999 12 13	703	0.7+	1.4-
1997 04 05	704	(3.0+	2.8-)	1997 05 08	691	0.7-	0.2+	1999 12 13	703	0.4+	0.2-
1997 04 05	704	(0.9+	2.8+)	1997 05 08	691	0.6-	0.3+	1999 12 13	703	0.7-	0.4-

1997 GR₁₂ = 1976 UQ₁₃ = 1989 EV₆ = 1993 FB₄ = 1999 VO₇

Id. S. Nakano, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25842543	ω	304.36285	-0.11974772	-0.99255298		
<i>a</i>	2.4410643	Ω	152.48894	+0.92602372	-0.11977789		
<i>e</i>	0.1658515	<i>i</i>	2.77207	+0.35796724	-0.02217740		
<i>P</i>	3.81	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 10 22	381	0.3-	0.1+	1997 04 06	704	0.0	1.0+	1999 11 10	120	0.2-	0.3-
1976 10 22	381	0.9+	0.5+	1997 04 07	704	1.3+	0.9-	1999 12 06	704	0.6+	0.5+
1976 10 24	381	0.9-	0.1+	1997 04 07	704	0.3-	0.2+	1999 12 06	704	0.7-	0.8+
1989 03 05	033	0.9+	0.0	1999 11 04	704	0.5-	0.1-	1999 12 06	704	0.4+	1.0-
1989 03 05	033	0.2-	0.7+	1999 11 04	704	0.1-	0.0	1999 12 06	704	0.5-	0.5+
1993 03 24	033	0.3+	1.9-	1999 11 04	704	0.1-	0.4+	1999 12 06	704	1.0-	0.4-
1993 03 26	033	0.9-	0.1+	1999 11 04	704	0.5+	0.3+	1999 12 07	704	0.0	0.1+
1993 03 26	033	1.0-	0.2-	1999 11 04	704	0.2+	0.7+	1999 12 07	704	0.1+	0.2-

1997 04 03	704	0.4-	0.8+	1999 11 07	120	0.1+	0.2-	1999 12 07	704	0.1-	0.3-
1997 04 03	704	0.2+	0.6+	1999 11 07	120	0.2+	0.2-	1999 12 07	704	0.1-	0.1-
1997 04 05	704	0.2+	0.0	1999 11 08	120	0.2+	0.0	1999 12 07	704	0.3-	0.4-
1997 04 05	704	0.1+	0.2+	1999 11 08	120	0.3-	0.5-	1999 12 07	120	0.9+	0.4+
1997 04 06	704	0.4+	0.6+	1999 11 10	120	0.0	0.4+	1999 12 07	120	0.7+	0.1-

1997 GF₁₄ = 1999 XP₅₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25904959	ω	162.03535	+0.10897984	-0.99346024		
<i>a</i>	2.4371417	Ω	281.69761	+0.90769693	+0.11342330		
<i>e</i>	0.1478353	<i>i</i>	1.99334	+0.40522793	+0.01311153		
<i>P</i>	3.80	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 03 11	809	1.5-	0.0	1997 04 05	704	0.6+	0.9+	1999 12 07	704	0.4+	0.0
1997 03 11	809	1.1-	0.2-	1997 04 06	704	0.2+	1.7+	1999 12 07	704	0.6+	0.0
1997 03 11	809	1.4-	0.4+	1997 04 06	704	0.2+	0.3-	1999 12 07	704	0.2+	0.2-
1997 03 13	809	1.2+	1.6-	1997 04 07	704	0.1-	0.3+	1999 12 08	704	0.4-	0.1-
1997 03 13	809	(0.4+	3.1-)	1997 04 07	704	0.2-	0.0	1999 12 08	704	0.6-	0.0
1997 03 13	809	1.8+	1.2-	1997 04 07	704	1.1-	0.4+	1999 12 08	704	0.6-	0.2+
1997 04 03	704	0.5+	0.5-	1997 04 07	704	0.4+	0.0	1999 12 08	704	0.3-	0.0
1997 04 03	704	0.0	0.3-	1999 12 07	704	0.3+	0.3-	1999 12 08	704	0.2-	0.3+
1997 04 05	704	0.8+	0.3+	1999 12 07	704	0.6+	0.4+				

1997 GE₁₅ = 1999 XG₄₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26308932	ω	187.34766	-0.94774171	-0.31881832		
<i>a</i>	2.4121292	Ω	334.05123	+0.29407314	-0.85856673		
<i>e</i>	0.1514374	<i>i</i>	1.55241	+0.12371999	-0.40151968		
<i>P</i>	3.75	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 03 11	809	0.6-	0.2+	1997 04 05	704	0.2+	1.4-	1999 12 07	704	0.4+	0.0
1997 03 11	809	0.5-	0.4-	1997 04 06	704	0.9+	1.4+	1999 12 07	704	0.3-	0.7-
1997 03 11	809	1.2-	0.4+	1997 04 06	704	0.9-	0.0	1999 12 08	704	0.8-	0.4+
1997 03 13	809	1.3+	0.6-	1997 04 06	704	0.3-	0.2-	1999 12 08	704	0.4-	0.0
1997 03 13	809	0.6+	0.2-	1997 04 06	704	1.2-	0.0	1999 12 08	704	0.0	0.3+
1997 03 13	809	0.5+	0.0	1997 04 07	704	0.3+	0.5+	1999 12 08	704	0.8+	0.6-
1997 04 03	704	0.0	0.4+	1997 04 07	704	0.4+	0.1+	1999 12 08	704	0.2-	0.2+
1997 04 03	704	0.1+	0.3+	1999 12 07	704	0.4+	0.6+				
1997 04 05	704	0.9+	0.6-	1999 12 07	704	0.0	0.1-				

1997 GT₁₅ = 1999 VE₇₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21610084	ω	188.88506	-0.31932612	+0.94738300		
<i>a</i>	2.7502051	Ω	62.49538	-0.86789683	-0.28293356		
<i>e</i>	0.0513081	<i>i</i>	1.43920	-0.38050747	-0.14971321		
<i>P</i>	4.56	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 04 03	704	0.9-	0.2-	1999 11 04	704	0.3+	0.8+	1999 12 07	704	0.6-	1.2-
1997 04 03	704	0.1+	0.5+	1999 11 12	704	0.2-	0.0	1999 12 07	704	0.3-	0.3-
1997 04 05	704	0.2+	0.2-	1999 11 12	704	0.0	0.2+	1999 12 07	691	0.3+	0.0
1997 04 05	704	0.2+	0.2+	1999 11 12	704	0.0	0.3+	1999 12 07	704	0.0	0.4-
1997 04 06	704	0.4-	0.4-	1999 11 12	704	0.1+	0.2+	1999 12 07	704	0.4+	0.1-
1997 04 06	704	0.4-	0.6+	1999 12 04	703	0.1-	0.0	1999 12 07	704	0.3-	1.2-
1997 04 07	704	0.4+	0.1-	1999 12 04	703	1.0-	0.4+	1999 12 12	703	0.5-	0.5+
1997 04 07	704	0.7+	0.4-	1999 12 04	703	0.5+	0.3-	1999 12 12	703	0.4+	1.4+
1999 11 04	704	0.0	0.5-	1999 12 04	703	0.6+	0.6+	1999 12 12	703	0.3+	0.3-
1999 11 04	704	0.8-	0.1-	1999 12 07	691	0.3+	0.1-	1999 12 12	703	0.4-	0.7+
1999 11 04	704	0.5+	0.3-	1999 12 07	691	0.4+	0.1-				

1999 DEC. 22

M.P.C. 37141

1997 GW₂₂ = 1999 XT₉₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24640458	ω	21.74337	−0.13990734	−0.98883686		
<i>a</i>	2.5198239	Ω	76.32812	+0.90050750	−0.14859457		
<i>e</i>	0.0977298	<i>i</i>	3.02404	+0.41171857	−0.01101482		
<i>P</i>	4.00	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 04 06	704	0.0	0.5−	1997 04 30	704	0.3+	0.5+	1997 05 05	704	1.2+	0.7+
1997 04 06	704	0.3+	0.0	1997 04 30	704	0.1+	0.3+	1997 05 08	327	1.1−	0.6−
1997 04 07	809	0.2+	0.0	1997 04 30	704	0.2−	0.6−	1997 05 08	327	1.2−	0.5−
1997 04 07	809	1.2−	0.9+	1997 05 01	704	0.2+	0.3+	1997 05 08	327	0.7−	0.6−
1997 04 07	809	1.2−	0.1+	1997 05 01	704	0.5+	0.4−	1999 12 07	704	1.9−	1.3+
1997 04 08	809	0.8+	0.5−	1997 05 01	704	0.1−	0.5+	1999 12 07	704	0.1−	0.5−
1997 04 08	809	0.6−	1.4−	1997 05 01	704	0.2+	0.2−	1999 12 07	704	0.1+	0.6−
1997 04 08	809	0.4−	0.6−	1997 05 01	704	0.0	0.4+	1999 12 10	704	0.1+	0.1+
1997 04 08	704	0.8+	0.8+	1997 05 05	704	0.1+	0.3+	1999 12 10	704	1.2+	0.1−
1997 04 08	704	0.5+	0.2+	1997 05 05	704	0.1+	0.1−	1999 12 10	704	0.2+	0.3−
1997 04 30	704	0.6+	0.1+	1997 05 05	704	0.3−	0.2+	1999 12 10	704	0.5+	0.1+
1997 04 30	704	0.7+	0.4+	1997 05 05	704	0.3+	0.4+	1999 12 10	704	0.1−	0.1+

1997 GC₃₃ = 1999 XH₈₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28861465	ω	92.04249	+0.19722567	−0.98029504		
<i>a</i>	2.2677254	Ω	346.56719	+0.87936003	+0.18191031		
<i>e</i>	0.1236946	<i>i</i>	2.74379	+0.43339125	+0.07700822		
<i>P</i>	3.41	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 03 12	809	0.4−	0.4+	1997 04 11	704	0.1+	0.2+	1999 12 08	704	0.2+	0.4−
1997 03 12	809	0.2−	0.7+	1997 04 11	704	0.6+	0.3+	1999 12 08	704	0.7+	0.5+
1997 03 12	809	1.5−	0.3−	1997 04 11	704	1.3−	0.2+	1999 12 08	704	0.1−	0.2+
1997 03 13	809	0.7+	0.2+	1999 12 07	704	1.2−	1.0−	1999 12 08	704	0.6−	0.0
1997 03 13	809	1.4+	1.0−	1999 12 07	704	0.1−	0.7+	1999 12 08	704	0.2+	0.2−
1997 03 13	809	0.8−	0.4−	1999 12 07	704	0.2+	0.2+	1999 12 08	704	0.2+	0.7+
1997 04 03	704	0.1−	0.6−	1999 12 07	704	0.6−	0.1+	1999 12 08	704	1.3+	0.1−
1997 04 03	704	1.3+	0.3−	1999 12 08	704	1.0−	0.8−				
1997 04 11	704	0.2+	0.7+	1999 12 08	704	0.8+	0.2+				

1997 GL₃₄

Id. T. Kobayashi (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26286820	ω	129.88900	−0.99566917	−0.08545167		
<i>a</i>	2.4134818	Ω	45.24385	+0.06144611	−0.90046790		
<i>e</i>	0.1216046	<i>i</i>	2.95591	+0.06976591	−0.42644528		
<i>P</i>	3.75	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 04 03	704	1.6+	0.1+	1997 04 15	292	1.6−	0.0	1999 11 28	411	1.4−	1.2+
1997 04 03	704	1.2+	0.2+	1997 04 15	292	0.5−	0.3−	1999 11 28	411	0.6+	0.9−
1997 04 08	292	0.2+	0.1+	1997 04 15	292	0.3−	0.7−	1999 11 29	411	0.7−	0.2−
1997 04 08	292	0.2+	0.0	1997 04 16	292	0.4−	1.2−	1999 11 29	411	0.5−	0.3+
1997 04 08	292	1.6+	0.6+	1997 04 16	292	0.1+	0.4−	1999 12 07	704	0.5+	0.6+
1997 04 10	292	0.0	0.0	1997 04 16	292	1.9−	0.1+	1999 12 07	704	0.0	0.1+
1997 04 10	292	1.3−	0.2−	1997 04 26	292	1.1+	0.2+	1999 12 07	704	0.1+	0.1−
1997 04 10	292	1.0−	0.2+	1997 04 26	292	1.1+	0.2−	1999 12 07	704	0.2−	0.1+
1997 04 11	704	0.8+	0.4−	1997 04 26	292	1.3+	0.4−	1999 12 07	704	0.0	0.1−
1997 04 11	704	0.9+	0.2−	1997 04 30	292	0.1−	0.8+	1999 12 10	704	0.5−	0.8−
1997 04 14	292	(2.9− 0.0)		1997 05 07	292	0.5−	0.3−	1999 12 10	704	0.2+	0.0
1997 04 14	292	1.8−	0.8+	1997 05 07	292	0.4+	0.4+	1999 12 10	704	1.1+	0.6+
1997 04 14	292	1.4−	0.9+	1997 05 07	292	0.2+	0.0	1999 12 10	704	0.9+	0.8−

1997 GQ₃₄ = 1999 VH₄₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21148833	ω	11.34506	+0.85044365	−0.52016034		
<i>a</i>	2.7900486	Ω	20.58514	+0.46347274	+0.67015407		
<i>e</i>	0.0980625	<i>i</i>	12.91854	+0.24887469	+0.52945891		
<i>P</i>	4.66	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 04 03	704	0.2−	0.5−	1997 04 12	816	0.1−	0.6+	1999 11 04	703	0.3−	0.3+
1997 04 03	704	0.7+	0.4−	1997 04 12	816	0.5−	0.2+	1999 11 11	703	0.7+	0.4+
1997 04 11	816	0.4−	0.4−	1997 04 12	816	0.7−	1.1−	1999 11 11	703	0.0	0.7+
1997 04 11	704	1.0+	1.7+	1999 11 04	703	0.2−	0.1−	1999 11 11	703	0.6+	0.9−
1997 04 11	816	0.0	0.6−	1999 11 04	703	0.2+	0.4+	1999 11 11	703	0.7−	0.6−
1997 04 11	704	0.3+	0.6+	1999 11 04	703	0.3−	0.2−				

1997 GW₃₄

Id. A. Doppler (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21715167	ω	234.14229	+0.35070240	−0.93574329		
<i>a</i>	2.7413255	Ω	195.45753	+0.89801483	+0.34733118		
<i>e</i>	0.1258869	<i>i</i>	8.04797	+0.26566369	+0.06120095		
<i>P</i>	4.54	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 03 12	809	1.6−	1.6−	1999 10 04	704	0.7−	0.4+	1999 10 15	704	1.0−	1.1−
1997 03 12	809	0.5−	1.5−	1999 10 04	704	0.3+	0.6+	1999 10 28	699	0.6+	0.3+
1997 03 12	809	1.4−	2.0−	1999 10 04	704	0.3+	0.1+	1999 10 28	699	0.7+	0.3+
1997 03 13	809	0.1−	1.6+	1999 10 07	704	0.1+	1.6−	1999 10 28	699	1.2+	0.2−
1997 03 13	809	1.0+	0.5+	1999 10 07	704	0.9+	0.1+	1999 11 09	704	0.5−	0.0
1997 03 13	809	(0.4− 2.3+)		1999 10 07	704	0.6+	0.1−	1999 11 09	704	1.1−	0.5+
1997 04 03	704	0.7+	0.0	1999 10 07	704	0.1−	0.5−	1999 11 09	704	0.1−	0.3−
1997 04 03	704	0.8+	0.5+	1999 10 07	704	0.0	0.6−	1999 11 12	704	0.1+	0.4+
1997 04 11	704	0.1+	0.4+	1999 10 09	704	0.4+	0.1−	1999 11 12	704	1.2+	0.8−
1997 04 11	704	0.3+	0.2−	1999 10 09	704	0.0	0.2+	1999 11 12	704	0.6−	1.9−
1999 10 01	703	0.5−	0.7+	1999 10 09	704	0.3+	0.2+	1999 11 12	704	0.6−	0.7−
1999 10 01	703	0.2−	0.4+	1999 10 09	704	0.1+	0.2+	1999 12 07	704	0.0	0.7+
1999 10 01	703	0.6−	0.1−	1999 10 09	704	0.2−	0.1+	1999 12 07	704	0.2−	1.0+
1999 10 01	703	0.5−	0.5+	1999 10 15	704	0.9+	0.6+	1999 12 07	704	0.2+	0.8+
1999 10 04	704	0.0	0.7−	1999 10 15	704	0.4−	0.2−	1999 12 07	704	0.5+	0.3+
1999 10 04	704	0.2+	0.5−	1999 10 15	704	0.6−	0.4−				

1997 GM₄₀ = 1953 XU₁ = 1999 VD₅₃

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27853429	ω	54.52249	−0.50467942	−0.85262052		
<i>a</i>	2.3221144	Ω	66.33313	+0.73643558	−0.50703686		
<i>e</i>	0.1917149	<i>i</i>	8.50228	+0.45051230	−0.12630076		
<i>P</i>	3.54	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1953 12 07	675	0.1+	0.8+	1997 04 10	809	0.3−	1.0−	1999 11 04	704	0.0	0.2+
1953 12 07	675	0.2−	0.0	1997 04 10	809	0.4+	1.2−	1999 11 04	704	0.3−	0.3+
1997 04 07	809	0.2+	1.6+	1997 04 10	809	0.2+	0.9−	1999 11 30	411	1.3+	0.4−
1997 04 07	809	0.2+	1.6+	1999 11 03	704	0.2−	0.0	1999 11 30	411	1.1+	0.7−
1997 04 07	809	0.4+	1.4+	1999 11 03	704	0.1−	0.0	1999 12 02	411	0.6−	0.3−
1997 04 08	809	0.2−	0.9+	1999 11 03	704	0.1−	0.1+	1999 12 10	704	0.2−	0.4−
1997 04 08	809	0.6−	1.2+	1999 11 03	704	0.1−	0.2+	1999 12 10	704	0.3−	0.1−
1997 04 08	809	1.0−	0.7+	1999 11 03	704	0.0	0.2+	1999 12 10	704	0.2−	0.2−
1997 04 09	809	0.4+	1.3−	1999 11 04	704	0.2+	0.1−	1999 12 10	704	0.1−	0.2+
1997 04 09	809	0.2+	1.4−	1999 11 04	704	0.1−	0.1+	1999 12 10	704	0.2−	0.3+
1997 04 09	809	0.2+	1.5−	1999 11 04	704	0.2−	0.1−				

1997 GP₄₀ = 1997 HD₁₂ = 1999 XH₁₁₀Id. A. Doppler (d, *MPC* 34061), G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18527634	ω	206.77258	+0.99989424	+0.00524305		
<i>a</i>	3.0473529	Ω	152.91667	+0.00019932	+0.92772612		
<i>e</i>	0.1235959	<i>i</i>	1.70739	-0.01454194	+0.37322481		
<i>P</i>	5.32	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 04 07	809	0.1-	0.6+	1997 05 01	704	0.3+	0.4-	1999 12 04	703	(2.2+	0.7-)
1997 04 07	809	0.5-	0.1-	1997 05 01	704	0.2+	0.6+	1999 12 04	703	0.5+	0.3+
1997 04 07	809	0.7-	0.3+	1997 05 01	704	1.1+	0.1-	1999 12 04	703	0.7-	0.7+
1997 04 08	809	(0.8+	2.9+)	1997 05 01	704	1.1+	0.1+	1999 12 04	703	0.8+	0.5-
1997 04 08	809	0.8+	0.1-	1997 05 01	704	1.2-	1.1-	1999 12 12	703	0.7-	0.3+
1997 04 08	809	0.8+	0.2+	1997 05 05	704	0.7-	0.5+	1999 12 12	703	0.4-	0.2-
1997 04 30	704	0.2-	0.4+	1997 05 05	704	0.4+	0.2-	1999 12 12	703	0.6+	0.5-
1997 04 30	704	0.5+	0.1+	1997 05 05	704	1.3+	0.5+	1999 12 12	703	0.2-	0.4-
1997 04 30	704	0.3-	0.6-	1997 05 05	704	0.2+	0.1+				
1997 04 30	704	2.0-	0.7-	1997 05 05	704	0.9-	0.2-				

1997 GM₄₁

Id. A. Doppler (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17494781	ω	158.35794	-0.89089476	+0.43537005		
<i>a</i>	3.1661419	Ω	48.12371	-0.43806229	-0.74826253		
<i>e</i>	0.0289312	<i>i</i>	10.01266	-0.12003316	-0.50055579		
<i>P</i>	5.63	<i>H</i>	11.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 04 09	809	0.1-	0.5-	1997 04 11	809	1.1+	0.4+	1999 12 02	704	0.5+	1.0-
1997 04 09	809	0.7-	0.5-	1997 04 11	809	0.9+	0.8+	1999 12 02	704	1.2+	0.6-
1997 04 09	809	0.7-	0.4-	1997 04 11	809	1.2+	0.1+	1999 12 02	704	0.2+	0.1+
1997 04 10	809	0.4-	0.6-	1997 04 12	809	0.5-	0.4-	1999 12 09	699	1.2-	0.5-
1997 04 10	809	0.9-	0.2-	1997 04 12	809	0.4+	0.9+	1999 12 09	699	1.3-	0.4+
1997 04 10	809	1.0-	0.0	1997 04 12	809	0.8+	0.3+	1999 12 09	699	0.3+	1.7+

1997 HD₁₃ = 1999 XL₁₀₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26967529	ω	154.04315	-0.83197083	-0.55481823		
<i>a</i>	2.3726952	Ω	352.25836	+0.50756677	-0.76029073		
<i>e</i>	0.1484742	<i>i</i>	0.48012	+0.22405471	-0.33783833		
<i>P</i>	3.65	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 04 06	704	0.9-	0.3+	1997 05 01	704	0.0	0.2-	1997 05 07	704	0.3-	0.6+
1997 04 06	704	0.8+	0.1+	1997 05 01	704	0.1-	0.4+	1999 12 07	704	1.1+	0.5-
1997 04 11	704	0.3+	0.8-	1997 05 01	704	0.4+	0.2+	1999 12 07	704	0.1+	0.2+
1997 04 11	704	0.3-	0.2-	1997 05 01	704	0.2-	0.4+	1999 12 07	704	0.0	0.5+
1997 04 30	704	0.0	0.2-	1997 05 01	704	0.1+	0.1+	1999 12 07	704	0.6-	0.3+
1997 04 30	704	0.1-	0.1-	1997 05 07	704	0.1+	0.2+	1999 12 10	704	0.5-	1.4-
1997 04 30	704	0.0	0.7-	1997 05 07	704	0.0	0.5-	1999 12 10	704	0.3-	0.0
1997 04 30	704	0.4+	0.3-	1997 05 07	704	0.0	0.8+	1999 12 10	704	0.3+	1.0+

1997 JY₁₃ = 1999 VG₈

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26911824	ω	353.52511	-0.66344823	-0.74806120		
<i>a</i>	2.3759682	Ω	138.03672	+0.68751743	-0.61767469		
<i>e</i>	0.1493928	<i>i</i>	1.33004	+0.29522236	-0.24265698		
<i>P</i>	3.66	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 05 03	809	(2.6-	1.4+)	1999 11 08	120	1.3-	0.4+	1999 11 30	120	0.9+	0.2+
1997 05 03	809	(2.0-	2.9+)	1999 11 09	120	0.2-	0.4+	1999 12 07	704	0.9-	1.6-
1997 05 03	809	0.3-	0.4+	1999 11 09	120	0.2+	0.1-	1999 12 07	704	0.9-	0.1+
1997 05 04	809	0.2-	0.2-	1999 11 09	120	1.3-	0.7-	1999 12 07	704	0.2-	0.3-
1997 05 04	809	0.6-	0.1-	1999 11 10	120	0.6+	0.0	1999 12 07	704	0.6-	0.2-
1997 05 04	809	0.6+	0.3+	1999 11 10	120	0.1-	0.1+	1999 12 07	704	0.5-	0.0
1997 05 07	704	0.0	0.4+	1999 11 10	120	0.0	0.2+	1999 12 08	704	0.4+	0.5-
1997 05 07	704	0.0	0.4-	1999 11 29	120	1.7+	0.4-	1999 12 08	704	0.2+	0.0
1997 05 07	704	0.0	0.0	1999 11 29	120	0.5+	0.2+	1999 12 08	704	0.3-	0.2+
1997 05 07	704	0.4+	0.3-	1999 11 29	120	1.3+	0.5+	1999 12 08	704	0.6-	0.1+
1997 05 07	704	0.3+	0.2+	1999 11 30	120	0.7+	0.2+	1999 12 08	704	1.0-	0.4+
1999 11 08	120	0.9+	0.5+	1999 11 30	120	0.7+	0.5+				

1997 LB₁ = 1999 XB₁₀₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19056321	ω	318.67072	+0.53526861	-0.79953443		
<i>a</i>	2.9907264	Ω	97.24159	+0.82904995	+0.43551521		
<i>e</i>	0.1428578	<i>i</i>	15.94096	+0.16175194	+0.41360754		
<i>P</i>	5.17	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 06 01	691	0.5-	0.1+	1997 06 12	691	0.3+	0.1+	1999 12 08	699	0.0	0.3+
1997 06 01	691	0.1-	0.3-	1997 06 12	691	0.3+	0.0	1999 12 08	699	0.6-	0.4+
1997 06 01	691	0.3-	0.1+	1997 06 14	658	0.5-	0.6-	1999 12 09	678	0.7+	0.1+
1997 06 07	691	0.4+	0.5+	1997 06 14	658	0.2+	0.3-	1999 12 09	678	0.2+	1.5-
1997 06 07	691	0.7+	0.1-	1997 06 14	658	0.9-	0.1+	1999 12 11	678	1.0-	0.3+
1997 06 12	691	0.4+	0.2+	1999 12 08	699	1.0+	1.4+	1999 12 11	678	0.2-	1.3-

1997 NG₆

Id. T. Kobayashi (1999 observations), E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19029618	ω	243.06250	+0.97096710	+0.14223328		
<i>a</i>	2.9935235	Ω	108.24402	-0.07216626	+0.94073819		
<i>e</i>	0.0742701	<i>i</i>	11.68404	-0.22806780	+0.30786581		
<i>P</i>	5.18	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 07 11	824	0.2-	0.1+	1997 07 25	824	0.1+	0.3+	1999 11 28	411	1.5-	1.0+
1997 07 11	824	0.2-	0.3-	1997 07 25	824	0.1+	0.0	1999 11 28	411	0.9-	0.0
1997 07 11	824	0.0	0.1-	1997 07 25	824	0.2-	0.4-	1999 11 29	411	0.7+	0.4-
1997 07 12	824	0.0	0.1-	1997 07 26	824	(0.1-	2.6+)	1999 11 29	411	1.1+	0.2-
1997 07 12	824	0.2+	0.5+	1997 07 26	824	0.2-	0.1+	1999 12 06	704	0.4-	0.1-
1997 07 12	824	0.7+	0.6+	1997 07 26	824	0.3+	0.0	1999 12 06	704	0.2+	0.3+
1997 07 23	824	0.3-	0.1-	1997 07 31	824	0.2+	0.3+	1999 12 06	704	0.1+	0.0
1997 07 23	824	0.2-	0.8-	1997 07 31	824	0.0	0.2-	1999 12 06	704	0.5+	0.4-
1997 07 23	824	0.3-	0.2-	1997 07 31	824	0.0	0.1+	1999 12 06	704	0.2+	0.2-

1997 NJ₆ = 1999 WZ

Id. G. V. Williams, A. Boattini

1999 DEC. 22

M.P.C. 37143

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	322.21267		(2000.0)	P	Q	Williams				
<i>n</i>	0.53650373	ω	130.18703	+0.86943291	-0.38558693					
<i>a</i>	1.4999872	Ω	254.54594	+0.29633125	+0.90725708					
<i>e</i>	0.2323019	<i>i</i>	18.69138	+0.39531533	+0.16795032					
<i>P</i>	1.84	<i>H</i>	18.9	<i>G</i>	0.15	<i>U</i>	3			
Residuals in seconds of arc										
1997 07 08	910	1.2+	1.5-	1997 07 14	696	0.3-	0.3-	1999 11 28	587	0.2+ 0.1+
1997 07 08	910	1.4+	1.7-	1999 11 27	699	0.1+	1.3+	1999 11 28	587	0.0 0.0
1997 07 08	910	1.6+	1.8-	1999 11 27	699	0.3-	0.9+	1999 11 30	610	0.0 1.0-
1997 07 11	784	0.4+	0.6+	1999 11 27	699	0.7-	0.0	1999 11 30	610	0.0 0.9-
1997 07 11	784	(1.2+ 2.5-)		1999 11 28	732	(0.7+ 2.4-)		1999 11 30	610	0.2+ 0.7-
1997 07 11	784	0.3+	0.8+	1999 11 28	732	(1.2+ 4.9-)		1999 11 30	610	0.2+ 0.4-
1997 07 11	784	0.8+	0.6+	1999 11 28	732	(2.0+ 4.8-)		1999 11 30	610	0.4+ 0.3-
1997 07 11	784	0.8-	0.9+	1999 11 28	046	0.0	0.5-	1999 11 30	610	0.6+ 0.0
1997 07 11	696	1.1-	0.5+	1999 11 28	046	0.1-	0.1-	1999 12 02	049	1.3- 1.8+
1997 07 11	696	0.4-	0.1+	1999 11 28	046	0.3-	0.5+	1999 12 02	049	(1.8- 3.0+)
1997 07 11	696	0.7-	0.2+	1999 11 28	046	0.3+	0.2+	1999 12 02	049	(2.4- 3.2+)
1997 07 11	784	0.1+	0.3+	1999 11 28	046	0.7+	0.2+	1999 12 05	699	0.8- 1.4+
1997 07 11	784	0.3+	0.2+	1999 11 28	540	0.2+	0.6-	1999 12 05	699	1.3- 1.4+
1997 07 12	608	0.2+	0.8+	1999 11 28	540	0.0	0.5-	1999 12 05	699	1.4- 1.3+
1997 07 12	608	0.1+	0.2+	1999 11 28	540	0.3+	0.6-	1999 12 08	118	0.5+ 0.7+
1997 07 13	696	0.7-	0.3+	1999 11 28	540	0.2+	0.6-	1999 12 08	118	1.2+ 0.6+
1997 07 13	696	0.5-	0.0	1999 11 28	557	0.1-	0.1-	1999 12 12	703	0.2- 0.1+
1997 07 13	696	0.7-	0.2+	1999 11 28	557	0.6+	0.3-	1999 12 12	703	0.2+ 0.8-
1997 07 14	696	1.1-	0.1-	1999 11 28	557	0.2+	0.6-	1999 12 12	703	0.6+ 1.3-
1997 07 14	696	0.3-	0.4-	1999 11 28	587	0.1-	0.4-	1999 12 12	703	0.1- 1.0-

1997 TM₂ = 1990 GF₁ = 1996 RH₃₁

Id. A. Doppler (MPC 32969), M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	336.89801		(2000.0)	P	Q	Williams				
<i>n</i>	0.08315847	ω	121.11477	-0.35391403	-0.93518466					
<i>a</i>	5.1983445	Ω	349.58678	+0.83128849	-0.30805979					
<i>e</i>	0.1010008	<i>i</i>	4.19130	+0.42860740	-0.17472496					
<i>P</i>	11.85	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc										
1990 04 04	809	1.3+	1.7-	1997 10 02	910	1.1-	0.1-	1997 10 03	910	0.3+ 0.0
1990 04 04	809	1.0-	0.2+	1997 10 02	910	0.9-	0.1+	1997 10 04	910	0.9+ 0.0
1990 04 04	809	0.5-	1.0+	1997 10 03	910	1.1-	0.2-	1997 10 04	910	0.9+ 0.1+
1996 09 13	809	0.6-	0.8-	1997 10 03	910	0.2+	0.0	1997 10 04	910	0.9+ 0.0
1996 09 14	809	0.8+	0.4+	1997 10 03	910	0.0	0.1+			

1997 XW₃ = 1999 JH₁₂₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	213.65791		(2000.0)	P	Q	Doppler				
<i>n</i>	0.25763013	ω	305.15383	+0.79879729	-0.59816210					
<i>a</i>	2.4460854	Ω	91.66962	+0.57074585	+0.71974748					
<i>e</i>	0.1646078	<i>i</i>	3.68399	+0.19018954	+0.35237149					
<i>P</i>	3.83	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	6			
Residuals in seconds of arc										
1997 12 03	910	0.3-	0.1+	1997 12 06	910	0.1+	0.3-	1999 05 13	704	0.8+ 0.1-
1997 12 04	910	0.3-	0.3+	1999 05 13	704	0.8-	0.4+	1999 05 19	704	0.1+ 1.0-
1997 12 04	910	0.2+	0.4+	1999 05 13	704	1.1-	0.5-	1999 05 19	704	(1.8+ 3.1-)
1997 12 06	910	0.2+	0.3-	1999 05 13	704	0.1-	1.1+	1999 05 19	704	0.7- 0.9-
1997 12 06	910	0.1+	0.3-	1999 05 13	704	1.7+	1.0+			

1998 BL₁₄ = 1985 UX₅ = 1991 UG₂ = 1993 BP₅ = 1996 NW₂

Id. A. Doppler, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	99.25409		(2000.0)	P	Q	Williams				
<i>n</i>	0.16896124	ω	256.90616	+0.44294030	-0.89654959					
<i>a</i>	3.2404948	Ω	166.80184	+0.82534328	+0.40704087					
<i>e</i>	0.1461186	<i>i</i>	0.41394	+0.35016048	+0.17468991					
<i>P</i>	5.83	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc										
1985 10 18	095	1.1+	0.3+	1993 01 28	010	0.8-	0.6+	1996 07 16	809	0.5+ 0.5+
1991 10 29	399	1.0+	0.4+	1993 01 28	010	0.0	1.5+	1998 01 17	910	0.3+ 0.3+
1991 10 29	399	0.6-	1.1+	1993 01 28	010	0.6-	1.3+	1998 01 17	910	0.2+ 0.3+
1991 10 31	399	1.6-	1.5-	1996 07 14	809	0.6+	0.0	1998 01 17	910	0.2+ 0.3+
1991 10 31	399	0.9-	0.1-	1996 07 14	809	1.1-	0.5-	1998 01 27	910	0.3+ 0.2-
1993 01 27	010	0.4+	1.7-	1996 07 14	809	0.2-	0.7+	1998 01 27	910	0.1+ 0.3-
1993 01 27	010	1.1+	0.3+	1996 07 16	809	0.8-	0.2-	1998 01 27	910	0.7+ 0.6-
1993 01 27	010	0.2+	1.0-	1996 07 16	809	0.6+	0.2+			

1998 DQ₂₇

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	36.88080		(2000.0)	P	Q	Williams				
<i>n</i>	0.29844225	ω	292.46170	+0.62081868	+0.78360283					
<i>a</i>	2.2176645	Ω	15.98195	-0.68429092	+0.55625918					
<i>e</i>	0.1795496	<i>i</i>	4.88963	-0.38253117	+0.27666285					
<i>P</i>	3.30	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc										
1998 02 21	691	0.3+	0.1+	1998 03 24	704	0.0	0.9+	1999 10 02	703	0.3+ 0.4+
1998 02 21	691	0.2+	0.2-	1998 03 24	704	0.1+	0.4-	1999 10 04	704	0.1+ 1.1+
1998 02 21	691	0.3+	0.3-	1998 03 24	704	0.3+	1.0+	1999 10 04	704	0.0 0.0
1998 03 03	691	0.2-	0.1-	1998 03 24	704	0.3-	1.7+	1999 10 04	704	0.4- 0.5+
1998 03 03	691	0.2-	0.2+	1998 03 24	704	0.6+	0.3+	1999 10 04	704	0.5- 1.2-
1998 03 03	691	0.1-	0.2+	1998 03 24	704	0.7+	1.2+	1999 10 04	704	0.2- 1.7-
1998 03 20	704	0.6-	0.1-	1998 03 24	704	1.4-	1.1-	1999 10 30	703	0.3- 0.3+
1998 03 20	704	0.6-	0.9-	1998 03 24	704	0.6+	1.2+	1999 10 30	703	0.2+ 0.5+
1998 03 20	704	(0.1+ 2.2+)		1998 03 24	704	0.4-	1.0-	1999 10 30	703	0.5- 0.2+
1998 03 20	704	1.9+	1.3+	1998 03 24	704	0.9-	1.0-	1999 10 30	703	0.2- 0.9+
1998 03 20	704	0.5-	0.2+	1998 03 24	704	1.3+	1.4-	1999 12 07	704	0.8- 0.4-
1998 03 22	704	0.6+	0.1+	1998 03 24	704	1.5-	0.8-	1999 12 07	704	1.2+ 0.1-
1998 03 22	704	0.4+	0.9-	1998 03 24	704	(2.7- 2.1+)		1999 12 07	704	0.0 0.5-
1998 03 22	704	(0.6+ 2.5+)		1999 10 02	703	0.3+	0.2+	1999 12 07	704	0.2- 0.1-
1998 03 22	704	0.0	0.3+	1999 10 02	703	0.0	0.4+	1999 12 07	704	0.9+ 0.4-
1998 03 24	704	0.3-	0.0	1999 10 02	703	0.3+	0.2-			

1998 EL₂ = 1999 XO₁₀₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	49.38238		(2000.0)		P		Q				
<i>n</i>	0.28589983	ω	156.66384		+0.69255252		+0.72113535				
<i>a</i>	2.2820585	Ω	157.15509		-0.66904638		+0.65159890				
<i>e</i>	0.1900344	<i>i</i>	2.70139		-0.26971829		+0.23533524				
<i>P</i>	3.45	<i>H</i>	15.2		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1998 03 02	910	0.6-	0.1+	1998 03 29	704	0.4-	0.2+	1998 04 22	704	0.7+	0.0
1998 03 02	910	0.4-	0.1+	1998 04 20	704	0.2+	0.9-	1998 04 22	704	0.5-	1.7+
1998 03 02	910	0.4-	0.2+	1998 04 20	704	0.1-	0.3+	1998 05 16	704	0.3-	1.6+
1998 03 03	910	0.2-	0.1-	1998 04 20	704	0.9+	0.3+	1998 05 16	704	0.4-	1.4-
1998 03 03	910	0.0	0.1+	1998 04 20	704	0.0	1.7-	1998 05 16	704	0.9-	0.1-
1998 03 03	910	0.5-	0.0	1998 04 20	704	0.7-	1.1-	1998 05 16	704	(2.2-	0.7+)
1998 03 25	704	0.1-	0.2-	1998 04 21	704	0.0	1.2-	1999 12 04	703	0.4-	0.4+
1998 03 25	704	1.2+	1.6+	1998 04 21	704	0.6-	0.1+	1999 12 04	703	0.1+	0.5-
1998 03 25	704	0.8-	0.2-	1998 04 21	704	0.2+	1.5+	1999 12 04	703	0.2+	0.2-
1998 03 25	704	0.2+	0.1-	1998 04 21	704	0.3+	1.1-	1999 12 04	703	0.0	0.0
1998 03 25	704	0.2+	0.0	1998 04 21	704	1.6-	0.2-	1999 12 12	703	0.3+	0.5-
1998 03 29	704	0.2+	0.9-	1998 04 22	704	0.1+	0.8-	1999 12 12	703	0.1+	0.0

1998 03 29 704 1.9+ 1.0+ 1998 04 22 704 0.2+ 0.5- 1999 12 12 703 0.2- 0.0
 1998 03 29 704 1.3+ 1.3+ 1998 04 22 704 0.2+ 0.2+ 1999 12 12 703 0.1+ 0.1+

1998 EQ₆ = 1999 TN₂₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	37.94662		(2000.0)	P	Q
<i>n</i>	0.26834487	ω	331.48304	+0.37030737	+0.92868586
<i>a</i>	2.3805310	Ω	320.24198	-0.84609414	+0.32816026
<i>e</i>	0.2032485	<i>i</i>	1.82540	-0.38340209	+0.17278141
<i>P</i>	3.67	<i>H</i>	15.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 03 01	910	0.1+	0.5+	1998 03 05	910	0.1-	0.1+	1999 10 04	704	0.2-	0.6+
1998 03 01	910	0.5+	0.7+	1998 03 06	910	0.3-	0.0	1999 10 06	704	0.3+	0.1-
1998 03 01	910	0.3+	0.4+	1998 03 06	910	0.0	0.5-	1999 10 06	704	1.1+	0.1-
1998 03 03	704	0.1-	0.2-	1999 10 04	704	0.5-	0.3+	1999 10 06	704	0.3-	0.1-
1998 03 03	704	0.4-	1.0-	1999 10 04	704	0.5-	0.9-	1999 10 06	704	0.0	0.4+
1998 03 03	704	(1.8- 4.0+)		1999 10 04	704	0.2-	0.3-				
1998 03 03	704	(5.3- 1.7+)		1999 10 04	704	0.3+	0.2+				

1998 EZ₁₀

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	16.51887		(2000.0)	P	Q
<i>n</i>	0.27482799	ω	287.64315	+0.60113202	+0.79806676
<i>a</i>	2.3429449	Ω	19.48591	-0.67779465	+0.53672651
<i>e</i>	0.1504520	<i>i</i>	7.16226	-0.42336120	+0.27388701
<i>P</i>	3.59	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 02 26	809	0.1+	1.1-	1998 03 26	704	0.3+	0.0	1999 09 13	704	0.1-	0.3+
1998 02 26	809	0.4+	0.2-	1998 03 26	704	1.2+	0.5+	1999 09 13	704	0.2-	0.0
1998 02 26	809	(3.1+ 2.2-)		1998 03 26	704	0.6-	0.1-	1999 09 13	704	0.1-	0.4+
1998 03 01	809	(1.9- 5.3-)		1998 03 29	704	0.8+	0.1+	1999 09 30	704	0.4+	0.3-
1998 03 01	809	(3.1- 4.3-)		1998 03 29	704	0.5+	0.5+	1999 09 30	704	0.4+	0.0
1998 03 01	809	(3.3- 4.8-)		1998 03 29	704	0.1+	1.2+	1999 09 30	704	0.6+	0.8+
1998 03 02	809	(3.0- 5.7-)		1998 03 29	704	0.2-	0.6+	1999 09 30	704	0.4+	0.1+
1998 03 02	809	(3.6- 5.5-)		1998 03 29	704	0.7+	0.4+	1999 09 30	704	0.1+	0.1-
1998 03 02	809	(4.4- 5.9-)		1999 09 07	699	0.5-	0.2+	1999 11 27	699	0.5-	0.7+
1998 03 24	704	0.4-	0.4+	1999 09 07	699	0.7-	0.4-	1999 11 27	699	1.0-	0.3+
1998 03 24	704	0.0	0.0	1999 09 07	699	0.5-	0.3-	1999 11 27	699	0.1+	0.9+
1998 03 24	704	0.3+	0.7+	1999 09 13	704	0.0	0.2+				
1998 03 24	704	1.9-	0.3-	1999 09 13	704	0.1-	0.1+				

1998 FM₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	156.58274		(2000.0)	P	Q
<i>n</i>	0.28920517	ω	311.41794	-0.62323161	-0.78197122
<i>a</i>	2.2646374	Ω	177.07831	+0.76375730	-0.61140665
<i>e</i>	0.5547095	<i>i</i>	11.50553	+0.16809863	-0.12125558
<i>P</i>	3.41	<i>H</i>	16.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1988 04 20	413	0.4-	0.9+	1998 03 28	046	0.1+	0.3-	1998 04 18	750	1.0-	0.4-
1988 04 20	413	0.6+	0.0	1998 03 28	046	0.1+	0.1-	1998 04 18	704	1.1-	0.3-
1998 03 24	566	0.1+	0.8-	1998 03 28	046	0.2+	0.1+	1998 04 18	704	1.7-	0.4+
1998 03 24	566	0.2+	0.8-	1998 03 28	106	2.0+	0.3+	1998 04 18	704	1.4-	0.2+
1998 03 24	566	0.6+	0.7-	1998 03 28	106	1.8+	0.2+	1998 04 18	670	0.9-	0.1+
1998 03 24	566	0.3-	0.0	1998 03 28	106	1.8+	0.1+	1998 04 18	704	1.9-	0.8-
1998 03 24	566	0.3-	0.0	1998 03 28	540	0.1-	0.8-	1998 04 18	670	0.8-	0.4+
1998 03 24	566	0.2-	0.2+	1998 03 28	540	0.1-	0.2-	1998 04 18	670	0.6-	0.1+
1998 03 24	046	0.2-	0.1+	1998 03 29	422	0.5+	0.1-	1998 04 18	670	0.6-	0.1+
1998 03 24	046	0.2-	0.2+	1998 03 29	422	0.4+	0.0	1998 04 19	700	0.7-	0.2+
1998 03 24	046	0.4-	0.1+	1998 03 29	422	0.4+	0.5-	1998 04 19	700	0.1-	0.3+
1998 03 24	046	0.2-	0.1+	1998 03 29	046	0.2+	0.6-	1998 04 19	700	0.6-	0.1-

1998 03 24	587	0.4-	0.1+	1998 03 29	046	0.4+	0.3-	1998 04 19	402	0.1-	0.2-
1998 03 24	587	0.4-	0.2+	1998 03 29	046	0.3+	0.4-	1998 04 19	402	0.1-	0.2-
1998 03 24	557	0.3-	0.0	1998 03 29	057	1.2+	0.5+	1998 04 19	402	0.2-	0.2-
1998 03 24	557	0.2-	0.1+	1998 03 29	610	0.1+	0.3-	1998 04 19	046	0.0	0.1-
1998 03 24	557	0.1-	0.2+	1998 03 29	057	(2.3+ 2.5+)		1998 04 19	046	0.3+	0.2-
1998 03 24	587	0.1-	0.1+	1998 03 29	057	1.8-	1.6+	1998 04 19	046	0.3+	0.1-
1998 03 24	587	0.3-	0.0	1998 03 29	057	(2.9+ 0.1-)		1998 04 19	860	0.1+	0.2+
1998 03 25	758	0.9-	0.7+	1998 03 29	610	0.2-	0.4-	1998 04 19	860	0.0	0.1-
1998 03 25	758	0.2-	0.7+	1998 03 29	610	0.5-	0.5-	1998 04 20	860	0.5-	0.2+
1998 03 25	758	0.7-	0.6+	1998 03 29	610	0.7-	0.6-	1998 04 20	670	0.0	0.2-
1998 03 25	758	0.3-	0.8+	1998 03 29	557	0.5+	0.1-	1998 04 20	700	0.0	0.2+
1998 03 25	758	0.4-	0.8+	1998 03 29	557	0.4+	0.2-	1998 04 20	670	0.1+	0.2+
1998 03 25	566	0.2-	0.7+	1998 03 29	557	0.3+	0.2-	1998 04 20	700	0.2+	0.1+
1998 03 25	566	0.1-	0.7+	1998 03 30	758	0.1+	0.0	1998 04 20	700	0.1-	0.3+
1998 03 25	566	0.3-	0.7+	1998 03 30	758	0.4+	0.0	1998 04 20	700	0.2+	0.8+
1998 03 25	566	0.3-	0.3+	1998 03 30	758	0.5+	0.0	1998 04 20	670	0.4-	0.0
1998 03 25	566	0.4-	0.3+	1998 03 30	360	0.0	0.1-	1998 04 20	670	0.0	0.1-
1998 03 25	566	0.2-	0.6+	1998 03 30	360	0.4+	0.1-	1998 04 21	700	0.5+	1.2+
1998 03 25	426	0.9-	0.0	1998 03 30	360	0.1+	0.1-	1998 04 21	700	0.3+	0.9+
1998 03 25	426	0.3-	0.3+	1998 03 30	504	0.2+	0.3-	1998 04 21	700	0.5+	1.0+
1998 03 25	426	0.3-	0.3+	1998 03 30	557	0.0	0.5-	1998 04 21	750	0.0	0.3-
1998 03 25	402	0.3-	0.1+	1998 03 30	504	0.1+	0.6-	1998 04 21	750	0.3-	0.4-
1998 03 25	402	0.2-	0.5+	1998 03 30	504	0.1-	0.2-	1998 04 21	108	1.4+	1.1-
1998 03 25	402	0.3-	0.4+	1998 03 30	504	0.4+	0.4-	1998 04 21	108	1.4+	1.8-
1998 03 25	355	0.3+	0.0	1998 03 30	557	0.2-	0.5-	1998 04 21	108	1.5+	1.6-
1998 03 25	355	0.6-	0.1+	1998 03 30	504	0.0	0.4-	1998 04 21	504	1.7+	0.0
1998 03 25	355	0.1-	0.2+	1998 03 30	504	0.1-	0.5-	1998 04 21	504	(2.1+ 0.1+)	
1998 03 25	422	0.3-	0.5+	1998 03 30	504	0.0	0.3-	1998 04 21	504	1.8+	0.1-
1998 03 25	422	0.0	0.5+	1998 03 30	504	0.3+	0.6-	1998 04 21	504	1.7+	0.2+
1998 03 25	422	0.5-	0.3+	1998 03 30	557	0.1-	0.5-	1998 04 21	504	1.3+	0.1+
1998 03 25	422	0.2-	0.4+	1998 03 30	557	0.2-	0.5-	1998 04 21	504	1.5+	0.0
1998 03 25	360	0.0	0.1+	1998 04 01	758	0.1-	0.3-	1998 04 21	504	1.6+	0.2-
1998 03 25	360	0.4-	0.1+	1998 04 01	758	0.1+	0.3-	1998 04 21	504	(2.1+ 0.5+)	
1998 03 25	360	0.0	0.2+	1998 04 02	750	0.5-	0.3-	1998 04 22	046	0.1-	0.3-
1998 03 25	900	0.1+	0.3+	1998 04 02	750	0.0	0.4-	1998 04 22	046	0.1-	0.6-
1998 03 25	900	0.1+	0.4+	1998 04 02	670	0.2-	0.6-	1998 04 22	046	0.3+	0.6-
1998 03 25	046	0.3-	0.1-	1998 04 02	670	0.0	0.4-	1998 04 23	750	0.5-	0.3-
1998 03 25	046	0.3-	0.3-	1998 04 02	670	0.1+	0.3-	1998 04 23	750	0.3-	0.1+
1998 03 25	046	0.3-	0.2-	1998 04 02	670	0.1-	0.5-	1998 04 23	557	0.0	0.1+
1998 03 25	046	0.2-	0.1-	1998 04 02	422	0.2-	0.4-	1998 04 23	557	0.2+	0.0
1998 03 25	104	0.2+	0.2+	1998 04 02	422	0.4-	0.7-	1998 04 23	118	0.5+	0.6+
1998 03 25	104	0.1-	0.1+	1998 04 03	422	0.5-	0.8-	1998 04 23	557	0.1-	0.3+
1998 03 25	104	1.1+	0.1+	1998 04 03	355	0.2+	1.1-	1998 04 23	557	0.1+	0.1+
1998 03 25	104	0.0	0.4-	1998 04 03	355	0.2-	1.0-	1998 04 23	118	0.5+	0.6+
1998 03 25	104	0.1-	1.7+	1998 04 03	355	0.3-	0.7-	1998 04 24	633	0.5+	0.0
1998 03 25	106	1.7+	0.4+	1998 04 03	561	0.1-	1.0-	1998 04 24	633	0.2+	0.3-
1998 03 25	106	1.7+	0.4+	1998 04 03	561	0.2-	0.9-	1998 04 24	633	0.9+	0.2+
1998 03 25	620	0.3-	0.2-	1998 04 03	561	0.4-	1.1-	1998 04 24	633	0.0	0.7+
1998 03 25	620	0.3-	0.1-	1998 04 04	758	(2.8+ 0.8-)		1998 04 26	422	0.1-	0.3-
1998 03 25	106	1.6+	0.4+	1998 04 04	758	0.3+	0.0	1998 04 26	422	0.3-	0.1-
1998 03 25	620	0.3-	0.1+	1998 04 04	758	0.3+	0.5-	1998 04 26	422	0.6-	0.3-
1998 03 25	106	1.7+	0.3+	1998 04 04	750	0.7-	0.7-	1998 04 26	360</		

1999 DEC. 22

M.P.C. 37145

1998 03 26	557	0.2−	0.1−	1998 04 09	557	0.0	0.3+	1998 04 30	046	0.2+	0.2−
1998 03 26	046	0.1+	0.0	1998 04 09	540	0.2+	0.5+	1998 04 30	046	0.0	0.1−
1998 03 26	046	0.0	0.0	1998 04 09	046	0.0	0.6+	1998 05 03	046	0.0	0.4−
1998 03 26	046	0.1−	0.0	1998 04 09	046	0.0	0.5+	1998 05 03	046	0.1−	0.0
1998 03 26	108	1.8+	1.5−	1998 04 09	046	0.3+	0.2+	1998 05 03	046	0.3+	0.1+
1998 03 26	108	0.6−	1.0−	1998 04 11	750	(2.4−	0.7+)	1998 05 07	504	0.2−	0.1+
1998 03 26	108	1.9+	1.2−	1998 04 11	750	1.0−	0.6+	1998 05 07	504	0.5−	0.2+
1998 03 26	610	0.7−	0.1−	1998 04 11	750	0.9−	1.2+	1998 05 07	504	0.4−	0.1−
1998 03 26	610	0.7−	0.2−	1998 04 11	402	0.1−	0.2+	1998 05 10	046	0.7−	0.9+
1998 03 26	610	0.6−	0.3−	1998 04 11	402	0.2−	0.2+	1998 05 10	046	0.4−	0.7+
1998 03 26	557	0.1−	0.1−	1998 04 11	367	0.2−	0.0	1998 05 10	046	1.1−	0.5+
1998 03 26	610	0.5−	0.2−	1998 04 11	402	0.2+	0.6+	1998 05 11	046	0.3+	0.6+
1998 03 26	610	0.4−	0.3−	1998 04 11	367	0.3+	0.0	1998 05 11	046	0.1−	0.3+
1998 03 26	610	0.4−	0.1−	1998 04 11	046	0.7+	0.1−	1998 05 11	046	0.3+	0.5+
1998 03 26	557	0.0	0.1−	1998 04 11	046	0.1+	0.1+	1998 05 15	620	0.1+	1.0−
1998 03 26	112	0.8+	0.1+	1998 04 11	046	0.4+	0.6+	1998 05 15	620	0.2+	0.4−
1998 03 26	112	0.3+	0.2−	1998 04 14	758	0.4+	0.5−	1998 05 15	620	0.3+	0.5+
1998 03 26	112	1.2+	0.1−	1998 04 14	758	0.7−	0.8−	1998 05 15	620	0.3+	0.8+
1998 03 26	112	0.5+	0.1−	1998 04 14	758	0.4−	0.9−	1998 05 15	620	0.4+	1.3+
1998 03 26	557	0.1+	0.1−	1998 04 14	108	0.4+	0.3−	1998 05 16	700	0.4−	0.3−
1998 03 27	758	0.0	0.0	1998 04 14	108	0.5+	1.2−	1998 05 16	700	0.4−	0.3+
1998 03 27	758	0.1+	0.1−	1998 04 14	108	1.1+	0.5−	1998 05 16	700	1.3+	1.1+
1998 03 27	758	0.4+	0.2+	1998 04 14	108	0.0	1.2+	1998 05 20	402	0.2−	0.4+
1998 03 27	426	0.3−	0.1−	1998 04 14	108	1.2−	0.3−	1998 05 20	402	0.2+	0.1−
1998 03 27	426	0.2+	0.0	1998 04 14	610	0.0	0.4+	1998 05 20	402	0.2+	0.2−
1998 03 27	426	0.0	0.0	1998 04 14	610	0.2−	0.1+	1998 05 22	402	0.4+	0.4−
1998 03 27	897	0.1+	0.1−	1998 04 14	106	1.9+	0.3−	1998 05 22	402	0.4−	1.0−
1998 03 27	897	0.2+	0.4+	1998 04 14	610	0.4−	0.1+	1998 05 22	402	0.0	0.5−
1998 03 27	897	0.2+	0.2−	1998 04 14	106	1.1+	0.0	1998 05 22	360	0.2−	0.4−
1998 03 27	620	0.3+	0.2−	1998 04 14	610	0.4−	0.0	1998 05 22	360	0.1−	0.5−
1998 03 27	620	0.4−	0.5−	1998 04 14	106	1.1+	0.1−	1998 05 22	360	0.2−	0.2−
1998 03 27	620	0.6−	0.5−	1998 04 14	610	0.6−	0.1−	1998 05 22	046	0.8−	0.3−
1998 03 27	620	1.3−	0.6−	1998 04 14	106	(2.2+	0.2−)	1998 05 22	046	0.4−	0.0
1998 03 27	620	0.3−	0.5−	1998 04 14	106	(2.4+	0.0)	1998 05 22	046	0.3−	0.5−
1998 03 27	620	0.0	0.2+	1998 04 15	860	0.0	0.1+	1998 05 22	046	0.1+	0.4−
1998 03 27	620	0.2−	0.3+	1998 04 15	860	0.5+	0.0	1998 05 24	426	1.2−	0.1−
1998 03 27	620	0.9−	0.3+	1998 04 15	860	1.9+	0.5−	1998 05 24	426	1.0−	0.4−
1998 03 27	620	0.1+	0.4+	1998 04 15	360	0.4−	0.4+	1998 05 24	426	0.7−	0.7−
1998 03 27	620	0.6−	0.3−	1998 04 15	360	0.4−	0.5+	1998 05 31	046	0.1+	0.6−
1998 03 27	620	0.2−	0.4+	1998 04 15	360	0.5−	0.4+	1998 05 31	046	0.7+	0.3+
1998 03 27	620	0.4−	0.7+	1998 04 16	046	0.3+	0.6+	1998 05 31	046	0.4−	0.3+
1998 03 27	620	0.6+	1.1+	1998 04 16	046	0.5+	0.7+	1998 05 31	046	0.3+	0.3+
1998 03 27	620	1.0+	0.5+	1998 04 16	046	0.3+	0.8+	1998 05 31	557	0.5+	0.3−
1998 03 27	620	0.0	0.6+	1998 04 17	750	0.5+	0.4+	1998 05 31	557	0.8+	0.6−
1998 03 28	758	0.4+	0.0	1998 04 17	750	0.9+	0.7+	1998 06 13	658	0.5−	0.3−
1998 03 28	758	0.3+	0.2+	1998 04 17	750	0.1+	0.6+	1998 06 13	658	0.7−	0.2−
1998 03 28	758	0.3+	0.1−	1998 04 17	750	0.4−	0.8+	1998 06 13	658	0.0	0.0
1998 03 28	658	0.8−	0.2−	1998 04 17	046	0.5−	0.2+	1998 06 14	046	1.2+	0.0
1998 03 28	658	1.0−	0.1−	1998 04 17	046	0.5−	0.0	1998 06 14	046	0.8+	0.0
1998 03 28	658	0.7−	0.1−	1998 04 17	046	0.2−	0.0	1998 06 14	046	0.4+	0.2+
1998 03 28	046	0.4+	0.1−	1998 04 18	750	0.2−	0.2−				
1998 03 28	046	0.4−	0.0	1998 04 18	704	0.5−	0.3−				

1998 FA₁₁ = 1999 XO₃₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	29.89667		(2000.0)	P	Q
<i>n</i>	0.29244408	ω	206.97571	+0.99001629	+0.13001901
<i>a</i>	2.2478854	Ω	145.41885	−0.10570424	+0.94030526
<i>e</i>	0.1910889	<i>i</i>	5.50326	−0.09324351	+0.31451722
<i>P</i>	3.37	<i>H</i>	15.4	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 03 25	910	0.2+	0.2−	1998 05 22	704	0.9+	0.0	1999 12 06	704	0.0	0.8+
1998 03 25	910	0.1+	0.3+	1998 05 22	704	0.1−	0.6+	1999 12 06	704	0.4−	0.4+
1998 03 25	910	0.3−	0.1−	1998 05 24	704	0.6+	0.9−	1999 12 08	704	0.6+	0.2−
1998 03 26	910	0.0	0.2−	1998 05 24	704	1.5−	0.9+	1999 12 08	704	0.1+	0.2−
1998 03 26	910	0.3+	0.2+	1998 05 24	704	0.5−	1.0+	1999 12 08	704	0.3−	0.0

1998 03 26	910	0.2−	0.1+	1998 05 24	704	0.8−	0.0	1999 12 08	704	0.2+	0.1+
1998 05 22	704	(2.7−	2.3+)	1999 12 06	704	0.1−	0.0	1999 12 08	704	0.3+	0.6−
1998 05 22	704	1.3+	0.9−	1999 12 06	704	0.0	0.2−				
1998 05 22	704	0.1+	0.7−	1999 12 06	704	0.4−	0.0				

1998 FG₃₀ = 1999 UP₁₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	29.05587		(2000.0)	P	Q
<i>n</i>	0.26740133	ω	332.71766	+0.56162304	+0.82658519
<i>a</i>	2.3861277	Ω	331.40609	−0.74451099	+0.48559489
<i>e</i>	0.2366803	<i>i</i>	4.38082	−0.36094727	+0.28452510
<i>P</i>	3.69	<i>H</i>	15.3	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1998 03 20	704	(0.4−	2.3−)	1998 03 29	704	1.2+	1.0+	1999 10 29	703	0.4−	0.3−
1998 03 20	704	0.6+	0.7+	1998 03 29	704	0.3+	0.2+	1999 10 29	703	0.3−	0.3−
1998 03 20	704	0.4+	1.0+	1998 03 29	704	0.9−	0.0	1999 10 29	703	0.7−	0.2−
1998 03 20	704	(2.9+	0.2+)	1998 03 29	704	0.1−	1.3−	1999 10 29	703	0.1−	0.1+
1998 03 20	704	1.4−	0.9+	1998 03 29	704	0.8+	1.2−	1999 11 03	703	0.2−	0.9+
1998 03 22	704	(2.5+	0.2−)	1998 04 01	704	0.7−	1.2−	1999 11 03	703	1.0+	0.0
1998 03 22	704	0.7+	0.1+	1998 04 01	704	0.3+	0.1+	1999 11 03	703	1.7+	0.1−
1998 03 22	704	1.0+	1.0+	1998 04 01	704	0.1−	0.5−	1999 11 03	703	0.8−	0.3−
1998 03 22	704	0.7−	1.6−	1998 04 01	704	1.5−	0.3+				

1998 FZ₅₅

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	52.72085		(2000.0)	P	Q
<i>n</i>	0.29430740	ω	245.40306	+0.45645079	+0.88778273
<i>a</i>	2.2383875	Ω	51.88555	−0.78674377	+0.43374675
<i>e</i>	0.1583366	<i>i</i>	4.30895	−0.41555616	+0.15396615
<i>P</i>	3.35	<i>H</i>	14.4	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 03 20	704	0.4−	0.4−	1998 04 19	704	0.6+	0.2+	1999 10 02	703	0.5−	0.3+
1998 03 20	704	0.7+	0.3+	1998 04 19	704	0.3−	0.4−	1999 11 12	704	0.1+	0.4−
1998 03 20	704	(3.6+	1.4+)	1998 04 19	704	1.3−	0.2−	1999 11 12	704	0.1−	0.2−
1998 03 20	704	0.1−	0.0	1998 04 20	704	0.3+	0.6+	1999 11 12	704	0.4−	0.2+
1998 03 20	704	1.0+	0.9−	1998 04 20	704	(0.4+	2.8+)	1999 11 12	704	0.2+	0.1−
1998 03 22	704	0.3−	0.1−	1998 04 20	704	0.1+	0.8+	1999 11 12	704	0.2+	0.1−
1998 03 22	704	0.3+	0.5−	1998 04 20	704	0.6+	0.7+	1999 12 02	699	0.1+	0.4+
1998 03 22	704	0.1−	0.0	1998 04 20	704	0.3−	0.6+	1999 12 02	699	0.3+	0.1+
1998 03 22	704	0.3+	0.5−	1999 10 02	703	0.1+	0.2+	1999 12 02	699	0.3−	0.0
1998 03 22	704	0.2−	0.3+	1999 10 02	703	0.3+	0.4+				
1998 04 19	704	0.4−	0.3+	1999 10 02	703	0.4−	0.0				

1998 FG₆₁ = 1999 UN₁₃

Id. A. Doppler, E. Bowell

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	1.73561		(2000.0)	P	Q
n	0.30770397	ω	77.02827	+0.97530274	+0.21969342
a	2.1729379	Ω	270.27728	-0.21045336	+0.89301982
e	0.1183526	i	1.30588	-0.06703692	+0.39274724
P	3.20	H	15.3	G 0.15	U 4

M.P.C. 37146

1998 03 28	704	1.0−	0.1+	1999 10 29	703	0.1−	0.1+	1999 12 12	704	0.8−	0.4+
1998 03 28	704	0.3−	0.1+	1999 10 29	703	0.0	0.1+	1999 12 12	704	0.2+	0.3−
1998 03 28	704	0.6−	1.2+	1999 10 29	703	0.3+	0.8+	1999 12 12	704	0.0	0.8−
1998 03 28	704	0.4−	0.3+	1999 11 03	703	0.3−	0.2+	1999 12 12	704	0.1+	0.0
1998 03 29	704	0.3−	0.1+	1999 11 03	703	0.5−	0.0				
1998 03 29	704	0.1+	0.6−	1999 11 03	703	0.1+	0.1+				

1998 FZ₆₃ = 1999 XU₁₇

Id. G. V. Williams, E. Bowell (1998 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
<i>M</i>	25.33627	(2000.0)	P	<i>Q</i>			
<i>n</i>	0.27529012	ω	276.65596	+0.69537536	+0.71500142		
<i>a</i>	2.3403221	Ω	37.74140	−0.60383916	+0.63586460		
<i>e</i>	0.1230609	<i>i</i>	6.78272	−0.38965545	+0.29060142		
<i>P</i>	3.58	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 03 20	704	0.2−	1.1−	1998 04 20	704	0.6+	0.1−	1998 05 01	699	0.6−	0.5−
1998 03 20	704	0.4−	0.4−	1998 04 20	704	0.4+	0.7−	1998 05 01	699	0.0	0.1+
1998 03 20	704	0.5−	0.3+	1998 04 22	704	0.2+	0.0	1999 12 03	704	0.2+	0.7−
1998 03 20	704	0.1+	0.3+	1998 04 22	704	0.2+	0.4+	1999 12 03	704	0.4+	0.1+
1998 03 20	704	0.7−	1.1−	1998 04 22	704	0.5+	1.0+	1999 12 03	704	0.4−	0.1+
1998 03 22	704	0.1+	0.1+	1998 04 22	704	0.4−	1.1−	1999 12 03	704	0.2−	0.4−
1998 03 22	704	0.8−	0.6+	1998 04 22	704	1.5−	0.0	1999 12 03	704	0.1−	0.3+
1998 03 22	704	0.3−	0.9+	1998 04 28	699	0.9+	0.1+	1999 12 07	704	0.0	0.1+
1998 03 22	704	0.3+	0.6+	1998 04 28	699	0.5−	0.4−	1999 12 07	704	0.1−	0.1+
1998 03 25	699	1.0+	0.4−	1998 04 28	699	1.2−	0.0	1999 12 07	704	0.3+	0.1+
1998 03 25	699	0.4+	1.0+	1998 04 30	699	0.3−	0.3+	1999 12 07	704	0.0	0.1−
1998 03 25	699	1.3+	0.3−	1998 04 30	699	0.4+	0.4+	1999 12 07	704	0.1+	0.1−
1998 04 20	704	0.7+	0.6+	1998 04 30	699	0.1+	0.2−				
1998 04 20	704	0.2+	0.9−	1998 05 01	699	0.4−	0.3+				

1998 FK₆₇

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
<i>M</i>	31.26794	(2000.0)	P	<i>Q</i>			
<i>n</i>	0.28284565	ω	168.72113	+0.73902128	+0.67151739		
<i>a</i>	2.2984570	Ω	148.88001	−0.62593022	+0.71405167		
<i>e</i>	0.1664475	<i>i</i>	5.99319	−0.24911628	+0.19797631		
<i>P</i>	3.48	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 03 20	704	0.2−	0.0	1998 03 25	704	1.3+	0.7−	1998 04 22	704	1.5−	0.7+
1998 03 20	704	0.5−	0.4−	1998 04 19	704	0.3−	0.2+	1999 10 04	703	0.1+	0.9−
1998 03 20	704	0.3−	0.0	1998 04 19	704	0.9+	0.6+	1999 10 04	703	0.4−	0.4+
1998 03 20	704	0.6−	1.4+	1998 04 19	704	0.8−	0.2+	1999 10 04	703	0.2+	0.8−
1998 03 20	704	0.7−	0.4+	1998 04 19	704	0.4−	0.7+	1999 10 04	703	0.0	1.0−
1998 03 22	704	0.3−	0.5−	1998 04 20	704	0.2+	0.8+	1999 11 02	703	0.3−	0.2+
1998 03 22	704	0.1−	0.5−	1998 04 20	704	0.1−	0.2−	1999 11 02	703	0.1+	0.5+
1998 03 22	704	0.4+	0.2−	1998 04 20	704	0.3−	0.1+	1999 11 02	703	0.1−	0.4−
1998 03 22	704	0.0	1.1−	1998 04 20	704	0.1+	0.7−	1999 11 02	703	0.3+	0.4+
1998 03 22	704	1.5−	0.9−	1998 04 22	704	0.1+	0.3−	1999 12 02	699	0.5−	1.0+
1998 03 25	704	0.6+	0.1−	1998 04 22	704	0.3+	1.1+	1999 12 02	699	1.2+	0.5+
1998 03 25	704	0.8+	0.5−	1998 04 22	704	1.2+	0.1+	1999 12 02	699	0.4−	0.1+
1998 03 25	704	0.7+	1.6−	1998 04 22	704	0.6+	1.3+				

1998 FV₇₈ = 1999 XO₂₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
<i>M</i>	72.76545	(2000.0)	P	<i>Q</i>			
<i>n</i>	0.29472507	ω	209.44520	+0.33687368	+0.93726740		
<i>a</i>	2.2362722	Ω	80.36369	−0.84508877	+0.34299052		
<i>e</i>	0.1633808	<i>i</i>	5.22016	−0.41513985	+0.06234835		
<i>P</i>	3.34	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

1999 DEC. 22

Residuals in seconds of arc

1998 03 24	704	0.1−	0.3+	1998 04 20	704	0.2+	0.5−	1998 05 23	699	0.2+	0.8−
1998 03 24	704	0.1−	0.2+	1998 04 20	704	0.2−	0.0	1998 05 23	699	0.4−	0.4−
1998 03 24	704	0.4−	0.1+	1998 04 20	704	0.4−	0.0	1998 05 24	699	0.4+	0.7+
1998 03 24	704	0.5−	0.3+	1998 04 20	704	0.9−	0.6−	1998 05 24	699	0.4+	0.6+
1998 03 24	704	0.3−	0.1+	1998 04 21	704	0.6+	0.1+	1998 05 24	699	(2.7+	1.5−)
1998 03 25	699	0.0	0.1−	1998 04 21	704	0.9+	0.1−	1998 12 06	704	0.8+	0.8+
1998 03 25	699	0.9+	0.0	1998 04 21	704	0.2+	0.4−	1999 12 06	704	1.2+	0.1+
1998 03 25	699	0.4+	0.2+	1998 04 21	704	0.0	1.1−	1999 12 06	704	0.3−	0.9−
1998 03 25	704	0.4+	0.1+	1998 04 21	704	0.2−	0.4−	1999 12 06	704	0.0	0.3−
1998 03 25	704	0.5+	0.6+	1998 05 16	704	0.8+	0.5−	1999 12 07	704	0.2−	0.3−
1998 03 25	704	0.3−	0.4+	1998 05 16	704	0.2−	0.4+	1999 12 07	704	0.5−	0.2+
1998 03 25	704	0.1−	0.5+	1998 05 16	704	0.1−	0.6−	1999 12 07	704	0.5−	0.0
1998 03 25	704	0.0	0.5+	1998 05 16	704	0.6−	0.3+	1999 12 07	704	0.1+	0.4−
1998 04 20	704	0.0	0.5−	1998 05 16	704	1.3−	0.1−	1999 12 07	704	0.1−	0.2−

1998 FT₇₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
<i>M</i>	43.14096	(2000.0)	P	<i>Q</i>			
<i>n</i>	0.23415857	ω	117.15431	+0.43954581	+0.89820997		
<i>a</i>	2.6069299	Ω	178.89332	−0.88244476	+0.43271060		
<i>e</i>	0.1423319	<i>i</i>	12.80754	−0.16760287	+0.07733297		
<i>P</i>	4.21	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1998 03 07	691	0.0	0.2+	1998 04 21	704	0.0	0.3−	1998 05 16	704	0.7+	0.2+
1998 03 07	691	0.4+	0.3+	1998 04 21	704	0.8−	0.8−	1998 05 16	704	(2.6−	0.2−)
1998 03 07	691	0.0	0.1−	1998 04 21	704	0.7−	0.9+	1998 05 16	704	0.4−	0.7−
1998 03 24	704	0.4−	0.4+	1998 04 23	704	1.1−	0.4−	1998 05 16	704	(3.3−	2.1−)
1998 03 24	704	0.9−	0.3−	1998 04 23	704	0.5+	0.8−	1998 05 28	704	1.3+	0.9+
1998 03 24	704	0.8+	0.2+	1998 04 23	704	0.3+	0.5+	1998 05 28	704	1.4−	0.5+
1998 03 24	704	0.6+	0.8−	1998 04 23	704	0.8−	0.2−	1998 05 28	704	0.5+	0.6+
1998 03 25	704	0.5+	1.3−	1998 04 23	704	1.2+	0.1+	1998 05 28	704	(3.4−	1.5+)
1998 03 25	704	0.2−	1.4+	1998 04 24	704	0.1−	0.4+	1999 10 01	106	0.9+	0.4−
1998 03 25	704	1.1−	1.2−	1998 04 24	704	0.2+	0.4−	1999 10 01	106	0.2−	0.7−
1998 03 25	704	(2.7−	1.2−)	1998 04 24	704	0.6−	0.2+	1999 10 01	106	0.3−	0.8+
1998 03 25	704	0.1−	1.5+	1998 04 24	704	1.1+	1.0−	1999 10 03	747	0.0	0.4−
1998 04 21	704	0.7+	0.6−	1998 04 24	704	0.6+	0.4+	1999 10 03	747	0.1−	0.2+
1998 04 21	704	0.3+	0.4−	1998 05 16	704	1.3−	0.5+	1999 10 03	747	0.2−	0.0

1998 FV₉₀ = 1995 KR₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler				Doppler			
<i>M</i>	22.02117	(2000.0)	P	<i>Q</i>			
<i>n</i>	0.27699670	ω	217.56098	+0.69096069	+0.71752510		
<i>a</i>	2.3306997	Ω	96.33381	−0.63994056	+0.66370422		
<i>e</i>	0.2547373	<i>i</i>	5.07539	−0.33622820	+0.21131597		
<i>P</i>	3.56	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1995 05 22	010	0.6−	0.6+	1998 03 24	704	1.0+	0.4−	1998 03 25	704	(2.6−	0.0)
1995 05 22	010	0.7−	0.1+	1998 03 24	704	(0.6+	2.6−)	1998 04 02	809	1.3+	0.0
1995 05 22	010	(2.2+	0.2+)	1998 03 24	704	0.0	0.4−	1998 04 02	809	0.1−	1.3−
1995 05 23	010	(2.1−	0.7+)	1998 03 25	704	0.3+	1.2+	1998 04 02	809	0.2−	1.2−
1995 05 23	010	1.4+	0.1−	1998 03 25	704	0.5−	0.9−	1998 04 03	809	0.3−	0.0
1995 05 23	010	0.1−	0.5−	1998 03 25	704	0.8−	1.1+	1998 04 03	809	0.3−	0.0
1998 03 24	704	1.4+	0.1+	1998 03 25	704	1.5−	0.8+	1998 04 03	809	0.4−	0.8+

1998 FS₁₁₃ = 1999 XW₄₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams		

1999 DEC. 22

M.P.C. 37147

Residuals in seconds of arc

1998 03 31	704	0.3−	0.4+	1998 04 19	704	0.0	0.5−	1999 12 07	704	0.4−	0.1−
1998 03 31	704	0.4−	1.8−	1998 04 19	704	0.6−	0.4+	1999 12 07	704	0.2−	0.1−
1998 03 31	704	(2.3+	0.6+)	1998 04 19	704	(2.0−	2.4−)	1999 12 08	704	0.1−	0.0
1998 03 31	704	1.9−	0.7−	1998 04 20	704	0.4+	0.3+	1999 12 08	704	0.1+	0.2+
1998 04 01	704	0.0	0.1+	1998 04 20	704	0.5+	0.4−	1999 12 08	704	0.1+	0.1+
1998 04 01	704	1.8+	0.1+	1998 04 20	704	0.1−	0.1−	1999 12 08	704	0.6−	0.1−
1998 04 01	704	1.7−	1.1+	1998 04 20	704	0.2+	0.6−	1999 12 08	704	0.2−	0.4−
1998 04 01	704	1.7+	0.4−	1998 04 20	704	0.2+	1.7+	1999 12 12	703	0.3+	0.2+
1998 04 01	704	0.1−	0.3+	1999 12 07	704	0.2−	0.1−	1999 12 12	703	0.2−	0.5+
1998 04 19	704	0.9+	0.7−	1999 12 07	704	0.3−	0.0	1999 12 12	703	0.2+	0.5−
1998 04 19	704	0.4−	0.9+	1999 12 07	704	1.1+	0.3+	1999 12 12	703	0.4+	0.2+

1998 FW₁₁₈ = 1982 UX₇ = 1999 UT₅

Id. S. Nakano, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>
<i>n</i>	0.29061051	<i>ω</i>	80.86593	+0.84743029	+0.52579456
<i>a</i>	2.2573306	<i>Ω</i>	247.38098	−0.51299822	+0.77530693
<i>e</i>	0.1551864	<i>i</i>	4.56687	−0.13672867	+0.34991319
<i>P</i>	3.39	<i>H</i>	14.9	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1982 10 21	095	0.1−	0.4+	1998 04 22	704	0.7+	1.5−	1999 12 04	703	0.3−	0.4+
1982 03 31	704	0.0	0.8+	1998 04 22	704	0.2+	1.0−	1999 12 04	703	0.5−	0.6+
1998 03 31	704	1.2+	1.7+	1998 04 22	704	1.2+	1.3−	1999 12 04	703	0.6−	0.7+
1998 03 31	704	0.4−	1.1+	1999 10 29	703	0.5−	0.3+	1999 12 04	699	0.0	0.2−
1998 03 31	704	(5.6−	1.5+)	1999 10 29	703	0.0	0.3+	1999 12 04	699	0.6+	0.2+
1998 04 01	704	0.2+	0.6+	1999 10 29	703	0.5+	0.4+	1999 12 04	699	0.4+	0.6+
1998 04 01	704	0.8+	0.9+	1999 10 29	703	0.2+	0.2+	1999 12 07	704	0.5+	0.1−
1998 04 01	704	(3.4+	1.8−)	1999 10 31	703	0.6+	0.1+	1999 12 07	704	0.9−	0.4−
1998 04 01	704	(2.6−	0.6+)	1999 10 31	703	0.2−	0.3+	1999 12 07	704	1.3+	0.7−
1998 04 01	704	0.7+	1.8+	1999 10 31	703	0.3−	0.4+	1999 12 07	704	0.0	0.6−
1998 04 20	704	0.6−	0.6+	1999 10 31	703	0.2−	0.1+	1999 12 07	704	0.4−	1.3−
1998 04 20	704	1.0−	1.8−	1999 11 04	704	0.1+	0.5−	1999 12 12	703	0.2−	0.5+
1998 04 20	704	1.8−	1.3−	1999 11 04	704	0.2+	0.3−	1999 12 12	703	0.1+	0.2+
1998 04 20	704	(2.5−	2.4+)	1999 11 04	704	0.3+	0.2−	1999 12 12	703	1.3−	1.8−
1998 04 20	704	1.2−	1.2−	1999 11 04	704	0.4+	0.4+	1999 12 12	703	0.7−	0.7−
1998 04 22	704	0.2−	1.0+	1999 11 04	704	0.2−	0.3+				
1998 04 22	704	0.2+	0.1−	1999 12 04	703	0.8+	0.3−				

1998 HU₂ = 1999 SF₁₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>
<i>n</i>	0.23415385	<i>ω</i>	249.45729	+0.99662726	+0.00518271
<i>a</i>	2.6069649	<i>Ω</i>	110.17379	+0.02546189	+0.92921824
<i>e</i>	0.2464364	<i>i</i>	5.00545	−0.07801155	+0.36949506
<i>P</i>	4.21	<i>H</i>	16.1	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1998 04 20	691	0.4−	0.0	1998 04 28	691	0.4−	0.5+	1999 09 30	703	0.4−	0.1−
1998 04 20	691	0.7−	0.1+	1998 04 28	691	0.2+	0.3−	1999 10 04	703	0.0	0.2+
1998 04 20	691	0.6−	0.0	1998 04 28	691	0.1−	0.3−	1999 10 04	703	0.0	0.1−
1998 04 21	691	0.1+	0.1−	1999 09 30	703	0.6+	0.1+	1999 10 04	703	0.2+	0.6−
1998 04 21	691	0.5+	0.0	1999 09 30	703	0.6+	0.1−	1999 10 04	703	0.1−	0.4+
1998 04 21	691	1.3+	0.0	1999 09 30	703	0.8−	0.1+				

1998 HT₄

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>
<i>n</i>	0.29049096	<i>ω</i>	225.41175	+0.05561657	+0.99553469
<i>a</i>	2.2579499	<i>Ω</i>	47.93705	−0.88449549	+0.08456554
<i>e</i>	0.0605053	<i>i</i>	5.89676	−0.46322189	−0.04194450
<i>P</i>	3.39	<i>H</i>	14.7	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 04 20	120	0.4−	0.1−	1998 04 22	704	0.4−	0.3−	1999 11 27	699	1.0−	1.1+
1998 04 20	120	1.1−	0.2+	1998 04 22	704	0.2+	0.8−	1999 11 27	699	0.2+	0.0
1998 04 20	120	0.4−	0.6+	1998 04 23	120	0.4+	0.4−	1999 12 05	704	0.3+	0.5−
1998 04 21	704	0.1+	0.4−	1998 04 23	120	0.6+	1.0−	1999 12 05	704	0.6−	0.9−
1998 04 21	704	0.7+	0.5+	1998 04 24	120	0.2+	0.1−	1999 12 05	704	1.1−	0.1−
1998 04 21	704	0.1+	0.5+	1998 04 24	120	(2.7+	0.6−)	1999 12 05	704	0.2+	0.4+
1998 04 21	704	0.4−	0.7+	1998 04 30	699	0.5+	0.1+	1999 12 05	704	0.2+	0.9+
1998 04 21	704	0.6−	0.9+	1998 04 30	699	0.3+	0.3+	1999 12 07	704	0.5−	0.1−
1998 04 21	120	0.8+	0.1+	1998 04 30	699	0.3+	0.3+	1999 12 07	704	1.0+	0.0
1998 04 21	120	0.1−	0.2+	1998 05 05	120	1.0+	0.2−	1999 12 07	704	0.8+	0.9+
1998 04 21	120	0.6+	0.2−	1998 05 05	120	0.5−	0.5+	1999 12 07	704	0.7+	1.0+
1998 04 22	704	0.3−	0.3−	1998 05 05	120	0.9−	0.4−	1999 12 12	691	0.4−	0.2−
1998 04 22	704	0.6−	0.2+	1998 05 05	120	0.5+	0.2+	1999 12 12	691	0.3−	0.1−
1998 04 22	704	0.2−	0.5−	1999 11 27	699	0.4+	1.2−	1999 12 12	691	0.3−	0.3−

1998 HU₅ = 1999 SD₁₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>
<i>n</i>	0.29893310	<i>ω</i>	300.01177	+0.99070944	−0.09379652
<i>a</i>	2.2152362	<i>Ω</i>	65.52410	+0.12770846	+0.89056008
<i>e</i>	0.1938450	<i>i</i>	6.21136	−0.04674777	+0.44508983
<i>P</i>	3.30	<i>H</i>	14.6	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1998 04 21	704	0.0	0.1−	1998 04 24	910	0.8+	0.2+	1999 12 05	106	0.2−	0.4+
1998 04 21	704	1.3+	0.7+	1998 04 24	910	0.9+	0.3+	1999 12 05	106	0.0	0.3+
1998 04 21	704	(2.7+	1.5+)	1999 09 30	703	0.8−	0.2+	1999 12 06	106	0.4+	0.5+
1998 04 21	704	0.9−	0.2−	1999 09 30	703	0.5−	0.6+	1999 12 06	106	0.4+	0.3+
1998 04 21	704	0.1+	0.3+	1999 09 30	703	0.8−	0.3+	1999 12 06	106	0.0	0.1−
1998 04 21	910	0.6+	0.5+	1999 09 30	703	0.6−	0.3+	1999 12 07	704	0.4+	0.3−
1998 04 21	910	0.7+	0.2+	1999 10 04	703	0.4−	0.0	1999 12 07	704	0.3+	0.2−
1998 04 21	910	0.8+	0.1+	1999 10 04	703	0.3−	0.1+	1999 12 07	704	0.2+	0.0
1998 04 22	704	0.8−	0.3−	1999 10 04	703	0.1+	0.2+	1999 12 07	704	0.3+	0.2+
1998 04 22	704	0.3−	0.1+	1999 10 04	703	0.6+	0.2+	1999 12 07	704	0.0	0.6+
1998 04 22	704	0.0	0.4+	1999 11 30	106	0.1−	0.0	1999 12 07	106	0.1−	0.4+
1998 04 22	704	0.7−	0.8+	1999 11 30	106	0.2−	0.1+	1999 12 07	106	0.2−	0.2−
1998 04 22	704	1.2−	1.0+	1999 11 30	106	0.6−	0.4−				
1998 04 24	910	0.7+	0.3+	1999 12 05	106	0.5+	0.3+				

1998 HU₆ = 1999 XM₆₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>
<i>n</i>	45.32631	<i>ω</i>	244.34056	+0.87505710	+0.47074908
<i>a</i>	2.3971471	<i>Ω</i>	87.39746	−0.39379122	+0.82763395
<i>e</i>	0.1936684	<i>i</i>	6.46977	−0.28143124	+0.30564250
<i>P</i>	3.71	<i>H</i>	15.1	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 04 22	910	0.0	0.5+	1998 05 22	704	0.4−	0.9−	1998 06 27	699	1.0−	0.3+
1998 04 22	910	0.2+	0.6+	1998 05 23	699	0.3−	0.9+	1998 06 27	699	0.6+	0.5+
1998 04 22	910	0.2+	0.2−	1998 05 23	699	0.7+	0.4−	1999 12 07	704	0.2+	0.2+
1998 04 24	910	0.5−	0.1+	1998 05 23	699	0.8−	0.2+	1999 12 07	704	0.2+	0.2+
1998 04 24	910	0.7−	0.1+	1998 05 24	704	0.3−	0.9−	1999 12 07	704	0.2−	0.3+
1998 04 24	910	0.3−	0.1−	1998 05 24	699	0.2−	1.1−	1999 12 07	704	0.1+	0.2+
1998 05 05	699	0.2−	0.1−	1998 05 24	699	(0.5+	2.1−)	1999 12 07	704	0.3+	0.2+
1998 05 05	699	1.4+	0.5+	1998 05 24	704	0.1−	0.4+	1999 12 08	704	0.3−	0.5−

1998 05 05	699	0.2−	0.8+	1998 05 24	699	0.3+	0.6−	1999 12 08	704	0.0	0.3+
1998 05 22	704	1.2+	0.8+	1998 05 24	704	(2.7−	1.9−)	1999 12 08	704	0.2+	0.3+
1998 05 22	704	0.1+	1.0−	1998 05 24	704	0.3+	0.1−	1999 12 08	704	0.2−	1.2−
1998 05 22	704	0.4−	0.3−	1998 06 27	699	0.3−	0.9−	1999 12 08	704	0.0	0.9−

1998 HL₇ = 1999 XT₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	203.85053		(2000.0)	P		Q	
<i>n</i>	0.35433410	ω	115.38030	−0.93020156		−0.16762920	
<i>a</i>	1.9778533	Ω	56.62220	−0.04919307		−0.82466236	
<i>e</i>	0.0573912	<i>i</i>	23.01873	+0.36373767		−0.54021518	
<i>P</i>	2.78	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 04 23	704	0.5+	0.1+	1998 05 23	699	0.8−	0.8+	1999 12 06	704	1.4+	0.3+
1998 04 23	704	0.2+	1.0+	1998 05 23	699	0.7+	1.1−	1999 12 06	704	0.1−	0.4+
1998 04 23	704	0.2−	0.2−	1998 05 23	699	0.0	0.4−	1999 12 06	704	0.1+	0.7−
1998 04 23	704	0.4−	0.3−	1998 05 24	699	0.4−	0.4+	1999 12 06	704	(2.4−	1.4+)
1998 04 23	704	0.4−	1.8−	1998 05 24	699	0.1+	0.2−	1999 12 07	704	0.2−	0.2+
1998 04 24	704	0.4+	0.0	1998 05 24	699	0.2+	0.1+	1999 12 07	704	0.0	0.1+
1998 04 24	704	0.0	0.1+	1999 12 05	704	0.4−	0.4−	1999 12 07	704	0.1−	0.1−
1998 04 24	704	0.9+	0.0	1999 12 05	704	0.0	1.2−	1999 12 07	704	1.5−	0.4+
1998 04 24	704	0.3+	0.4+	1999 12 05	704	1.9+	0.9+	1999 12 07	704	1.0−	0.4+
1998 04 24	704	0.4−	0.2+	1999 12 05	704	0.5+	0.1−				

1998 HT₈ = 1989 WQ₆ = 1999 XF

Id. G. V. Williams, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	323.38208		(2000.0)	P		Q	
<i>n</i>	0.28849039	ω	322.32293	+0.91701604		−0.38130142	
<i>a</i>	2.2683766	Ω	60.47958	+0.39077662		+0.80019495	
<i>e</i>	0.1196649	<i>i</i>	7.72762	+0.07984497		+0.46292253	
<i>P</i>	3.42	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 11 20	399	0.9−	0.9−	1998 04 22	704	0.6+	0.3+	1998 05 28	699	0.5−	0.4−
1989 11 20	399	0.9+	0.7+	1998 04 22	704	0.0	0.1−	1999 12 01	704	0.2+	0.4+
1989 11 20	399	0.2−	0.7+	1998 04 22	704	0.5−	0.9−	1999 12 01	704	0.2−	1.8+
1998 04 17	691	0.1+	0.5+	1998 04 22	704	0.8−	0.5+	1999 12 01	704	0.2−	0.5−
1998 04 17	691	0.0	0.4+	1998 04 25	691	0.3+	1.3+	1999 12 02	704	(2.0+	2.3+)
1998 04 17	691	0.1−	0.2+	1998 04 25	691	0.6+	0.5+	1999 12 02	704	(0.0	2.8+)
1998 04 21	704	0.4−	1.0−	1998 04 25	691	0.1+	0.3+	1999 12 02	704	(0.3+	2.9+)
1998 04 21	704	0.5+	0.2+	1998 05 01	691	0.1+	0.4+	1999 12 03	704	1.3+	0.9−
1998 04 21	704	0.7+	0.3−	1998 05 01	691	0.1+	0.1+	1999 12 03	704	0.5−	0.5−
1998 04 21	704	0.6+	0.7−	1998 05 01	691	0.1−	0.2+	1999 12 03	704	0.7−	0.8+
1998 04 21	704	0.1+	0.4+	1998 05 28	699	0.9−	0.2+	1999 12 03	704	0.8−	0.7+
1998 04 22	704	0.7+	0.5−	1998 05 28	699	0.7−	0.4+				

1998 HB₁₁

Id. E. Howell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	44.93358		(2000.0)	P		Q	
<i>n</i>	0.23943834	ω	259.11907	+0.47440801		+0.85695121	
<i>a</i>	2.5684647	Ω	41.23684	−0.63992708		+0.49284185	
<i>e</i>	0.2055826	<i>i</i>	17.79251	−0.60450837		+0.15080300	
<i>P</i>	4.12	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 04 17	691	0.1−	0.6+	1998 04 22	704	0.4−	0.3−	1999 12 05	704	1.0+	0.1−
1998 04 17	691	0.1−	0.4+	1998 04 22	704	0.2+	0.4−	1999 12 05	704	0.1+	0.2+
1998 04 17	691	0.1−	0.3+	1998 04 22	704	0.1+	0.2−	1999 12 05	704	0.1−	0.2−
1998 04 21	704	0.1−	0.1+	1998 04 24	691	0.0	0.4+	1999 12 05	704	0.1+	1.1+
1998 04 21	704	1.3+	0.0	1998 04 24	691	0.3−	0.5+	1999 12 07	704	0.4−	0.1−
1998 04 21	704	1.0−	1.6−	1998 04 24	691	0.1+	0.3+	1999 12 07	704	0.2−	0.1+
1998 04 21	704	0.1+	0.3+	1999 11 27	699	0.3−	0.3+	1999 12 07	704	0.2+	0.3−

1998 04 21	704	0.1−	0.9−	1999 11 27	699	0.1−	0.5−	1999 12 07	704	0.0	0.1−
1998 04 22	704	0.2+	0.5+	1999 11 27	699	0.1−	0.3+	1999 12 07	704	0.4−	0.5+
1998 04 22	704	0.3+	0.1+	1999 12 05	704	0.2+	1.2−				

1998 HY₁₃ = 1999 XH₂₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	46.76086		(2000.0)	P		Q	
<i>n</i>	0.30479989	ω	232.04323	+0.79886864		+0.59616771	
<i>a</i>	2.1867183	Ω	91.22015	−0.52374676		+0.75479219	
<i>e</i>	0.1477484	<i>i</i>	4.58708	−0.29580100		+0.27362896	
<i>P</i>	3.23	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1998 04 21	704	0.3+	0.4−	1998 04 25	691	0.1+	0.1−	1998 05 01	691	0.0	0.2+
1998 04 21	704	0.0	0.7+	1998 04 25	691	0.0	0.2+	1998 05 01	691	0.2−	0.2−
1998 04 21	704	0.6−	0.1−	1998 04 25	691	(3.1+	2.5−)	1998 05 01	691	0.3−	0.1+
1998 04 21	704	1.2−	0.6−	1998 04 25	691	0.0	0.1−	1998 05 02	691	0.1−	0.2+
1998 04 21	704	(3.8−	1.7+)	1998 04 25	691	0.1+	0.1+	1998 05 02	691	0.4−	0.5+
1998 04 22	704	0.3−	0.4+	1998 04 25	568	0.4+	0.1+	1998 05 02	691	0.3−	0.5+
1998 04 22	704	0.2−	1.3+	1998 04 25	568	0.5+	0.1+	1999 12 06	704	0.1+	0.2+
1998 04 22	704	0.2+	0.4−	1998 04 26	557	1.1+	0.7−	1999 12 06	704	0.5+	0.4+
1998 04 22	704	1.0+	1.0+	1998 04 26	557	0.1−	1.4−	1999 12 06	704	0.6+	0.2−
1998 04 22	704	0.8+	1.4+	1998 04 26	557	0.4+	1.1−	1999 12 07	704	0.1+	0.1+
1998 04 24	691	(3.2+	4.4−)	1998 04 26	557	0.6+	1.0−	1999 12 07	704	0.1−	0.9−
1998 04 24	691	1.3−	0.1+	1998 04 27	691	0.8+	0.2−	1999 12 07	704	0.7−	0.2+
1998 04 24	691	0.9−	0.2+	1998 04 27	691	0.0	0.1−	1999 12 07	704	0.5−	0.0
1998 04 25	691	0.5−	0.2−	1998 04 27	691	0.1+	0.3−				

1998 HW₂₅

Id. E. Howell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	336.55537		(2000.0)	P		Q	
<i>n</i>	0.29675504	ω	323.01011	+0.99488729		−0.06917717	
<i>a</i>	2.2260623	Ω	41.14596	+0.09586369		+0.87607903	
<i>e</i>	0.1362939	<i>i</i>	6.42052	−0.03177146		+0.47717926	
<i>P</i>	3.32	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 03 29	704	1.4+	0.7+	1998 04 30	691	0.1+	0.1+	1999 09 13	704	0.8−	0.1+
1998 03 29	704	1.0+	0.1−	1998 04 30	691	0.0	0.4−	1999 09 13	704	1.0+	0.3+
1998 03 29	704	0.2+	0.7−	1998 05 02	691	0.2+	0.1−	1999 09 30	704	0.6+	0.7+
1998 03 29	704	(2.4−	1.4−)	1998 05 02	691	0.3−	0.1−	1999 09 30	704	0.2−	0.4+
1998 03 29	704	1.2−	1.0+	1999 09 07	699	0.2−	0.2+	1999 09 30	704	0.1+	0.2+
1998 04 20	691	0.5−	0.4−	1999 09 07	699	0.2−	0.3−	1999 09 30	704	0.8+	0.0
1998 04 20	691	0.3−	0.2+	1999 09 07	699	0.2−	0.4+	1999 09 30	704	0.1+	0.2−
1998 04 20	691	0.4−	0.1−	1999 09 08	703	0.4−	0.3+	1999 10 04	703	0.2−	0.5−
1998 04 29	691	0.2−	0.5+	1999 09 08	703	0.3−	0.3+	1999 10 04	703	0.3−	0.3−
1998 04 29	691	0.2+	0.1−	1999 09 08	703	0.5−	0.1+	1999 10 04	703	0.1−	0.0
1998 04 29	691	0.0	0.2−	1999 09 08	703	0.3+	1.1−	1999 10 04	703	0.3+	0.1−
1998 04 30	691	0.2−	0.3−	1999 09 13	704	0.0	0.3−				

1998 HG₂₆ = 1999 XZ₁₁₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	9.69982		(2000.0)	P		Q	
<i>n</i>	0.27175807	ω	233.61674	+0.99842706		−0.02165397	
<i>a</i>	2.3605566	Ω	127.56663	+0.03888219		+0.93197417	
<i>e</i>	0.2014653	<i>i</i>	3.74090	−0.04039295		+0.36187740	
<i>P</i>	3.63	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 04 20	691	0.4−	0.0	1998 05 01	704	1.2+	0.2+	1998 05 24	704	0.9+	1.4−
1998 04 20	691	0.4−	0.1+	1998 05 01	704	0.5+	0.1+	1999 12 05	703	0.2+	0.1−
1998 04 20	688	0.7+	0.0	1998 05 01	704	0.1−	0.0	1999 12 05	703	0.1−	0.1−
1998 04 20	691	0.4−	0.1+	1998 05 01	704	1.6+	0.3−	1999 12 05	703	0.2+	0.1−
1998 04 20	688	0.3+	0.0	1998 05 22	704	0.5+	0.7+	1999 12 05	703	0.0	0.2−

1999 DEC. 22

1998 04 20	688	0.2+	0.4−	1998 05 22	704	0.1−	0.9+	1999 12 12	703	0.2−	0.3−
1998 04 28	691	0.6−	0.4−	1998 05 22	704	1.6−	0.8−	1999 12 12	703	0.5−	0.1+
1998 04 28	691	0.7−	0.2−	1998 05 24	704	0.8+	1.0+	1999 12 12	703	0.2+	0.4+
1998 04 28	691	1.1−	0.1+	1998 05 24	704	(2.9+	0.6+)	1999 12 12	703	0.2+	0.4+
1998 05 01	704	0.6−	0.3+	1998 05 24	704	0.8−	0.1−				

1998 HO₃₀

Id. K. Korlević (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M		(2000.0)		P		Q	
n	0.31491829	ω	254.83486	+0.87053991	+0.48874065		
a	2.1396240	Ω	75.87810	−0.42572263	+0.80646941		
e	0.2063457	i	3.39226	−0.24682081	+0.33277569		
P	3.13	H	14.6	G	0.15	U	4

Residuals in seconds of arc

1998 03 22	704	0.5+	1.0+	1998 04 22	704	0.2−	0.0	1999 11 29	120	0.1−	0.3−
1998 03 22	704	1.4+	1.8+	1998 04 22	704	0.1+	0.6−	1999 11 29	120	0.3+	0.5−
1998 03 22	704	1.2+	1.6+	1998 04 22	704	0.3−	0.9−	1999 12 07	704	0.2+	0.2−
1998 03 22	704	1.5−	0.0	1998 04 22	704	0.3−	0.4−	1999 12 07	704	0.1+	0.2−
1998 03 22	704	0.6+	0.9+	1998 04 22	704	0.2−	0.8−	1999 12 07	704	0.1−	0.0
1998 03 25	704	0.2+	0.2−	1998 04 30	699	0.2+	0.1+	1999 12 07	704	0.1+	0.0
1998 03 25	704	0.6+	0.2−	1998 04 30	699	0.4+	0.7−	1999 12 07	704	0.1+	0.1+
1998 03 25	704	(1.1−	3.2−)	1998 04 30	699	1.1−	0.6+	1999 12 08	704	0.1+	0.0
1998 03 25	704	1.9−	0.4−	1998 05 01	699	0.1−	0.0	1999 12 08	704	0.0	0.0
1998 03 25	704	0.9−	1.0−	1998 05 01	699	0.0	0.4−	1999 12 08	704	0.2+	0.2+
1998 03 26	566	0.0	0.4+	1998 05 01	699	0.7+	0.2−	1999 12 08	704	0.3+	0.5+
1998 03 26	566	0.6+	0.4+	1998 05 16	704	1.5+	1.1−	1999 12 08	704	0.3+	0.7+
1998 03 26	566	0.6−	0.3+	1998 05 16	704	0.0	0.6+	1999 12 10	704	0.2−	0.1−
1998 04 20	704	0.3+	1.1−	1998 05 16	704	0.1+	1.2+	1999 12 10	704	0.0	0.3+
1998 04 20	704	0.0	0.2+	1998 05 16	704	(3.3−	1.3+)	1999 12 10	704	0.4−	0.0
1998 04 20	704	0.1+	0.0	1998 05 16	704	0.5−	1.3−	1999 12 10	704	0.4+	0.1−
1998 04 20	704	0.5−	0.2+	1999 11 28	120	0.7−	0.5−				
1998 04 20	704	0.1−	0.3−	1999 11 28	120	0.3−	0.5−				

1998 HD₃₂

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M		(2000.0)		P		Q	
n	0.28651223	ω	125.17415	+0.97322730	+0.22476124		
a	2.2788056	Ω	221.89569	−0.22725730	+0.90969326		
e	0.1904058	i	4.12827	−0.03439100	+0.34919987		
P	3.44	H	14.6	G	0.15	U	4

Residuals in seconds of arc

1998 03 25	704	0.1−	1.5−	1998 04 18	704	0.3+	1.4+	1999 11 27	699	0.6−	0.1+
1998 03 25	704	0.6−	0.7+	1998 04 18	704	0.3+	0.7+	1999 11 27	699	1.3−	0.1+
1998 03 25	704	0.5−	1.6−	1998 04 18	704	0.6+	0.7−	1999 12 05	704	0.6−	0.2−
1998 03 25	704	0.6−	1.0−	1998 04 18	704	0.0	0.2+	1999 12 05	704	0.3−	0.8+
1998 03 29	704	0.7−	0.5+	1998 04 20	704	1.3+	0.1+	1999 12 05	704	0.1+	0.2+
1998 03 29	704	0.3+	1.0+	1998 04 20	704	(0.2−	2.1+)	1999 12 05	704	0.5+	1.3+
1998 03 29	704	0.9−	0.9−	1998 04 20	704	0.5+	1.6+	1999 12 05	704	1.3+	0.1+
1998 03 29	704	0.2−	0.0	1998 04 20	704	1.6+	1.2−	1999 12 07	704	0.7−	0.3−
1998 03 29	704	(2.6−	0.2−)	1998 04 22	704	0.6−	0.1+	1999 12 07	704	0.2−	0.4−
1998 04 01	704	0.1+	0.3−	1998 04 22	704	0.8−	0.8+	1999 12 07	704	0.0	0.4−
1998 04 01	704	1.0+	0.6+	1998 04 22	704	1.4−	0.5+	1999 12 07	704	0.2+	0.3−
1998 04 01	704	0.0	0.8−	1998 04 22	704	0.2+	0.7−	1999 12 07	704	0.6+	0.6−
1998 04 01	704	1.2+	0.1−	1998 04 22	704	0.8−	0.3−				
1998 04 01	704	0.0	1.6+	1999 11 27	699	0.8+	0.1+				

1998 HR₃₄ = 1999 XC₂

Id. G. V. Williams, E. Bowell

M.P.C. 37149

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M		(2000.0)		P		Q	
n	0.27128381	ω	221.33202	+0.84751177	+0.52807757		
a	2.3633070	Ω	106.71664	−0.47113869	+0.79484485		
e	0.2255088	i	3.19980	−0.24444249	+0.29892429		
P	3.63	H	14.7	G	0.15	U	5

Residuals in seconds of arc

1998 03 22	704	0.9+	0.5−	1998 04 20	704	0.9−	1.7+	1999 12 03	428	0.3−	0.7−
1998 03 22	704	0.7−	0.4−	1998 04 20	704	0.2+	0.6+	1999 12 04	699	0.6−	0.4+
1998 03 22	704	0.7+	0.3−	1998 04 20	704	(2.8−	0.9−)	1999 12 04	699	0.9−	1.0+
1998 03 22	704	(0.9+	2.6+)	1998 04 22	704	0.9+	0.4+	1999 12 04	699	0.6+	0.3−
1998 03 22	704	1.3−	0.0	1998 04 22	704	0.0	0.4−	1999 12 05	704	0.7+	1.2−
1998 03 25	704	0.6+	0.9+	1998 04 22	704	0.7+	0.9−	1999 12 05	704	0.1+	0.5−
1998 03 25	704	(2.4+	0.1−)	1998 04 22	704	1.2−	0.2−	1999 12 05	704	0.6+	0.7+
1998 03 25	704	0.2−	0.3+	1998 04 22	704	(0.7−	2.3−)	1999 12 05	704	0.8+	1.0−
1998 03 25	704	(2.3+	2.3+)	1999 12 01	428	1.2−	0.7+	1999 12 05	704	0.6−	0.6+
1998 04 20	704	0.6+	0.1−	1999 12 01	428	0.3+	0.5+				
1998 04 20	704	0.2−	0.9−	1999 12 03	428	0.5+	0.1−				

1998 HY₃₇ = 1999 XX₆₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M		(2000.0)		P		Q	
n	0.30821792	ω	25.67246	+0.43413424	+0.89956621		
a	2.1705216	Ω	270.08958	−0.83457048	+0.38154407		
e	0.1619937	i	2.75370	−0.33914535	+0.21261409		
P	3.20	H	15.5	G	0.15	U	4

Residuals in seconds of arc

1998 03 25	704	0.4+	1.0+	1998 04 20	704	0.2−	1.6+	1998 05 16	704	0.6−	0.5−
1998 03 25	704	0.2+	0.4+	1998 04 21	704	0.5+	0.1+	1998 05 16	704	1.9+	0.2+
1998 03 25	704	0.4−	0.4+	1998 04 21	704	0.6−	0.6+	1998 05 16	704	0.4−	0.5−
1998 03 25	704	0.7+	0.7+	1998 04 21	704	0.3+	0.1+	1998 05 16	704	1.8−	1.6−
1998 03 25	704	0.9+	1.0−	1998 04 21	704	0.0	0.8−	1999 12 07	704	0.8−	0.8−
1998 03 31	704	1.0−	1.0+	1998 04 21	704	0.2−	0.3+	1999 12 07	704	0.2−	0.2+
1998 03 31	704	(0.7−	2.5+)	1998 04 22	704	0.2+	0.1+	1999 12 07	704	0.3−	0.3+
1998 03 31	704	0.1+	0.8−	1998 04 22	704	1.4+	0.3−	1999 12 08	704	0.3−	0.0
1998 03 31	704	0.8+	0.2−	1998 04 22	704	0.4+	0.4−	1999 12 08	704	0.0	0.3−
1998 03 31	704	1.3−	1.8−	1998 04 22	704	0.6+	0.9+	1999 12 08	704	0.5+	0.2+
1998 04 20	704	0.4+	0.3+	1998 04 30	699	0.3−	0.0	1999 12 08	704	0.9+	0.0
1998 04 20	704	0.2−	1.2−	1998 04 30	699	1.0−	0.0	1999 12 08	704	0.3+	0.3−
1998 04 20	704	1.6−	0.0	1998 04 30	699	0.1−	0.4+				
1998 04 20	704	0.1−	0.5+	1998 05 16	704	0.7+	0.0				

1998 HC₄₂ = 1999 XH₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M		(2000.0)		P		Q	
n	0.29340393	ω	263.54404	+0.86569794	+0.48718543		
a	2.2429802	Ω	67.24711	−0.39569945	+0.80670844		
e	0.2063885	i	7.16162	−0.30657630	+0.33447250		
P	3.36	H	15.9	G	0.15	U	5

Residuals in seconds of arc

1998 04 21	704	0.2+	0.9+	1998 04 24	691	0.8−	0.2+	1999 12 05	703	1.0−	0.4−
1998 04 21	704	(3.0+	2.4−)	1998 05 01	691	0.4−	0.2+	1999 12 07	704	0.3+	0.3+
1998 04 21	704	(1.1+	2.2+)	1998 05 01	691	0.1−	0.2−	1999 12 07	704	0.2−	0.0
1998 04 21	704	(2.9+	1.5−)	1998 05 01	691	0.4−	0.6+	1999 12 07	704	1.0+	0.8+
1998 04 22	704	1.3+	0.6−	1999 12 04	703	0.3+	0.0	1999 12 07	704	1.2+	0.0
1998 04 22	704	1.1−	0.3+	1999 12 04	703	0.5−	0.1−	1999 12 07	704	0.2−	0.1+
1998 04 22	704	1.0+	1.0+	1999 12 04	703	0.5−	0.3+	1999 12 08	704	0.5+	0.5+
1998 04 22	704	0.1+	1.1−	1999 12 04	703	0.8−	0.3−	1999 12 08	704	0.0	0.7−
1998 04 22	704	1.3+	1.2−	1999 12 05	703	0.1+	0.2−	1999 12 08	704	0.5+	0.0
1998 04 24	691	0.3−	0.2+	1999 12 05	703	1.2−	0.9−	1999 12 08	704	0.5+	0.1+
1998 04 24	691	0.8−	0.3−	1999 12 05	703	0.6−	0.5+	1999 12 08	704	0.4+	0.0

1998 HW₅₀ = 1999 XW₁₂₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	48.90579		(2000.0)	P		Q	
<i>n</i>	0.29253872	ω	329.36495	+0.76367254	+0.64549676		
<i>a</i>	2.2474005	Ω	350.40532	-0.57711608	+0.67438510		
<i>e</i>	0.1938819	<i>i</i>	4.04424	-0.28938086	+0.35852290		
<i>P</i>	3.37	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 03 25	704	0.1+	0.1+	1998 04 21	704	0.4+	1.6-	1998 05 16	704	0.3+	1.5-
1998 03 25	704	0.4+	0.4+	1998 04 22	704	0.3-	0.5+	1998 05 16	704	0.5+	0.6-
1998 03 25	704	0.4-	0.9-	1998 04 22	704	0.5-	0.6+	1998 05 16	704	(6.3-	0.5+)
1998 03 25	704	0.0	1.1+	1998 04 22	704	0.9-	0.4+	1999 12 07	703	0.4-	0.0
1998 03 25	704	0.2+	0.3+	1998 04 22	704	0.0	0.9+	1999 12 07	703	0.2-	0.2+
1998 04 01	704	0.9+	1.2-	1998 04 22	704	0.8-	0.8+	1999 12 07	703	0.1-	0.0
1998 04 01	704	0.3+	0.6+	1998 04 25	699	0.2-	0.2+	1999 12 07	703	0.1+	0.3-
1998 04 01	704	(0.6-	2.4+)	1998 04 25	699	0.6-	1.1+	1999 12 13	703	0.1-	0.1-
1998 04 01	704	1.7-	0.5-	1998 04 25	699	(2.2-	1.1+)	1999 12 13	703	0.1-	0.2-
1998 04 01	704	0.5+	1.1-	1998 04 30	699	0.3-	0.2-	1999 12 13	703	0.1+	0.1-
1998 04 21	704	0.2-	0.6+	1998 04 30	699	0.1-	0.6+	1999 12 13	703	0.0	0.3+
1998 04 21	704	0.3+	0.9-	1998 04 30	699	1.0+	0.7+	1999 12 13	106	0.3+	0.2+
1998 04 21	704	0.3+	0.0	1998 05 16	704	0.4+	0.4+	1999 12 13	106	0.3+	0.0
1998 04 21	704	0.2-	0.4-	1998 05 16	704	1.0+	0.4-	1999 12 13	106	0.2+	0.2+

1998 HS₅₁ = 1999 XC₂₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	76.05766		(2000.0)	P		Q	
<i>n</i>	0.28957740	ω	240.94217	+0.30359559	+0.94854821		
<i>a</i>	2.2626963	Ω	47.02334	-0.82586701	+0.30904057		
<i>e</i>	0.1319283	<i>i</i>	7.05987	-0.47515617	+0.06892185		
<i>P</i>	3.40	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 04 21	704	0.1-	0.7-	1998 05 01	699	0.2+	0.2+	1999 12 06	704	0.2+	0.4-
1998 04 21	704	1.0-	0.2-	1998 05 16	704	0.5+	0.3+	1999 12 06	704	0.1-	0.1+
1998 04 21	704	1.1-	0.1+	1998 05 16	704	0.0	1.0+	1999 12 06	704	0.5+	0.8+
1998 04 21	704	0.8-	0.9-	1998 05 16	704	0.7+	0.7+	1999 12 06	704	0.4-	0.3+
1998 04 21	704	(3.7-	1.0+)	1998 05 16	704	0.1-	0.5+	1999 12 07	704	0.3-	0.5+
1998 04 22	704	0.2+	1.3-	1998 05 16	704	0.7+	0.6+	1999 12 07	704	0.2-	0.5-
1998 04 22	704	0.5+	0.2-	1998 05 23	691	0.2-	0.2-	1999 12 07	704	0.1-	0.2+
1998 04 22	704	0.3+	0.1-	1998 05 23	691	1.0-	0.1-	1999 12 07	704	0.4-	0.7+
1998 04 30	699	0.5+	0.3+	1998 05 23	691	0.1-	0.1-	1999 12 07	704	0.3-	1.4+
1998 04 30	699	0.3+	0.4+	1998 06 26	684	0.0	0.3-	1999 12 12	703	0.2-	0.4-
1998 04 30	699	0.2+	0.7+	1998 06 26	684	0.2+	0.1-	1999 12 12	703	0.2-	0.8-
1998 05 01	699	0.3+	0.5+	1998 06 26	684	0.1+	0.5-	1999 12 12	703	0.2-	0.5-
1998 05 01	699	0.2+	0.0	1999 12 06	704	0.8+	0.7-	1999 12 12	703	0.4+	0.1+

1998 HO₅₂ = 1999 XF₇₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	84.68158		(2000.0)	P		Q	
<i>n</i>	0.30036482	ω	222.23383	+0.44411241	+0.89307492		
<i>a</i>	2.2081912	Ω	74.24866	-0.80074593	+0.43167091		
<i>e</i>	0.1821522	<i>i</i>	4.28916	-0.40195786	+0.12679672		
<i>P</i>	3.28	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 04 30	358	0.6+	0.6+	1998 05 22	704	0.0	0.2+	1999 12 07	704	0.0	0.1-
1998 04 30	358	0.7-	0.9+	1998 05 22	704	0.0	0.2-	1999 12 07	704	2.0+	0.2-
1998 05 01	358	(1.5-	2.6+)	1998 05 22	704	0.0	0.9-	1999 12 07	704	0.8-	0.3-
1998 05 01	358	(2.2-	5.7+)	1998 05 24	704	0.1-	0.5+	1999 12 08	704	0.4+	0.5+
1998 05 04	358	0.2-	0.6-	1998 05 24	704	1.3+	0.8-	1999 12 08	704	0.6-	0.1-
1998 05 04	358	1.0-	0.1+	1998 05 24	704	0.4-	0.0	1999 12 08	704	0.6-	0.3+
1998 05 04	358	1.1+	1.3-	1998 05 24	704	0.4+	0.2+	1999 12 08	704	0.3-	0.0
1998 05 22	704	0.6-	0.3+	1998 05 24	704	0.3-	0.4+	1999 12 08	704	0.1-	0.2-
1998 05 22	704	0.1-	0.6+	1999 12 07	704	0.1+	0.2+				

1998 HP₆₄ = 1999 VM₁₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	90.98418		(2000.0)	P		Q	
<i>n</i>	0.23366760	ω	36.82682	-0.49571450	+0.86815415		
<i>a</i>	2.6105803	Ω	203.48488	-0.81048501	-0.47235762		
<i>e</i>	0.1932803	<i>i</i>	3.45125	-0.31205958	-0.15227164		
<i>P</i>	4.22	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1998 04 21	704	0.1+	0.3-	1998 04 22	704	0.2-	0.3+	1999 11 02	691	0.1+	0.1-
1998 04 21	704	0.3-	1.7-	1998 04 22	704	0.9+	0.3-	1999 11 03	691	0.2+	0.4+
1998 04 21	704	0.2-	0.4-	1998 04 22	704	0.0	0.5+	1999 11 03	691	0.0	0.2+
1998 04 21	704	0.0	1.3+	1998 04 22	704	0.6-	0.6+	1999 11 03	691	0.0	0.5+
1998 04 21	704	0.3+	0.4+	1999 11 02	691	0.1+	0.7-				
1998 04 22	704	0.1-	0.5-	1999 11 02	691	0.3-	0.4-				

1998 HB₈₇ = 1999 XX₅₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	76.66201		(2000.0)	P		Q	
<i>n</i>	0.27961123	ω	16.92055	+0.42994697	+0.90205550		
<i>a</i>	2.3161480	Ω	278.55711	-0.83273397	+0.37995584		
<i>e</i>	0.2303719	<i>i</i>	2.20037	-0.34885488	+0.20476678		
<i>P</i>	3.52	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 04 21	704	0.1-	0.4-	1998 05 24	691	0.4-	0.1+	1998 05 31	691	0.4-	0.1-
1998 04 21	704	(1.8+	2.2+)	1998 05 24	691	0.3-	0.1+	1999 12 07	704	0.2-	0.1+
1998 04 21	704	1.2-	0.8+	1998 05 26	691	0.7+	0.2-	1999 12 07	704	0.3-	0.1+
1998 04 21	704	0.5-	0.1+	1998 05 26	691	0.7+	0.1-	1999 12 07	704	0.3-	0.1+
1998 04 21	704	0.0	0.4-	1998 05 26	691	1.2+	0.8+	1999 12 07	704	0.6-	0.1-
1998 04 22	704	0.2+	0.1-	1998 05 27	691	0.5+	0.8+	1999 12 07	704	0.2-	0.5+
1998 04 22	704	0.8-	0.1-	1998 05 27	691	0.3+	0.1+	1999 12 08	704	0.2-	0.5+
1998 04 22	704	0.7+	0.1-	1998 05 27	691	0.2+	0.0	1999 12 08	704	0.4+	1.1-
1998 04 22	704	0.5+	0.4+	1998 05 31	691	0.9-	0.3-	1999 12 08	704	0.3+	0.4-
1998 04 22	704	0.3+	1.0-	1998 05 31	691	0.5-	0.0	1999 12 08	704	1.1+	1.1+

1998 HA₁₄₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	247.68958		(2000.0)	P		Q	
<i>n</i>	0.30725827	ω	238.10151	-0.46650244	-0.88290701		
<i>a</i>	2.1750387	Ω	239.79682	+0.83096618	-0.41677404		
<i>e</i>	0.0810763	<i>i</i>	3.54189	+0.30310177	-0.21627437		
<i>P</i>	3.21	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 04 25	809	1.2+	0.4+	1998 05 22	704	0.7-	0.2+	1998 07 16	699	1.2-	0.4-
1998 04 25	809	0.1+	0.7+	1998 05 24	704	0.2+	0.1-	1999 11 27	699	0.3+	0.2+
1998 04 25	809	0.3+	0.3+	1998 05 24	704	0.0	0.6+	1999 11 27	699	0.3-	0.4+
1998 04 28	809	(4.2-	4.5+)	1998 05 24	704	0.2-	0.6+	1999 11 27	699	0.1-	0.1-
1998 04 28	809	(3.9-	4.5+)	1998 05 24	704	0.5-	0.0	1999 12 05	704	(1.1-	3.3+)
1998 04 28	809	(3.3-	5.2+)	1998 05 24	704	0.7-	1.1+	1999 12 05	704	1.0-	0.8+
1998 04 28	809	0.2+	0.0	1998 06 16	704	0.3-	0.6-	1999 12 05	704	1.4+	0.2+
1998 04 28	809	0.4-	0.1+	1998 06 16	704	0.1-	0.6-	1999 12 07	704	0.3-	0.2-
1998 04 28	809	0.0	0.6+	1998 06 16	704	0.9+	0.3-	1999 12 07	704	0.2+	0.6-
1998 05 22	704	0.0	0.3-	1998 06 16	704	0.5-	2.0-	1999 12 07	704	0.4-	0.0
1998 05 22	704	0.5+	0.1+	1998 06 16	704	(2.4-	1.2-)	1999 12 07	704	1.2-	0.3+
1998 05 22	704	0.1+	0.4-	1998 07 16	699	1.0+	0.0	1999 12 07	704	0.9+	0.6+
1998 05 22	704	0.4-	0.2+	1998 07 16	699	0.8+	1.0+				

1998 HW₁₄₈ = 1999 UO₁₂

Id. M. E. Sansaturio

1999 DEC. 22

M.P.C. 37151

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
M	8.25358		(2000.0)			P		Q			
n	0.22993554	ω	4.58489			+0.95700346		+0.29005251			
a	2.6387525	Ω	338.55287			−0.26646348		+0.87394360			
e	0.0887735	i	0.58481			−0.11463680		+0.38998990			
P	4.29	H	14.7		G	0.15		U	4		
Residuals in seconds of arc											
1998 04 25	809	0.5−	0.6−	1998 05 22	704	1.3−	0.3−	1999 11 03	703	0.7+ 0.3−	
1998 04 25	809	0.4−	0.5−	1998 05 24	704	1.0−	0.6+	1999 11 03	703	0.5+ 0.7+	
1998 04 25	809	0.0	0.8−	1998 05 24	704	0.9+	1.7+	1999 11 03	703	0.1+ 0.2+	
1998 04 28	809	0.7+	0.8−	1998 05 24	704	0.2+	1.5+	1999 11 03	703	0.3+ 0.1+	
1998 04 28	809	0.7−	1.8−	1998 05 24	704	0.4+	0.2+	1999 12 07	704	1.7− 0.5+	
1998 04 28	809	0.5+	0.7+	1999 10 29	703	0.2+	0.4−	1999 12 07	704	0.2+ 0.1−	
1998 05 22	704	0.8+	0.5+	1999 10 29	703	0.5+	0.3−	1999 12 07	704	0.5+ 0.1+	
1998 05 22	704	(2.3−	0.4+)	1999 10 29	703	1.5−	0.2−	1999 12 07	704	1.2+ 1.2−	
1998 05 22	704	0.4+	1.2−	1999 10 29	703	0.6−	0.2+				

1998 HD ₁₄₉ = 1999 TL ₃₀										
Id. M. E. Sansaturio										
Epoch 1999 Aug. 10.0 TT = JDT 2451400.5										
<i>M</i>		66.98980		(2000.0)		P		Q		
<i>n</i>	0.23062875	ω	51.86138		+0.21236370		+0.97698151			
<i>a</i>	2.6334622	Ω	230.41176		−0.90456318		+0.18871064			
<i>e</i>	0.0896389	<i>i</i>	1.50338		−0.36968515		+0.09947575			
<i>P</i>	4.27	<i>H</i>	14.1		<i>G</i>	0.15	<i>U</i>	3		
Residuals in seconds of arc										
1998 04 25	809	0.5−	0.0	1998 06 27	691	0.2+	0.1+	1999 10 06	704	0.1+ 0.3+
1998 04 25	809	0.0	0.2+	1999 10 04	704	0.2−	1.0−	1999 10 06	704	0.1+ 0.4+
1998 04 25	809	0.5+	0.7−	1999 10 04	704	0.5−	0.6+	1999 11 03	049	0.1+ 0.0
1998 04 28	809	(3.2+ 2.7+)		1999 10 04	704	0.0	0.1+	1999 11 03	049	0.2− 0.1+
1998 04 28	809	(2.9+ 1.7+)		1999 10 04	704	0.3+	0.7−	1999 11 03	049	0.4+ 0.2+
1998 04 28	809	(3.1+ 3.1+)		1999 10 06	704	0.2−	0.2+	1999 12 07	704	0.3+ 0.6−
1998 06 27	691	0.2−	0.3+	1999 10 06	704	0.0	0.1+	1999 12 07	704	0.2+ 0.8+
1998 06 27	691	0.1−	0.2−	1999 10 06	704	0.0	0.1+	1999 12 07	704	0.3− 1.2−

1998 JS = 1999 XU ₄₅											
Epoch 1999 Aug. 10.0 TT = JDT 2451400.5											
Williams											
<i>M</i>	58.57169		(2000.0)		P		Q				
<i>n</i>	0.28814687	ω	44.65442		+0.66071630		+0.74638886				
<i>a</i>	2.2701791	Ω	266.87139		−0.70909180		+0.58576962				
<i>e</i>	0.1601714	<i>i</i>	4.58017		−0.24625757		+0.31587596				
<i>P</i>	3.42	<i>H</i>	14.4		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1998 04 21	704	0.5+	0.6−	1998 04 25	699	0.7+	0.6+	1999 12 07	704	0.2−	0.3+
1998 04 21	704	0.3−	1.1−	1998 04 25	699	0.2−	0.6+	1999 12 07	704	0.3−	0.5+
1998 04 21	704	0.2−	0.2−	1998 04 25	699	0.7−	1.0+	1999 12 07	704	0.5+	0.7−
1998 04 21	704	0.2−	0.6−	1998 05 01	566	0.5+	0.6+	1999 12 07	704	0.1−	0.2+
1998 04 21	704	0.3−	1.4−	1998 05 01	566	0.5+	0.6+	1999 12 08	704	0.0	0.1+
1998 04 22	704	0.0	0.6+	1998 05 01	566	1.0+	0.8+	1999 12 08	704	0.4−	0.1−
1998 04 22	704	0.4−	0.7−	1998 05 02	566	0.6+	0.5+	1999 12 08	704	0.3+	0.2+
1998 04 22	704	1.9−	0.4−	1998 05 02	566	0.4+	0.5+	1999 12 08	704	0.0	0.3+
1998 04 22	704	0.3−	0.9−	1998 05 02	566	0.7+	0.8+	1999 12 08	704	0.1+	0.2−
1998 04 22	704	0.2−	0.6−	1999 12 07	704	0.1−	0.1+				

1998 JP ₁ = 1991 NJ ₈ = 1999 VV ₅₇											
Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
<i>M</i>	70.02090			(2000.0)		P			Q		
<i>n</i>	0.26686930			ω	233.58534	+0.45831824			+0.88716380		
<i>a</i>	2.3892979			Ω	63.77682	−0.79508252			+0.43625637		
<i>e</i>	0.1889454			<i>i</i>	3.43248	−0.39722560			+0.15040204		
<i>P</i>	3.69			<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>		4	
Residuals in seconds of arc											
1991 07 14	675	0.4−	0.2−	1999 11 04	704	1.1+	1.2−	1999 12 05	691	0.2−	0.0
1991 07 14	675	0.3+	0.6+	1999 11 04	704	0.4+	0.2−	1999 12 05	691	0.1−	0.1−
1998 05 01	566	0.1+	0.6+	1999 11 04	704	0.0	1.3−	1999 12 05	691	0.3−	0.0
1998 05 01	566	0.3−	0.2+	1999 11 12	704	0.4−	0.3+	1999 12 07	704	1.1−	0.2+
1998 05 01	566	0.6−	0.6+	1999 11 12	704	0.1−	0.6+	1999 12 07	704	0.1−	0.5+
1998 05 02	566	0.2−	0.1+	1999 11 12	704	1.5+	0.1+	1999 12 07	704	1.6+	0.4−
1998 05 02	566	0.0	0.4+	1999 11 12	704	1.1−	0.8+	1999 12 07	704	0.2−	0.6−
1998 05 02	566	0.9−	0.1+	1999 11 12	704	0.1+	1.0+	1999 12 12	703	0.6+	0.6−
1998 05 05	699	0.0	0.2−	1999 12 04	703	(2.5+ 0.6+)		1999 12 12	703	0.4+	1.0+
1998 05 05	699	1.2+	0.9−	1999 12 04	703	0.3+	0.5+	1999 12 12	703	1.0−	0.9+
1998 05 05	699	0.9+	0.1−	1999 12 04	703	0.1−	0.2+	1999 12 12	703	0.9−	0.6−
1999 11 04	704	0.1−	0.3−	1999 12 04	703	0.7−	0.2+				

1998 JT ₁ = 1991 RD ₃₆ = 1999 XF ₅												
Id. G. V. Williams, E. Bowell, M. E. Sansaturio												
Epoch 1999 Aug. 10.0 TT = JDT 2451400.5												
				Williams								
<i>M</i>	54.51801			(2000.0)			P		Q			
<i>n</i>	0.26175542			ω	207.41897		+0.70051317		+0.71144589			
<i>a</i>	2.4203170			Ω	107.10977		−0.64356905		+0.66364540			
<i>e</i>	0.2067366			<i>i</i>	3.35373		−0.30838316		+0.23112666			
<i>P</i>	3.77			<i>H</i>	14.6		<i>G</i>	0.15		<i>U</i>	2	
Residuals in seconds of arc												
1991 09 14	675	0.0	0.2+	1998 05 22	704	0.5+	0.4+	1999 12 05	703	0.3−	0.7+	
1991 09 14	675	0.0	0.3−	1998 05 22	704	0.7−	0.0	1999 12 06	704	(3.6+ 0.1−)		
1998 05 01	566	0.1+	0.5+	1998 05 24	704	0.6+	0.2+	1999 12 06	704	0.8+	0.1+	
1998 05 01	566	0.0	0.3+	1998 05 24	704	0.4+	0.4−	1999 12 06	704	0.6+	1.8−	
1998 05 01	566	0.4−	0.5+	1998 05 24	704	0.1−	0.1−	1999 12 06	704	0.3+	1.0−	
1998 05 02	566	0.6−	0.5+	1998 05 24	704	0.3−	0.3−	1999 12 07	704	0.1−	0.1+	
1998 05 02	566	0.0	0.5+	1998 05 24	704	0.4+	0.8+	1999 12 07	704	0.0	0.1−	
1998 05 02	566	0.2−	0.0	1999 12 04	703	0.1+	1.2+	1999 12 07	704	0.1+	0.4−	
1998 05 05	699	0.7+	1.2−	1999 12 04	703	0.8−	0.7+	1999 12 07	704	0.2+	0.3+	
1998 05 05	699	0.2−	0.6−	1999 12 04	703	0.1+	0.4+	1999 12 07	704	0.3+	0.3−	
1998 05 05	699	0.3+	1.4−	1999 12 04	703	0.3−	0.4+	1999 12 09	691	0.2−	0.8−	
1998 05 22	704	0.8+	0.1−	1999 12 05	703	0.2−	0.7+	1999 12 09	691	0.1+	1.0−	
1998 05 22	704	0.4−	0.8+	1999 12 05	703	0.0	0.5+	1999 12 09	691	0.3−	0.6−	
1998 05 22	704	1.0−	0.5−	1999 12 05	703	0.2−	0.7+					

1998 JB ₂ = 1999 XA ₂₃											
Epoch 1999 Aug. 10.0 TT = JDT 2451400.5											
				Williams							
<i>M</i>	58.87241		(2000.0)	P				Q			
<i>n</i>	0.26706579	ω	245.61840	+0.59496773				+0.79929015			
<i>a</i>	2.3881258	Ω	61.15795	−0.69803068				+0.56599301			
<i>e</i>	0.1019025	<i>i</i>	5.53899	−0.39845524				+0.20195835			
<i>P</i>	3.69	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1998 04 25	809	0.1−	1.1−	1998 05 05	699	0.5+	0.7+	1998 05 24	704	0.1−	0.8+
1998 04 25	809	0.2+	1.0−	1998 05 05	699	0.7−	0.1+	1998 06 16	704	0.4+	0.4−
1998 04 25	809	0.3+	0.4−	1998 05 22	704	0.1+	0.0	1998 06 16	704	0.6+	0.1−
1998 04 28	809	1.3+	1.4+	1998 05 22	704	0.5−	0.2−	1998 06 16	704	0.7+	0.7+
1998 04 28	809	0.9+	1.4+	1998 05 22	704	0.8−	0.7−	1998 06 16	704	(0.3−	2.9−)
1998 04 28	809	1.6+	0.9+	1998 05 22	699	0.2+	0.2−	1999 12 04	699	0.4+	0.5+
1998 05 01	704	0.3−	0.4+	1998 05 22	699	0.5−	0.6−	1999 12 04	699	0.8+	0.7−
1998 05 01	704	0.1−	0.6+	1998 05 22	704	0.2−	0.4−	1999 12 04	699	1.2−	0.3+
1998 05 01	704	0.0	0.0	1998 05 22	699	0.2−	0.3−	1999 12 06	704	0.9+	0.1+

1998 05 01	704	0.3−	1.4+	1998 05 22	704	0.0	1.1−	1999 12 06	704	0.5+	0.9−
1998 05 01	566	0.0	1.0−	1998 05 23	699	0.1−	0.3+	1999 12 06	704	0.1+	0.5+
1998 05 01	566	0.2−	0.9−	1998 05 23	699	0.3+	0.4+	1999 12 06	704	0.6+	0.7−
1998 05 01	566	0.3−	1.4−	1998 05 23	699	0.2+	0.2+	1999 12 06	704	0.0	0.2−
1998 05 02	566	0.6−	1.0−	1998 05 24	704	0.0	0.0	1999 12 07	704	0.4−	0.2−
1998 05 02	566	0.7−	0.7−	1998 05 24	704	0.3+	0.1+	1999 12 07	704	0.4+	0.1+
1998 05 02	566	0.8−	0.8−	1998 05 24	704	0.5−	0.0	1999 12 07	704	0.5−	0.1−
1998 05 05	699	0.1−	1.0+	1998 05 24	704	0.4−	0.6+	1999 12 07	704	0.2−	0.0

1998 KK₂ = 1999 XM₁₀₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	48.74499		(2000.0)	P	Q
<i>n</i>	0.25561692	ω	254.61436	+0.87698380	+0.40981640
<i>a</i>	2.4589120	Ω	80.65070	−0.28165004	+0.86144105
<i>e</i>	0.2822504	<i>i</i>	14.73069	−0.38932335	+0.29994972
<i>P</i>	3.86	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1998 05 03	566	1.0+	1.4−	1998 05 24	699	0.4+	0.3+	1998 06 18	704	0.8+	0.2+
1998 05 03	566	(1.5+	2.2−)	1998 05 24	704	0.5−	0.1−	1998 06 18	704	1.1+	0.2−
1998 05 03	566	0.1+	1.5−	1998 05 24	699	0.7+	0.0	1998 06 27	699	0.2+	0.3−
1998 05 22	704	0.2−	0.4−	1998 05 24	699	0.1−	0.5+	1998 06 27	699	0.4+	0.6+
1998 05 22	704	1.0−	1.2+	1998 06 16	704	1.2+	0.7−	1998 06 27	699	0.0	0.4−
1998 05 22	704	0.7−	0.6+	1998 06 16	704	0.4−	0.4−	1999 12 07	704	0.4+	0.3−
1998 05 22	704	0.1+	0.1−	1998 06 16	704	0.4+	1.2+	1999 12 07	704	0.7+	0.6−
1998 05 22	704	0.2−	1.0+	1998 06 16	704	0.7+	1.7−	1999 12 07	704	0.6−	0.7+
1998 05 23	699	0.2+	0.8+	1998 06 16	704	0.1−	0.3−	1999 12 07	704	0.4−	0.7+
1998 05 23	699	0.0	0.7+	1998 06 18	691	0.7−	0.2−	1999 12 10	704	0.4+	0.1−
1998 05 23	699	0.4−	0.1+	1998 06 18	691	0.6−	0.4−	1999 12 10	704	0.5+	0.1+
1998 05 24	704	0.1−	0.1−	1998 06 18	704	0.4+	0.6−	1999 12 10	704	0.5−	0.3−
1998 05 24	704	0.3−	0.2+	1998 06 18	691	0.7−	0.0	1999 12 10	704	0.5−	0.1+
1998 05 24	704	0.6−	0.6+	1998 06 18	704	0.5−	0.9+				
1998 05 24	704	0.2−	0.7−	1998 06 18	704	0.1+	0.6+				

1998 KL₂ = 1999 XW₅₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	74.19264		(2000.0)	P	Q
<i>n</i>	0.23765131	ω	220.19281	+0.38964724	+0.89190021
<i>a</i>	2.5813243	Ω	73.86176	−0.77169511	+0.45222303
<i>e</i>	0.2826236	<i>i</i>	13.82501	−0.50265464	−0.00288835
<i>P</i>	4.15	<i>H</i>	15.2	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1998 05 22	704	0.2+	0.3+	1998 06 16	704	0.9+	0.3−	1998 07 01	691	0.1−	0.1+
1998 05 22	704	0.2+	1.0+	1998 06 16	704	0.3+	0.2−	1998 07 01	691	0.4−	0.2−
1998 05 22	704	0.5+	0.9−	1998 06 16	704	0.9−	0.0	1999 12 07	704	0.6−	0.2−
1998 05 22	704	0.4+	0.2+	1998 06 16	704	1.6+	1.5−	1999 12 07	704	0.5+	0.5+
1998 05 22	704	0.7−	0.3+	1998 06 16	704	0.5−	1.5−	1999 12 07	704	0.4−	1.2+
1998 05 22	699	0.8+	0.2−	1998 06 18	704	(2.5−	2.2−)	1999 12 07	704	0.0	1.0+
1998 05 22	699	0.5−	0.2+	1998 06 18	704	0.2+	0.7−	1999 12 08	704	0.2−	0.0
1998 05 22	699	0.1−	0.1+	1998 06 18	704	1.6−	0.9+	1999 12 08	704	0.4−	1.0−
1998 05 24	699	(0.4+	2.2+)	1998 06 18	704	0.3+	0.4+	1999 12 08	704	1.8−	0.4+
1998 05 24	704	0.4−	0.8−	1998 06 27	691	0.1+	0.5+	1999 12 09	691	0.1+	0.2+
1998 05 24	699	0.4+	0.2−	1998 06 27	691	0.6+	0.1−	1999 12 09	691	0.2+	0.2+
1998 05 24	699	0.1−	0.1+	1998 06 27	691	0.7+	0.2+	1999 12 09	691	0.4+	0.1−
1998 05 24	704	0.1+	0.6+	1998 06 27	699	0.5−	0.2+	1999 12 12	691	0.4+	0.0
1998 05 24	704	0.2+	0.2+	1998 06 27	699	0.5−	1.2+	1999 12 12	691	0.1+	0.0
1998 05 24	704	0.0	0.1+	1998 06 27	699	0.9+	0.2+	1999 12 12	691	0.8+	0.6−
1998 05 24	704	0.9−	0.8+	1998 07 01	691	0.4−	0.2+				

1998 KA₄ = 1999 XL₅₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	92.11712		(2000.0)	P	Q
<i>n</i>	0.29304765	ω	207.58182	+0.30930224	+0.94108184
<i>a</i>	2.2447978	Ω	80.70111	−0.84498532	+0.33794189
<i>e</i>	0.1571304	<i>i</i>	7.96442	−0.43627048	+0.01265908
<i>P</i>	3.36	<i>H</i>	15.3	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 05 05	699	0.7+	0.3+	1998 05 24	699	0.1+	0.1−	1998 06 18	704	(5.7−	2.1−)
1998 05 05	699	0.4−	0.0	1998 05 24	704	0.4−	0.1+	1998 06 30	699	0.4+	0.8−
1998 05 05	699	0.2+	0.8+	1998 05 24	704	0.7−	0.9−	1998 06 30	699	0.7+	1.4−
1998 05 22	704	0.2+	0.5−	1998 05 24	704	0.1−	0.3+	1998 06 30	699	0.3−	0.1+
1998 05 22	704	0.1+	0.4+	1998 06 16	704	0.4+	1.1−	1998 07 16	699	0.4−	1.4+
1998 05 22	704	1.6−	0.8−	1998 06 16	704	0.3+	0.3−	1998 07 16	699	0.2+	0.1+
1998 05 22	704	0.3−	0.6−	1998 06 16	704	0.9+	0.4+	1998 07 16	699	2.0−	1.0−
1998 05 22	699	0.3−	0.3−	1998 06 16	704	0.5+	1.1+	1999 12 07	704	0.5−	0.0
1998 05 22	704	0.5−	0.2−	1998 06 16	704	0.3−	1.7+	1999 12 07	704	0.8+	0.9−
1998 05 22	699	0.1+	0.4+	1998 06 16	426	0.2+	0.6−	1999 12 07	704	0.2+	0.6−
1998 05 22	699	0.4−	0.2+	1998 06 16	426	0.0	0.3−	1999 12 07	704	0.0	0.2−
1998 05 23	699	0.3+	1.0+	1998 06 16	426	0.2+	0.6−	1999 12 07	704	0.3+	0.5−
1998 05 23	699	0.1+	0.0	1998 06 17	426	0.1−	0.5−	1999 12 08	704	0.1+	0.0
1998 05 23	699	0.6−	0.7+	1998 06 17	426	0.3+	0.7−	1999 12 08	704	0.1+	0.2−
1998 05 24	704	0.0	0.4−	1998 06 17	426	0.5+	0.8−	1999 12 08	704	0.1−	0.5−
1998 05 24	699	0.2+	0.4−	1998 06 18	704	0.2−	1.2+	1999 12 08	704	0.0	0.4−
1998 05 24	699	0.1+	0.2−	1998 06 18	704	0.3+	0.6+	1999 12 08	704	0.1+	0.6+
1998 05 24	704	0.3−	0.3−	1998 06 18	704	0.7+	0.3−				

1998 KA₆ = 1999 XB₃₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	62.05166		(2000.0)	P	Q
<i>n</i>	0.19067512	ω	183.76912	+0.85495272	+0.51623239
<i>a</i>	2.9895560	Ω	145.00164	−0.47356697	+0.81662905
<i>e</i>	0.1788328	<i>i</i>	5.06094	−0.21163688	+0.25811067
<i>P</i>	5.17	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 05 24	691	0.0	0.7−	1998 08 17	704	0.1−	0.5+	1999 12 06	704	0.8−	1.8−
1998 05 24	691	0.0	0.1−	1998 08 23	704	0.3−	0.3+	1999 12 06	704	0.8+	1.1+
1998 05 24	691	0.2+	0.2−	1998 08 23	704	(2.2−	1.2−)	1999 12 06	704	0.6+	0.2+
1998 05 26	691	0.0	0.2−	1998 08 23	704	0.7+	1.2+	1999 12 07	704	0.3+	0.1+
1998 05 26	691	0.0	0.2+	1998 08 23	704	0.9−	0.9+	1999 12 07	704	0.3−	0.3+
1998 05 26	691	0.1−	0.1+	1998 08 23	704	0.7+	0.3+	1999 12 07	704	0.2−	0.1+
1998 08 17	704	0.5−	1.8−	1998 09 14	699	0.5+	1.1−	1999 12 07	704	0.2−	0.1−
1998 08 17	704	0.1+	0.4+	1998 09 14	699	0.1−	1.7−	1999 12 07	704	0.4−	0.0
1998 08 17	704	(2.3+	0.2−)	1998 09 14	699	0.3−	0.0				
1998 08 17	704	0.0	1.4+	1999 12 06	704	0.2+	0.0				

1998 KK₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	81.52332		(2000.0)	P	Q
<i>n</i>	0.27797166	ω	196.70580	+0.45507898	+0.88841878
<i>a</i>	2.3252467	Ω	100.39825	−0.80982390	+0.44100529
<i>e</i>	0.1425543	<i>i</i>	3.50470	−0.37025447	+0.12738291
<i>P</i>	3.55	<i>H</i>	15.2	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 05 22	704	0.4+	0.5+	1998 06 01	046	0.3+	0.4+	1998 06 29	699	0.4+	0.3+
1998 05 22	704	0.3−	0.5+	1998 06 01	046	0.4+	0.3+	1998 06 29	699	0.4−	0.7−
1998 05 22	704	(1.5+	3.1+)	1998 06 01	046	0.3+	0.3+	1998 06 29	699	0.6−	0.2−
1998 05 22	704	(1.7−	4.1+)	1998 06 02	046	0.3+	0.1+	1998 07 21	046	0.0	0.4+
1998 05 22	704	0.6−	0.5+	1998 06 02	046	0.4+	0.1+	1998 07 21	046	0.1−	0.1+
1998 05 24	704	1.6+	0.3−	1998 06 02	046	0.3+	0.3+	1998 07 21	046	0.1+	0.7+
1998 05 24	704	1.7−	0.1−	1998 06 03	704	0.2+	1.0+	1998 07 21	046	0.5−	0.6+
1998 05 24	704	1.1+	0.4+	1998 06 03	704	1.2+	0.8+	1999 11 29	046	0.3−	0.3+

1999 DEC. 22

M.P.C. 37153

1998 05 24	704	0.5+	1.2-	1998 06 03	704	0.2+	0.2+	1999 11 29	046	0.4-	0.3+
1998 05 24	704	0.3-	0.7-	1998 06 03	704	(3.5-	1.0+)	1999 11 29	046	0.3-	0.0
1998 05 28	046	0.1+	0.1+	1998 06 03	046	0.2+	0.2+	1999 11 30	046	0.2+	0.3+
1998 05 28	046	0.3+	0.1+	1998 06 03	046	0.2+	0.2+	1999 11 30	046	0.2+	0.4+
1998 05 28	046	0.4+	0.3+	1998 06 03	046	0.3+	0.4+	1999 11 30	046	0.2-	0.5+
1998 05 28	046	0.1+	0.3+	1998 06 14	046	0.4-	0.2+	1999 12 06	704	0.8-	0.8+
1998 05 28	046	0.2+	0.1+	1998 06 14	046	0.8-	0.1-	1999 12 06	704	0.0	0.7+
1998 05 28	046	0.4-	0.2+	1998 06 14	046	0.4-	0.6-	1999 12 06	704	0.2-	0.3+
1998 05 28	046	0.2+	0.5+	1998 06 16	046	0.6-	0.2-	1999 12 07	704	0.1+	0.3+
1998 05 28	046	0.1-	0.3+	1998 06 16	046	0.4-	0.3-	1999 12 07	704	0.2-	0.7+
1998 05 28	046	0.2+	0.6+	1998 06 16	046	0.6-	0.3-	1999 12 07	704	0.1+	0.6+
1998 05 28	046	0.1+	0.2+	1998 06 18	704	0.3+	0.8+	1999 12 07	704	0.6+	0.6+
1998 05 31	046	0.3+	0.2+	1998 06 18	704	1.5-	1.2-	1999 12 07	704	0.5+	0.7+
1998 05 31	046	0.2+	0.3+	1998 06 18	704	1.0+	1.1+	1999 12 09	691	0.4-	0.0
1998 05 31	046	0.0	0.2+	1998 06 18	704	1.1-	0.6-	1999 12 09	691	0.1-	0.1-
1998 05 31	046	0.1+	0.0	1998 06 18	704	0.2-	1.6-	1999 12 09	691	0.6-	0.2-

1998 KD₁₀ = 1999 VD₁₀

Id. M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	23.74204		(2000.0)	P	Q
<i>n</i>	0.25371029	ω	272.72738	+0.86819804	+0.47998274
<i>a</i>	2.4712158	Ω	58.61735	-0.37615901	+0.80206985
<i>e</i>	0.1364574	<i>i</i>	8.48002	-0.32363030	+0.35538786
<i>P</i>	3.88	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 05 22	704	0.3-	0.8-	1998 05 24	704	(1.6+	2.9+)	1999 11 08	158	0.3+	0.2-
1998 05 22	704	0.3-	1.0-	1998 05 24	704	0.5-	1.4-	1999 11 08	158	0.7-	0.7+
1998 05 22	704	(0.1-	2.8+)	1998 05 24	704	0.0	1.2-	1999 11 09	158	1.0+	0.5-
1998 05 22	704	(2.2+	1.6+)	1998 05 26	327	0.5-	0.4+	1999 11 09	158	0.5+	0.1-
1998 05 22	704	(4.4-	1.2+)	1998 05 26	327	0.1-	0.8+	1999 11 09	158	0.5+	0.3-
1998 05 22	699	0.8+	1.7+	1998 05 26	327	0.9+	0.1+	1999 11 13	678	(0.1-	2.5+)
1998 05 22	699	0.0	0.9+	1998 05 28	327	0.3+	0.9+	1999 11 13	678	0.2+	0.7-
1998 05 22	699	0.6+	1.1+	1998 05 28	327	0.1-	1.2+	1999 11 29	158	0.0	0.3-
1998 05 24	704	0.9-	1.8-	1998 05 28	327	0.1-	0.6+	1999 11 29	158	0.5-	0.4+
1998 05 24	704	0.2+	1.6-	1999 11 08	158	1.3-	1.0+				

1998 KJ₁₀

Id. A. Doppler (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	321.98094		(2000.0)	P	Q
<i>n</i>	0.28026380	ω	249.48597	+0.79033548	-0.61019176
<i>a</i>	2.3125513	Ω	148.04455	+0.59373831	+0.74061932
<i>e</i>	0.0432538	<i>i</i>	5.97560	+0.15114444	+0.28133441
<i>P</i>	3.52	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 03 25	910	0.3-	0.5+	1998 05 22	704	1.0-	0.3+	1999 09 14	704	0.4-	0.5-
1998 03 25	910	0.3-	0.0	1998 05 22	704	0.5-	0.1-	1999 09 21	699	1.0+	1.0+
1998 03 25	910	0.1+	0.0	1998 05 22	704	0.3-	0.0	1999 09 21	699	0.7-	0.8+
1998 04 24	704	0.7+	0.4-	1998 05 24	704	0.4-	0.7-	1999 09 21	699	(1.0+	2.4+)
1998 04 24	704	1.3-	1.6+	1998 05 24	704	0.6+	0.0	1999 10 02	704	0.6+	0.2-
1998 04 24	704	0.4-	0.4+	1998 05 24	704	0.0	0.0	1999 10 02	704	0.2+	0.2-
1998 05 01	699	0.7+	0.8-	1998 05 24	704	0.1-	0.2-	1999 10 02	704	0.4-	0.1-
1998 05 01	699	0.8+	0.0	1999 09 14	704	0.3-	0.2-	1999 10 02	704	0.3+	0.2+
1998 05 01	699	1.7+	0.2-	1999 09 14	704	0.9-	0.0	1999 10 02	704	0.3+	0.1-
1998 05 22	704	0.1-	0.1+	1999 09 14	704	0.2+	0.4-				

1998 KN₂₆ = 1999 VU₄₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	37.42425		(2000.0)	P	Q
<i>n</i>	0.22098482	ω	268.79077	+0.57543237	+0.80638209
<i>a</i>	2.7095328	Ω	37.43355	-0.63225415	+0.54446156
<i>e</i>	0.2041021	<i>i</i>	12.97493	-0.51877961	+0.23088856
<i>P</i>	4.46	<i>H</i>	16.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 05 26	691	0.0	0.3+	1998 05 27	691	0.0	0.3-	1999 11 04	691	0.1+	0.1+
1998 05 26	691	0.0	0.1+	1998 05 31	691	0.5-	0.3+	1999 11 04	691	0.3+	0.1+
1998 05 26	691	0.0	1.1-	1998 05 31	691	(2.6+	1.4+)	1999 11 11	691	0.2-	0.2-
1998 05 27	691	0.1-	0.1-	1998 05 31	691	0.5+	0.6+	1999 11 11	691	0.1-	0.1+
1998 05 27	691	0.0	0.2+	1999 11 04	691	0.1-	0.1+	1999 11 11	691	0.0	0.1-

1998 KF₂₈ = 1999 XH₁₂₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	93.52072		(2000.0)	P	Q
<i>n</i>	0.28673425	ω	357.00087	+0.25277385	+0.96338783
<i>a</i>	2.2776291	Ω	287.62783	-0.88572388	+0.19323581
<i>e</i>	0.1684031	<i>i</i>	5.38148	-0.38935663	+0.18585964
<i>P</i>	3.44	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 05 22	704	0.3-	0.1-	1998 06 18	704	0.1+	0.3-	1998 07 13	699	0.4-	0.2+
1998 05 22	704	0.2-	0.0	1998 06 18	704	1.5+	0.2-	1998 07 13	699	(2.8+	0.5-)
1998 05 22	704	0.1+	1.5+	1998 06 18	704	0.7+	0.2-	1999 12 07	703	0.2-	0.3-
1998 05 22	704	0.6-	0.3+	1998 06 18	704	1.5-	0.1-	1999 12 07	703	0.0	0.2+
1998 05 22	704	0.6-	1.2+	1998 07 11	699	0.1-	0.0	1999 12 07	703	0.7-	0.3+
1998 05 24	704	0.5+	0.3-	1998 07 11	699	0.1-	0.0	1999 12 07	703	0.5-	0.2+
1998 05 24	704	0.5+	0.0	1998 07 11	699	0.0	0.0	1999 12 13	703	0.6+	0.4+
1998 05 24	704	0.0	0.4-	1998 07 12	699	0.5-	0.3-	1999 12 13	703	0.8-	1.2+
1998 05 24	704	0.6-	0.3-	1998 07 12	699	1.5+	0.3-	1999 12 13	703	1.0+	0.2+
1998 05 24	704	0.7-	0.2-	1998 07 12	699	0.2+	1.3+	1999 12 13	703	0.4+	0.1-
1998 06 18	704	1.8+	0.5-	1998 07 13	699	0.6-	0.6+				

1998 KU₃₃ = 1999 XQ₁₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	1.59986		(2000.0)	P	Q
<i>n</i>	0.21663521	ω	260.59557	+0.99553535	+0.08895751
<i>a</i>	2.7456806	Ω	94.29610	-0.06930637	+0.91588932
<i>e</i>	0.1770648	<i>i</i>	1.81356	-0.06407807	+0.39145027
<i>P</i>	4.55	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 05 22	704	0.1+	1.4+	1998 06 20	691	0.4+	0.2-	1999 12 03	704	0.1+	0.0
1998 05 22	704	0.6+	0.5+	1998 06 20	691	0.4+	0.1-	1999 12 03	704	0.2+	0.6+
1998 05 22	704	1.3-	0.8+	1998 06 20	691	0.1+	0.0	1999 12 07	704	0.4-	0.4-
1998 05 22	704	0.0	1.8-	1998 06 27	691	0.4-	0.1-	1999 12 07	704	0.6+	0.1+
1998 05 22	704	(2.4-	0.1+)	1998 06 27	691	0.3-	0.3-	1999 12 07	704	0.5-	0.4+
1998 05 24	704	1.0+	0.2+	1998 06 27	691	0.3-	0.3-	1999 12 07	704	0.2+	0.2+
1998 05 24	704	(2.3+	1.7+)	1999 12 03	704	0.2-	0.6-	1999 12 07	704	0.1+	0.3+
1998 05 24	704	0.7+	0.2+	1999 12 03	704	0.1-	0.0				
1998 05 24	704	0.9-	0.2-	1999 12 03	704	0.1-	0.2-				

1998 KZ₃₃ = 1978 WF₁₈ = 1999 XO₂₅

Id. G. V. Williams, E. Bowell

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	19.84883		(2000.0)	P	Q
<i>n</i>	0.23451369	ω	283.33825	+0.96066950	+0.17293339
<i>a</i>	2.6042974	Ω	67.05207	-0.05200986	+0.88062560
<i>e</i>	0.2248686	<i>i</i>	13.64747	-0.27278030	+0.44112650
<i>P</i>	4.20	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1978 11 30	675	0.7−	0.4+	1998 05 24	704	0.3−	0.7−	1999 12 06	704	0.2+	0.4+
1978 12 01	675	0.2+	0.6+	1998 06 19	691	0.5−	0.3−	1999 12 07	704	0.1+	0.4−
1998 05 22	704	0.5−	0.5+	1998 06 19	691	0.2−	0.1−	1999 12 07	704	0.3+	0.5−
1998 05 22	704	1.1+	0.3+	1998 06 19	691	0.3−	0.6−	1999 12 07	704	0.4−	0.4−
1998 05 22	704	1.2+	0.2+	1998 06 25	691	1.2+	0.3+	1999 12 07	704	0.1+	1.0−
1998 05 22	704	(0.8−	2.3−)	1998 06 25	691	0.9+	0.2−	1999 12 07	704	0.5−	1.1−
1998 05 22	704	1.2−	0.3−	1998 06 25	691	0.7+	0.3+	1999 12 12	703	1.4−	0.5+
1998 05 24	704	1.5−	0.3+	1999 12 06	704	0.6+	1.1−	1999 12 12	703	0.0	0.0
1998 05 24	704	0.4+	0.0	1999 12 06	704	0.6+	0.1−	1999 12 12	703	0.3−	1.0+
1998 05 24	704	1.0−	0.2−	1999 12 06	704	0.4+	0.1+	1999 12 12	703	1.0+	1.2+

1998 KG₃₅

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24608114	ω	263.59724	+0.93356768	+0.34547815		
<i>a</i>	2.5220314	Ω	76.15980	−0.27756731	+0.86528829		
<i>e</i>	0.2001319	<i>i</i>	5.63703	−0.22673285	+0.36320935		
<i>P</i>	4.01	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 05 22	704	0.8+	0.5+	1999 12 02	049	0.3+	0.2−	1999 12 07	595	0.1+	0.5−
1998 05 22	704	0.6+	0.1−	1999 12 04	703	0.6−	0.0	1999 12 07	595	0.7+	0.3+
1998 05 22	704	0.4+	0.5−	1999 12 04	703	1.0−	0.0	1999 12 07	587	0.3−	0.2+
1998 05 22	704	0.4+	0.9−	1999 12 04	703	0.5−	0.5−	1999 12 07	587	0.3+	0.5+
1998 05 24	704	1.1−	0.2−	1999 12 04	703	1.0−	0.6−	1999 12 08	704	0.7−	1.4−
1998 05 24	704	0.8−	1.1+	1999 12 04	557	0.6−	0.0	1999 12 08	704	0.0	0.6−
1998 05 24	704	(0.8−	2.4+)	1999 12 04	557	0.1−	0.2+	1999 12 08	704	0.1+	1.7+
1998 05 24	704	0.4−	0.3+	1999 12 05	557	0.1−	0.1−	1999 12 08	402	0.4+	0.2−
1998 05 24	704	(2.8−	2.2+)	1999 12 05	557	0.0	0.1−	1999 12 08	402	0.2+	0.4−
1998 06 26	691	0.2+	0.3+	1999 12 05	557	0.2−	0.1−	1999 12 08	402	1.1+	0.0
1998 06 26	691	0.1+	0.0	1999 12 06	587	0.1+	0.6+	1999 12 08	118	1.5+	0.2+
1998 06 26	691	0.1+	0.0	1999 12 06	595	0.1−	1.0+	1999 12 08	118	0.6+	0.4+
1998 07 01	691	0.1+	0.4−	1999 12 06	595	0.0	0.2+	1999 12 08	118	1.5+	0.3+
1998 07 01	691	0.0	0.1−	1999 12 06	587	0.3+	0.2−	1999 12 09	675	1.2−	0.2−
1998 07 01	691	0.2−	0.1+	1999 12 06	587	0.0	0.5−	1999 12 09	675	1.3−	0.3−
1999 11 28	049	0.1+	0.3+	1999 12 07	704	0.2+	0.0	1999 12 09	675	1.3−	0.0
1999 11 28	049	0.2−	0.2+	1999 12 07	691	0.4+	0.1−	1999 12 09	675	1.5−	0.1+
1999 11 28	049	0.1+	0.3+	1999 12 07	691	0.5+	0.2−	1999 12 09	675	1.4−	0.1+
1999 11 29	049	0.1+	0.1−	1999 12 07	704	0.0	0.4+	1999 12 09	046	0.0	0.3+
1999 11 30	049	0.2+	0.0	1999 12 07	704	0.3+	0.0	1999 12 09	046	0.5+	0.2+
1999 11 30	049	0.1+	0.1+	1999 12 07	691	0.4+	0.2−	1999 12 09	046	0.6+	0.2+
1999 12 02	049	0.4+	0.6−	1999 12 07	704	0.5+	0.8−				
1999 12 02	049	0.3+	0.2−	1999 12 07	595	0.4+	0.4+				

1998 KD₃₈ = 1999 WF₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20017235	ω	284.42942	+0.96780488	−0.03506665		
<i>a</i>	2.8942318	Ω	78.04145	+0.14377677	+0.88981212		
<i>e</i>	0.2302183	<i>i</i>	14.76032	−0.20659613	+0.45497771		
<i>P</i>	4.92	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 05 22	704	0.0	0.5−	1998 05 24	704	1.1+	0.1−	1999 11 26	646	0.3+	0.5−
1998 05 22	704	0.7−	0.1+	1998 06 03	704	0.6+	1.3−	1999 11 26	646	0.1−	0.2+
1998 05 22	704	0.5+	0.5+	1998 06 03	704	0.3+	0.1−	1999 11 27	646	0.8+	0.0
1998 05 22	704	1.0−	0.6−	1998 06 03	704	0.4+	1.2+	1999 12 01	704	0.8−	0.4−
1998 05 24	704	0.4−	0.7−	1998 06 03	704	1.1−	1.5+	1999 12 01	704	0.3−	0.1+
1998 05 24	704	0.3+	0.4−	1998 06 29	699	0.0	0.4−	1999 12 01	704	0.1+	0.6+
1998 05 24	704	0.5+	0.5+	1998 06 29	699	0.0	0.0				
1998 05 24	704	0.4−	0.0	1998 06 29	699	0.1−	0.2+				

1998 KS₄₃ = 1998 KG₆₅ = 1999 XZ₆₇Id. G. V. Williams (d, *MPC* 33785; unpublished)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22638941	ω	226.49593	+0.59642869	+0.73392184		
<i>a</i>	2.6662363	Ω	83.00706	−0.60898065	+0.67753178		
<i>e</i>	0.3053380	<i>i</i>	19.11383	−0.52289138	+0.04805644		
<i>P</i>	4.35	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 05 22	704	0.3+	0.2+	1998 06 03	704	0.9+	0.3+	1999 12 07	704	0.4+	0.6−
1998 05 22	704	0.1−	0.5+	1998 06 03	704	0.7+	0.5+	1999 12 07	704	0.4−	0.2−
1998 05 22	704	0.3+	0.3−	1998 06 03	704	0.5−	0.2+	1999 12 07	704	0.3+	0.3−
1998 05 22	704	0.1+	1.2−	1998 06 24	704	0.4−	1.2+	1999 12 07	704	0.2−	0.8−
1998 05 24	704	0.1−	0.8+	1998 06 24	704	0.4+	1.3−	1999 12 08	704	0.2−	0.3+
1998 05 24	704	0.5−	0.8+	1998 06 24	704	0.5+	0.7−	1999 12 08	704	0.5−	0.3−
1998 05 24	704	0.2−	0.9+	1998 06 24	704	0.1−	0.7−	1999 12 08	704	0.1−	0.7+
1998 05 24	704	0.5+	1.9−	1998 06 29	699	0.3−	0.6+	1999 12 08	704	0.8+	1.0+
1998 05 24	704	0.9−	0.0	1998 06 29	699	0.1−	0.1−				
1998 06 03	704	0.6−	0.5−	1998 06 29	699	0.1−	0.5+				

1998 KH₄₄

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19608321	ω	48.63801	+0.38795909	+0.90303775		
<i>a</i>	2.9343311	Ω	245.07663	−0.89465894	+0.32087913		
<i>e</i>	0.2063750	<i>i</i>	11.73338	−0.22152453	+0.28558606		
<i>P</i>	5.03	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 05 22	704	0.3+	0.1+	1998 05 24	704	0.8−	0.5−	1999 12 03	699	0.8+	1.3+
1998 05 22	704	0.2−	0.5+	1998 06 01	809	0.5+	0.6−	1999 12 03	699	0.0	1.0+
1998 05 22	704	0.4+	0.5+	1998 06 01	809	0.3+	1.5−	1999 12 03	699	0.9+	1.0−
1998 05 22	704	0.2−	0.4+	1998 06 01	809	0.4+	1.4−	1999 12 06	704	0.3−	0.2+
1998 05 22	704	0.1+	0.3−	1998 06 24	704	0.6−	0.3+	1999 12 06	704	1.4−	0.4+
1998 05 24	704	0.5+	0.3+	1998 06 24	704	0.2+	0.0	1999 12 06	704	0.1−	0.8−
1998 05 24	704	0.3−	0.7+	1998 06 24	704	0.5+	0.4−	1999 12 06	704	0.2+	1.2−
1998 05 24	704	0.4−	0.1+	1998 06 24	704	0.0	0.5+				
1998 05 24	704	0.1−	0.7+	1998 06 24	704	0.6−	0.7+				

1998 KQ₄₅

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28506285	ω	164.54619	−0.63245734	+0.77322977		
<i>a</i>	2.2865233	Ω	66.19938	−0.71589664	−0.56083623		
<i>e</i>	0.1045377	<i>i</i>	2.88005	−0.29578661	−0.29593654		
<i>P</i>	3.46	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 05 22	704	0.3+	0.7−	1998 05 24	704	1.3−	1.1+	1999 12 02	699	0.8+	0.3+
1998 05 22	704	0.2−	0.3−	1998 06 01	809	0.2+	0.7+	1999 12 02	699	0.9+	0.9+
1998 05 22	704	0.1+	1.6−	1998 06 01	809	1.5+	1.2+	1999 12 05	704	0.1+	0.8+
1998 05 22	704	1.0+	1.0−	1998 06 01	809	1.1+	1.0+	1999 12 05	704	0.6−	0.1−
1998 05 24	704	0.3+	0.1−	1998 06 02	809	(2.9+	1.3+)	1999 12 05	704	0.7−	0.1+
1998 05 24	704	0.2+	0.2−	1998 06 02	809	(2.9+	1.4+)	1999 12 05	704	0.0	0.8−
1998 05 24	704	0.4−	0.8−	1998 06 02	809	(2.8+	1.1+)	1999 12 07	704	0.3−	0.5−
1998 05 24	704	1.2+	0.1−	1998 06 03	704	1.7−	1.4−	1999 12 07	704	1.0+	0.1+
1998 05 24	704	0.4−	0.6+	1998 06 03	704	(1.2−	2.5−)	1999 12 07	704	0.4−	0.4−
1998 05 24	704	1.1−	0.0	1998 06 03	704	(0.7−	3.3−)	1999 12 07	704	1.1−	0.7−
1998 05 24	704	0.4+	0.7+	1998 06 03	704	(0.8−	3.1−)	1999 12 07	704	(2.3−	0.9−)
1998 05 24	704	1.1−	0.8+	1999 12 02	699	0.4+	0.0				

1999 DEC. 22

M.P.C. 37155

1998 KX₄₅ = 1999 XN₇₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	87.68626	(2000.0)	P		Q	
<i>n</i>	0.28641500	ω	179.49437	+0.51488259	+0.85621958	
<i>a</i>	2.2793213	Ω	121.49462	-0.78669509	+0.49150129	
<i>e</i>	0.1727026	<i>i</i>	2.83923	-0.34059763	+0.15910536	
<i>P</i>	3.44	<i>H</i>	15.9	<i>G</i> 0.15	<i>U</i> 6	

Residuals in seconds of arc

1998 05 22	704	1.3-	1.3-	1998 05 24	704	1.3+	0.1+	1999 12 07	704	0.8+	0.8+
1998 05 22	704	0.2-	1.8+	1998 05 24	704	0.4+	1.3-	1999 12 08	704	0.4+	0.0
1998 05 22	704	1.1-	0.5-	1998 06 01	809	0.9-	0.8+	1999 12 08	704	0.4-	0.6-
1998 05 22	704	0.2-	1.0-	1998 06 01	809	0.2+	0.8-	1999 12 08	704	1.4-	1.0-
1998 05 22	704	0.2+	1.6+	1998 06 01	809	0.5+	0.7-	1999 12 08	704	0.8-	0.0
1998 05 24	704	0.4+	0.2+	1999 12 07	704	0.5+	0.4+				
1998 05 24	704	0.6+	0.9+	1999 12 07	704	0.9+	0.1+				

1998 KK₄₇ = 1999 XM₄₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	112.15142	(2000.0)	P		Q	
<i>n</i>	0.28711634	ω	179.40240	-0.00224328	+0.99151110	
<i>a</i>	2.2756080	Ω	90.46400	-0.91801828	+0.04950857	
<i>e</i>	0.1708889	<i>i</i>	7.47000	-0.39653172	-0.12022748	
<i>P</i>	3.43	<i>H</i>	15.4	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1998 05 22	704	0.2-	0.1-	1998 06 24	704	0.5+	1.2-	1999 12 07	704	0.3-	0.5+
1998 05 22	704	0.4-	0.1-	1998 06 24	704	0.4+	0.1-	1999 12 07	704	1.0+	0.2+
1998 05 22	704	0.4-	0.2+	1998 06 24	704	(2.4+	3.0-)	1999 12 07	704	0.2-	0.6-
1998 05 22	704	0.4+	1.1+	1998 06 26	704	0.2-	0.7+	1999 12 07	704	(2.3+	2.4-)
1998 05 22	704	0.1+	0.3-	1998 06 26	704	0.2-	0.9-	1999 12 08	704	0.3-	0.5-
1998 05 24	704	0.9+	0.2+	1998 06 26	704	0.4-	0.1+	1999 12 08	704	0.3+	0.5-
1998 05 24	704	0.5+	1.1-	1998 06 26	704	0.6+	0.4-	1999 12 08	704	0.0	0.2+
1998 05 24	704	0.5-	0.6+	1998 07 02	699	0.2-	0.3+	1999 12 08	704	0.0	0.0
1998 05 24	704	0.7-	0.2-	1998 07 02	699	0.2+	0.7+	1999 12 08	704	0.6-	0.9+
1998 05 24	704	0.2+	0.0	1998 07 02	699	0.6-	0.6+				

1998 KT₅₅ = 1972 LZ = 1980 FU₁₁

Id. E. Bowell (1999 observations), G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	63.16789	(2000.0)	P		Q	
<i>n</i>	0.22743248	ω	218.27392	+0.60994622	+0.73307940	
<i>a</i>	2.6580780	Ω	91.41868	-0.63246864	+0.67914309	
<i>e</i>	0.2332539	<i>i</i>	17.51915	-0.47744007	+0.03686808	
<i>P</i>	4.33	<i>H</i>	13.1	<i>G</i> 0.15	<i>U</i> 3	

Residuals in seconds of arc

1972 06 13	095	(20.4-	15.5+)	1998 05 26	704	(2.1-	0.4-)	1999 12 02	699	0.0	0.2+
1980 03 16	095	0.2-	0.4-	1998 06 24	704	0.1+	0.7-	1999 12 02	699	0.6-	0.3-
1998 05 23	704	0.0	0.9+	1998 06 24	704	0.6+	0.3-	1999 12 02	699	0.4+	0.2-
1998 05 23	704	0.3+	0.4-	1998 06 24	704	0.8-	0.6-	1999 12 05	704	0.3+	0.3-
1998 05 23	704	0.3+	1.3+	1998 06 24	704	0.2+	1.1-	1999 12 05	704	0.1-	0.3-
1998 05 23	704	0.1-	1.5-	1998 06 24	704	0.4+	1.7-	1999 12 05	704	0.3+	0.1+
1998 05 23	704	0.0	0.5+	1998 06 26	704	0.1-	0.1-	1999 12 05	704	0.0	0.2-
1998 05 26	704	0.5-	0.5+	1998 06 26	704	0.3-	0.6+	1999 12 05	704	0.2+	0.2-
1998 05 26	704	0.6-	0.2+	1998 06 26	704	0.0	0.2+				
1998 05 26	704	0.8-	0.9-	1998 06 26	704	0.9+	2.0+				

1998 LP₂ = 1999 XA₂₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	77.02139	(2000.0)	P		Q	
<i>n</i>	0.24504979	ω	74.08098	+0.45177923	+0.87734304	
<i>a</i>	2.5291029	Ω	223.96336	-0.88140605	+0.41092245	
<i>e</i>	0.1081871	<i>i</i>	13.47435	-0.13790903	+0.24781431	
<i>P</i>	4.02	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1998 06 01	809	0.1+	0.2+	1998 06 19	704	0.3-	1.1+	1999 12 07	704	0.1-	0.0
1998 06 01	809	0.4-	0.1-	1998 06 25	704	0.2+	0.8-	1999 12 07	704	0.1-	0.0
1998 06 01	809	0.2-	0.1-	1998 06 25	704	0.6+	1.3-	1999 12 07	704	0.1-	0.4-
1998 06 02	809	(2.4+	3.6+)	1998 06 25	704	0.9-	0.7-	1999 12 07	704	0.4-	0.7+
1998 06 02	809	(3.4+	3.1+)	1998 06 25	704	0.7+	0.5+	1999 12 07	704	0.3-	0.1-
1998 06 02	809	(3.4+	2.6+)	1998 06 25	704	1.6-	0.8+	1999 12 12	703	1.3+	0.4-
1998 06 19	704	0.4+	0.5-	1999 12 06	704	1.1+	0.7-	1999 12 12	703	1.8-	0.2-
1998 06 19	704	1.4+	1.0+	1999 12 06	704	0.4+	0.4+	1999 12 12	703	0.3-	0.1-
1998 06 19	704	0.0	0.2-	1999 12 06	704	0.2+	0.4+	1999 12 12	703	0.1+	0.5+

1998 MW₁₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	67.65012	(2000.0)	P		Q	
<i>n</i>	0.18886270	ω	194.03696	+0.64779014	+0.65203723	
<i>a</i>	3.0086517	Ω	118.05355	-0.64878797	+0.74323842	
<i>e</i>	0.2627087	<i>i</i>	26.51455	-0.39930203	-0.14981356	
<i>P</i>	5.22	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 3	

Residuals in seconds of arc

1998 06 24	699	0.2+	0.1+	1998 07 02	699	0.2-	0.3+	1998 09 25	683	0.3+	0.3-
1998 06 24	699	0.4+	0.2+	1998 07 16	699	0.1+	1.2+	1998 09 25	683	1.0+	0.1-
1998 06 24	699	0.4+	0.3-	1998 07 16	699	0.1-	0.7+	1998 09 27	683	0.7+	0.2+
1998 06 26	683	0.2+	0.1-	1998 07 16	699	0.5+	0.7+	1998 09 27	683	0.1-	0.6+
1998 06 26	683	0.3-	0.6-	1998 07 24	566	0.3+	0.8-	1999 12 04	683	0.8-	0.6-
1998 06 26	683	0.1+	0.2-	1998 07 24	566	0.1+	0.7-	1999 12 04	683	0.3+	0.3-
1998 06 27	683	0.1-	0.3-	1998 07 24	566	0.2+	0.8-	1999 12 04	683	0.2-	0.2-
1998 06 27	683	0.0	0.5-	1998 08 26	683	0.7-	0.4-	1999 12 07	683	0.4-	0.2-
1998 06 27	683	0.2+	0.4-	1998 08 26	683	0.7-	0.2-	1999 12 07	683	0.3-	0.6-
1998 06 28	683	0.1-	0.1-	1998 08 26	683	0.6-	0.3-	1999 12 07	683	0.1+	0.5+
1998 06 28	683	0.1-	0.2-	1998 08 27	683	0.3-	0.0	1999 12 08	699	0.8+	0.0
1998 07 02	699	0.8-	0.8+	1998 08 27	683	0.6+	1.1+	1999 12 08	699	0.9-	0.6+
1998 07 02	699	0.4-	0.5+	1998 08 27	683	0.6-	0.1-	1999 12 08	699	1.5+	0.7+

1998 MA₁₆ = 1999 XS₈₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	33.92083	(2000.0)	P		Q	
<i>n</i>	0.26287655	ω	111.96109	+0.97835729	+0.19825326	
<i>a</i>	2.4134306	Ω	236.65010	-0.20616743	+0.90949588	
<i>e</i>	0.2106871	<i>i</i>	4.06862	-0.01766338	+0.36539415	
<i>P</i>	3.75	<i>H</i>	16.5	<i>G</i> 0.15	<i>U</i> 6	

Residuals in seconds of arc

1998 06 20	691	0.2-	0.2+	1998 07 02	691	0.3-	0.1-	1999 12 07	704	1.2+	0.5+
1998 06 20	691	0.4-	0.0	1998 07 02	691	0.1-	0.2+	1999 12 08	704	0.9-	0.4+
1998 06 20	691	0.3-	0.1+	1998 07 02	691	0.4-	0.2-	1999 12 08	704	0.8-	0.3+
1998 06 28	691	0.1+	0.4-	1999 12 07	704	1.6-	0.6-	1999 12 08	704	1.7+	0.2+
1998 06 28	691	0.6+	0.0	1999 12 07	704	0.3+	0.9-				
1998 06 28	691	0.9+	0.1+	1999 12 07	704	0.2+	0.0				

1998 MS₂₈ = 1999 XZ₉₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	48.84488		(2000.0)		P		Q				
<i>n</i>	0.21471437	ω	82.62455		+0.95608235		+0.22672622				
<i>a</i>	2.7620316	Ω	264.13889		-0.28210314		+0.88378422				
<i>e</i>	0.2448840	<i>i</i>	10.76158		+0.07952586		+0.40929289				
<i>P</i>	4.59	<i>H</i>	13.8		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1998 06 24	704	0.7-	0.4+	1998 06 26	704	0.8-	1.2-	1998 07 26	704	0.4+	0.0
1998 06 24	704	0.3+	0.6-	1998 07 21	704	0.2+	0.0	1999 12 07	704	1.0-	0.4-
1998 06 24	704	0.3+	0.0	1998 07 21	704	0.1-	0.2+	1999 12 07	704	0.3+	0.3-
1998 06 24	704	0.8+	0.4-	1998 07 21	704	0.4-	0.8+	1999 12 07	704	0.1+	0.2-
1998 06 24	704	0.1-	0.4-	1998 07 21	704	0.1-	1.2-	1999 12 08	704	0.6+	0.0
1998 06 26	704	0.2+	1.2+	1998 07 26	704	1.7-	1.3-	1999 12 08	704	0.1+	0.7+
1998 06 26	704	0.1-	1.3+	1998 07 26	704	0.5+	0.6+	1999 12 08	704	0.4-	0.2+
1998 06 26	704	0.0	0.1-	1998 07 26	704	1.2+	0.8+	1999 12 08	704	0.2+	0.0

1998 MC₂₉ = 1999 XQ₅₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	98.09228		(2000.0)		P		Q				
<i>n</i>	0.23718242	ω	24.87870		+0.21741663		+0.97400523				
<i>a</i>	2.5847252	Ω	257.72980		−0.90607291		+0.17716618				
<i>e</i>	0.2307221	<i>i</i>	3.73131		−0.36299022		+0.14115934				
<i>P</i>	4.16 <th><i>H</i></th> <td>14.6<th><i>G</i></th><td>0.15<th><i>U</i></th><td>4<td></td></td></td></td>	<i>H</i>	14.6 <th><i>G</i></th> <td>0.15<th><i>U</i></th><td>4<td></td></td></td>	<i>G</i>	0.15 <th><i>U</i></th> <td>4<td></td></td>	<i>U</i>	4 <td></td>				
Residuals in seconds of arc											
1998 06 24	704	1.1+	0.5+	1998 06 26	704	0.4+	1.6+	1998 07 26	704	0.0	0.4+
1998 06 24	704	0.0	0.6+	1998 06 26	704	0.7−	1.2+	1998 07 26	704	1.3+	0.7+
1998 06 24	704	0.4+	0.6+	1998 06 27	809	0.0	1.8−	1999 12 07	704	0.3+	0.1−
1998 06 24	704	0.9+	1.0+	1998 06 27	809	0.3−	1.6−	1999 12 07	704	0.1−	0.8+
1998 06 24	704	1.9−	1.4+	1998 06 27	809	0.3−	1.4−	1999 12 07	704	0.2+	0.1−
1998 06 26	809	0.2+	1.5−	1998 07 21	704	0.2−	0.7−	1999 12 07	704	0.1−	0.1−
1998 06 26	809	0.1+	1.2−	1998 07 21	704	0.4−	0.2+	1999 12 07	704	1.1+	0.1−
1998 06 26	809	0.1+	1.1−	1998 07 21	704	0.6+	0.9−	1999 12 08	704	0.1+	0.4+
1998 06 26	704	1.1−	0.7+	1998 07 21	704	0.3−	0.8−	1999 12 08	704	1.5−	0.1−
1998 06 26	704	0.3+	1.0+	1998 07 26	704	0.8−	0.6+	1999 12 08	704	0.4−	0.9−
1998 06 26	704	0.8+	0.1+	1998 07 26	704	0.1−	0.7+	1999 12 08	704	0.3+	0.1+

1998 ME₂₉ = 1999 XX₇₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	152.36463		(2000.0)		P		Q				
<i>n</i>	0.31389767	ω	99.39184		-0.35662017		+0.93420934				
<i>a</i>	2.1442594	Ω	149.71089		-0.86375314		-0.32616464				
<i>e</i>	0.1766540	<i>i</i>	0.98361		-0.35602327		-0.14446293				
<i>P</i>	3.14	<i>H</i>	15.0		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1998 06 24	704	1.2+	0.4+	1998 06 27	809	1.2-	1.6-	1998 07 26	704	0.2+	0.6-
1998 06 24	704	0.8+	0.9+	1998 06 27	809	1.0-	1.8-	1999 12 07	704	0.0	0.7+
1998 06 24	704	1.6+	1.2+	1998 06 27	809	0.9-	1.8-	1999 12 07	704	0.3-	0.0
1998 06 24	704	(1.2+	3.2+)	1998 07 21	704	(2.4-	0.0)	1999 12 07	704	0.0	0.5-
1998 06 24	704	0.6+	1.2+	1998 07 21	704	0.0	0.2-	1999 12 07	704	0.4-	0.0
1998 06 26	809	0.9-	0.6-	1998 07 21	704	0.3-	0.1-	1999 12 08	704	0.1+	0.5+
1998 06 26	809	(2.4-	0.9-)	1998 07 21	704	0.6+	0.4+	1999 12 08	704	0.8-	0.1-
1998 06 26	809	1.7-	1.3-	1998 07 26	704	(1.4+	2.5-)	1999 12 08	704	1.2+	0.7-
1998 06 26	704	0.0	0.6+	1998 07 26	704	0.6+	0.1+	1999 12 08	704	0.2-	0.3+
1998 06 26	704	0.6+	0.8+	1998 07 26	704	0.3-	0.2+	1999 12 08	704	0.4+	0.3-
1998 06 26	704	0.7+	1.5+	1998 07 26	704	0.3-	0.6+				

1998 MJ₃₃ = 1990 SX₄ = 1994 RY₂₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	152.46549		(2000.0)		P		Q				
<i>n</i>	0.22516181	ω	90.65267		-0.83709746		+0.54259383				
<i>a</i>	2.6759186	Ω	122.20995		-0.52895916		-0.77030672				
<i>e</i>	0.1555438	<i>i</i>	4.72608		-0.13953515		-0.33499178				
<i>P</i>	4.38	<i>H</i>	15.0		<i>G</i>	0.15	<i>U</i>		4		
Residuals in seconds of arc											
1990 09 22	809	1.7+	1.4+	1994 09 06	809	0.6+	0.1-	1998 06 26	704	1.0-	0.3-
1990 09 22	809	0.6+	1.9+	1994 09 06	809	0.7-	0.5-	1998 06 26	704	(2.5-	0.4-)
1990 09 22	809	0.5-	1.0+	1994 09 06	809	0.6+	0.1-	1998 06 28	809	0.0	1.2+
1990 09 25	809	0.4-	1.9-	1998 06 24	704	0.0	1.2-	1998 06 28	809	0.2+	0.7+
1990 09 25	809	0.8-	1.7-	1998 06 24	704	1.1+	1.3-	1998 06 28	809	1.1+	1.0+
1990 09 25	809	0.6-	0.9-	1998 06 24	704	0.3-	0.3-	1998 07 01	809	0.5-	0.9+
1994 09 05	809	0.1+	0.3+	1998 06 24	704	0.8+	1.7-	1998 07 01	809	0.0	1.6+
1994 09 05	809	0.8-	0.1-	1998 06 24	704	1.6-	1.0-	1998 07 01	809	0.3+	1.5+
1994 09 05	809	0.3+	0.8+	1998 06 26	704	0.2-	1.3-				

1998 MP₃₃ = 1970 GR₂ = 1994 NJ₁₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	270.71889		(2000.0)		P			Q			
n	0.25508376		ω	17.80218	-0.53182723			-0.83531130			
a	2.4623371		Ω	104.53558	+0.75841696			-0.54300260			
e	0.1122791		i	8.27616	+0.37678046			-0.08604191			
P	3.86 <th>H</th> <td>13.7<th>G</th><td colspan="2">0.15<th>U</th><td colspan="2">4</td></td></td>		H	13.7 <th>G</th> <td colspan="2">0.15<th>U</th><td colspan="2">4</td></td>	G	0.15 <th>U</th> <td colspan="2">4</td>		U	4		
Residuals in seconds of arc											
1970 04 02	033	0.1-	0.4-	1998 06 24	704	1.1+	0.8+	1998 07 01	809	0.1+	0.1+
1994 07 08	809	0.6-	0.4+	1998 06 26	704	0.7+	0.4-	1999 12 03	704	0.1-	0.8-
1994 07 08	809	0.1+	0.0	1998 06 26	704	0.5-	0.5+	1999 12 03	704	0.0	0.7-
1994 07 08	809	1.0+	0.1-	1998 06 26	704	(2.6-	1.9+)	1999 12 03	704	0.1-	0.7-
1994 07 09	809	1.0-	0.4+	1998 06 26	704	0.3-	0.9-	1999 12 03	704	0.3-	0.6-
1994 07 09	809	0.3-	0.0	1998 06 28	809	0.2+	0.3-	1999 12 03	704	0.4-	0.9-
1994 07 09	809	0.1+	0.2-	1998 06 28	809	0.4-	1.5-	1999 12 08	699	0.1-	1.5+
1998 06 24	704	0.7+	1.4+	1998 06 28	809	0.1+	0.2+	1999 12 08	699	0.6+	1.0+
1998 06 24	704	(2.1-	2.4+)	1998 07 01	809	0.5+	0.0	1999 12 08	699	0.6+	0.9+
1998 06 24	704	0.5-	0.5-	1998 07 01	809	0.7-	0.0				

1998 MN₃₅ = 1999 XK₇₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	115.89385		(2000.0) <th></th> <th>$\mathbf{P}$</th> <th></th> <th>$\mathbf{Q}$</th> <th></th> <th></th> <th></th>		$\mathbf{P}$		$\mathbf{Q}$				
n	0.28096920	ω	184.15289		+0.33942817		+0.93951284				
a	2.3086791	Ω	105.69398		-0.86163463		+0.33011394				
e	0.0577636	i	2.73101		-0.37732518		+0.09132579				
P	3.51	H	15.1		G	0.15	U	4			
Residuals in seconds of arc											
1998 06 24	704	0.2+	0.2+	1998 07 02	699	0.9+	0.6+	1999 12 07	704	0.3-	0.4-
1998 06 24	704	0.8+	1.5-	1998 07 02	699	0.2-	1.0+	1999 12 07	704	0.4+	0.7-
1998 06 24	704	0.4+	0.2-	1998 07 02	699	0.6+	1.2+	1999 12 07	704	0.5-	0.5-
1998 06 24	704	0.1-	1.3-	1998 07 20	566	0.1+	0.1-	1999 12 07	704	0.1-	0.3+
1998 06 24	704	0.7-	0.3+	1998 07 20	566	1.2-	1.0-	1999 12 08	704	0.2-	0.9+
1998 06 26	704	0.6-	0.1+	1998 07 20	566	1.1-	1.3-	1999 12 08	704	0.0	0.2+
1998 06 26	704	0.4-	0.5+	1998 08 18	566	0.5+	0.6+	1999 12 08	704	0.4+	0.5-
1998 06 26	704	0.3-	0.3-	1998 08 18	566	0.2+	0.5+	1999 12 08	704	0.3+	0.2+
1998 06 26	704	0.5+	0.1-	1998 08 18	566	0.4+	0.5+				

1999 DEC. 22

M.P.C. 37157

1998 MU₃₇ = 1999 XA₇₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	127.65655		(2000.0)		P		Q		Williams
<i>n</i>	0.27640849	ω	180.56997	+0.10248274			+0.99011665		
<i>a</i>	2.3340051	Ω	95.31483	-0.91227042			+0.13192050		
<i>e</i>	0.0795555	<i>i</i>	5.51776	-0.39656017			-0.04760262		
<i>P</i>	3.57	<i>H</i>	14.9	<i>G</i>	0.15		<i>U</i>	5	

Residuals in seconds of arc

1998 06 24	699	0.2-	0.3-	1998 07 16	699	0.8+	1.5-	1999 12 07	704	0.1+	0.1-
1998 06 24	699	0.2+	0.6+	1998 07 16	699	0.8-	0.8+	1999 12 08	704	0.2-	0.1+
1998 06 24	699	1.0+	0.6-	1998 07 16	699	0.6+	0.3+	1999 12 08	704	0.3+	0.3+
1998 07 02	699	0.4-	0.9+	1999 12 07	704	0.0	0.7-	1999 12 08	704	0.2-	0.7+
1998 07 02	699	0.9-	0.4-	1999 12 07	704	0.2+	0.4+	1999 12 08	704	0.3-	0.2+
1998 07 02	699	0.5-	0.1+	1999 12 07	704	0.6+	0.9-	1999 12 08	704	0.4-	0.0

1998 NH

Id. P. G. Comba (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	340.59763		(2000.0)		P		Q		Williams
<i>n</i>	0.21323077	ω	289.46420	+0.56609174			-0.80571212		
<i>a</i>	2.7748284	Ω	124.82234	+0.81330191			+0.51140565		
<i>e</i>	0.1308835	<i>i</i>	12.25587	+0.13446239			+0.29881807		
<i>P</i>	4.62	<i>H</i>	14.1	<i>G</i>	0.15		<i>U</i>	3	

Residuals in seconds of arc

1998 07 15	684	0.3-	0.0	1998 08 14	684	0.2+	0.0	1999 12 03	684	0.2-	0.0
1998 07 15	684	0.2+	0.6+	1998 09 08	684	0.2-	0.2+	1999 12 03	704	0.1-	0.4+
1998 07 16	684	0.2-	0.5+	1998 09 08	684	0.5-	0.2-	1999 12 03	704	0.1+	0.1-
1998 07 18	684	0.5-	0.1+	1998 09 09	684	0.4-	0.2+	1999 12 03	704	0.2-	0.5-
1998 07 18	684	0.2-	0.1+	1998 09 09	684	0.2-	0.2-	1999 12 03	704	0.1-	1.0-
1998 07 24	684	0.3+	0.2-	1999 12 02	684	0.2+	0.0	1999 12 03	704	0.6-	0.5+
1998 07 24	684	0.2+	0.4-	1999 12 02	684	0.2+	0.1+	1999 12 08	699	0.4+	0.1+
1998 08 12	684	0.4+	0.3-	1999 12 02	684	0.1+	0.1+	1999 12 08	699	0.2+	0.1+
1998 08 12	684	0.5+	0.5-	1999 12 02	684	0.1+	0.2+	1999 12 08	699	0.2+	0.1-
1998 08 14	684	0.5+	0.2+	1999 12 03	684	0.3-	0.2+				

1998 OA₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	73.92104		(2000.0)		P		Q		Williams
<i>n</i>	0.18531718	ω	33.46236	+0.70082481			+0.70030976		
<i>a</i>	3.0469051	Ω	281.45035	-0.68107693			+0.60036425		
<i>e</i>	0.1242356	<i>i</i>	7.95770	-0.21208207			+0.38617225		
<i>P</i>	5.32	<i>H</i>	14.5	<i>G</i>	0.15		<i>U</i>	4	

Residuals in seconds of arc

1998 07 20	104	0.0	0.6+	1998 07 26	104	0.4-	1.1-	1998 08 23	104	0.4+	0.9-
1998 07 20	104	0.1+	0.5-	1998 07 29	104	0.0	1.3+	1998 09 22	104	0.7+	0.2+
1998 07 21	104	0.2-	0.5-	1998 07 29	104	0.2+	0.7+	1998 09 22	104	1.0+	0.0
1998 07 21	104	1.1+	0.0	1998 07 29	104	0.1-	1.0-	1998 09 22	104	0.9+	0.1-
1998 07 21	104	1.0+	1.4+	1998 08 13	104	0.7-	0.2+	1999 11 09	104	0.4-	0.4-
1998 07 21	104	0.6+	0.5+	1998 08 13	104	0.8-	0.4+	1999 11 09	104	0.5-	0.5-
1998 07 21	104	0.5+	0.2-	1998 08 13	104	0.9-	0.5+	1999 11 09	104	0.3+	0.2-
1998 07 21	104	0.1+	0.1-	1998 08 13	104	0.5+	0.4+	1999 11 25	104	0.1-	0.2-
1998 07 21	104	0.3-	0.2-	1998 08 17	704	0.9-	0.4-	1999 11 25	104	0.3+	0.1-
1998 07 21	104	0.6+	0.7+	1998 08 17	704	0.6-	0.1+	1999 11 25	104	0.1-	0.1+
1998 07 23	104	0.0	0.1-	1998 08 17	704	1.3+	1.5-	1999 11 26	104	0.4+	0.4+
1998 07 23	104	0.2+	0.2+	1998 08 17	704	0.8-	0.6+	1999 11 26	104	0.1+	0.7+
1998 07 23	104	0.1+	0.3+	1998 08 23	104	0.9-	0.7-	1999 11 26	104	0.0	0.6+
1998 07 26	104	1.2-	0.8+	1998 08 23	104	0.3-	0.7-				
1998 07 26	104	0.9-	0.0	1998 08 23	104	0.1+	0.6-				

1998 OH₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	155.53362		(2000.0)		P		Q		Williams
<i>n</i>	0.26027336	ω	107.76051	-0.18734451			+0.98219170		
<i>a</i>	2.4294963	Ω	151.42994	-0.91210849			-0.16857603		
<i>e</i>	0.1398821	<i>i</i>	1.70094	-0.36463698			-0.08295538		
<i>P</i>	3.79	<i>H</i>	14.9	<i>G</i>	0.15		<i>U</i>	4	

Residuals in seconds of arc

1998 07 25	684	0.3+	0.3+	1998 08 23	704	0.3+	1.0+	1998 09 14	699	1.0+	0.5+
1998 07 25	684	0.2+	0.3+	1998 08 23	704	1.7-	0.8-	1998 09 18	704	1.8+	0.5+
1998 07 26	684	0.1+	0.2+	1998 08 23	704	0.3+	0.3-	1998 09 18	704	1.2-	1.1-
1998 07 26	684	0.0	0.5+	1998 08 23	704	(6.7-	0.2+)	1998 09 18	704	(0.4+	2.2-)
1998 07 31	684	0.3+	0.0	1998 09 01	327	0.2-	0.5-	1998 09 18	704	(1.8+	2.1-)
1998 07 31	684	0.2+	0.1+	1998 09 01	327	0.0	0.4-	1998 09 30	691	0.3-	0.3+
1998 08 01	684	0.2-	0.8+	1998 09 01	327	0.0	0.5-	1998 09 30	691	0.2-	0.1+
1998 08 01	684	0.4+	0.5-	1998 09 13	684	0.0	0.0	1998 09 30	691	0.3-	0.4+
1998 08 17	704	0.4-	1.2+	1998 09 13	684	0.0	0.2+	1999 12 03	684	0.1+	0.3+
1998 08 17	704	0.2-	0.6-	1998 09 14	704	0.1-	1.1-	1999 12 03	684	0.3+	0.1-
1998 08 17	704	(0.1+	2.1+)	1998 09 14	704	0.1-	0.0	1999 12 04	684	0.1+	0.1-
1998 08 17	704	0.9+	0.2+	1998 09 14	704	0.5-	0.1+	1999 12 04	684	0.2+	0.0
1998 08 17	704	(0.4+	2.6+)	1998 09 14	704	1.5+	0.4-	1999 12 07	704	1.3-	0.1-
1998 08 19	684	0.6-	0.3+	1998 09 14	704	0.3+	0.9-	1999 12 07	704	0.1+	0.1+
1998 08 19	684	0.7-	0.3+	1998 09 14	684	0.1-	0.2-	1999 12 07	704	0.2+	0.6-
1998 08 20	684	0.8-	0.3+	1998 09 14	684	0.0	0.2-	1999 12 07	704	0.3+	0.8+
1998 08 20	684	0.7-	0.2+	1998 09 14	699	0.1-	1.3+				
1998 08 23	704	0.0	1.3-	1998 09 14	699	1.1+	0.0				

1998 OJ₂

Id. P. G. Comba (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	136.18844		(2000.0)		P		Q		Marsden
<i>n</i>	0.26313634	ω	139.86943	+0.36075103			+0.93131932		
<i>a</i>	2.4118419	Ω	151.17387	-0.88010095			+0.35768396		
<i>e</i>	0.0513393	<i>i</i>	5.95596	-0.30867623			+0.06860397		
<i>P</i>	3.75	<i>H</i>	15.0	<i>G</i>	0.15		<i>U</i>	4	

Residuals in seconds of arc

1998 07 25	684	0.2-	0.1+	1998 08 22	684	0.7-	0.2-	1998 09 14	704	0.3+	0.1-
1998 07 25	684	0.1-	0.1-	1998 08 23	704	1.7-	0.4+	1998 09 14	684	0.1-	0.1-
1998 07 26	684	0.5+	0.1+	1998 08 23	704	0.2+	0.2+	1998 09 14	684	0.1-	0.1-
1998 07 26	684	0.4+	0.3+	1998 08 23	704	1.0-	0.8-	1998 09 14	704	1.0-	0.0
1998 07 31	684	0.1-	0.1+	1998 08 23	704	0.1+	0.6-	1998 09 14	704	0.8-	0.8-
1998 07 31	684	0.2+	0.1+	1998 08 23	704	(2.7-	1.3+)	1998 09 14	704	0.5+	0.1-
1998 08 01	684	0.4-	0.2+	1998 08 30	699	1.6+	1.6-	1998 09 18	704	0.8-	0.2-
1998 08 01	684	0.1+	0.2-	1998 08 30	699	0.3+	0.1-	1998 09 18	704	0.8-	0.2-
1998 08 17	704	0.7+	0.5+	1998 08 30	699	0.4+	0.3-	1998 09 18	704	0.1+	0.9+
1998 08 17	704	0.4-	1.1+	1998 08 30	699	0.2+	0.4+	1998 09 18	704	2.0+	0.3+
1998 08 17	704	(1.8-	2.1+)	1998 08 30	699	1.2+	0.0	1998 09 18	704	0.1-	0.8+
1998 08 17	704	(5.8-	0.4+)	1998 08 30	699	1.2+	0.0	1999 12 09	684	0.0	0.1-
1998 08 20	684	0.5-	0.0	1998 09 13	684	0.1-	0.1+	1999 12 09	684	0.1+	0.1+
1998 08 20	684	0.7-	0.1-	1998 09 13	684	0.2-	0.1+	1999 12 11	684	0.0	0.0
1998 08 22	684	0.5-	0.2-	1998 09 14	704	0.2+	0.3+	1999 12 11	684	0.0	0.0

1998 OJ₃ = 1999 VZ₆₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	311.84697		(2000.0)		P		Q		Doppler
<i>n</i>	0.21320407	ω	208.28901	+0.26202221			-0.96382115		
<i>a</i>	2.7750601	Ω	226.56731	+0.89764171			+0.26201785		
<i>e</i>	0.0424099	<i>i</i>	3.86270	+0.35437795			+0.04894322		
<i>P</i>	4.62	<i>H</i>	16.7	<i>G</i>	0.15		<i>U</i>	5	

Residuals in seconds of arc

1998 07 20	910	0.6+	0.3+	1998 07 26	910	0.3-	0.2-	1999 11 04	704	0.0	0.2+
1998 07 21	910	0.0	0.5+	1998 07 27	910	0.0	0.0	1999 11 12	704	0.5+	0.7+

1998 07 21	910	0.4+	0.6+	1998 07 27	910	0.5−	0.4−	1999 11 12	704	0.3+	0.1+
1998 07 23	910	0.2−	0.2−	1999 11 04	704	0.2−	0.1+	1999 11 12	704	0.0	0.7−
1998 07 24	910	0.2+	0.3−	1999 11 04	704	0.4−	0.1−				
1998 07 24	910	0.0	0.4−	1999 11 04	704	0.2−	0.2−				

1998 OY₃ = 1999 XE₇₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	35.93278		(2000.0)	P	Q
<i>n</i>	0.21216949	ω	110.22344	+0.99614657	−0.06822018
<i>a</i>	2.7840739	Ω	253.71977	+0.04205877	+0.92305901
<i>e</i>	0.0877415	<i>i</i>	3.29177	+0.07696147	+0.37856053
<i>P</i>	4.65	<i>H</i>	16.0	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1998 07 24	910	0.3−	0.1+	1998 08 01	910	0.2−	0.0	1999 12 07	704	0.0	0.6−
1998 07 24	910	0.1+	0.0	1998 08 02	910	0.2+	0.4−	1999 12 08	704	0.8−	0.1+
1998 07 24	910	0.0	0.4−	1998 08 02	910	0.0	0.2−	1999 12 08	704	1.2+	0.4+
1998 07 27	910	0.2+	0.3+	1999 12 07	704	0.7−	0.6−	1999 12 08	704	0.3−	0.7+
1998 07 27	910	0.1+	0.2+	1999 12 07	704	0.0	0.5+				
1998 07 27	910	0.1−	0.5+	1999 12 07	704	0.7+	0.5−				

1998 OG₇ = 1999 VF₅₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	219.85460		(2000.0)	P	Q
<i>n</i>	0.17279227	ω	314.52110	−0.98739549	−0.14779601
<i>a</i>	3.1924187	Ω	217.08789	+0.15821180	−0.93158307
<i>e</i>	0.0992010	<i>i</i>	5.38805	−0.00437878	−0.33212846
<i>P</i>	5.70	<i>H</i>	12.7	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 07 28	327	0.5−	0.3−	1998 09 14	704	0.4−	1.2−	1999 11 12	704	0.0	0.2−
1998 07 28	327	0.4−	0.4−	1998 09 14	704	(0.9−	2.3−)	1999 11 12	704	0.3−	0.5−
1998 07 28	327	0.1−	0.2−	1998 09 14	704	0.4−	1.9−	1999 11 12	704	0.5−	0.5−
1998 07 29	327	1.2−	0.1−	1998 09 14	704	0.1−	0.0	1999 12 04	699	0.7−	1.6+
1998 07 29	327	0.7−	0.2+	1998 09 15	699	0.9+	1.2+	1999 12 04	699	0.9+	0.2+
1998 07 29	327	0.5−	0.2−	1998 09 15	699	0.5−	0.7+	1999 12 04	699	0.5+	0.4+
1998 08 02	327	0.3−	0.2−	1998 09 15	699	0.7−	1.1+	1999 12 06	704	0.0	0.1+
1998 08 02	327	0.6−	0.1+	1998 09 18	704	0.7+	1.8−	1999 12 06	704	0.3−	0.2−
1998 08 02	327	0.2+	0.2−	1998 09 18	704	1.7−	1.0−	1999 12 06	704	0.1−	0.1+
1998 08 17	704	1.7+	0.2+	1998 09 18	704	0.0	0.7+	1999 12 06	704	0.0	0.7+
1998 08 17	704	0.1−	0.9+	1998 09 18	704	0.3+	0.1+	1999 12 06	704	0.5−	1.4+
1998 08 17	704	0.9+	1.5+	1998 09 18	704	0.4−	0.1−	1999 12 07	704	0.3−	0.2+
1998 08 17	704	0.8+	0.8+	1999 11 04	704	0.2+	0.5+	1999 12 07	704	0.2+	1.1−
1998 08 17	704	0.3+	0.3+	1999 11 04	704	0.3+	0.1+	1999 12 07	704	0.1+	0.5−
1998 08 23	704	1.4+	0.3−	1999 11 04	704	0.3+	0.3+	1999 12 07	704	0.0	0.5−
1998 08 23	704	0.2+	0.0	1999 11 04	704	0.1−	0.2−	1999 12 07	704	0.3+	1.5−
1998 08 23	704	(2.6+	1.0−)	1999 11 04	704	0.4+	0.1−				
1998 08 23	704	1.1+	0.0	1999 11 12	704	0.4−	0.4−				

1998 OL₈

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	12.01697		(2000.0)	P	Q
<i>n</i>	0.16995790	ω	237.72813	+0.91122435	−0.40087690
<i>a</i>	3.2278139	Ω	145.63797	+0.41122987	+0.87214102
<i>e</i>	0.1151805	<i>i</i>	9.65882	+0.02366804	+0.28047771
<i>P</i>	5.80	<i>H</i>	12.9	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1998 07 15	699	0.4+	1.0−	1998 08 17	704	0.2−	0.6+	1999 12 04	699	0.7+	0.1+
1998 07 15	699	0.5−	1.0+	1998 08 17	704	0.8−	0.6−	1999 12 05	704	0.1−	0.6−
1998 07 15	699	0.3−	0.3+	1998 08 17	704	0.7−	0.2−	1999 12 05	704	0.3+	1.1−
1998 07 26	809	0.1+	0.7−	1998 08 23	699	0.1−	0.2−	1999 12 05	704	0.1−	0.0
1998 07 26	809	1.3−	0.7−	1998 08 23	699	0.2+	0.0	1999 12 05	704	0.1+	0.1+

1998 07 26	809	0.6−	0.5−	1998 08 23	699	0.1+	0.0	1999 12 05	704	0.2+	0.2−
1998 07 27	809	1.1+	0.7+	1998 08 27	699	0.3+	0.3−	1999 12 07	106	1.0−	0.0
1998 07 27	809	0.9+	0.2+	1998 08 27	699	0.0	0.4+	1999 12 07	106	0.1+	0.5+
1998 07 27	809	0.7+	0.8+	1998 08 27	699	0.6+	0.7+	1999 12 07	106	0.5−	0.8+
1998 08 17	704	0.1−	0.4−	1999 12 04	699	0.4+	0.3+				
1998 08 17	704	0.2+	0.1−	1999 12 04	699	0.0	0.3+				

1998 OA₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	11.27087		(2000.0)	P	Q
<i>n</i>	0.21485157	ω	80.57598	+0.79438791	−0.58325641
<i>a</i>	2.7608556	Ω	314.86649	+0.41959299	+0.72880792
<i>e</i>	0.2385617	<i>i</i>	13.84379	+0.43919195	+0.35867950
<i>P</i>	4.59	<i>H</i>	15.0	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 06 26	704	0.7+	0.6−	1998 07 29	428	1.3−	0.3−	1998 08 29	428	(2.2+	1.2−)
1998 06 26	704	0.0	1.4−	1998 08 11	428	0.2−	0.2−	1999 12 03	699	0.1−	0.4+
1998 06 26	704	(2.2+	2.9+)	1998 08 11	428	0.5−	0.1+	1999 12 03	699	0.6+	0.1+
1998 06 26	704	0.0	1.0+	1998 08 11	428	0.0	0.2−	1999 12 03	699	0.2+	1.0−
1998 07 22	428	0.3−	0.3+	1998 08 11	428	0.5+	0.4+	1999 12 12	704	0.0	1.0+
1998 07 23	428	0.1−	0.2−	1998 08 11	428	0.1−	0.0	1999 12 12	704	0.0	0.1−
1998 07 28	428	0.4+	0.5+	1998 08 11	428	0.6+	0.2+	1999 12 12	704	0.1−	0.1−
1998 07 28	428	0.1−	1.0+	1998 08 11	428	0.0	0.3−	1999 12 12	704	0.3−	0.2−
1998 07 29	428	0.8−	0.7+	1998 08 29	428	1.3+	1.1−	1999 12 12	704	0.2−	0.0

1998 PO = 1999 XU₇₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	10.16910		(2000.0)	P	Q
<i>n</i>	0.21638193	ω	142.58234	+0.77015223	−0.63349737
<i>a</i>	2.7478228	Ω	256.89420	+0.56518856	+0.73186483
<i>e</i>	0.0712363	<i>i</i>	4.38554	+0.29568128	+0.25110748
<i>P</i>	4.55	<i>H</i>	13.1	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 08 03	620	0.1−	0.6+	1998 08 17	704	0.6−	1.1+	1999 12 07	704	0.3+	0.3+
1998 08 03	620	0.7−	0.8+	1998 08 23	704	0.4+	0.0	1999 12 07	704	0.2+	0.4−
1998 08 03	620	1.1−	0.9+	1998 08 23	704	0.3+	0.8+	1999 12 07	704	0.1−	0.1−
1998 08 11	620	0.6+	0.1−	1998 08 23	704	0.8+	0.4+	1999 12 07	704	0.2+	0.0
1998 08 11	620	0.3−	0.5−	1998 08 23	704	(0.3+	3.0+)	1999 12 08	704	0.2+	0.2−
1998 08 11	620	1.4−	0.9−	1998 08 28	699	1.0+	0.0	1999 12 08	704	0.2+	0.3−
1998 08 14	620	0.3+	0.6−	1998 08 28	699	0.1−	1.0−	1999 12 08	704	0.4+	0.2−
1998 08 14	620	0.2+	0.6−	1998 08 28	699	0.3−	0.1+	1999 12 08	704	0.1−	0.5−
1998 08 14	620	0.4+	0.2−	1998 08 30	699	0.1−	0.2−	1999 12 13	106	0.5−	0.3+
1998 08 17	704	0.5−	0.1−	1998 08 30	699	0.3−	0.1−	1999 12 13	106	0.3−	1.0+
1998 08 17	704	0.7+	0.9+	1998 08 30	699	0.5−	0.3−	1999 12 14	106	0.5−	0.6+
1998 08 17	704	0.1−	0.7+	1998 09 24	620	0.2+	0.8−				
1998 08 17	704	0.9+	0.2+	1998 09 24	620	0.0	1.2−				

1998 PR

Id. P. G. Comba (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	28.70997		(2000.0)	P	Q
<i>n</i>	0.21514385	ω	56.24229	+0.85968238	−0.50982258
<i>a</i>	2.7583546	Ω	334.36574	+0.44075829	+0.77201240
<i>e</i>	0.0653047	<i>i</i>	4.24838	+0.25822147	+0.37957582
<i>P</i>	4.58	<i>H</i>	14.5	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1998 08 15	684	0.1+	0.1−	1998 09 13	684	0.3−	0.1+	1998 10 10	684	0.6+	0.2−
1998 08 15	684	0.1−	0.1−	1998 09 23	691	0.3+	0.4+	1999 12 05	684	0.5+	0.5−
1998 08 16	684	0.3−	0.1−	1998 09 23	691	(0.0	3.2−)	1999 12 05	684	0.6+	0.5−
1998 08 16	684	0.2−	0.2−	1998 09 23	691	0.4+	0.1+	1999 12 07	684	0.5+	0.1−
1998 08 21	684	0.3+	0.4+	1998 09 27	691	0.1+	0.2+	1999 12 07	684	0.2+	0.1−
1998 08 21	684	0.1+	0.2+	1998 09 27	691	0.1−	0.0	1999 12 07	411	0.8−	0.0

1999 DEC. 22

M.P.C. 37159

1998 08 22	684	0.4+	0.4+	1998 09 27	691	0.1-	0.1+	1999 12 07	411	0.2-	0.3+
1998 08 22	684	0.0	0.3+	1998 10 09	684	0.3+	0.0	1999 12 09	411	0.9-	0.5+
1998 09 12	684	0.6-	0.7-	1998 10 09	684	0.1+	0.3-	1999 12 09	411	0.1+	0.5+
1998 09 12	684	0.5-	0.1+	1998 10 09	684	0.2+	0.2-				
1998 09 13	684	0.4-	0.0	1998 10 10	684	0.1-	0.4-				

1998 QE

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Marsden			
<i>M</i>	348.50404		(2000.0)	P	Q		
<i>n</i>	0.22693282	ω	94.24050	+0.24130727	-0.97036616		
<i>a</i>	2.6619783	Ω	341.78069	+0.87353298	+0.22287380		
<i>e</i>	0.0502662	<i>i</i>	2.32098	+0.42274215	+0.09336376		
<i>P</i>	4.34	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1998 08 17	684	0.2-	0.2+	1998 08 27	684	0.3+	0.2-	1998 09 23	691	0.3-	0.4+
1998 08 17	684	0.1-	0.2+	1998 09 13	684	0.2-	0.3-	1998 09 23	691	0.8-	0.1+
1998 08 17	704	0.2-	0.3+	1998 09 13	684	0.0	0.1-	1998 09 26	691	0.2+	0.1+
1998 08 17	704	0.2+	0.1+	1998 09 14	704	0.9+	1.1-	1998 09 26	691	0.5+	0.0
1998 08 17	704	0.6+	0.2+	1998 09 14	704	0.5-	0.2-	1998 09 26	691	0.3+	0.0
1998 08 17	704	1.5+	0.7+	1998 09 14	704	0.1-	0.2+	1998 09 29	691	0.8-	0.6-
1998 08 17	704	(0.3+	2.7-)	1998 09 14	704	0.3+	1.0+	1998 09 29	691	0.2+	0.1-
1998 08 18	684	0.1+	0.0	1998 09 14	704	0.4-	0.1+	1998 09 29	691	0.1-	0.1+
1998 08 18	684	0.0	0.1+	1998 09 14	684	0.0	0.2-	1998 10 10	684	0.5+	0.2-
1998 08 23	684	0.1+	0.2-	1998 09 14	684	0.0	0.3-	1998 10 10	684	0.1+	0.4-
1998 08 23	684	0.1+	0.2-	1998 09 18	704	0.2+	0.2+	1998 10 11	684	0.8+	0.2+
1998 08 23	704	0.8-	1.6-	1998 09 18	704	0.4+	0.5+	1998 10 11	684	0.7+	0.1+
1998 08 23	704	1.2-	1.4+	1998 09 18	704	0.6+	0.1+	1998 12 08	910	0.5-	0.8+
1998 08 23	704	0.9-	0.3+	1998 09 18	699	0.1+	0.9-	1998 12 08	910	0.3-	0.2+
1998 08 23	704	0.3-	1.2-	1998 09 18	704	0.7+	1.4-	1998 12 08	910	0.2+	0.1+
1998 08 23	704	0.6-	1.9+	1998 09 18	699	0.6-	0.2-	1999 12 07	684	0.3+	0.3+
1998 08 24	684	0.2+	0.1-	1998 09 18	699	0.1+	0.4+	1999 12 07	684	0.2+	0.1+
1998 08 24	684	0.2+	0.3-	1998 09 20	691	0.1-	0.1+	1999 12 08	684	0.1+	0.1-
1998 08 26	684	0.3+	0.2-	1998 09 20	691	0.3-	0.5+	1999 12 08	684	0.6-	0.5-
1998 08 26	684	0.2+	0.3-	1998 09 20	691	0.6-	0.1+				
1998 08 27	684	0.3+	0.1-	1998 09 23	691	0.9-	0.3+				

1998 QH

Id. P. G. Comba (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Marsden			
<i>M</i>	144.57376		(2000.0)	P	Q		
<i>n</i>	0.26460470	ω	300.54987	+0.11104810	+0.99238023		
<i>a</i>	2.4029110	Ω	335.65356	-0.86168993	+0.06938346		
<i>e</i>	0.1025943	<i>i</i>	7.44025	-0.49513511	+0.10182052		
<i>P</i>	3.72	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 17	684	0.4-	0.4-	1998 08 24	684	0.0	0.3-	1998 09 18	704	0.1+	1.2-
1998 08 17	684	0.2-	0.2-	1998 08 26	699	(0.1+	2.3+)	1998 09 18	699	1.2+	0.5+
1998 08 17	704	0.5-	0.8+	1998 08 26	699	1.7+	0.5+	1998 09 18	704	0.6-	0.1-
1998 08 17	704	0.9-	0.5+	1998 08 26	699	0.2-	1.0+	1998 09 18	704	0.0	1.2+
1998 08 17	704	0.2-	0.1-	1998 09 13	684	0.4-	0.2+	1998 09 18	699	0.0	0.8+
1998 08 17	704	0.0	0.1-	1998 09 13	684	0.5-	0.1+	1998 10 11	684	0.3+	0.2-
1998 08 17	704	1.5-	0.0	1998 09 14	704	0.2+	0.3-	1998 10 11	684	0.4+	0.3-
1998 08 18	684	0.2-	0.1-	1998 09 14	704	0.4-	1.1-	1998 10 13	684	0.5+	1.2-
1998 08 18	684	0.3-	0.2-	1998 09 14	704	0.1+	0.6+	1998 10 13	684	0.1-	0.3-
1998 08 23	684	0.0	0.1-	1998 09 14	704	0.1-	0.2+	1999 12 07	684	0.2+	0.4-
1998 08 23	684	0.0	0.2-	1998 09 14	684	1.6-	0.0	1999 12 07	684	0.3+	0.1-
1998 08 23	704	1.1+	0.3-	1998 09 14	684	1.4-	0.1+	1999 12 08	684	0.3-	0.1+
1998 08 23	704	1.0+	0.7-	1998 09 14	704	0.8+	0.9-	1999 12 08	684	0.1-	0.1-
1998 08 23	704	1.1+	0.6+	1998 09 18	704	1.0+	0.7+	1999 12 08	684	0.1-	0.3-
1998 08 23	704	1.4+	0.9-	1998 09 18	704	1.2-	0.7+	1999 12 09	684	0.3+	0.4+
1998 08 24	684	0.0	0.2-	1998 09 18	699	0.3-	1.0+	1999 12 09	684	0.4-	0.5+

1998 QY

Id. P. G. Comba (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Marsden			
<i>M</i>	93.33320		(2000.0)	P	Q		
<i>n</i>	0.23972382	ω	161.55509	+0.64348967	+0.75459539		
<i>a</i>	2.5664251	Ω	148.12270	-0.72934947	+0.65538014		
<i>e</i>	0.1662512	<i>i</i>	14.08047	-0.23231530	+0.03259872		
<i>P</i>	4.11	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 17	704	0.1-	0.4-	1998 08 26	684	0.6+	0.9-	1998 09 24	699	0.1+	0.2-
1998 08 17	704	0.7-	0.1-	1998 08 26	684	0.6+	0.3-	1998 09 24	699	0.5-	1.0-
1998 08 17	704	0.5-	0.5+	1998 08 27	699	0.9+	1.0+	1998 09 24	699	(0.5-	2.3+)
1998 08 17	704	0.1-	0.7+	1998 08 27	699	0.5+	0.5+	1998 10 09	684	0.3+	0.1+
1998 08 17	704	0.2-	1.3+	1998 08 27	699	0.7+	0.7+	1998 10 09	684	0.0	0.1+
1998 08 19	684	0.6-	0.6-	1998 09 09	684	0.7-	0.7-	1998 10 10	684	0.7+	0.4-
1998 08 19	684	0.5-	0.6-	1998 09 09	684	0.8-	0.8-	1998 10 10	684	0.0	0.1-
1998 08 20	684	0.2-	0.4-	1998 09 12	684	0.0	0.3-	1999 12 04	684	0.4+	0.2+
1998 08 20	684	0.4-	0.4-	1998 09 12	684	0.1+	0.3-	1999 12 04	684	0.0	0.4+
1998 08 23	704	0.8+	0.1+	1998 09 14	691	0.6-	0.1+	1999 12 04	684	0.4+	0.4+
1998 08 23	704	1.1+	0.3+	1998 09 14	691	0.7-	0.5+	1999 12 05	684	0.8-	0.2-
1998 08 23	704	0.2+	0.8-	1998 09 14	691	0.6-	0.4+	1999 12 05	684	0.4-	0.7-
1998 08 23	704	0.0	0.0	1998 09 14	699	0.2-	1.0+	1999 12 05	684	0.4+	0.0
1998 08 24	684	0.3+	0.5-	1998 09 14	699	0.2-	1.0+				
1998 08 24	684	0.3+	0.3-	1998 09 14	699	0.5+	0.9+				

1998 QC₈ = 1999 XQ₇₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Williams			
<i>M</i>	71.61308		(2000.0)	P	Q		
<i>n</i>	0.21534281	ω	79.48240	+0.82367171	+0.55964872		
<i>a</i>	2.7566553	Ω	246.42839	-0.55144427	+0.75291884		
<i>e</i>	0.2298659	<i>i</i>	5.72455	-0.13218975	+0.34627523		
<i>P</i>	4.58	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 17	704	0.3-	0.3+	1998 08 23	704	0.3-	1.0+	1999 12 07	704	0.1+	0.1-
1998 08 17	704	1.0-	0.5-	1998 08 23	704	0.7+	1.1+	1999 12 07	704	0.1-	0.1-
1998 08 17	704	1.4+	0.3-	1998 08 27	704	0.2-	0.0	1999 12 07	704	0.1-	0.8-
1998 08 17	704	0.6-	0.8+	1998 08 27	704	0.8+	0.2-	1999 12 08	704	0.1+	0.3+
1998 08 17	704	0.0	0.7-	1998 08 27	704	0.5-	0.9-	1999 12 08	704	1.0-	1.0+
1998 08 23	704	0.3+	0.6+	1998 08 27	704	0.6-	0.9-	1999 12 08	704	1.0+	0.1-
1998 08 23	704	0.0	0.4-	1998 08 27	704	0.5-	0.7+				
1998 08 23	704	0.8+	0.5-	1999 12 07	704	0.0	0.1-				

1998 QK₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Williams			
<i>M</i>	76.78062		(2000.0)	P	Q		
<i>n</i>	0.23333520	ω	182.28517	+0.82227834	+0.54870608		
<i>a</i>	2.6130590	Ω	143.10583	-0.51805725	+0.83150747		
<i>e</i>	0.1501503	<i>i</i>	14.56088	-0.23553135	+0.08670038		
<i>P</i>	4.22	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1998 06 04	699	0.2+	0.8+	1998 08 17	704	0.7+	1.0-	1998 08 30	691	0.5-	0.2+
1998 06 04	699	0.8-	0.5+	1998 08 23	704	0.4-	0.1+	1998 09 22	113	0.3-	1.4-
1998 06 04	699	0.0	0.3-	1998 08 23	704	0.4-	0.8+	1998 09 22	113	0.5+	0.2-
1998 06 27	699	0.2-	0.2-	1998 08 23	704	1.2-	1.4+	1999 12 04	684	0.5+	0.3-
1998 06 27	699	0.3-	0.1-	1998 08 23	704	0.1+	1.5+	1999 12 04	684	0.6+	0.3-
1998 06 27	699	0.1+	0.1-	1998 08 27	691	0.3-	0.0	1999 12 04	684	0.3-	0.7+
1998 07 24	566	0.3+	0.3-	1998 08 27	691	0.2-	0.3+	1999 12 05	704	0.4-	0.0
1998 07 24	566	0.7+	0.3-	1998 08 27	691	0.1-	0.2+	1999 12 05	704	0.7+	0.2+
1998 07 24	566	0.5+	0.8-	1998 08 27	699	0.2+	0.7+	1999 12 05	704	0.6-	0.4+
1998 08 17	704	0.8+	0.1+	1998 08 27	699	0.3-	0.5+	1999 12 05	684	0.4+	0.7-
1998 08 17	704	0.4+	0.5-	1998 08 27	699	0.1-	0.4+	1999 12 05	704	0.9-	0.3+
1998 08 17	704	(3.4-	0.4-)	1998 08 30	691	0.6-	0.5-	1999 12 05	684	0.0	0.2-
1998 08 17	704	1.3+	1.8-	1998 08 30	691	0.4-	0.2+				

1998 QS₉ = 1968 QU

Id. E. Bowell (1999 observations), G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	41.26831		(2000.0)		P		Q
<i>n</i>	0.22801845	ω	46.78821	+0.96937277			-0.21480520
<i>a</i>	2.6535222	Ω	325.11310	+0.11684563			+0.82977814
<i>e</i>	0.1672133	<i>i</i>	12.01461	+0.21601743			+0.51509899
<i>P</i>	4.32	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1998 08 27	095	1.1+	1.7-	1998 08 23	704	0.3+	1.1+	1998 10 19	699	0.2-	0.1+
1998 08 17	704	1.1+	0.4+	1998 08 23	704	0.4-	0.4+	1998 10 19	699	0.1+	0.2+
1998 08 17	704	0.9+	0.6+	1998 08 27	699	0.1-	0.0	1998 10 19	699	0.3+	0.1+
1998 08 17	704	1.8+	0.4-	1998 08 27	699	0.1-	0.2-	1999 12 03	699	0.3+	1.5+
1998 08 17	704	1.0+	0.6-	1998 08 27	699	0.4-	0.1-	1999 12 03	699	0.1+	0.7+
1998 08 21	566	0.8-	0.1-	1998 09 14	699	1.1-	0.2-	1999 12 03	699	0.2-	0.8+
1998 08 21	566	0.9-	0.5-	1998 09 14	699	0.7-	0.3+	1999 12 12	704	0.2-	0.2-
1998 08 21	566	0.3-	0.3-	1998 09 14	699	0.6-	0.1+	1999 12 12	704	0.2+	0.2-
1998 08 23	704	0.2+	0.6-	1998 09 26	691	0.2-	0.2+	1999 12 12	704	0.3+	0.4-
1998 08 23	704	0.8-	0.8+	1998 09 26	691	0.2-	0.4+	1999 12 12	704	0.3-	0.5-
1998 08 23	704	0.1+	0.1+	1998 09 26	691	0.4-	0.6+	1999 12 12	704	0.2+	0.8-

1998 QE₁₂

Id. A. Doppler (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	274.84480		(2000.0)		P		Q
<i>n</i>	0.15583734	ω	276.13484	-0.32551859			-0.94483249
<i>a</i>	3.4199653	Ω	193.04088	+0.91880119			-0.30697541
<i>e</i>	0.1040238	<i>i</i>	9.29819	+0.22325326			-0.11427009
<i>P</i>	6.32	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 03 24	566	0.1+	0.3+	1998 08 23	704	1.2-	0.8+	1999 10 03	703	0.7-	0.0
1996 03 24	566	0.1-	1.0+	1998 08 23	704	1.3+	0.6+	1999 10 04	704	0.3+	0.4+
1996 03 24	566	0.3+	0.5+	1998 08 23	699	0.3+	0.8+	1999 10 04	704	0.2+	0.0
1998 08 17	704	0.1+	0.6-	1998 08 23	704	0.9-	0.4-	1999 10 04	704	0.0	0.8+
1998 08 17	704	0.6+	0.5-	1998 08 23	704	1.0+	1.4-	1999 10 04	704	0.1+	0.6+
1998 08 17	704	0.3-	0.8+	1998 08 23	699	0.0	1.2-	1999 10 04	704	0.4+	0.4-
1998 08 17	704	0.4-	1.5+	1999 10 03	703	0.0	0.3+	1999 10 31	557	0.3-	0.2-
1998 08 17	704	0.1+	0.8+	1999 10 03	703	0.4-	0.0				
1998 08 23	699	0.5-	1.4-	1999 10 03	703	0.1-	0.4+				

1998 QZ₁₃ = 1999 XZ₇₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	79.02763		(2000.0)		P		Q
<i>n</i>	0.21602044	ω	120.67423	+0.78106168			+0.62408390
<i>a</i>	2.7508874	Ω	200.73521	-0.59168766			+0.72863688
<i>e</i>	0.0919395	<i>i</i>	3.48030	-0.19962054			+0.28214817
<i>P</i>	4.56	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 07 24	566	0.3+	1.0-	1998 08 23	704	0.2+	0.3-	1999 12 07	704	0.4+	0.0
1998 07 24	566	0.9+	0.4-	1998 08 23	704	0.2+	1.0-	1999 12 07	704	0.5-	0.7-
1998 07 24	566	0.4-	0.9-	1998 08 23	704	0.3+	0.5+	1999 12 07	704	0.0	0.6+
1998 07 26	699	0.4+	0.6+	1998 08 23	704	0.1+	0.1-	1999 12 07	704	0.4+	0.8+
1998 07 26	699	0.1+	0.6+	1998 09 13	699	0.5-	1.2+	1999 12 08	704	1.6-	0.3-
1998 07 26	699	0.2-	0.4+	1998 09 13	699	0.3+	0.1-	1999 12 08	704	1.1+	0.1+
1998 08 17	704	0.0	0.1-	1998 09 13	699	0.1+	0.1+	1999 12 08	704	0.4-	0.6-
1998 08 17	704	0.5-	0.2-	1998 09 21	699	0.2+	0.1+	1999 12 08	704	0.4-	0.3-
1998 08 17	704	0.7-	0.7+	1998 09 21	699	0.4+	0.3-	1999 12 13	120	0.0	0.0
1998 08 17	704	0.6-	0.3+	1998 09 21	699	0.1-	0.3-	1999 12 13	120	0.5+	0.1-
1998 08 17	704	0.3-	0.4+	1999 12 07	704	0.6+	0.2+				

1998 QE₁₄

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	75.10180		(2000.0)		P		Q
<i>n</i>	0.18476230	ω	150.12787	+0.67770746			+0.73265094
<i>a</i>	3.0530023	Ω	162.28374	-0.70888611			+0.67362560
<i>e</i>	0.1339053	<i>i</i>	11.89664	-0.19543051			+0.09721704
<i>P</i>	5.33	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1998 06 19	699	0.7+	0.0	1998 08 23	704	0.2+	0.5+	1999 11 05	704	0.0	0.2+
1998 06 19	699	1.3-	0.6-	1998 08 28	699	0.1+	0.1+	1999 11 05	699	0.5+	1.0+
1998 06 19	699	(2.9-	0.5-)	1998 08 28	699	0.0	0.4+	1999 11 05	704	0.4-	1.2+
1998 07 26	699	0.1+	0.4+	1998 08 28	699	0.0	0.3+	1999 11 05	699	1.3-	0.1-
1998 07 26	699	0.1-	0.3+	1998 08 30	699	0.4-	0.1+	1999 11 05	704	0.4+	1.0-
1998 07 26	699	0.4+	0.0	1998 08 30	699	0.2+	0.5+	1999 11 05	699	0.3-	0.8+
1998 08 17	704	0.1+	0.6-	1998 08 30	699	0.1+	0.0	1999 11 05	704	0.5+	0.6-
1998 08 17	704	0.4-	0.1+	1998 09 13	699	0.2-	1.3-	1999 11 05	704	0.2-	1.5-
1998 08 17	704	0.8+	0.4+	1998 09 13	699	0.2+	0.6-	1999 11 16	703	0.1-	0.2-
1998 08 17	704	0.2-	0.2-	1998 09 13	699	0.3+	0.2-	1999 11 16	703	0.4+	0.5-
1998 08 17	704	0.4-	0.7-	1998 09 21	699	0.2-	0.8+	1999 11 16	703	0.3-	0.6+
1998 08 22	566	0.2+	0.9-	1998 09 21	699	0.2+	1.4+	1999 11 16	703	0.1-	0.3+
1998 08 22	566	0.1-	0.7-	1998 09 21	699	0.2+	0.1+	1999 12 03	704	0.2-	0.7-
1998 08 22	566	1.3+	1.3-	1999 10 19	704	0.6-	0.5+	1999 12 03	704	0.4-	0.8-
1998 08 23	704	0.1-	0.5+	1999 10 19	704	0.3+	1.0-	1999 12 03	704	0.2+	0.1-
1998 08 23	704	0.5-	0.2+	1999 10 19	704	0.3+	0.5+				
1998 08 23	704	1.1-	0.8+	1999 10 19	704	1.4+	1.3+				

1998 QF₁₄ = 1974 MQ = 1999 XB₇₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	218.14442		(2000.0)		P		Q
<i>n</i>	0.29216972	ω	300.62034	-0.92450503			+0.37619992
<i>a</i>	2.2492924	Ω	261.53815	-0.32503779			-0.86215526
<i>e</i>	0.0935879	<i>i</i>	3.55618	-0.19910019			-0.33935517
<i>P</i>	3.37	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1974 06 17	808	0.2-	1.1-	1998 08 17	704	(2.2-	1.1-)	1999 12 07	704	0.4+	0.0
1974 06 17	808	0.3+	0.5-	1998 08 23	704	1.0+	0.2-	1999 12 07	704	0.1+	0.7-
1998 07 26	699	(2.2+	0.1-)	1998 08 23	704	0.3-	0.7-	1999 12 07	704	0.2-	0.5-
1998 07 26	699	0.2+	0.5+	1998 08 23	704	0.5+	0.8+	1999 12 08	704	0.2-	0.0
1998 07 26	699	0.7-	0.4+	1998 08 23	704	0.1-	0.4-	1999 12 08	704	0.6-	0.1-
1998 08 17	704	0.5-	0.2-	1998 08 28	699	0.1+	0.1+	1999 12 08	704	0.2+	0.0
1998 08 17	704	1.1-	0.0	1998 08 28	699	0.1-	0.4+	1999 12 08	704	0.2+	0.1-
1998 08 17	704	0.0	0.2-	1998 08 28	699	0.2+	0.1-	1999 12 08	704	0.3+	0.0
1998 08 17	704	0.7+	0.2-	1999 12 07	704	0.2-	0.2-				

1998 QD₂₁ = 1999 XU₉₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	318.04344		(2000.0)		P		Q
<i>n</i>	0.26390275	ω	287.09969	-0.33709001			-0.94147110
<i>a</i>	2.4071701	Ω	182.60159	+0.87647256			-0.31320421
<i>e</i>	0.0479299	<i>i</i>	1.99381	+0.34375309			-0.12464066
<i>P</i>	3.73	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 17	704	0.0	0.2+	1998 08 23	699	0.3+	0.4+	1999 12 07	704	0.2+	0.8+
1998 08 17	704	(2.4-	0.6-)	1998 08 23	704	0.2+	1.1+	1999 12 07	704	0.6+	0.3-
1998 08 17	704	0.2+	0.8+	1998 09 14	704	0.9+	0.9-	1999 12 07	704	0.2+	0.7-
1998 08 17	704	1.5-	0.3+	1998 09 14	704	1.0+	0.7+	1999 12 07	704	0.0	0.1+
1998 08 23	699	0.7-	0.7+	1998 09 14	704	1.0-	0.2-	1999 12 08	704	0.3-	0.6+
1998 08 23	704	0.5+	1.6-	1998 09 14	704	0.7+	0.3-	1999 12 08	704	0.0	0.0
1998 08 23	704	1.5+	1.4-	1998 09 18	704	0.6+	0.7+	1999 12 08	704	0.2-	0.1-
1998 08 23	699	0.3-	0.4-	1998 09 18	704	0.3-	1.0-	1999 12 08	704	0.5-	0.1+

1999 DEC. 22

M.P.C. 37161

1998 08 23 704 (1.7- 2.5+) 1998 09 18 704 0.1- 0.5+ 1999 12 08 704 0.0 0.3-
 1998 08 23 704 0.2- 0.3+ 1998 09 18 704 1.9- 0.2+

1998 QG₂₁ = 1999 XY₉₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	47.24643		(2000.0)	P	Q
<i>n</i>	0.18589997	ω	202.22014	+0.99917957	+0.04048976
<i>a</i>	3.0405338	Ω	155.45928	-0.03683217	+0.91750626
<i>e</i>	0.1975132	<i>i</i>	0.12110	-0.01683991	+0.39565495
<i>P</i>	5.30	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1998 07 26	699	0.1+	0.2+	1998 08 23	704	0.5+	1.1-	1998 11 11	910	0.2+	0.0
1998 07 26	699	0.9+	0.7-	1998 08 23	704	0.7-	0.9+	1998 11 11	910	0.2-	0.0
1998 07 26	699	0.3+	1.5+	1998 08 23	699	0.0	0.1-	1998 11 11	910	0.8-	0.5+
1998 07 27	809	0.2+	0.5-	1998 08 23	704	1.0-	0.4+	1998 11 11	910	0.1-	0.9+
1998 07 27	809	0.6-	0.3+	1998 08 23	699	0.6-	0.6+	1999 12 07	704	0.4+	0.5-
1998 07 27	809	1.0-	0.1+	1998 09 21	699	1.3+	0.2-	1999 12 07	704	0.5-	0.2-
1998 08 17	704	0.2+	0.6-	1998 09 21	699	0.6+	0.3-	1999 12 07	704	0.2+	0.1-
1998 08 17	704	1.3+	1.2-	1998 09 21	699	0.6-	0.7-	1999 12 08	704	1.0-	0.3-
1998 08 17	704	1.3+	0.1-	1998 11 09	910	0.0	0.0	1999 12 08	704	0.5+	0.3+
1998 08 17	704	0.6-	0.0	1998 11 09	910	0.2-	0.2-	1999 12 08	704	0.1+	0.1-
1998 08 17	704	0.2-	0.9+	1998 11 09	910	0.1+	0.2+	1999 12 08	704	0.4+	0.6+
1998 08 23	704	0.5-	0.2+	1998 11 11	910	0.3+	0.1+				
1998 08 23	699	0.4-	0.7-	1998 11 11	910	0.0	0.1+				

1998 QS₂₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	91.64774		(2000.0)	P	Q
<i>n</i>	0.22922095	ω	249.45241	+0.70194295	+0.70872632
<i>a</i>	2.6442337	Ω	65.33789	-0.62111262	+0.65762967
<i>e</i>	0.1058818	<i>i</i>	4.45501	-0.34856161	+0.25540207
<i>P</i>	4.30	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 07 31	699	0.2-	0.1-	1998 08 27	699	0.2-	0.6+	1998 10 17	699	0.1-	0.4+
1998 07 31	699	0.1+	0.1+	1998 09 14	704	0.8+	1.0-	1999 11 27	739	1.7+	0.5-
1998 07 31	699	1.1-	0.3-	1998 09 14	704	0.2+	0.1+	1999 11 27	739	0.7+	0.1+
1998 08 17	704	0.0	0.1+	1998 09 14	704	0.3+	0.9+	1999 12 01	739	0.6+	0.5-
1998 08 17	704	0.4+	0.4-	1998 09 14	704	0.4-	0.7-	1999 12 01	739	0.7+	1.2+
1998 08 17	704	0.1-	0.3-	1998 09 14	704	0.5+	0.0	1999 12 01	739	0.2-	0.8+
1998 08 17	704	0.5-	0.1+	1998 09 18	704	0.2+	0.5-	1999 12 01	739	0.4+	0.6+
1998 08 17	704	0.1-	0.8-	1998 09 18	704	0.2+	0.1-	1999 12 07	704	0.3+	0.6-
1998 08 23	704	1.5+	0.4+	1998 09 18	704	0.6-	0.1-	1999 12 07	704	0.4-	0.6-
1998 08 23	704	0.4+	0.4+	1998 09 18	704	0.4+	0.0	1999 12 07	704	0.2-	0.4-
1998 08 23	704	0.3+	0.9+	1998 09 24	699	0.5-	0.0	1999 12 07	704	0.9-	0.9-
1998 08 23	704	0.4-	0.3+	1998 09 24	699	0.1-	0.4+	1999 12 10	704	1.0-	0.1-
1998 08 23	704	0.5-	1.2-	1998 09 24	699	1.5-	1.3+	1999 12 10	704	0.2-	0.8+
1998 08 27	699	0.4+	0.2+	1998 10 17	699	0.3+	0.1-	1999 12 10	704	0.5-	0.1-
1998 08 27	699	0.1-	0.4+	1998 10 17	699	0.3+	1.3-	1999 12 10	704	0.9-	0.4+

1998 QB₂₃ = 1999 WU₂

Id. B. G. Marsden

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	358.08726		(2000.0)	P	Q
<i>n</i>	0.17443446	ω	23.42468	+0.65220591	-0.75675866
<i>a</i>	3.1723507	Ω	25.93410	+0.67857555	+0.55692235
<i>e</i>	0.1531018	<i>i</i>	5.78587	+0.33787967	+0.34227741
<i>P</i>	5.65	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 08 17	704	0.3+	0.9-	1999 11 30	046	0.3+	0.3-	1999 11 30	046	0.2-	0.2-
1998 08 17	704	1.7-	0.5-	1999 11 30	046	0.2+	0.1-	1999 12 07	046	0.3-	0.1+
1998 08 17	704	0.3+	0.1-	1999 11 30	046	0.3+	0.2-	1999 12 07	046	0.1+	0.0
1998 08 17	704	0.1-	0.3+	1999 11 30	046	0.4+	0.2-	1999 12 07	046	0.2-	0.0

1998 08 17	704	0.7+	0.3-	1999 11 30	046	0.2+	0.2-	1999 12 07	046	0.1-	0.2+
1998 08 23	704	0.5-	1.0+	1999 11 30	046	0.2+	0.1-	1999 12 07	046	0.3-	0.1+
1998 08 23	704	1.0-	0.9-	1999 11 30	046	0.2+	0.0	1999 12 10	704	0.2-	1.0-
1998 08 23	704	1.1-	1.7+	1999 11 30	046	0.2+	0.3+	1999 12 10	704	0.1-	0.2+
1998 08 27	699	1.7+	0.4+	1999 11 30	046	0.1+	0.3+	1999 12 10	704	0.3+	0.3+
1998 08 27	699	0.5+	0.2+	1999 11 30	046	0.0	0.1+	1999 12 10	704	0.9-	0.6+
1998 08 27	699	0.8+	1.0-	1999 11 30	046	0.2-	0.1+				

1998 QS₂₅ = 1999 XP₆₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	37.29526		(2000.0)	P	Q
<i>n</i>	0.20218250	ω	287.06821	+0.98678703	-0.15192400
<i>a</i>	2.8750165	Ω	81.69751	+0.16166238	+0.90005908
<i>e</i>	0.0480231	<i>i</i>	3.26208	+0.01079981	+0.40842717
<i>P</i>	4.87	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 08 17	704	0.2-	0.4-	1998 09 14	704	0.9-	0.3+	1999 12 07	704	0.5-	0.9+
1998 08 17	704	0.2+	0.2-	1998 09 14	704	0.9+	1.4+	1999 12 07	704	0.1+	0.0
1998 08 17	704	0.7+	1.2+	1998 09 14	704	(6.0-	0.6-)	1999 12 07	704	0.4+	0.7+
1998 08 17	704	0.6-	0.2-	1998 09 18	704	1.5-	1.6+	1999 12 07	704	0.4+	0.5+
1998 08 23	704	0.4+	0.3-	1998 09 18	704	0.8+	1.0-	1999 12 07	704	0.7-	0.2+
1998 08 23	704	1.1+	1.1-	1998 09 18	704	(2.4+	3.0-)	1999 12 08	704	0.2+	0.1-
1998 08 23	704	0.5-	0.5+	1998 09 18	704	0.9+	1.7-	1999 12 08	704	0.0	0.6-
1998 08 23	704	1.4-	1.4+	1998 09 21	699	0.4+	0.0	1999 12 08	704	0.1+	0.2-
1998 09 14	704	0.1-	1.1-	1998 09 21	699	0.2-	0.4+	1999 12 08	704	0.3-	0.5-
1998 09 14	704	0.1+	0.5-	1998 09 21	699	0.2-	0.5-	1999 12 08	704	0.4+	0.8-

1998 QL₂₆ = 1999 XU₂₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	26.71139		(2000.0)	P	Q
<i>n</i>	0.22845143	ω	265.30943	+0.84536964	-0.53073596
<i>a</i>	2.6501683	Ω	126.73309	+0.51516970	+0.78003817
<i>e</i>	0.1235798	<i>i</i>	4.33486	+0.14124571	+0.33145105
<i>P</i>	4.31	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 08 17	704	0.1-	0.4+	1998 08 26	426	0.1+	0.3-	1998 10 13	426	0.6-	0.3+
1998 08 17	704	0.7+	0.2+	1998 08 26	426	0.2+	0.3-	1998 10 13	426	0.3-	0.3+
1998 08 17	704	0.2-	0.2+	1998 09 01	426	0.0	0.1-	1999 12 05	704	0.6+	0.1+
1998 08 17	704	0.9+	0.6+	1998 09 01	426	0.7-	0.3-	1999 12 05	704	0.1+	0.4+
1998 08 17	704	1.3-	0.5-	1998 09 01	426	0.4-	0.0	1999 12 05	704	0.6-	0.6-
1998 08 25	426	0.1-	0.3-	1998 09 12	426	0.1+	0.5+	1999 12 05	704	0.3+	0.6+
1998 08 25	426	0.1-	0.5-	1998 09 12	426	0.4+	0.3+	1999 12 07	704	0.2-	0.3-
1998 08 25	426	0.4+	0.3-	1998 09 12	426	0.1-	0.4+	1999 12 07	704	0.2-	0.7-
1998 08 26	426	0.2+	0.1-	1998 10 09	426	1.0+	0.4-	1999 12 07	704	0.0	0.3+

1998 QX₂₇ = 1999 XP₁₃₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	41.04002		(2000.0)	P	Q
<i>n</i>	0.18544768	ω	51.52038	+0.98568371	-0.13861422
<i>a</i>	3.0454755	Ω	316.20655	+0.07515656	+0.87083878
<i>e</i>	0.1525712	<i>i</i>	7.97258	+0.15092754	+0.47162052
<i>P</i>	5.31	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 08 17	704	0.3-	1.0+	1998 08 24	910	1.2+	0.3-	1998 10 11	699	1.1+	0.0
1998 08 17	704	0.7-	1.8+	1998 08 24	691	0.2+	0.3-	1999 12 12	704	0.8+	0.8+
1998 08 17	704	0.1-	0.5+	1998 08 24	691	0.1+	0.1-	1999 12 12	704	0.3-	0.3-
1998 08 17	704	1.5-	0.2+	1998 08 24	691	0.3+	0.1-	1999 12 12	704	0.3-	0.2-
1998 08 17	704	0.5-	0.0	1998 08 27	691	0.6-	0.2-	1999 12 12	704	0.9-	0.2+
1998 08 23	704	1.3+	1.8-	1998 08 27	691	0.7-	0.1-	1999 12 12	704	0.1-	0.8+
1998 08 23	704	0.5+	0.7-	1998 08 27	691	0.5-	0.2-	1999 12 13	704	0.1-	0.4+
1998 08 23	704	0.2-	0.3+	1998 09 15	699	0.4-	0.1-	1999 12 13	704	0.5-	0.5-
1998 08 23	704	(2.3+	1.4+)	1998 09 15	699	0.2-	0.1+	1999 12 13	704	0.5+	0.6-

1998 08 23	704	(0.4− 2.5+)	1998 09 15	699	0.4− 0.2+	1999 12 13	704	1.1+ 0.7−
1998 08 24	910	1.2+ 0.3−	1998 10 11	699	0.3+ 0.4+			
1998 08 24	910	1.3+ 0.4−	1998 10 11	699	1.3− 0.1+			

1998 QL₂₉ = 1999 XH₆₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams					
<i>M</i>	168.82034	(2000.0)	P			Q		
<i>n</i>	0.27346471	ω	341.78394	−0.50576052	+0.85960426			
<i>a</i>	2.3507251	Ω	257.77796	−0.78194928	−0.49240195			
<i>e</i>	0.1898917	<i>i</i>	4.26656	−0.36436469	−0.13645818			
<i>P</i>	3.60	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	6	

Residuals in seconds of arc

1998 08 17	704	0.1− 0.4+	1998 08 27	327	0.1− 0.0	1999 12 07	704	0.6− 0.9−
1998 08 17	704	0.2+ 1.0−	1998 08 27	327	0.2− 0.3−	1999 12 07	704	0.1− 0.5−
1998 08 17	704	0.6+ 0.1+	1998 08 27	327	0.0 0.1−	1999 12 08	704	0.5− 0.0
1998 08 22	327	0.4− 0.4+	1998 08 30	327	0.1+ 0.2+	1999 12 08	704	0.7+ 0.5−
1998 08 22	327	0.6− 0.3−	1998 08 30	327	0.3− 0.1+	1999 12 08	704	0.2+ 0.5−
1998 08 22	327	0.7− 0.1+	1998 08 30	327	0.1− 0.2+	1999 12 08	704	0.4− 1.6+
1998 08 26	699	0.1+ 0.2−	1999 12 07	704	0.1+ 0.1+	1999 12 08	704	0.4− 0.2+
1998 08 26	699	0.3+ 0.8−	1999 12 07	704	0.4+ 0.0			
1998 08 26	699	1.3+ 1.2+	1999 12 07	704	0.5+ 0.5+			

1998 QT₃₂ = 1999 XA₇₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams					
<i>M</i>	41.90995	(2000.0)	P			Q		
<i>n</i>	0.20522710	ω	137.99926	+0.98204502	−0.18806754			
<i>a</i>	2.8465113	Ω	232.84670	+0.16777273	+0.90650037			
<i>e</i>	0.0827305	<i>i</i>	1.06192	+0.08625483	+0.37800486			
<i>P</i>	4.80	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1998 08 17	704	0.8− 0.0	1998 09 14	704	0.7+ 0.1+	1998 09 18	704	(1.8− 2.4−)
1998 08 17	704	(2.3− 0.9−)	1998 09 14	704	0.0 1.5−	1998 09 18	704	0.6− 0.6−
1998 08 17	704	0.9− 1.6+	1998 09 14	704	0.3− 1.2+	1999 12 07	704	0.4+ 0.0
1998 08 17	704	1.0− 0.0	1998 09 14	704	0.4+ 0.1+	1999 12 07	704	0.3− 0.0
1998 08 23	704	(2.7− 2.2+)	1998 09 14	699	0.1− 0.1−	1999 12 07	704	0.4+ 0.0
1998 08 23	704	1.2+ 0.9+	1998 09 14	699	0.4+ 0.2+	1999 12 07	704	0.5− 0.2−
1998 08 23	704	1.2+ 0.9−	1998 09 14	699	(2.9+ 1.0+)	1999 12 08	704	0.1+ 0.1−
1998 08 23	704	(3.1− 1.4+)	1998 09 18	704	0.1+ 0.1+	1999 12 08	704	0.1+ 0.0
1998 09 14	704	(2.5+ 0.7+)	1998 09 18	704	0.4− 1.1−	1999 12 08	704	0.1− 0.6+

1998 QX₃₂ = 1999 XS₇₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams					
<i>M</i>	36.48853	(2000.0)	P			Q		
<i>n</i>	0.20345103	ω	177.87040	+0.96708265	−0.25421158			
<i>a</i>	2.8630535	Ω	196.86950	+0.23288555	+0.90209800			
<i>e</i>	0.0654439	<i>i</i>	2.23107	+0.10254498	+0.34870572			
<i>P</i>	4.84	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1998 08 17	704	0.2− 0.4−	1998 08 26	699	0.1− 0.8+	1998 09 18	704	0.7+ 1.0+
1998 08 17	704	0.3+ 0.4−	1998 09 14	704	0.1+ 0.2−	1998 09 18	704	0.5+ 0.1+
1998 08 17	704	0.5+ 0.2−	1998 09 14	704	0.3+ 0.5−	1999 12 07	704	0.0 0.3+
1998 08 17	704	0.3− 0.3−	1998 09 14	704	0.3− 0.8−	1999 12 07	704	0.0 0.5+
1998 08 17	704	0.5− 0.4−	1998 09 14	704	0.7− 0.9+	1999 12 07	704	0.3+ 0.1+
1998 08 23	704	0.1+ 0.2−	1998 09 14	704	0.3− 0.2+	1999 12 08	704	0.0 0.1−
1998 08 23	704	0.8+ 1.2−	1998 09 14	699	0.1+ 0.6−	1999 12 08	704	0.2− 0.2−
1998 08 23	704	0.5− 1.6+	1998 09 14	699	0.1+ 0.6−	1999 12 08	704	0.0 0.2−
1998 08 23	704	0.4+ 0.8+	1998 09 14	699	0.3+ 0.6+	1999 12 08	704	0.0 0.0
1998 08 23	704	0.5− 0.3+	1998 09 18	704	1.2+ 0.8−	1999 12 08	704	0.1− 0.1−
1998 08 26	699	0.4+ 0.2−	1998 09 18	704	0.2− 1.4−			
1998 08 26	699	0.2− 0.4+	1998 09 18	704	1.9− 1.4+			

1998 QK₃₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams					
<i>M</i>	71.52546	(2000.0)	P			Q		
<i>n</i>	0.23572021	ω	13.56797	+0.97636542	+0.18794821			
<i>a</i>	2.5954032	Ω	334.82664	−0.21420870	+0.77591324			
<i>e</i>	0.1276628	<i>i</i>	14.52840	−0.02872636	+0.60219109			
<i>P</i>	4.18	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	3	

Residuals in seconds of arc

1998 08 01	699	0.0 0.1+	1998 09 14	704	0.0 0.2+	1998 10 11	699	0.3+ 0.3−
1998 08 01	699	0.3+ 0.2−	1998 09 14	704	0.2− 0.2+	1998 10 11	699	0.1− 0.3−
1998 08 01	699	0.1+ 0.1−	1998 09 14	704	0.1+ 1.4+	1998 10 11	699	0.3− 0.4−
1998 08 17	704	0.5− 0.0	1998 09 14	704	0.4− 1.2+	1998 12 09	704	0.1− 0.3+
1998 08 17	704	0.6− 0.4+	1998 09 15	699	0.4+ 0.6−	1998 12 09	704	1.4− 0.2−
1998 08 17	704	0.1+ 1.5+	1998 09 15	699	0.7+ 0.0	1998 12 09	704	0.5+ 1.2−
1998 08 17	704	0.0 1.0+	1998 09 15	699	0.3+ 0.0	1998 12 09	704	1.3+ 0.7+
1998 08 17	704	0.7+ 0.9+	1998 09 17	120	1.1+ 0.2−	1998 12 09	704	0.3− 0.3+
1998 08 22	566	0.3+ 1.6−	1998 09 17	120	0.6+ 0.3−	1999 12 03	699	0.6+ 0.5+
1998 08 22	566	(0.2+ 2.0−)	1998 09 17	120	0.4+ 0.5−	1999 12 03	699	0.1+ 0.2+
1998 08 22	566	0.2+ 1.9−	1998 09 17	120	0.1+ 0.2−	1999 12 03	699	0.1+ 0.1−
1998 08 23	704	0.1+ 0.3−	1998 09 18	704	0.0 0.5+	1999 12 12	704	0.2− 0.1−
1998 08 23	704	0.2− 1.0−	1998 09 18	704	0.2+ 0.1−	1999 12 12	704	0.1+ 0.1−
1998 08 23	704	0.1− 0.1−	1998 09 18	704	0.3− 0.5+	1999 12 12	704	0.3− 0.2−
1998 08 23	704	0.8− 0.6−	1998 09 18	704	0.6− 0.2+	1999 12 12	704	0.3− 0.4−
1998 09 14	704	1.0− 0.6+	1998 09 18	704	0.8− 0.0	1999 12 12	704	0.2− 0.2+

1998 QO₃₅ = 1999 XX₈₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams					
<i>M</i>	37.18256	(2000.0)	P			Q		
<i>n</i>	0.20203902	ω	268.98090	+0.97433397	−0.21919814			
<i>a</i>	2.8763774	Ω	103.67963	+0.22176011	+0.89554191			
<i>e</i>	0.0530294	<i>i</i>	3.02293	+0.03867529	+0.38724264			
<i>P</i>	4.88	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	3	

Residuals in seconds of arc

1998 08 17	704	0.2+ 0.0	1998 09 14	704	0.5− 0.1−	1998 11 19	910	0.2+ 0.4−
1998 08 17	704	0.0 1.0+	1998 09 14	704	0.3+ 0.1+	1998 11 19	910	0.1+ 0.4−
1998 08 17	704	0.0 0.3+	1998 09 14	704	0.5+ 0.3+	1998 11 19	910	0.1+ 0.4−
1998 08 17	704	0.8+ 0.6+	1998 09 18	704	0.0 0.5−	1999 12 07	704	0.6− 1.0+
1998 08 17	704	1.3− 0.1−	1998 09 18	704	0.4− 0.5−	1999 12 07	704	0.2+ 0.2−
1998 08 23	704	0.7+ 0.2−	1998 09 18	704	1.9− 0.3−	1999 12 07	704	0.0 0.0
1998 08 23	704	0.9+ 0.2+	1998 09 18	704	0.8+ 1.8−	1999 12 08	704	0.2+ 0.2−
1998 08 23	704	0.2+ 0.9−	1998 09 18	704	1.1− 0.7+	1999 12 08	704	0.0 0.1−
1998 08 23	704	1.4− 0.7−	1998 09 22	699	1.0+ 1.0+	1999 12 08	704	0.1− 0.0
1998 09 14	704	0.3− 0.4+	1998 09 22	699	0.3+ 0.9+	1999 12 08	704	0.1+ 0.3−
1998 09 14	704	0.5+ 0.6+	1998 09 22	699	0.5+ 0.3−	1999 12 08	704	0.1+ 0.1+

1998 QT₃₆ = 1999 XY₇₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams					
<i>M</i>	162.14879	(2000.0)	P			Q		
<i>n</i>	0.25283503	ω	0.99259	−0.25099388	+0.96545181			
<i>a</i>	2.4769157	Ω	254.47369	−0.88861236	−0.25850134			
<i>e</i>	0.0830531	<i>i</i>	4.16835	−0.38388819	−0.03286115			
<i>P</i>	3.90	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1998 08 17	704	0.0 0.7+	1998 09 14	704	0.3+ 0.2+	1998 10 11	699	0.5+ 0.0
1998 08 17	704	0.8+ 0.5+	1998 09 15	699	0.4+ 0.1+	1998 10 11	699	0.4− 0.8−
1998 08 17	704	0.3+ 0.4+	1998 09 15	699	0.3− 0.2+	1999 12 07	704	0.1− 0.4+
1998 08 17	704	0.5− 2.0−	1998 09 15	699	1.0− 1.4+	1999 12 07	704	0.4+ 0.1−
1998 08 17	704	0.9+ 1.3−	1998 09 18	704	1.0− 0.5−	1999 12 07	704	0.4+ 0.2+
1998 08 23	704	0.4+ 0.1−	1998 09 18	704	0.9− 1.3−	1999 12 07	704	0.2+ 0.1−
1998 08 23	704	0.0 1.3−	1998 09 18	704	1.2− 0.0	1999 12 08	704	0.4+ 0.4−
1998 08 23	704	0.2− 0.8+	1998 09 18	704	0.7− 0.6+	1999 12 08	704	0.6− 0.2+
1998 08 23	704	0.8− 0.6−	1998 09 18	704	0.2− 1.9+	1999 12 08	704	0.3+ 0.2−

1999 DEC. 22

M.P.C. 37163

1998 09 14	704	0.6+	0.4−	1998 09 21	699	1.1+	0.4−	1999 12 08	704	0.7−	0.5−
1998 09 14	704	0.0	0.0	1998 09 21	699	0.5+	0.5+	1999 12 08	704	0.4−	0.3+
1998 09 14	704	0.2−	0.1+	1998 09 21	699	0.4+	0.7+				
1998 09 14	704	1.0+	0.9+	1998 10 11	699	0.3+	0.6−				

1998 QD₃₈ = 1999 XQ₈₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	38.52223		(2000.0)		P		Q
<i>n</i>	0.20456992	ω	270.23592		+0.97087462		−0.23549608
<i>a</i>	2.8526043	Ω	103.38519		+0.23387712		+0.89160390
<i>e</i>	0.0615732	<i>i</i>	2.59769		+0.05199959		+0.38676100
<i>P</i>	4.82	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 17	704	0.0	1.3−	1998 09 14	704	0.6−	0.9−	1998 09 18	704	0.7+	0.5+
1998 08 17	704	0.5+	0.5+	1998 09 14	704	0.2−	0.4−	1998 09 18	704	0.5−	0.2−
1998 08 17	704	0.8+	0.1+	1998 09 14	704	0.2+	0.1+	1999 12 07	704	0.2−	0.0
1998 08 17	704	1.4+	0.5+	1998 09 14	704	0.6−	0.1−	1999 12 07	704	0.2−	0.8−
1998 08 17	704	0.5−	0.9−	1998 09 14	704	1.1−	0.7+	1999 12 07	704	0.2−	0.1−
1998 08 23	704	0.8−	1.0+	1998 09 16	699	0.6+	1.2+	1999 12 08	704	0.0	0.1+
1998 08 23	704	1.7−	0.3−	1998 09 16	699	1.3+	0.2−	1999 12 08	704	0.4−	0.2+
1998 08 23	704	0.0	0.2+	1998 09 16	699	0.3+	0.0	1999 12 08	704	0.1−	0.0
1998 08 23	704	0.0	0.1+	1998 09 18	704	0.0	0.6−	1999 12 08	704	0.4+	0.1−
1998 08 23	704	(2.5−	0.1−)	1998 09 18	704	(1.9+	2.2−)	1999 12 08	704	0.7+	0.7+

1998 QF₄₀ = 1999 XE₇₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	263.84402		(2000.0)		P		Q
<i>n</i>	0.21762925	ω	286.87998		−0.89613033		−0.44244331
<i>a</i>	2.7373135	Ω	226.87533		+0.42306584		−0.82816699
<i>e</i>	0.0248440	<i>i</i>	2.71398		+0.13403630		−0.34406882
<i>P</i>	4.53	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 17	704	0.7+	0.6−	1998 09 14	704	0.5+	1.3+	1999 12 07	704	0.2−	0.5+
1998 08 17	704	0.5−	1.0+	1998 09 14	704	0.3−	0.6−	1999 12 07	704	0.6−	0.8+
1998 08 17	704	0.9+	0.1−	1998 09 14	704	0.4−	0.5+	1999 12 07	704	0.7−	1.1+
1998 08 17	704	(1.7−	2.1+)	1998 09 14	704	0.6−	0.7+	1999 12 08	704	0.4+	0.3−
1998 08 23	704	0.8+	1.2−	1998 09 18	704	1.2+	0.8+	1999 12 08	704	0.4+	0.1−
1998 08 23	704	(0.3−	2.3−)	1998 09 18	704	(2.3−	0.6−)	1999 12 08	704	0.6+	1.1−
1998 08 23	704	0.5−	0.7+	1998 09 18	704	0.1+	1.2−	1999 12 08	704	0.4−	0.9−
1998 08 23	704	0.1+	0.3+	1998 09 18	704	0.7+	0.6−	1999 12 08	704	(2.6+	1.7−)
1998 08 23	704	1.1−	0.5−	1998 09 18	704	0.4+	0.2−				
1998 09 14	704	1.9−	0.1−	1999 12 07	704	0.4+	0.0				

1998 QM₄₁ = 1999 XA₈₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	64.31833		(2000.0)		P		Q
<i>n</i>	0.19920280	ω	190.52992		+0.97057354		+0.24026089
<i>a</i>	2.9036154	Ω	155.54978		−0.21799572		+0.90519488
<i>e</i>	0.0381407	<i>i</i>	2.24001		−0.10229797		+0.35056659
<i>P</i>	4.95	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 17	704	0.2−	0.5+	1998 09 14	704	0.8−	0.7−	1998 09 21	691	0.1−	0.0
1998 08 17	704	1.0−	0.4−	1998 09 14	704	0.3+	0.3+	1998 09 21	691	0.0	0.0
1998 08 17	704	0.7+	0.9+	1998 09 14	704	0.5+	0.3+	1998 09 21	691	0.1−	0.2+
1998 08 17	704	(2.7+	0.5+)	1998 09 18	704	1.9+	0.2−	1999 12 07	704	0.3−	0.1−
1998 08 17	704	(1.2+	3.6+)	1998 09 18	704	0.6−	0.7−	1999 12 07	704	0.1−	0.3+
1998 08 23	704	1.9+	1.0−	1998 09 18	704	0.8+	1.3−	1999 12 07	704	0.4−	0.6+
1998 08 23	704	(0.4+	2.4+)	1998 09 18	704	0.1−	0.9+	1999 12 08	704	0.1+	0.3−
1998 08 23	704	1.0−	0.3−	1998 09 18	704	0.9−	0.9+	1999 12 08	704	1.9+	0.4+
1998 08 23	704	(2.1−	1.4+)	1998 09 20	691	0.0	0.2+	1999 12 08	704	0.7−	0.2−
1998 09 14	704	0.7+	0.5+	1998 09 20	691	0.1−	0.1+	1999 12 08	704	0.4−	0.6−
1998 09 14	704	1.9−	0.2−	1998 09 20	691	0.2+	0.1+				

1998 QN₄₁ = 1998 RP₂₄Id. S. Nakano (d. *MPC* 33590), T. Kobayashi (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	264.48638		(2000.0)		P		Q
<i>n</i>	0.20183305	ω	171.87150		−0.83985489		−0.54268810
<i>a</i>	2.8783341	Ω	335.25092		+0.49645485		−0.75935356
<i>e</i>	0.0158454	<i>i</i>	1.58087		+0.21949112		−0.35898717
<i>P</i>	4.88	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 17	704	0.7+	1.7−	1998 09 14	704	1.3−	0.1+	1999 11 28	411	1.0−	0.4−
1998 08 17	704	0.2−	1.3−	1998 09 14	704	0.5+	0.8−	1999 11 28	411	0.3−	0.5−
1998 08 17	704	0.4+	0.5−	1998 09 14	704	0.5−	0.3+	1999 11 29	411	1.6+	0.7−
1998 08 17	704	0.9−	2.4+	1998 09 14	704	0.5+	1.4+	1999 11 29	411	0.5+	0.6−
1998 08 17	704	1.5+	2.4+	1998 09 18	704	0.1+	2.2−	1999 12 07	704	0.1+	0.3+
1998 08 23	704	0.6−	0.6−	1998 09 18	704	0.2−	0.8+	1999 12 07	704	0.1−	0.2+
1998 08 23	704	0.7+	0.2+	1998 09 18	704	1.1+	0.4−	1999 12 07	704	0.8−	0.9+
1998 08 23	704	0.3+	1.3−	1998 09 18	704	1.7+	0.1+	1999 12 07	704	0.0	0.8+
1998 08 23	704	2.3−	0.2−	1998 09 18	704	1.7−	1.4+				

1998 QK₄₃ = 1999 XP₈₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	106.93416		(2000.0)		P		Q
<i>n</i>	0.25929715	ω	194.40298		+0.70903730		+0.69870551
<i>a</i>	2.4355902	Ω	120.86095		−0.63550446		+0.69168317
<i>e</i>	0.1475821	<i>i</i>	6.37214		−0.30561444		+0.18271563
<i>P</i>	3.80	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 17	704	0.0	0.8+	1998 09 14	704	0.1−	0.7+	1998 09 22	699	0.5+	0.2+
1998 08 17	704	0.2−	0.1−	1998 09 14	704	0.5−	1.0+	1998 09 22	699	0.4+	0.1−
1998 08 17	704	0.7−	0.2+	1998 09 14	704	0.4−	1.4+	1999 12 07	704	0.9−	0.7−
1998 08 17	704	1.0−	0.0	1998 09 14	704	0.0	1.1+	1999 12 07	704	0.6−	1.2−
1998 08 17	704	0.6−	0.1−	1998 09 16	699	0.5−	0.4+	1999 12 07	704	0.6−	0.8−
1998 08 23	704	0.1+	0.5−	1998 09 16	699	0.1−	0.1−	1999 12 07	704	0.3+	1.4+
1998 08 23	704	0.4+	0.6+	1998 09 16	699	0.7−	0.1+	1999 12 07	704	0.6+	0.1+
1998 08 23	704	0.3+	0.9+	1998 09 18	704	0.6+	0.4−	1999 12 08	704	0.2−	0.7+
1998 08 23	704	0.1−	0.6−	1998 09 18	704	0.5+	0.3−	1999 12 08	704	0.3+	0.8−
1998 08 23	704	0.9+	0.3−	1998 09 18	704	0.3+	1.4−	1999 12 08	704	0.1−	0.1−
1998 08 28	699	0.5+	0.6−	1998 09 18	704	0.6−	1.2−	1999 12 08	704	1.1+	1.2+
1998 08 28	699	0.9+	0.4−	1998 09 18	704	0.9−	0.1−	1999 12 08	704	0.1−	0.2+
1998 08 28	699	0.9+	1.0−	1998 09 22	699	0.2+	0.0				

1998 QJ₄₄ = 1991 HP₄ = 1999 XQ₄₅

Id. G. V. Williams, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	111.98683		(2000.0)		P		Q
<i>n</i>	0.17324668	ω	251.89732		+0.10066675		+0.99463729
<i>a</i>	3.1868339	Ω	23.91828		−0.88926945		+0.10064488
<i>e</i>	0.1429941	<i>i</i>	3.35468		−0.44616818		+0.02381721
<i>P</i>	5.69	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 04 19	809	0.4+	0.3−	1998 08 23	704	1.4−	1.5+	1998 09 18	699	0.5+	0.2−
1991 04 19	809	0.6+	0.1−	1998 09 14	704	1.1+	0.1−	1999 12 07	704	0.0	0.1−
1991 04 19	809	0.9−	0.6+	1998 09 14	704	0.9+	0.2+	1999 12 07	704	0.0	0.1−
1998 08 17	704	0.0	0.5−	1998 09 14	704	0.4−	0.7+	1999 12 07	704	0.4−	0.1+
1998 08 17	704	0.6−	0.3−	1998 09 14	704	0.6+	0.5+	1999 12 07	704	0.7−	0.2−
1998 08 17	704	(2.4−	1.6+)	1998 09 18	704	0.7+	0.1+	1999 12 08	704	0.3+	0.2+
1998 08 17	704	0.5−	0.4−	1998 09 18	704	0.2+	0.9−	1999 12 08	704	0.2−	0.3−
1998 08 17	704	1.4+	0.9+	1998 09 18	699	0.2+	0.5−	1999 12 08	704	0.3+	0.1−
1998 08 23	704	1.0−	1.2−	1998 09 18	704	0.3−	1.6+	1999 12 08	704	0.3+	0.6−
1998 08 23	704	(2.6−	1.3+)	1998 09 18	704	0.9−	0.3−	1999 12 08	704	0.3+	1.0+
1998 08 23	704	(2.2−	0.6+)	1998 09 18	699	0.9+	0.4−				
1998 08 23	704	0.4+	1.3−	1998 09 18	704	1.9−	0.6+				

1998 QL₄₄ = 1999 XO₇₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19968277	ω	192.63668	+0.75635954	+0.65267813		
<i>a</i>	2.8989606	Ω	126.53068	-0.59531656	+0.71461917		
<i>e</i>	0.0520908	<i>i</i>	3.13531	-0.27114283	+0.25165592		
<i>P</i>	4.94	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 17	704	0.5-	0.0	1998 08 30	699	0.2-	0.8-	1999 12 07	704	0.4+	0.1+
1998 08 17	704	0.2+	0.3+	1998 08 30	699	0.4-	0.7-	1999 12 07	704	0.4+	0.1-
1998 08 17	704	0.4-	0.4-	1998 09 14	704	0.6+	0.1+	1999 12 07	704	0.0	0.1+
1998 08 17	704	0.0	1.0+	1998 09 14	704	0.9+	1.1+	1999 12 07	704	0.1-	0.2-
1998 08 17	704	(2.3-	2.0+)	1998 09 14	704	0.6-	1.9+	1999 12 07	704	0.1-	0.1-
1998 08 23	704	0.3-	1.0+	1998 09 14	704	0.1+	1.1+	1999 12 08	704	0.0	0.5+
1998 08 23	704	0.6+	0.4+	1998 09 18	704	0.4-	0.4-	1999 12 08	704	0.1+	0.1+
1998 08 23	704	0.5-	1.7-	1998 09 18	704	0.2-	1.0-	1999 12 08	704	0.2-	0.0
1998 08 23	704	(2.9+	0.4+)	1998 09 18	704	0.6+	1.7-	1999 12 08	704	0.1+	0.2-
1998 08 23	704	1.6+	0.4+	1998 09 18	704	0.6-	0.0	1999 12 08	704	0.5-	0.3-
1998 08 30	699	0.2-	1.1-	1998 09 18	704	0.1-	0.6+				

1998 QU₄₇ = 1999 XG₇₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20418709	ω	243.39687	+0.29023709	-0.95694164		
<i>a</i>	2.8561688	Ω	189.73496	+0.88819686	+0.27132958		
<i>e</i>	0.0421819	<i>i</i>	1.69899	+0.35618643	+0.10316474		
<i>P</i>	4.83	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 17	704	0.6+	0.1-	1998 08 26	699	0.5+	0.4+	1998 10 10	699	0.1-	0.2-
1998 08 17	704	0.8-	1.0-	1998 09 14	704	0.1+	0.8-	1999 12 07	704	0.1+	0.1-
1998 08 17	704	0.2+	0.6-	1998 09 14	704	0.3-	0.4+	1999 12 07	704	0.2-	0.1-
1998 08 17	704	0.5+	0.3-	1998 09 14	704	0.8+	0.0	1999 12 07	704	0.1-	0.4-
1998 08 17	704	1.0-	1.1-	1998 09 14	704	0.0	0.7+	1999 12 07	704	0.2-	0.1-
1998 08 23	704	1.9+	0.1+	1998 09 18	704	0.5+	0.3-	1999 12 08	704	0.4+	0.3+
1998 08 23	704	0.0	1.7+	1998 09 18	704	1.9-	0.8+	1999 12 08	704	0.1+	0.5+
1998 08 23	704	1.6-	0.3+	1998 09 18	704	0.4+	0.6+	1999 12 08	704	0.1+	0.4-
1998 08 23	704	1.3+	0.0	1998 09 18	704	0.8-	0.2+	1999 12 08	704	0.2+	0.2+
1998 08 23	704	0.7-	0.3-	1998 09 18	704	0.4-	0.4+	1999 12 08	704	0.3-	0.0
1998 08 26	699	0.0	0.4-	1998 10 10	699	0.8+	0.6-				
1998 08 26	699	0.2+	0.1+	1998 10 10	699	0.0	0.3-				

1998 QF₄₈ = 1999 XR₉₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27802704	ω	356.35651	+0.42214789	+0.90126308		
<i>a</i>	2.3249379	Ω	298.59193	-0.82888867	+0.34018040		
<i>e</i>	0.1314968	<i>i</i>	6.37864	-0.36706229	+0.26833218		
<i>P</i>	3.55	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 17	704	0.6+	0.2-	1998 09 19	704	0.6-	0.2+	1998 10 11	699	0.3-	0.2+
1998 08 17	704	0.0	0.2+	1998 09 19	704	0.0	0.5-	1998 10 11	699	0.2+	0.6-
1998 08 17	704	0.5+	0.3-	1998 09 19	704	0.3-	0.2-	1998 10 11	699	0.1+	0.5-
1998 08 17	704	(2.4+	2.0+)	1998 09 23	704	1.1+	0.6-	1999 12 07	704	0.3+	0.2+
1998 08 17	704	0.1+	0.2+	1998 09 23	704	0.3-	0.5+	1999 12 07	704	1.0+	0.3+
1998 08 23	704	0.0	0.4+	1998 09 23	704	0.2+	0.4-	1999 12 07	704	0.0	0.3-
1998 08 23	704	1.2+	0.0	1998 09 23	704	0.5-	1.0+	1999 12 08	704	0.2-	0.4-
1998 08 23	704	1.3-	0.3+	1998 09 27	699	0.9-	0.9+	1999 12 08	704	0.4-	0.8+
1998 08 23	704	0.4-	0.6-	1998 09 27	699	1.2+	0.5+	1999 12 08	704	0.1-	0.0
1998 08 23	704	0.4-	0.0	1998 09 27	699	0.9+	0.1-	1999 12 08	704	0.3-	0.6-

1998 QL₄₈ = 1999 XL₈₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17917324	ω	73.19610	+0.66059311	+0.74901056		
<i>a</i>	3.1161662	Ω	238.26089	-0.70960900	+0.60078242		
<i>e</i>	0.1465132	<i>i</i>	3.43727	-0.24509549	+0.27936297		
<i>P</i>	5.50	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 17	704	1.1+	0.1+	1998 09 14	704	0.2+	0.6+	1998 09 18	704	0.8-	0.4+
1998 08 17	704	0.9+	1.8-	1998 09 15	120	0.2-	0.4+	1998 10 11	699	0.7+	0.1+
1998 08 17	704	1.4-	0.7-	1998 09 15	120	0.5-	0.7+	1998 10 11	699	0.1+	0.1-
1998 08 23	704	0.9+	0.1+	1998 09 15	120	0.8-	0.4+	1998 10 11	699	0.4+	0.2+
1998 08 23	704	0.5+	0.2+	1998 09 17	120	0.2-	1.5-	1999 12 07	704	0.0	0.6-
1998 08 23	704	0.5+	2.0-	1998 09 17	120	0.0	0.0	1999 12 07	704	0.2+	0.2-
1998 08 23	704	(2.7+	1.6-)	1998 09 17	120	0.3-	0.1-	1999 12 07	704	0.9+	0.5-
1998 08 23	704	0.0	0.8+	1998 09 17	120	0.7+	0.2-	1999 12 08	704	0.2+	0.8+
1998 09 10	120	0.0	0.4+	1998 09 17	120	1.2+	0.5-	1999 12 08	704	0.4-	0.3+
1998 09 10	120	0.9-	0.1-	1998 09 17	120	0.5+	0.1-	1999 12 08	704	0.6-	0.2+
1998 09 10	120	0.0	0.1-	1998 09 18	704	0.5-	0.5+	1999 12 08	704	0.3-	0.1-
1998 09 14	704	0.3-	0.1+	1998 09 18	704	0.3-	0.4+	1999 12 08	704	0.0	0.3-
1998 09 14	704	0.4+	0.4+	1998 09 18	704	1.0-	0.6+				
1998 09 14	704	0.3-	0.4+	1998 09 18	704	0.6-	0.3+				

1998 QW₄₈

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22272449	ω	80.24135	-0.42047932	+0.90548041		
<i>a</i>	2.6954052	Ω	164.50399	-0.89371546	-0.40243105		
<i>e</i>	0.1415083	<i>i</i>	12.42090	-0.15642835	-0.13473857		
<i>P</i>	4.43	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 17	704	0.6+	0.0	1998 08 30	120	0.3+	0.1-	1998 10 12	699	0.9-	0.2-
1998 08 17	704	1.9-	0.5+	1998 08 30	120	1.0+	0.1+	1998 10 12	699	0.5-	0.6-
1998 08 17	704	0.7+	0.3-	1998 09 14	704	0.3-	0.8+	1998 10 12	699	0.3-	0.8-
1998 08 17	704	0.8-	0.7-	1998 09 14	704	1.1+	1.6+	1998 11 07	910	0.1+	0.6-
1998 08 17	704	0.5-	0.8-	1998 09 14	704	(1.2-	2.2+)	1998 11 07	910	0.8-	0.5-
1998 08 23	704	0.3+	0.5-	1998 09 14	704	0.0	0.2+	1998 11 07	910	0.0	0.8-
1998 08 23	704	1.7-	1.4+	1998 09 18	704	1.0+	0.1-	1999 10 31	703	0.6-	0.8+
1998 08 23	704	0.9+	0.4-	1998 09 18	704	0.4-	0.9+	1999 10 31	703	1.0-	0.4-
1998 08 23	704	0.8-	1.6+	1998 09 18	704	1.1+	0.6+	1999 10 31	703	0.5-	0.1+
1998 08 23	704	1.0+	1.1-	1998 09 18	704	0.2-	0.8-	1999 10 31	703	(4.2-	0.4-)
1998 08 30	691	(0.8+	4.7+)	1998 09 18	704	1.7-	0.1+	1999 12 02	699	0.3+	0.1+
1998 08 30	691	0.2+	0.1+	1998 09 27	699	0.9+	0.1+	1999 12 02	699	1.1+	0.0
1998 08 30	691	0.1+	0.0	1998 09 27	699	0.0	0.3-	1999 12 02	699	0.4+	0.1-
1998 08 30	120	0.8+	0.3+	1998 09 27	699	0.3+	0.4-				

1998 QB₅₀ = 1999 XA₁₃₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26227656	ω	258.13095	-0.02054011	+0.99944093		
<i>a</i>	2.4171099	Ω	10.79680	-0.85371240	-0.00380038		
<i>e</i>	0.1090197	<i>i</i>	8.09563	-0.52033955	-0.03321714		
<i>P</i>	3.76	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 17	704	0.7+	0.1-	1998 09 14	704	0.4+	0.2-	1998 09 18	704	1.4-	0.0
1998 08 17	704	0.3+	0.9-	1998 09 14	704	0.5-	0.3+	1998 09 18	704	0.1+	0.4+
1998 08 17	704	0.1+	0.1+	1998 09 14	704	0.6+	0.3+	1999 12 12	704	0.3+	0.9+
1998 08 17	704	0.3-	0.6-	1998 09 14	704	1.3+	0.9-	1999 12 12	704	0.6-	0.1+
1998 08 17	704	0.3+	1.4+	1998 09 16	699	0.4-	0.4+	1999 12 12	704	0.2+	0.9-
1998 08 23	704	0.6-	0.4+	1998 09 16	699	0.2+	0.3-	1999 12 12	704	0.8-	0.3+
1998 08 23	704	0.1-	0.4+	1998 09 16	699	0.1-	0.1-	1999 12 13	704	0.5-	0.2+

1999 DEC. 22

M.P.C. 37165

1998 08 23	704	0.1+	0.4−	1998 09 18	704	0.5+	0.1+	1999 12 13	704	0.1−	0.8+
1998 08 23	704	0.9−	0.5−	1998 09 18	704	0.2−	0.1−	1999 12 13	704	1.2+	1.6−
1998 08 23	704	0.0	0.3+	1998 09 18	704	0.0	0.1+	1999 12 13	704	0.2+	0.1+

1998 QU₅₂ = 1999 XZ₈₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	46.08627		(2000.0)	P	Q
n	0.18674938	ω	106.71110	+0.94067030	−0.31324651
a	3.0313071	Ω	271.69225	+0.23971281	+0.88555317
e	0.1182892	i	7.49862	+0.24016070	+0.34303383
P	5.28	H	13.5	G 0.15	U 4

Residuals in seconds of arc

1998 08 20	699	0.0	0.3+	1998 08 27	704	1.1+	0.5−	1999 12 07	704	0.7+	0.2+
1998 08 20	699	1.0−	0.0	1998 08 27	699	0.4−	0.0	1999 12 07	704	0.1−	0.1−
1998 08 20	699	0.4−	0.2+	1998 08 27	704	1.3−	0.3−	1999 12 07	704	0.1−	0.1−
1998 08 24	704	1.3+	0.5+	1998 08 27	699	0.3−	0.0	1999 12 07	704	0.4+	0.4−
1998 08 24	704	0.9−	0.8+	1998 08 27	704	0.0	0.4+	1999 12 08	704	0.3−	0.5+
1998 08 24	704	1.5+	0.4−	1998 09 18	699	0.5−	0.1+	1999 12 08	704	0.2+	0.1−
1998 08 24	704	0.5−	0.3+	1998 09 18	699	0.0	0.3+	1999 12 08	704	0.1−	0.2+
1998 08 24	704	1.2+	0.0	1998 09 18	699	0.4+	0.1−	1999 12 08	704	0.4−	0.1−
1998 08 27	704	0.4−	0.6−	1998 10 15	699	1.1+	0.1−	1999 12 08	704	0.4−	0.1−
1998 08 27	699	0.4+	0.1+	1998 10 15	699	0.0	0.2+				
1998 08 27	704	0.5−	1.0−	1998 10 15	699	1.1−	0.1−				

1998 QF₅₅ = 1954 GF = 1990 HQ₄ = 1999 XP₈₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	193.00465		(2000.0)	P	Q
n	0.27495666	ω	338.77836	−0.46903798	+0.88287820
a	2.3422139	Ω	263.24351	−0.80692716	−0.43898725
e	0.1938930	i	1.32771	−0.35898737	−0.16678212
P	3.58	H	13.9	G 0.15	U 1

Residuals in seconds of arc

1954 04 02	760	0.7−	0.7+	1998 08 31	704	0.5+	1.8−	1998 09 26	704	0.2−	0.0
1954 04 02	760	1.0+	0.1+	1998 08 31	704	1.5−	0.1−	1998 09 26	704	0.0	0.2+
1990 04 22	675	(5.6+	0.0)	1998 08 31	704	1.5−	2.1−	1998 09 27	704	0.4−	0.5−
1990 04 22	675	0.0	0.0	1998 09 14	704	0.1−	0.0	1998 09 27	704	0.1−	0.1+
1998 08 27	699	0.2+	0.2−	1998 09 14	704	0.4+	0.4−	1998 09 27	704	0.2+	0.4+
1998 08 27	699	0.3+	0.3−	1998 09 14	704	0.7+	0.2−	1998 09 27	704	0.7+	0.7+
1998 08 27	699	0.5+	0.6−	1998 09 15	699	0.6+	0.2+	1998 09 27	704	1.0−	1.4+
1998 08 28	704	0.7−	1.7+	1998 09 15	699	0.6+	0.3+	1999 12 07	704	0.2+	0.4−
1998 08 28	704	1.3−	0.3+	1998 09 15	699	0.6+	0.9+	1999 12 07	704	0.2−	0.0
1998 08 28	704	1.8−	1.6+	1998 09 18	704	1.3+	1.1−	1999 12 07	704	0.7+	0.1−
1998 08 28	704	0.1−	0.7+	1998 09 18	704	1.2+	0.3+	1999 12 07	704	0.2−	0.1−
1998 08 28	704	(5.2−	0.1−)	1998 09 18	704	0.3+	0.3−	1999 12 08	704	0.2+	0.1−
1998 08 28	699	0.3−	0.1−	1998 09 18	704	0.1−	0.7−	1999 12 08	704	0.4−	0.2+
1998 08 28	699	0.7+	0.1−	1998 09 18	704	0.2−	0.2+	1999 12 08	704	0.5−	0.0
1998 08 28	699	0.3−	0.1−	1998 09 26	704	0.1+	0.2−	1999 12 08	704	0.3+	0.3+
1998 08 31	704	0.3+	0.5−	1998 09 26	704	0.6−	0.1+	1999 12 08	704	0.2−	0.1+
1998 08 31	704	(2.5+	3.4−)	1998 09 26	704	0.3+	0.9+				

1998 QY₅₅ = 1999 XF₈₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	8.29866		(2000.0)	P	Q
n	0.19939224	ω	270.72277	+0.51807224	−0.85500477
a	2.9017760	Ω	148.03824	+0.80157590	+0.47559848
e	0.0595258	i	2.58046	+0.29845809	+0.20681618
P	4.94	H	13.2	G 0.15	U 4

Residuals in seconds of arc

1998 08 29	120	(2.7+	0.7−)	1998 09 18	704	0.4−	0.1−	1998 10 08	120	0.1+	0.5+
1998 08 29	120	(2.4+	1.5+)	1998 09 18	704	0.7−	0.1−	1998 10 08	120	0.3+	0.9+
1998 08 29	120	0.2+	0.1−	1998 09 18	704	1.3−	0.5+	1998 10 08	120	0.5+	1.0+
1998 08 31	120	0.4+	0.3+	1998 09 18	704	0.4−	0.0	1998 10 10	120	0.9+	0.3+

1998 08 31	120	1.7+	0.7+	1998 09 26	704	0.6−	0.2−	1998 10 10	120	0.3+	0.4−
1998 08 31	120	0.3+	0.7−	1998 09 26	704	0.3−	1.0+	1999 12 07	704	0.3+	0.3−
1998 09 14	704	0.4−	0.3−	1998 09 26	704	(2.3−	1.8+)	1999 12 07	704	0.4+	0.5−
1998 09 14	704	0.8−	1.1−	1998 09 27	704	0.1+	0.7−	1999 12 07	704	0.1+	0.3+
1998 09 14	704	0.5+	0.5−	1998 09 27	704	0.7+	0.7+	1999 12 07	704	0.0	0.2+
1998 09 14	704	0.6+	0.1+	1998 09 27	704	0.5−	0.1−	1999 12 07	704	0.3−	0.0
1998 09 14	704	0.3+	0.3−	1998 09 27	704	0.6−	0.1−	1999 12 08	704	0.1+	0.4−
1998 09 17	699	0.0	0.4−	1998 09 27	704	0.2−	0.6+	1999 12 08	704	0.0	0.2+
1998 09 17	699	0.2−	0.0	1998 09 29	120	0.0	0.4−	1999 12 08	704	0.0	0.1−
1998 09 17	699	0.1+	0.7−	1998 09 29	120	0.1+	0.1−	1999 12 08	704	0.3−	0.0
1998 09 18	704	0.9−	0.0	1998 09 29	120	0.2+	0.4−	1999 12 08	704	0.3−	0.5+

1998 QK₆₈ = 1999 WG₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	82.83734		(2000.0)	P	Q
n	0.18395554	ω	57.93828	+0.63486755	+0.73752434
a	3.0619220	Ω	253.26016	−0.76481852	+0.55766828
e	0.1328336	i	13.91059	−0.10952543	+0.38087260
P	5.36	H	13.7	G 0.15	U 5

Residuals in seconds of arc

1998 08 24	704	0.1+	0.6+	1998 09 19	699	0.5−	0.8−	1999 12 07	704	0.0	0.1−
1998 08 24	704	0.1+	0.9−	1998 09 19	699	0.6+	0.1+	1999 12 07	704	0.2+	0.1−
1998 08 24	704	1.5+	0.2−	1998 09 19	699	0.5+	0.1−	1999 12 08	704	0.2−	0.2+
1998 08 24	704	0.8+	0.9−	1999 11 28	120	1.0−	0.3+	1999 12 08	704	0.5−	0.5−
1998 08 24	704	1.4−	0.7−	1999 11 28	120	0.8−	0.1+	1999 12 08	704	0.1+	0.2−
1998 08 27	704	0.1+	0.2−	1999 11 29	120	(2.5−	1.1−)	1999 12 08	704	0.2+	0.2+
1998 08 27	704	0.1+	0.9+	1999 11 29	120	1.7+	0.9+	1999 12 08	704	0.8+	0.3−
1998 08 27	704	0.7−	1.3+	1999 12 07	704	0.1−	0.8−				
1998 08 27	704	1.1−	0.8+	1999 12 07	704	0.2−	0.2+				

1998 QD₇₄ = 1999 XY₇₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	359.57291		(2000.0)	P	Q
n	0.19159289	ω	160.66425	+0.52836698	−0.83771060
a	2.9800013	Ω	257.22074	+0.75911911	+0.53897063
e	0.0575157	i	8.14039	+0.38021904	+0.08804323
P	5.14	H	14.3	G 0.15	U 5

Residuals in seconds of arc

1998 08 24	704	0.2−	1.4−	1998 09 16	699	1.1+	0.7+	1998 09 23	704	1.2−	1.1−
1998 08 24	704	1.2+	1.2+	1998 09 16	699	0.5+	0.3+	1999 12 07	704	0.8+	0.4−
1998 08 24	704	1.1+	0.7+	1998 09 19	704	0.1−	0.4+	1999 12 07	704	0.6−	0.2+
1998 08 24	704	0.7−	0.5−	1998 09 19	704	0.4−	1.5−	1999 12 07	704	0.1−	0.9+
1998 08 24	704	0.1−	0.0	1998 09 19	704	0.4−	0.4+	1999 12 08	704	0.7+	0.1+
1998 08 27	704	0.0	0.1−	1998 09 21	699	(2.2+	1.0+)	1999 12 08	704	0.9−	1.1−
1998 08 27	704	1.1−	1.2−	1998 09 21	699	1.2+	0.2+	1999 12 08	704	0.1+	0.1−
1998 08 27	704	0.8+	1.9+	1998 09 21	699	0.7+	0.3−	1999 12 08	704	0.2−	0.1+
1998 08 27	704	1.2−	0.3+	1998 09 23	704	0.6+	1.0+	1999 12 08	704	0.3+	0.3+
1998 08 27	704	0.5−	0.3−	1998 09 23	704	0.3−	0.2+				
1998 09 16	699	0.3−	0.8−	1998 09 23	704	0.7−	0.3−				

1998 QO₇₄ = 1999 XC₂₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	25.01796		(2000.0)	P	Q
n	0.23385162	ω	130.36489	+0.54639339	−0.81537171
a	2.6092106	Ω	285.50884	+0.69557840	+0.56905392
e	0.1393353	i	11.45529	+0.46650289	+0.10652046
P	4.21	H	14.1	G 0.15	U 4

Residuals in seconds of arc

1998 08 24	704	0.5+	0.4+	1998 09 19	704	0.4+	0.6−	1999 12 05	70

1998 08 27	704	0.4−	0.4+	1998 09 23	704	0.4−	0.2−	1999 12 05	704	0.6+	0.7+
1998 08 27	704	0.5−	0.6+	1998 09 23	704	1.6−	1.2−	1999 12 07	704	0.3+	0.3+
1998 08 27	704	0.6−	0.5+	1998 09 23	704	0.0	0.8−	1999 12 07	704	0.2+	0.2−
1998 08 27	704	0.7−	1.1+	1998 09 23	704	0.8+	0.3+	1999 12 07	704	0.1−	0.1+
1998 08 27	704	0.1−	0.2−	1998 09 23	704	0.6+	0.0	1999 12 07	704	0.3−	0.0
1998 09 19	704	(3.1+	3.2−)	1998 10 18	699	0.9+	0.3+	1999 12 07	704	0.3−	0.2−
1998 09 19	704	0.0	0.9−	1998 10 18	699	0.0	0.2+				
1998 09 19	704	0.3+	0.9−	1998 10 18	699	0.1−	1.2+				

1998 QY₇₄ = 1999 XM₈₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
<i>M</i>	325.08289			<i>P</i>		<i>Q</i>	
<i>n</i>	0.23135373	ω	190.28411		−0.32232295	−0.92068842	
<i>a</i>	2.6279578	Ω	278.78776		+0.88356493	−0.20916269	
<i>e</i>	0.0561155	<i>i</i>	12.86808		+0.33973657	−0.32952057	
<i>P</i>	4.26	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 24	704	1.2−	0.6+	1998 09 19	704	0.7−	0.1+	1999 12 07	704	0.1+	0.2−
1998 08 24	704	1.0−	0.4+	1998 09 19	704	1.9−	0.1−	1999 12 08	704	0.4+	0.2+
1998 08 24	704	1.4+	0.1−	1998 09 19	704	0.5−	0.4−	1999 12 08	704	0.0	0.3+
1998 08 24	704	1.0−	0.3−	1998 09 23	704	1.3+	0.0	1999 12 08	704	0.1−	0.6+
1998 08 27	704	0.5−	1.5−	1998 09 23	704	0.1−	1.0−	1999 12 08	704	0.9−	0.2−
1998 08 27	704	(0.2−	2.6+)	1998 09 23	704	0.6+	0.3+	1999 12 09	691	0.2−	0.2+
1998 08 27	704	0.0	0.3+	1999 12 07	704	0.5+	0.1−	1999 12 09	691	0.2−	0.7+
1998 08 27	704	1.5+	0.8+	1999 12 07	704	0.0	0.5−	1999 12 09	691	0.1−	0.2−
1998 08 27	704	0.7+	0.4+	1999 12 07	704	0.0	0.6−				
1998 09 19	704	1.3+	0.6+	1999 12 07	704	0.5+	0.1−				

1998 QO₇₅ = 1999 XC₇₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
<i>M</i>	81.78042			<i>P</i>		<i>Q</i>	
<i>n</i>	0.18447896	ω	76.58791		+0.82752728	+0.51282636	
<i>a</i>	3.0561277	Ω	252.12794		−0.56131435	+0.76384189	
<i>e</i>	0.1027207	<i>i</i>	13.89097		+0.01117135	+0.39186056	
<i>P</i>	5.34	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 24	704	0.3+	0.4+	1998 08 27	704	0.0	0.3−	1999 12 07	704	0.3−	0.2−
1998 08 24	704	0.0	1.4+	1998 09 19	704	1.0+	0.8+	1999 12 07	704	0.0	0.3+
1998 08 24	704	(0.1−	2.2+)	1998 09 19	704	1.2−	0.4+	1999 12 07	704	0.3−	0.9+
1998 08 24	704	0.5−	0.9+	1998 09 19	704	1.2+	1.0−	1999 12 07	704	0.4−	0.1−
1998 08 24	704	0.8−	0.9−	1998 09 19	704	0.3+	1.3+	1999 12 08	704	0.4−	0.5+
1998 08 27	704	0.2+	0.2−	1998 09 23	704	0.2+	1.0+	1999 12 08	704	0.1+	0.4−
1998 08 27	704	0.2−	0.5−	1998 09 23	704	0.5−	1.5−	1999 12 08	704	0.6+	0.5−
1998 08 27	704	0.6+	0.2−	1998 09 23	704	0.9+	0.3−	1999 12 08	704	0.1+	0.2−
1998 08 27	704	0.2+	0.7−	1998 09 23	704	1.8−	0.5−	1999 12 08	704	0.6+	0.2−

1998 QT₇₆ = 1999 XZ₃₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
<i>M</i>	261.80826			<i>P</i>		<i>Q</i>	
<i>n</i>	0.30302317	ω	273.14605		−0.98453212	+0.14186400	
<i>a</i>	2.1952576	Ω	275.02657		−0.08900306	−0.91044111	
<i>e</i>	0.0858920	<i>i</i>	5.92421		−0.15091372	−0.38855062	
<i>P</i>	3.25	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 24	704	0.1+	0.0	1998 09 16	699	0.0	0.1+	1999 12 06	704	0.7−	0.1−
1998 08 24	704	0.8+	1.6−	1998 09 16	699	0.2−	0.0	1999 12 06	704	0.5−	0.6−
1998 08 24	704	0.7+	1.3−	1998 09 16	699	0.8−	0.2−	1999 12 06	704	0.1+	0.1−
1998 08 24	704	0.7+	1.2−	1998 09 27	699	1.3+	1.5+	1999 12 06	704	0.0	0.1−
1998 08 24	704	0.7−	0.5−	1998 09 27	699	0.3−	1.5+	1999 12 07	704	0.5+	1.1−
1998 08 27	704	0.4+	0.1−	1998 09 27	699	0.6−	0.8+	1999 12 07	704	0.2+	0.0
1998 08 27	704	0.3+	0.7+	1998 10 11	699	0.1+	0.2−	1999 12 07	704	0.5+	0.1+
1998 08 27	704	0.3+	1.3+	1998 10 11	699	1.0−	0.2+	1999 12 07	704	0.0	0.3+

1998 08 27	704	0.0	0.4−	1998 10 11	699	0.3−	0.7−	1999 12 07	704	0.3−	1.0+
1998 08 27	704	0.5−	0.3−	1999 12 06	704	0.2−	0.4−				

1998 QS₇₇ = 1999 XS₁₀₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
<i>M</i>	34.12063			<i>P</i>		<i>Q</i>	
<i>n</i>	0.19343538	ω	106.74323		+0.83211248	−0.53360964	
<i>a</i>	2.9610480	Ω	285.73985		+0.42995433	+0.79282859	
<i>e</i>	0.0895192	<i>i</i>	9.03569		+0.35032570	+0.29442075	
<i>P</i>	5.10	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 24	704	1.2−	0.1+	1998 08 27	704	(2.7−	2.0+)	1999 12 07	704	0.1−	0.7−
1998 08 24	704	1.8−	0.6−	1998 09 19	704	0.2+	1.0−	1999 12 07	704	0.6−	0.6+
1998 08 24	704	1.4+	1.0−	1998 09 19	704	0.1−	0.3−	1999 12 10	704	0.6+	0.2−
1998 08 24	704	1.1+	0.2+	1998 09 19	704	1.1+	0.0	1999 12 10	704	0.6+	1.0+
1998 08 24	704	0.3−	0.4+	1998 09 23	704	0.2−	0.7+	1999 12 10	704	0.1−	0.2−
1998 08 27	704	0.5−	0.1+	1998 09 23	704	0.6−	0.4+	1999 12 10	704	0.1+	0.3−
1998 08 27	704	0.2+	0.1−	1998 09 23	704	0.9−	0.1−	1999 12 10	704	0.3−	0.7−
1998 08 27	704	0.5+	0.5+	1999 12 07	704	1.0−	0.7+				

1998 QF₈₅ = 1999 XR₁₃₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
<i>M</i>	223.28024			<i>P</i>		<i>Q</i>	
<i>n</i>	0.24008193	ω	261.56603		−0.91019437	+0.35697193	
<i>a</i>	2.5638724	Ω	299.11796		−0.21651114	−0.84239607	
<i>e</i>	0.0505090	<i>i</i>	13.91170		−0.35308517	−0.40365816	
<i>P</i>	4.11	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 24	704	0.9+	0.2+	1998 09 19	704	0.9−	0.5+	1999 12 12	704	0.2−	0.3−
1998 08 24	704	2.0+	1.2+	1998 09 19	704	0.2−	1.0−	1999 12 12	704	0.1+	0.1−
1998 08 24	704	0.3−	0.0	1998 09 23	704	0.2+	0.9−	1999 12 12	704	0.0	0.0
1998 08 24	704	1.1−	0.9+	1998 09 23	704	0.1+	0.6−	1999 12 12	704	0.2−	0.1−
1998 08 27	704	0.2+	1.0−	1998 09 23	704	0.5+	0.7+	1999 12 12	704	0.1−	0.1+
1998 08 27	704	0.6−	0.0	1998 09 23	704	0.6+	0.3+	1999 12 13	704	0.0	0.1−
1998 08 27	704	0.8−	0.4+	1998 09 23	704	0.1+	0.1−	1999 12 13	704	0.3+	0.7−
1998 08 27	704	0.5−	0.6−	1998 10 18	699	0.6+	0.6+	1999 12 13	704	0.0	0.1+
1998 08 27	704	0.2+	0.5−	1998 10 18	699	0.5+	0.1−	1999 12 13	704	0.0	0.4+
1998 09 19	704	0.3−	0.2−	1998 10 18	699	1.3−	0.6+	1999 12 13	704	0.2+	0.6+

1998 QW₈₆ = 1999 XM₃₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
<i>M</i>	92.06516			<i>P</i>		<i>Q</i>	
<i>n</i>	0.23940757	ω	50.16637		+0.88801976	+0.40286037	
<i>a</i>	2.5686847	Ω	285.03867		−0.45974830	+0.77035634	
<i>e</i>	0.1894399	<i>i</i>	13.26767		−0.00723957	+0.49422124	
<i>P</i>	4.12	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 24	704	0.9+	0.4−	1998 09 19	704	0.1−	0.8+	1999 12 05	699	0.3−	1.4+
1998 08 24	704	0.0	0.1+	1998 09 19	704	0.2+	0.2+	1999 12 05	699	1.4+	0.0
1998 08 24	704	0.5+	0.7+	1998 09 19	704	0.9−	1.0+	1999 12 06	704	0.0	0.2−
1998 08 24	704	0.2−	0.7−	1998 09 20	699	0.3+	0.2+	1999 12 06	704	1.1−	0.1+
1998 08 24	704	0.7−	0.9+	1998 09 20	699	0.1+	0.2+	1999 12 06	704	0.2+	0.2−
1998 08 27	704	0.2−	0.7−	1998 09 20	699	0.1−	0.3+	1999 12 06	704	0.6−	0.2+
1998 08 27	704	0.4+	0.0	1998 09 23	704	1.9+	0.4−	1999 12 07	704	0.8+	0.6+
1998 08 27	704	0.3−	0.3+	1998 09 23	704	0.5−	0.4+	1999 12 07	704	0.4−	0.8−
1998 08 27	704	0.8−	0.3+	1998 09 23	704	0.2−	0.6−	1999 12 07	704	0.1+	0.6−
1998 08 27	704	0.0	0.2−	1998 09 23	704	0.5+	1.5−	1999 12 07	704	0.6−	0.4−
1998 09 19	704	1.1−	0.2−	1998 09 23	704	0.8+	0.7−	1999 12 07	704	0.2−	0.1+
1998 09 19	704	0.5−	0.2+	1999 12 05	699	1.0+	0.2+				

1998 QO₈₇ = 1999 XW₈₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	40.57558		(2000.0)			P		Q			
<i>n</i>	0.19000405	ω	117.87897			+0.90539011		−0.38476450			
<i>a</i>	2.9965911	Ω	265.22416			+0.29777438		+0.87682202			
<i>e</i>	0.1174001	<i>i</i>	10.37784			+0.30265354		+0.28833907			
<i>P</i>	5.19	<i>H</i>	14.0		<i>G</i>	0.15		<i>U</i>	5		
Residuals in seconds of arc											
1998 08 24	704	0.1+	0.1+	1998 08 27	704	0.1+	0.3−	1999 12 07	704	0.2−	0.3−
1998 08 24	704	0.1+	0.2+	1998 09 19	376	0.0	0.2−	1999 12 07	704	0.4−	0.9+
1998 08 24	704	0.4+	0.1+	1998 09 19	376	0.2−	0.4−	1999 12 07	704	1.1+	0.0
1998 08 24	704	0.0	1.5−	1998 09 20	699	1.0+	0.6−	1999 12 07	704	0.2+	0.6+
1998 08 24	704	0.6−	0.3−	1998 09 20	699	0.8−	1.7+	1999 12 08	704	1.0−	0.4+
1998 08 27	704	0.8+	0.5+	1998 09 20	699	0.3+	1.6+	1999 12 08	704	0.3+	1.2−
1998 08 27	704	1.1+	0.1−	1998 09 20	376	0.1−	1.4−	1999 12 08	704	0.1+	1.0−
1998 08 27	704	1.4−	1.1+	1998 09 20	376	0.2−	0.8−				
1998 08 27	704	0.7−	0.4+	1999 12 07	704	0.2−	0.7+				

1998 QV₉₆

Id. T. Kobayashi (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	30.07452		(2000.0)			P		Q			
n	0.19255892	ω	100.96312			+0.81907477		−0.54323315			
a	2.9700263	Ω	292.18199			+0.41705082		+0.78458386			
e	0.0564379	i	11.48845			+0.39393545		+0.29887441			
P	5.12	H	14.1	G	0.15	U	4				
Residuals in seconds of arc											
1998 08 19	704	1.4−	0.1+	1998 08 27	704	0.3+	1.4+	1998 09 19	376	0.1−	0.3+
1998 08 19	704	0.0	0.3−	1998 08 27	704	2.0+	0.3+	1999 12 07	411	0.4+	0.6−
1998 08 19	704	1.4−	0.4+	1998 08 27	704	0.9−	0.2+	1999 12 07	411	0.4−	0.7+
1998 08 19	704	0.3+	1.0−	1998 09 16	376	0.3+	0.1−	1999 12 09	411	0.0	0.1−
1998 08 27	704	0.8+	0.1+	1998 09 16	376	0.5−	0.2−	1999 12 09	411	0.1+	0.0
1998 08 27	704	0.7+	0.3−	1998 09 19	376	0.2−	0.8−				

1998 QW₁₀₀ = 1999 XP₁₀₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	259.14710		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$		
n	0.22149527	ω	87.03444		−0.98116374		−0.18622657		
a	2.7053684	Ω	82.22889		+0.15016648		−0.90249568		
e	0.0200503	i	2.97105		+0.12152260		−0.38835706		
P	4.45	H	13.0		G	0.15	U	6	
Residuals in seconds of arc									
1998 08 26	809	(1.8− 2.2+)	1998 09 18	704	0.2−	0.8−	1998 09 27	704	0.6+ 0.2+
1998 08 26	809	1.9− 1.6+	1998 09 18	704	0.7−	0.4−	1998 09 27	704	0.3+ 0.4−
1998 08 26	809	(2.1− 1.8+)	1998 09 18	704	0.0	0.5−	1999 12 07	704	0.3− 0.1+
1998 08 27	809	(2.9− 1.7+)	1998 09 18	704	0.5−	0.6+	1999 12 07	704	0.1+ 0.3−
1998 08 27	809	(2.1− 1.8+)	1998 09 26	704	0.1+	0.2+	1999 12 07	704	0.2+ 0.1+
1998 08 27	809	(1.6− 2.6+)	1998 09 26	704	0.1+	0.9−	1999 12 07	704	0.1+ 0.1+
1998 09 14	704	0.7+ 0.6+	1998 09 26	704	0.1+	2.0−	1999 12 07	704	0.0 0.2−
1998 09 14	704	1.2+ 0.6+	1998 09 26	704	0.8−	0.7−	1999 12 10	704	0.3+ 0.0
1998 09 14	704	0.6+ 0.6+	1998 09 26	704	1.9−	0.5+	1999 12 10	704	0.1− 0.1+
1998 09 14	704	0.9+ 0.4+	1998 09 27	704	0.4+	0.3+	1999 12 10	704	0.2+ 0.2−
1998 09 14	704	0.4+ 0.1+	1998 09 27	704	0.3+	0.3+	1999 12 10	704	0.2+ 0.2+
1998 09 18	704	0.2+ 0.5−	1998 09 27	704	0.1+	0.2+	1999 12 10	704	0.6− 0.3+

1998 QL₁₀₅ = 1999 XM₃₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	273.55869		(2000.0)			P		Q		
n	0.29608392	ω	105.37526			−0.99304739		−0.08450073		
a	2.2294248	Ω	69.83207			+0.04200529		−0.90474585		
e	0.1041714	i	5.00873			+0.10996563		−0.41748601		
P	3.33	H	14.8	G	0.15	U	5			
Residuals in seconds of arc										
1998 08 25	809	1.1−	0.6+	1998 09 18	704	1.6+	1.0−	1999 12 08	704	0.8+ 0.9−
1998 08 25	809	1.0−	0.7−	1998 09 18	704	0.7+	1.1−	1999 12 08	704	0.6+ 0.1+
1998 08 25	809	1.7−	0.5+	1998 09 18	704	1.0−	0.2−	1999 12 08	704	0.5− 0.6−
1998 08 26	809	0.2+	0.9+	1998 09 26	704	1.6−	0.3+	1999 12 08	704	0.9+ 1.5−
1998 08 26	809	1.0+	0.8+	1998 09 26	704	0.7−	0.8+	1999 12 08	704	0.0 0.7+
1998 08 26	809	1.5+	0.6+	1998 09 26	704	0.0	1.2−	1999 12 09	699	0.2+ 1.5+
1998 09 14	704	0.8+	0.1−	1998 09 26	704	0.7+	0.6−	1999 12 09	699	(0.5+ 2.7+)
1998 09 14	704	0.7+	0.3−	1998 09 27	704	1.0+	0.6+	1999 12 09	699	0.9− 1.7+
1998 09 14	704	0.3+	1.1−	1998 09 27	704	0.4+	1.1+	1999 12 09	704	0.1− 0.2+
1998 09 14	704	0.8−	1.7+	1998 09 27	704	0.6−	0.0	1999 12 09	704	0.5− 0.3−
1998 09 18	704	0.6−	1.4−	1998 09 27	704	(0.4+ 2.6+)		1999 12 09	704	0.3− 0.6−

1998 RJ₁

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	2.62691		(2000.0)		P		Q				
n	0.17260843	ω	259.38094		+0.37332903		−0.92769077				
a	3.1946850	Ω	168.69562		+0.85875210		+0.34398632				
e	0.2193612	i	1.14240		+0.35095621		+0.14513185				
P	5.71	H	13.1	G	0.15	U	5				
Residuals in seconds of arc											
1998 09 10	120	0.8−	0.0	1998 09 22	120	0.6−	0.3−	1998 09 29	120	1.1−	0.5−
1998 09 10	120	0.2−	0.4+	1998 09 23	120	0.6−	0.2+	1998 09 29	120	0.3−	0.0
1998 09 10	120	0.6−	0.1−	1998 09 23	120	0.1−	0.0	1998 09 29	120	0.5−	0.0
1998 09 14	704	0.2+	0.2−	1998 09 23	120	0.3−	0.1−	1998 09 29	120	0.4+	0.3+
1998 09 14	704	0.2+	0.3+	1998 09 24	120	1.0−	0.4−	1998 10 10	120	0.4−	0.5−
1998 09 14	704	0.9−	0.5−	1998 09 24	120	0.5+	0.4+	1998 10 10	120	0.1+	0.6−
1998 09 14	704	0.1−	0.5+	1998 09 24	120	0.7−	0.1−	1998 10 10	120	1.2+	0.8−
1998 09 15	120	0.1−	0.3+	1998 09 24	120	2.7+	0.8−	1999 12 05	699	0.1−	0.5−
1998 09 15	120	0.8−	0.1+	1998 09 24	120	0.5−	0.3−	1999 12 05	699	0.4−	0.0
1998 09 17	120	0.1+	0.7+	1998 09 24	120	1.2+	0.3+	1999 12 05	699	0.1−	0.8−
1998 09 17	120	2.6+	0.3+	1998 09 24	120	1.3+	0.9−	1999 12 07	704	1.2+	1.1+
1998 09 18	704	0.0	0.0	1998 09 24	120	1.0+	0.0	1999 12 07	704	0.1−	1.4+
1998 09 18	704	0.0	0.4+	1998 09 29	120	1.3−	0.2+	1999 12 07	704	0.1−	0.1−
1998 09 18	704	0.1+	0.4+	1998 09 29	120	0.1−	1.5+	1999 12 07	704	1.9−	0.2−
1998 09 18	704	0.3+	0.6+	1998 09 29	120	0.2+	0.8−	1999 12 08	704	1.8+	1.3−
1998 09 18	704	0.5−	0.1−	1998 09 29	120	1.2+	0.0	1999 12 08	704	1.0+	0.1+
1998 09 22	120	0.7−	0.5+	1998 09 29	120	1.3−	0.8−	1999 12 08	704	0.1−	0.4+
1998 09 22	120	0.1−	0.2+	1998 09 29	120	0.1−	0.4+	1999 12 08	704	1.2−	0.2+

1998 RP₁

Id. P. G. Comba (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	103.97773		(2000.0)		P		Q				
n	0.21483615	ω	301.64215		+0.72662980		+0.68698348				
a	2.7609877	Ω	14.97109		−0.61949005		+0.66014268				
e	0.2158795	i	1.75836		−0.29705422		+0.30375211				
P	4.59	H	15.0		G	0.15	U	4			
Residuals in seconds of arc											
1998 09 15	684	0.2−	0.5−	1998 09 23	691	0.1−	0.4−	1998 10 14	684	0.2−	0.2−
1998 09 15	684	0.1−	0.7−	1998 09 26	704	0.9−	0.9+	1998 10 14	684	0.1+	0.3−
1998 09 17	684	0.4+	0.3+	1998 09 26	704	1.5−	0.1−	1998 10 14	699	1.0+	0.1+
1998 09 17	684	0.4+	0.6+	1998 09 26	704	0.1−	0.7−	1998 10 14	699	0.5+	0.6+
1998 09 20	691	0.3+	0.6−	1998 09 26	704	0.5−	0.5+	1998 10 14	699	0.1+	0.5+

1998 09 20	691	0.1−	0.6−	1998 09 26	704	0.2+	0.8+	1998 10 16	684	0.4−	0.3−
1998 09 20	691	0.5+	0.5−	1998 09 27	704	0.3+	0.3+	1998 10 16	684	0.8−	0.2−
1998 09 21	684	0.0	0.2+	1998 09 27	704	0.2+	1.1+	1998 11 10	684	0.6+	0.5−
1998 09 21	684	0.2+	0.1+	1998 09 27	704	0.2+	1.3+	1998 11 10	684	0.2+	0.0
1998 09 21	691	0.3+	0.5−	1998 09 27	691	0.5+	0.2−	1998 11 11	684	0.0	0.5−
1998 09 21	691	0.2+	0.4−	1998 09 27	704	0.2+	1.0+	1998 12 11	684	0.1+	0.4−
1998 09 21	691	0.2−	0.5−	1998 09 27	691	0.1+	0.3−	1999 12 11	684	0.4+	0.3+
1998 09 22	684	0.3−	0.2+	1998 09 27	704	0.6+	1.4+	1999 12 12	684	0.1−	0.2−
1998 09 22	684	0.4−	0.2+	1998 09 27	691	0.4+	0.2−	1999 12 12	684	0.4−	0.4+
1998 09 23	691	0.2−	0.4−	1998 10 13	684	0.5−	0.5−				
1998 09 23	691	0.4−	0.6−	1998 10 13	684	0.4−	0.6−				

1998 RF₉ = 1999 XH₆₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
				P	Q		
<i>M</i>	315.20379		(2000.0)				
<i>n</i>	0.19370545	ω	264.98880	−0.09706668	−0.99527765		
<i>a</i>	2.9582950	Ω	190.58155	+0.91460965	−0.08893005		
<i>e</i>	0.0456411	<i>i</i>	0.21202	+0.39251401	−0.03890820		
<i>P</i>	5.09	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 09 13	691	0.1−	0.4−	1998 09 25	691	0.3−	0.4+	1999 12 07	704	0.1−	0.2−
1998 09 13	691	0.0	0.2−	1998 09 25	691	0.6−	0.1+	1999 12 07	704	0.3+	0.5+
1998 09 13	691	0.0	0.4−	1998 09 30	691	0.4+	0.2+	1999 12 08	704	0.4+	0.4−
1998 09 19	691	0.0	0.4+	1998 09 30	691	0.3+	0.7−	1999 12 08	704	0.4−	0.4+
1998 09 19	691	0.0	0.2+	1998 09 30	691	0.1−	0.1−	1999 12 08	704	0.3+	0.4+
1998 09 19	691	0.8+	0.3+	1999 12 07	704	0.3+	0.4−	1999 12 08	704	1.1−	0.4−
1998 09 25	691	0.3−	0.1+	1999 12 07	704	0.1+	0.3+	1999 12 08	704	0.2+	0.1−

1998 RQ₁₉ = 1999 XM₅₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
				P	Q		
<i>M</i>	88.87237		(2000.0)				
<i>n</i>	0.17433828	ω	112.04821	+0.52908252	+0.84855630		
<i>a</i>	3.1735174	Ω	189.89963	−0.78865434	+0.48959082		
<i>e</i>	0.1265566	<i>i</i>	1.62913	−0.31320283	+0.20063158		
<i>P</i>	5.65	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1998 09 14	704	1.3+	1.8−	1998 09 18	704	0.4−	1.5+	1999 12 07	704	0.2−	0.3−
1998 09 14	704	0.9−	0.4−	1998 09 18	704	1.6+	1.2+	1999 12 08	704	0.3+	0.0
1998 09 14	704	0.8−	0.5−	1998 09 26	691	0.1+	0.7−	1999 12 08	704	0.3−	0.5−
1998 09 14	704	0.5+	0.7+	1998 09 26	691	0.2−	0.4−	1999 12 08	704	0.3−	0.2−
1998 09 14	704	0.5−	0.6+	1998 09 26	691	0.1+	0.5−	1999 12 08	704	0.2+	0.1+
1998 09 18	704	0.2−	1.1+	1999 12 07	704	0.4+	0.4+	1999 12 08	704	0.0	0.1+
1998 09 18	704	1.4−	0.1+	1999 12 07	704	0.2+	0.1+				
1998 09 18	704	0.9+	1.0−	1999 12 07	704	0.3−	0.2+				

1998 RJ₄₀ = 1999 XW₃₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
				P	Q		
<i>M</i>	329.79041		(2000.0)				
<i>n</i>	0.27636021	ω	349.87661	−0.43875582	−0.89291376		
<i>a</i>	2.3342769	Ω	126.07695	+0.83294491	−0.44628896		
<i>e</i>	0.0565610	<i>i</i>	7.17779	+0.33718852	−0.05942371		
<i>P</i>	3.57	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 30	699	0.3−	0.1+	1998 09 18	704	0.6−	1.3−	1999 12 06	704	0.6+	0.1−
1998 08 30	699	0.5−	0.1+	1998 09 18	704	1.4+	0.5−	1999 12 06	704	0.4+	0.1+
1998 08 30	699	0.0	0.1+	1998 09 19	704	(2.8−	0.5+)	1999 12 06	704	0.1−	0.5+
1998 09 14	704	1.3+	0.6−	1998 09 19	704	(1.8−	2.8+)	1999 12 06	704	0.6−	0.3−
1998 09 14	704	0.7+	1.2+	1998 09 19	704	0.0	0.6−	1999 12 06	704	0.1+	0.2−
1998 09 14	704	0.4+	1.1−	1998 09 21	704	0.3−	0.1+	1999 12 07	704	0.1+	0.2+
1998 09 14	704	0.5+	0.1+	1998 09 21	704	0.1−	0.5+	1999 12 07	704	0.6+	0.2+
1998 09 18	704	0.4+	1.3−	1998 09 21	704	0.7+	0.9+	1999 12 07	704	0.7−	0.1−

1998 09 18	704	0.1−	0.1−	1998 09 21	704	1.6−	0.5+	1999 12 07	704	0.3−	0.3−
1998 09 18	704	0.8−	1.1+	1998 09 21	704	0.9−	0.7+				

1998 RV₄₂ = 1999 XJ₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
				P	Q		
<i>M</i>	74.86624		(2000.0)				
<i>n</i>	0.21331185	ω	118.62856	+0.98122614	+0.17294139		
<i>a</i>	2.7741252	Ω	231.54260	−0.19169451	+0.92316166		
<i>e</i>	0.0739917	<i>i</i>	6.25815	+0.02117722	+0.34331301		
<i>P</i>	4.62	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 09 14	704	0.7+	0.9−	1998 09 26	704	1.2+	0.3−	1999 12 05	704	0.3+	1.3−
1998 09 14	704	0.3−	0.4−	1998 09 26	704	0.2+	1.0+	1999 12 05	704	0.3+	0.3+
1998 09 14	704	0.3−	0.5−	1998 09 26	704	0.6−	0.5+	1999 12 05	704	1.0+	0.3−
1998 09 14	704	0.3+	0.5−	1998 09 26	704	0.5+	0.4+	1999 12 05	704	0.5−	0.7+
1998 09 16	699	0.3+	0.3+	1998 09 26	704	0.8−	0.3−	1999 12 05	704	0.0	0.2+
1998 09 16	699	0.3+	0.8+	1998 09 27	704	0.6+	0.1−	1999 12 05	704	0.2+	0.1−
1998 09 16	699	0.5+	0.4+	1998 09 27	704	0.0	0.6−	1999 12 05	704	0.9−	1.2−
1998 09 18	704	0.4+	0.1+	1998 09 27	704	0.0	0.7−	1999 12 06	704	0.0	0.8+
1998 09 18	704	0.6−	0.1+	1998 09 27	704	0.6−	0.3+	1999 12 06	704	0.8−	0.6+
1998 09 18	704	0.3−	0.2+	1998 09 27	704	0.1−	0.4−	1999 12 06	704	0.2+	0.7+
1998 09 18	704	0.5−	0.5+	1999 12 05	704	0.1+	0.4+	1999 12 06	704	0.2+	0.7−
1998 09 18	704	0.7−	0.1+	1999 12 05	704	0.3−	0.1−	1999 12 06	704	0.0	0.0

1998 RB₅₃ = 1999 XD₁₃₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
				P	Q		
<i>M</i>	154.81964		(2000.0)				
<i>n</i>	0.22328180	ω	252.20030	−0.27643987	+0.96101392		
<i>a</i>	2.6909182	Ω	1.78245	−0.79653124	−0.22576084		
<i>e</i>	0.1813064	<i>i</i>	10.68207	−0.53769785	−0.15963799		
<i>P</i>	4.41	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 09 14	704	1.6+	1.6−	1998 09 26	704	0.3+	0.2−	1998 10 14	910	0.1+	0.2+
1998 09 14	704	0.3−	0.9+	1998 09 26	704	1.2+	0.4−	1999 12 12	704	0.0	0.4−
1998 09 14	704	0.7−	0.2−	1998 09 26	704	1.2−	0.8−	1999 12 12	704	0.1−	0.1−
1998 09 14	704	1.9+	1.2−	1998 09 26	704	0.6−	1.1−	1999 12 12	704	0.1+	0.9+
1998 09 14	704	1.2−	1.4+	1998 09 27	704	0.3−	0.0	1999 12 13	704	0.0	0.4+
1998 09 18	704	0.9−	0.9+	1998 09 27	704	1.2+	0.1−	1999 12 13	704	0.3−	0.0
1998 09 18	704	0.5−	0.3+	1998 09 27	704	(4.7−	0.1−)	1999 12 13	704	0.0	0.5−
1998 09 18	704	(1.6+	2.3−)	1998 10 14	910	0.2−	0.2+	1999 12 13	704	0.3+	0.3−
1998 09 18	704	0.4−	1.5+	1998 10 14	910	0.1+	0.2+				

1998 RZ₅₅ = 1999 XZ₃₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
				P	Q		
<i>M</i>	224.18691		(2000.0)				
<i>n</i>	0.30926938	ω	267.78638	−0.65440955	+0.75486746		
<i>a</i>	2.1655993	Ω	321.22222	−0.66293612	−0.60067476		
<i>e</i>	0.0907047	<i>i</i>	4.01526	−0.36368097	−0.26337226		
<i>P</i>	3.19	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 09 14	704	0.4+	0.3+	1998 09 26	704	0.7−	0.1+	1999 12 06	704	0.5+	0.3−
1998 09 14	704	0.2−	0.1+	1998 09 27	704	0.6+	0.4−	1999 12 06	704	0.3+	0.2−
1998 09 14	704	0.7−	0.2+	1998 09 27	704	0.1+	0.1−	1999 12 07	704	0.1+	0.2+
1998 09 18	704	0.5−	0.5+	1998 09 27	704	0.8+	0.2−	1999 12 07	704	0.1−	0.3−
1998 09 18	704	0.1+	0.3+	1998 09 27	704	0.2−	0.7+	1999 12 07	704	0.2−	0.1−
1998 09 18	704	0.2−	0.1+	1998 09 27	704	0.2+	0.2+	1999 12 07	704	0.3−	0.3+
1998 09 18	704	0.2−	0.4−	1998 10 14	699	0.4+	0.1−	1999 12 07	704	0.4+	0.0
1998 09 18	704	0.7+	0.3+	1998 10 14	699	0.2−	0.2−	1999 12 09	699	0.3−	0.9+
1998 09 26	704	0.0	0.2−	1998 10 14	699	0.2−	0.5−	1999 12 09	699	0.2−	0.6+
1998 09 26	704	0.3−	0.4−	1999 12 06	704	0.0	0.8−	1999 12 09	699	0.1−	0.6+
1998 09 26	704	0.0	0.7−	1999 12 06	704	0.0	0.1−				
1998 09 26	704	0.2+	0.3+	1999 12 06	704	0.1−	0.5−				

1999 DEC. 22

M.P.C. 37169

1998 RT₅₈ = 1991 ET₇ = 1999 WJ

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	145.94310		(2000.0)		P		Q
<i>n</i>	0.19762132	ω	293.79859		+0.03765550		+0.99925146
<i>a</i>	2.9190857	Ω	338.35383		-0.90786319		+0.03050217
<i>e</i>	0.0618423	<i>i</i>	1.37701		-0.41757213		+0.02379355
<i>P</i>	4.99	<i>H</i>	12.8		<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1991 03 14	809	0.1-	1.5+	1998 09 26	704	0.4+	0.0	1999 11 18	411	0.1+	1.8+
1991 03 14	809	0.1+	0.1+	1998 09 26	704	0.5+	1.1-	1999 11 21	411	0.5-	0.4+
1991 03 14	809	0.2+	1.3-	1998 09 26	704	1.1+	0.3-	1999 11 21	411	0.3+	0.0
1998 09 14	704	0.1-	0.7+	1998 09 26	704	0.6+	0.6-	1999 12 07	704	0.5-	0.4-
1998 09 14	704	0.5-	0.3+	1998 09 27	704	0.3-	0.9+	1999 12 07	704	0.3-	0.2-
1998 09 14	704	0.6-	0.5+	1998 09 27	704	0.5-	0.6+	1999 12 07	704	0.1+	0.1+
1998 09 18	704	0.0	0.4-	1998 09 27	704	0.3+	0.3+	1999 12 07	704	0.0	0.2+
1998 09 18	704	0.6-	0.3-	1998 09 27	704	0.2-	0.5-	1999 12 10	704	0.4+	0.1-
1998 09 18	704	0.1-	0.3-	1998 09 27	704	0.5+	0.5-	1999 12 10	704	0.1+	1.1-
1998 09 18	704	0.5+	0.1+	1999 11 16	411	(0.1-	3.9+)	1999 12 10	704	0.2+	0.8-
1998 09 18	704	0.5-	0.1+	1999 11 16	411	(0.0	4.9+)	1999 12 10	704	1.0+	0.6-
1998 09 26	704	0.3-	0.6+	1999 11 18	411	0.7-	0.9+				

1998 RY₆₀ = 1999 XH₁₁₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	108.13905		(2000.0)		P		Q
<i>n</i>	0.24281402	ω	336.61635		+0.80641478		+0.58891898
<i>a</i>	2.5446040	Ω	346.88484		-0.49842885		+0.62815733
<i>e</i>	0.1772944	<i>i</i>	13.65538		-0.31821986		+0.50852022
<i>P</i>	4.06	<i>H</i>	14.1		<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1998 08 02	699	0.2+	0.4-	1998 09 14	704	0.5-	1.2-	1998 10 18	699	0.8+	0.2+
1998 08 02	699	0.9+	0.8-	1998 09 18	704	0.2-	0.1-	1998 11 20	699	0.4+	0.2-
1998 08 02	699	0.4+	0.2-	1998 09 18	704	0.4+	0.5-	1998 11 20	699	0.0	0.5+
1998 08 28	704	0.2-	0.6+	1998 09 18	704	0.6-	0.1-	1998 11 20	699	0.2+	0.5-
1998 08 28	704	0.5-	1.5-	1998 09 18	704	0.1-	0.6-	1998 12 09	704	1.1+	1.0-
1998 08 28	704	1.4-	0.6-	1998 09 18	704	0.8+	0.1-	1998 12 09	704	0.5-	0.4+
1998 08 28	704	0.5-	0.2+	1998 09 26	704	0.2+	0.2+	1998 12 09	704	(2.2+	1.4+)
1998 08 28	704	0.4-	1.1+	1998 09 26	704	0.1-	0.3-	1998 12 09	704	0.4+	0.4-
1998 08 28	699	0.1+	0.5+	1998 09 26	704	0.2+	0.1-	1998 12 09	704	1.8-	0.2+
1998 08 28	699	0.2+	0.5+	1998 09 26	704	0.1+	0.1+	1999 12 07	703	0.1+	0.4-
1998 08 28	699	0.2-	0.5+	1998 09 26	704	0.5+	0.4+	1999 12 07	703	0.2+	0.1+
1998 08 31	704	0.9+	1.2+	1998 09 27	704	0.6+	0.4-	1999 12 07	703	0.3+	0.0
1998 08 31	704	1.4+	0.6-	1998 09 27	704	0.4-	1.1+	1999 12 07	703	0.1-	0.5+
1998 08 31	704	0.6+	0.2+	1998 09 27	704	0.8-	0.1+	1999 12 12	703	0.3+	0.5+
1998 08 31	704	0.8-	0.7+	1998 09 27	704	1.7-	1.1+	1999 12 12	703	0.9-	0.5-
1998 08 31	704	(2.3-	0.0)	1998 09 27	704	0.1-	0.4+	1999 12 12	703	0.6+	0.7-
1998 09 14	704	0.2-	1.1-	1998 10 18	699	0.4+	0.8+	1999 12 12	703	0.4-	0.3+
1998 09 14	704	0.0	1.0-	1998 10 18	699	0.7+	0.2+				

1998 RR₆₁ = 1985 SD₄ = 1999 XT₈₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	20.45316		(2000.0)		P		Q
<i>n</i>	0.15285873	ω	164.15721		+0.73575278		-0.67584937
<i>a</i>	3.4642500	Ω	238.44621		+0.61568505		+0.69426630
<i>e</i>	0.1312880	<i>i</i>	2.92856		+0.28213431		+0.24743067
<i>P</i>	6.45	<i>H</i>	13.2		<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1985 09 20	095	1.0-	2.4+	1998 09 18	704	0.8-	0.7+	1998 10 14	699	0.4+	0.8-
1998 08 27	699	0.3+	0.2+	1998 09 18	704	0.2+	0.2-	1998 11 11	699	0.1+	0.0
1998 08 27	699	0.3+	0.4-	1998 09 26	704	1.0+	0.5+	1998 11 11	699	1.3-	0.7-
1998 08 27	699	0.6-	0.0	1998 09 26	704	0.7-	0.7-	1998 11 11	699	0.8+	0.2-
1998 09 14	704	0.0	0.0	1998 09 26	704	0.1-	1.0-	1999 12 07	704	0.3+	0.5+

1998 09 14	704	0.4-	0.0	1998 09 26	704	0.4+	1.0-	1999 12 07	704	0.2-	0.4+
1998 09 14	704	1.6-	0.0	1998 09 26	704	0.3+	0.6-	1999 12 07	704	0.5+	0.4-
1998 09 15	699	0.6+	1.2+	1998 09 27	704	0.5+	0.0	1999 12 08	704	0.1-	0.0
1998 09 15	699	0.6+	0.0	1998 09 27	704	0.7+	0.6+	1999 12 08	704	0.1+	0.4+
1998 09 15	699	1.1-	0.7+	1998 09 27	704	0.2+	0.5+	1999 12 08	704	0.1+	0.3-
1998 09 18	704	0.2+	0.7-	1998 09 27	704	(2.3+	1.6+)	1999 12 08	704	0.2-	0.2-
1998 09 18	704	0.5+	0.5-	1998 10 14	699	0.5+	0.5-	1999 12 08	704	0.5-	0.5+
1998 09 18	704	0.4-	0.8+	1998 10 14	699	0.4+	0.3-				

1998 RK₆₆ = 1999 XF₉₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	61.17451		(2000.0)		P		Q
<i>n</i>	0.20304600	ω	121.28196		+0.97953191		-0.19829700
<i>a</i>	2.8668595	Ω	250.17472		+0.16992164		+0.90668377
<i>e</i>	0.0977713	<i>i</i>	2.10638		+0.10790678		+0.37229402
<i>P</i>	4.85	<i>H</i>	14.0		<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1998 08 27	699	0.1+	0.2+	1998 09 18	704	0.1-	0.5-	1999 12 05	699	0.2+	1.1+
1998 08 27	699	0.2+	0.1+	1998 09 18	704	0.5+	1.2-	1999 12 05	699	1.2+	1.1+
1998 08 27	699	0.3-	0.2-	1998 09 26	704	0.1-	0.5+	1999 12 05	699	0.1-	1.1+
1998 09 14	704	0.5-	0.1+	1998 09 26	704	0.8-	0.1-	1999 12 07	704	0.8+	0.3-
1998 09 14	704	0.3-	0.8-	1998 09 26	704	0.3-	0.1+	1999 12 07	704	0.2+	0.7-
1998 09 14	704	0.3+	0.3-	1998 09 26	704	0.9-	1.1+	1999 12 07	704	0.1-	0.9-
1998 09 15	699	0.4+	0.9+	1998 09 26	704	1.2-	0.9+	1999 12 07	704	0.2+	1.5-
1998 09 15	699	0.4-	0.8+	1998 09 27	704	0.2+	0.5-	1999 12 07	704	0.9-	0.4-
1998 09 15	699	0.1-	0.7+	1998 09 27	704	1.4+	0.0	1999 12 08	704	0.3+	0.3-
1998 09 18	704	1.1+	0.5-	1998 09 27	704	1.2-	0.2+	1999 12 08	704	0.3-	0.6-
1998 09 18	704	0.7+	0.8-	1998 09 27	704	0.5+	0.1-	1999 12 08	704	0.3-	1.4+
1998 09 18	704	0.1+	0.6-	1998 09 27	704	0.9+	0.1+	1999 12 08	704	1.1-	0.0

1998 RT₆₆ = 1999 TB₃₆ = 1999 XC₄₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	72.29885		(2000.0)		P		Q
<i>n</i>	0.18674216	ω	137.83811		+0.99003091		+0.11994432
<i>a</i>	3.0313852	Ω	215.47473		-0.13673422		+0.94425400
<i>e</i>	0.0817779	<i>i</i>	7.30971		+0.03380158		+0.30659052
<i>P</i>	5.28	<i>H</i>	13.1		<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1998 08 27	699	0.5-	0.5-	1998 09 27	704	0.2+	0.3-	1998 11 11	699	0.2+	1.5+
1998 08 27	699	0.2+	0.6+	1998 09 27	704	0.4+	0.5-	1998 11 11	699	0.2+	0.5+
1998 08 27	699	0.2+	0.0	1998 09 27	704	0.2+	0.6-	1999 10 10	704	0.1-	0.0
1998 09 14	704	0.5+	0.1+	1998 09 27	704	0.1+	0.5-	1999 10 10	704	0.2-	0.2-
1998 09 14	704	0.2+	0.1-	1998 09 27	704	0.2-	1.1-	1999 10 10	704	0.3-	0.3+
1998 09 14	704	1.3+	0.9-	1998 10 14	699	0.1-	0.5+	1999 10 10	704	0.5-	0.8-
1998 09 15	699	0.2-	0.5+	1998 10 14	699	0.3-	0.3+	1999 10 10	704	0.4-	0.4-
1998 09 15	699	0.1-	1.2+	1998 10 14	699	0.1-	0.0	1999 12 06	704	0.5+	0.2-
1998 09 15	699	0.0	0.8+	1998 10 28	704	0.2-	0.0	1999 12 06	704	0.8+	0.9+
1998 09 18	704	0.0	1.0+	1998 10 28	704	1.7+	1.2-	1999 12 06	704	0.4+	0.0
1998 09 18	704	0.8-	1.1+	1998 10 28	704	0.5+	0.5-	1999 12 06	704	0.1+	0.0
1998 09 18	704	0.7-	1.3+	1998 10 28	704	0.8+	1.1-	1999 12 06	704	0.1+	0.1-
1998 09 18	704	1.6-	1.3+	1998 10 28	704	0.1-	1.3-	1999 12 08	704	0.4-	0.4+
1998 09 18	704	0.4+	0.1+	1998 10 29	704	0.6-	0.2-	1999 12 08	704	0.1+	0.6+
1998 09 26	704	0.0	1.0-	1998 10 29	704	0.3+	1.0+	1999 12 08	704	0.0	0.2-
1998 09 26	704	0.5+	0.6-	1998 10 29	704	1.2-	0.4-	1999 12 08	704	0.3-	0.1-
1998 09 26	704	0.3-	0.8-	1998 10 29	704	1.7-	0.2+	1999 12 08	704	0.2-	0.2-
1998 09 26	704	0.5+	0.1-	1998 10 29	704	0.4+	0.3-				

1998 RR₆₇ = 1999 XL₇₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18136041	ω	46.33907	+0.56504421	+0.82359639		
<i>a</i>	3.0910620	Ω	258.12832	−0.77069227	+0.50561364		
<i>e</i>	0.1834888	<i>i</i>	2.87784	−0.29454789	+0.25698994		
<i>P</i>	5.43	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 27	699	0.1+	0.2−	1998 09 18	704	0.4+	0.3+	1998 09 27	704	0.5+	0.0
1998 08 27	699	0.5−	1.2+	1998 09 18	704	1.7+	1.0−	1998 09 27	704	0.5+	0.3+
1998 08 27	699	0.4+	0.9+	1998 09 18	704	0.3+	0.9+	1998 09 27	704	0.2+	0.2+
1998 09 14	704	(0.2+	2.4−)	1998 09 26	704	0.1−	0.1−	1999 12 07	704	0.4+	0.5−
1998 09 14	704	0.6−	0.9−	1998 09 26	704	0.0	0.8−	1999 12 07	704	0.2−	0.1−
1998 09 14	704	1.0−	1.4−	1998 09 26	704	0.1+	0.7−	1999 12 07	704	0.2+	0.3−
1998 09 15	699	0.3−	0.6+	1998 09 26	704	0.2−	0.1−	1999 12 08	704	0.3−	0.8+
1998 09 15	699	0.8−	1.8+	1998 09 26	704	0.0	1.8−	1999 12 08	704	0.1−	0.5+
1998 09 15	699	0.1−	0.1+	1998 09 27	704	0.1+	0.3−	1999 12 08	704	0.2−	0.3−
1998 09 18	704	1.4−	1.5+	1998 09 27	704	0.7+	0.5−	1999 12 08	704	0.3+	0.2+

1998 RC₆₉ = 1999 XX₈₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17403791	ω	324.77195	+0.97120963	+0.23820258		
<i>a</i>	3.1771678	Ω	21.44832	−0.21639591	+0.88804657		
<i>e</i>	0.1929875	<i>i</i>	0.52889	−0.09962264	+0.39323380		
<i>P</i>	5.66	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1998 09 14	704	0.3−	0.3+	1998 09 26	704	0.3+	0.3−	1999 12 07	704	0.3−	0.3+
1998 09 14	704	0.4−	0.0	1998 09 27	704	0.2−	0.9−	1999 12 08	704	0.1−	0.8−
1998 09 14	704	0.7−	0.1−	1998 09 27	704	0.7+	1.1−	1999 12 08	704	0.2−	0.0
1998 09 17	699	0.2+	0.5+	1998 09 27	704	0.6−	0.4−	1999 12 08	704	0.9+	0.2+
1998 09 17	699	0.3−	0.6+	1998 09 27	704	0.1+	0.3+	1999 12 08	704	0.2+	0.5+
1998 09 17	699	0.2+	0.4+	1998 09 27	704	0.8+	0.1+	1999 12 08	704	0.3+	0.6−
1998 09 18	704	0.2+	0.8+	1998 10 14	699	0.6+	0.4−	1999 12 10	704	0.8+	0.3−
1998 09 18	704	0.1+	1.1+	1998 10 14	699	0.1−	0.2−	1999 12 10	704	0.7+	0.3−
1998 09 18	704	0.2+	0.4+	1998 10 14	699	0.4+	0.4−	1999 12 10	704	1.8−	0.5−
1998 09 18	704	0.0	0.8+	1998 12 15	699	0.1+	0.6+	1999 12 13	734	0.2−	0.1−
1998 09 18	704	0.5−	1.0+	1998 12 15	699	0.3−	1.1−	1999 12 13	734	0.3−	0.1−
1998 09 26	704	0.1+	0.5−	1998 12 15	699	0.4+	0.0	1999 12 13	734	0.4−	0.0
1998 09 26	704	0.6−	0.4−	1999 12 07	704	0.5+	1.1+	1999 12 13	734	0.3−	0.2−
1998 09 26	704	0.0	0.5−	1999 12 07	704	0.3−	1.0+				
1998 09 26	704	0.3−	0.9−	1999 12 07	704	0.7+	0.3+				

1998 RZ₇₁ = 1999 XM₁₀₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20166726	ω	306.53731	+0.98365635	−0.17481235		
<i>a</i>	2.8799113	Ω	63.56644	+0.17673250	+0.89156286		
<i>e</i>	0.0421911	<i>i</i>	2.76122	+0.03443554	+0.41779936		
<i>P</i>	4.89	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 09 14	704	1.0+	0.9−	1998 09 26	704	0.0	0.6−	1998 10 17	699	0.6−	0.4−
1998 09 14	704	0.0	0.8−	1998 09 26	704	0.4−	0.5−	1999 12 07	704	0.3+	0.2+
1998 09 14	704	0.4−	0.5−	1998 09 26	704	1.6−	0.1−	1999 12 07	704	0.1−	0.5+
1998 09 17	699	0.3+	0.0	1998 09 27	704	0.0	0.1+	1999 12 07	704	0.2−	0.1+
1998 09 17	699	0.2+	0.3−	1998 09 27	704	0.8−	1.0+	1999 12 07	704	0.6−	0.1+
1998 09 17	699	0.5+	0.8+	1998 09 27	704	0.3+	1.6+	1999 12 07	704	0.2−	0.5+
1998 09 18	704	0.1+	0.6+	1998 09 27	704	0.3+	0.1+	1999 12 10	704	0.1−	0.0
1998 09 18	704	0.0	0.8+	1998 09 27	704	0.4+	0.1+	1999 12 10	704	0.1+	0.6−
1998 09 18	704	0.3+	0.3+	1998 10 14	699	1.1+	0.5−	1999 12 10	704	0.1+	0.3−
1998 09 18	704	0.2−	0.4−	1998 10 14	699	0.7+	0.7+	1999 12 10	704	0.5+	0.4−
1998 09 18	704	0.0	0.4−	1998 10 14	699	0.6+	0.6−	1999 12 10	704	0.1+	0.3−

1998 09 26	704	0.5−	0.3+	1998 10 17	699	0.7−	0.0
1998 09 26	704	0.5−	0.6−	1998 10 17	699	0.3−	0.4+

1998 RR₇₇ = 1999 XE₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29218701	ω	29.48319	−0.95091677	−0.30582699		
<i>a</i>	2.2492037	Ω	132.62950	+0.26987321	−0.89422966		
<i>e</i>	0.1889321	<i>i</i>	3.67762	+0.15141251	−0.32683815		
<i>P</i>	3.37	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 09 14	704	0.2+	0.2−	1998 09 26	704	1.1+	0.3+	1999 12 05	699	(2.6−	1.2+)
1998 09 14	704	1.6−	0.2−	1998 09 27	704	0.7+	0.1−	1999 12 05	699	0.3+	1.5−
1998 09 14	704	0.8+	0.2−	1998 09 27	704	0.7−	0.9+	1999 12 06	704	0.5−	0.1+
1998 09 18	704	0.1−	0.2+	1998 09 27	704	0.5−	0.5−	1999 12 06	704	0.7+	0.4+
1998 09 18	704	0.5−	1.3+	1998 09 27	704	1.0−	1.4+	1999 12 06	704	0.4−	0.5+
1998 09 18	704	0.9+	1.8−	1998 09 27	704	1.0−	0.2+	1999 12 06	704	0.9−	0.4+
1998 09 18	704	1.9+	0.2−	1999 12 05	704	0.1+	0.1+	1999 12 06	704	0.2−	0.9−
1998 09 18	704	1.2−	0.5+	1999 12 05	704	0.1−	0.5+	1999 12 07	704	0.4+	0.6−
1998 09 26	704	0.8+	0.3+	1999 12 05	704	0.2−	0.4−	1999 12 07	704	0.0	0.4+
1998 09 26	704	0.2+	1.6−	1999 12 05	704	0.6+	0.6+	1999 12 07	704	0.2+	0.1−
1998 09 26	704	0.5+	0.1−	1999 12 05	704	0.0	0.1−	1999 12 07	704	0.1−	0.4+
1998 09 26	704	0.3−	0.5−	1999 12 05	699	(1.6−	2.9+)				

1998 RY₇₇ = 1999 XE₃₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28353096	ω	52.46983	−0.90699483	+0.41896909		
<i>a</i>	2.2947518	Ω	152.22427	−0.40950873	−0.85371223		
<i>e</i>	0.1106180	<i>i</i>	5.26020	−0.09830048	−0.30925771		
<i>P</i>	3.48	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 09 14	704	(2.2+	0.2−)	1998 09 26	704	(0.4−	2.1−)	1998 10 29	704	0.5−	1.3+
1998 09 14	704	1.8+	0.4+	1998 09 26	704	1.1−	1.4+	1998 10 29	704	0.4−	0.4−
1998 09 14	704	0.3+	0.1−	1998 09 27	704	0.7+	0.3+	1998 10 29	704	1.1+	0.1−
1998 09 17	699	0.6−	0.2−	1998 09 27	704	0.2−	0.4+	1999 12 06	704	0.0	0.0
1998 09 17	699	0.1+	0.7−	1998 09 27	704	0.1−	0.2+	1999 12 06	704	0.1+	0.8−
1998 09 17	699	0.1−	0.7−	1998 09 27	704	0.4+	0.9+	1999 12 06	704	0.9−	0.8+
1998 09 18	704	(2.2−	0.2−)	1998 09 27	704	0.2+	0.1−	1999 12 06	704	0.5−	0.2+
1998 09 18	704	1.6−	0.3+	1998 10 28	704	0.2−	1.4−	1999 12 06	704	0.0	0.6−
1998 09 18	704	0.6−	0.8−	1998 10 28	704	(1.6+	2.3−)	1999 12 07	704	0.1−	0.3+
1998 09 18	704	0.4+	1.0+	1998 10 28	704	0.5−	0.0	1999 12 07	704	0.2+	0.1−
1998 09 18	704	0.4+	0.4+	1998 10 28	704	0.7−	0.7+	1999 12 07	704	0.0	0.1+
1998 09 26	704	0.2−	1.1−	1998 10 28	704	1.1+	0.1−	1999 12 07	704	0.4+	0.3+
1998 09 26	704	0.0	0.9−	1998 10 29	704	(2.5+	0.5−)	1999 12 07	704	0.8+	0.1+
1998 09 26	704	(0.3−	2.7−)	1998 10 29	704	0.5+	0.5−				

1998 RF₇₈

Id. T. Kobayashi (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	356.97086		(2000.0)			P		Q		
<i>n</i>	0.17701433	ω	304.89495			+0.35269841		−0.93341359		
<i>a</i>	3.1414520	Ω	124.32029			+0.88245254		+0.30836229		
<i>e</i>	0.0117447	<i>i</i>	4.57665			+0.31125770		+0.18344417		
<i>P</i>	5.57	<i>H</i>	13.2		<i>G</i>	0.15		<i>U</i>	5	

Residuals in seconds of arc

1998 09 14	704	0.3−	1.5−	1998 09 26	704	0.2−	1.0+	1999 12 03	411	0.1−	0.2−
1998 09 14	704	0.5−	0.3−	1998 09 26	704	0.5+	1.5+	1999 12 03	411	0.6−	0.4+
1998 09 14	704	0.6−	0.8−	1998 09 26	704	0.0	0.1−	1999 12 06	411	0.1−	0.4−
1998 09 17	699	0.8+	0.2+	1998 09 26	704	1.4−	1.4+	1999 12 06	411	0.8+	0.8+
1998 09 17	699	0.9+	0.7+	1998 09 27	704	0.4+	0.3+	1999 12 07	704	0.3+	0.4−
1998 09 17	699	0.2+	0.9+	1998 09 27	704	0.3+	0.5−	1999 12 07	704	0.1+	0.0

1999 DEC. 22

M.P.C. 37171

1998 09 18	704	0.9+	0.5-	1998 09 27	704	0.7+	0.3-	1999 12 07	704	0.1+	0.1-
1998 09 18	704	0.1-	0.0	1998 09 27	704	0.1+	1.4-	1999 12 07	704	0.1-	0.5-
1998 09 18	704	0.6-	0.2+	1998 09 27	704	0.3+	2.0-	1999 12 08	704	0.1+	0.1+
1998 09 18	704	0.1-	0.8+	1998 10 17	699	0.9-	0.0	1999 12 08	704	0.0	0.0
1998 09 18	704	0.7-	0.2+	1998 10 17	699	0.2+	0.1-	1999 12 08	704	0.1-	0.4+
1998 09 26	704	0.4-	0.9+	1998 10 17	699	0.5+	0.7-	1999 12 08	704	0.2-	0.2-

1998 SZ₂ = 1999 XG₈₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	87.61697		(2000.0)	P	Q
<i>n</i>	0.21189398	ω	239.09172	+0.89475683	+0.38645672
<i>a</i>	2.7864866	Ω	97.35572	-0.29221991	+0.88559042
<i>e</i>	0.1267196	<i>i</i>	13.03820	-0.33766513	+0.25764473
<i>P</i>	4.65	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 09 18	683	0.0	0.4+	1998 09 26	683	0.3+	0.2-	1999 12 07	704	0.4-	0.1+
1998 09 18	683	0.2-	0.4+	1998 09 26	683	0.0	0.4-	1999 12 07	704	0.5+	0.2-
1998 09 18	683	0.3-	0.5+	1998 10 03	699	0.1+	0.4-	1999 12 07	704	0.9+	0.0
1998 09 19	683	0.5-	0.4-	1998 10 03	699	0.9+	0.7-	1999 12 07	704	0.3-	0.0
1998 09 19	683	0.1-	0.1+	1998 10 03	699	0.2+	0.0	1999 12 07	704	0.3+	0.5+
1998 09 19	683	0.0	0.1+	1998 10 20	683	0.1-	0.1+	1999 12 08	704	1.0-	0.6-
1998 09 25	683	0.0	0.1+	1998 10 20	683	0.5-	0.4+	1999 12 08	704	0.6-	0.4+
1998 09 25	683	0.2-	0.1+	1998 10 20	683	0.2+	0.3+	1999 12 08	704	0.6-	0.8-
1998 09 25	683	0.0	0.2+	1998 10 25	683	0.0	0.1+	1999 12 08	704	1.3+	0.5+
1998 09 26	683	0.5+	0.3-	1998 10 25	683	0.3-	0.4-				

1998 SV₉ = 1999 XC₇₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	93.43100		(2000.0)	P	Q
<i>n</i>	0.17820532	ω	155.19188	+0.73110691	+0.68220056
<i>a</i>	3.1274396	Ω	161.78259	-0.63078558	+0.68103460
<i>e</i>	0.1461154	<i>i</i>	1.69086	-0.25998508	+0.26607194
<i>P</i>	5.53	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1998 09 14	704	0.5-	0.7-	1998 09 21	120	0.3-	0.8-	1998 10 14	699	0.3+	0.7+
1998 09 14	704	0.7+	0.9-	1998 09 21	120	0.1-	0.0	1998 10 14	699	0.4+	0.4+
1998 09 14	704	1.0-	0.9-	1998 09 25	699	0.0	0.7-	1998 10 16	691	0.9-	0.6-
1998 09 16	120	0.3-	0.3-	1998 09 25	699	0.8-	0.5+	1998 10 16	691	0.5-	0.8-
1998 09 16	120	0.9-	0.5-	1998 09 25	699	0.2-	0.2+	1998 10 16	691	0.4-	1.1-
1998 09 16	120	0.3+	0.4-	1998 09 26	704	0.2+	0.3+	1998 10 20	120	0.0	0.6-
1998 09 16	120	0.1+	0.5-	1998 09 26	704	0.1+	0.0	1998 10 20	120	1.0+	0.6+
1998 09 16	120	0.2-	0.4-	1998 09 26	704	0.1+	0.1+	1998 10 27	691	0.0	0.4-
1998 09 16	120	0.4+	0.1+	1998 09 26	704	0.2+	0.6+	1998 10 27	691	0.6+	0.9-
1998 09 17	699	0.1-	0.6+	1998 09 26	704	0.1+	0.0	1998 10 27	691	0.0	0.5-
1998 09 17	699	(2.2-	1.4+)	1998 09 27	704	0.3-	0.5+	1999 12 07	704	0.8-	1.3+
1998 09 17	699	(2.3-	0.6+)	1998 09 27	704	1.3-	0.2-	1999 12 07	704	0.2-	0.2-
1998 09 18	704	1.0+	0.8-	1998 09 27	704	0.1-	0.6+	1999 12 07	704	0.2+	0.2+
1998 09 18	704	0.5+	0.7+	1998 09 27	704	0.0	1.4+	1999 12 07	704	0.8+	0.3-
1998 09 18	704	0.4+	0.3+	1998 09 27	704	0.6-	0.7+	1999 12 08	704	0.0	0.3-
1998 09 18	704	0.3+	0.8+	1998 09 29	120	1.1+	0.1+	1999 12 08	704	0.1-	0.0
1998 09 18	704	1.2+	1.6+	1998 09 30	120	0.0	0.3+	1999 12 08	704	0.2+	0.4-
1998 09 21	120	0.2+	0.4-	1998 09 30	120	0.1+	0.0	1999 12 08	704	0.0	0.1-
1998 09 21	120	0.4-	0.2+	1998 10 14	699	0.2-	0.9+				

1998 SU₁₀ = 1999 XO₈₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	23.45740		(2000.0)	P	Q
<i>n</i>	0.17738911	ω	194.99088	+0.80668094	-0.59097708
<i>a</i>	3.1370258	Ω	201.23663	+0.54319753	+0.74374138
<i>e</i>	0.1532133	<i>i</i>	0.54691	+0.23281389	+0.31240175
<i>P</i>	5.56	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1998 08 17	704	0.8+	0.5+	1998 09 18	704	0.9-	1.0+	1998 10 14	610	(0.7-	2.2-)
1998 08 17	704	0.6-	0.2+	1998 09 18	704	0.9-	0.6+	1998 10 14	610	0.5-	1.7-
1998 08 17	704	0.5+	0.2+	1998 09 21	610	1.9-	0.7+	1998 10 14	610	0.2-	1.3-
1998 08 17	704	0.2+	0.0	1998 09 21	610	0.3-	0.7+	1998 10 14	610	0.1+	0.8-
1998 08 17	704	1.3-	0.3+	1998 09 21	610	1.3+	0.6+	1998 10 14	610	0.2+	0.4-
1998 08 23	704	0.0	0.3+	1998 09 22	610	1.7+	0.6+	1998 10 15	610	0.7+	0.1+
1998 08 23	704	0.6-	1.1+	1998 09 22	610	0.7-	0.1-	1998 10 15	610	0.4+	0.4-
1998 08 23	704	(2.3-	1.4+)	1998 09 22	610	(3.1-	0.7-)	1998 10 15	610	0.3+	0.9-
1998 08 23	704	0.2-	0.1+	1998 09 28	610	1.0+	0.1-	1998 10 15	610	0.1+	1.4-
1998 08 23	704	(4.7-	0.7+)	1998 09 28	610	0.9+	0.0	1998 10 15	610	0.1-	1.9-
1998 08 26	699	0.2+	0.5+	1998 09 28	610	0.8+	0.1+	1999 01 05	910	0.1-	0.3+
1998 08 26	699	0.4-	0.7-	1998 09 28	610	0.6+	0.2+	1999 01 05	910	0.2-	0.3+
1998 08 26	699	0.6+	0.3+	1998 09 28	610	0.6+	0.3+	1999 01 05	910	0.0	0.3+
1998 09 01	691	0.3-	0.0	1998 10 10	610	0.1-	0.1-	1999 12 07	704	0.5+	0.4+
1998 09 01	691	0.4-	0.1-	1998 10 10	610	0.1-	0.1-	1999 12 07	704	0.2+	0.2-
1998 09 01	691	0.6-	0.1+	1998 10 10	610	0.1-	0.1-	1999 12 07	704	0.3+	0.1-
1998 09 14	704	0.3-	0.3+	1998 10 10	610	0.1+	0.1-	1999 12 07	704	0.1+	0.5-
1998 09 14	704	1.1-	1.0+	1998 10 10	610	0.0	0.1-	1999 12 07	704	0.4+	0.2+
1998 09 14	704	0.0	0.3-	1998 10 13	610	(2.1+	0.3+)	1999 12 08	704	0.4-	0.3-
1998 09 14	704	0.4+	0.5+	1998 10 13	610	1.3+	0.1+	1999 12 08	704	0.4-	0.1+
1998 09 18	704	0.1+	0.2+	1998 10 13	610	0.5+	0.3-	1999 12 08	704	0.3-	0.6+
1998 09 18	704	0.3-	0.7+	1998 10 13	610	0.3-	0.6-	1999 12 08	704	0.6-	0.4+
1998 09 18	704	0.0	0.1+	1998 10 13	610	1.0-	0.9-	1999 12 08	704	0.3+	0.7+

1998 SY₁₂ = 1999 XL₈₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	146.52948		(2000.0)	P	Q
<i>n</i>	0.24290788	ω	173.70111	+0.19662541	+0.95052355
<i>a</i>	2.5439485	Ω	107.44110	-0.91021565	+0.26814342
<i>e</i>	0.1368047	<i>i</i>	14.60161	-0.36448035	-0.15685690
<i>P</i>	4.06	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 09 20	683	0.7+	0.4-	1998 09 29	683	0.3+	0.4-	1999 12 07	704	0.2+	0.2-
1998 09 20	683	0.5-	0.3+	1998 09 29	683	0.2+	0.2-	1999 12 07	704	0.1+	0.2+
1998 09 20	683	0.1+	0.4+	1998 09 29	683	0.0	0.2-	1999 12 07	704	0.2+	0.2-
1998 09 21	683	0.5-	0.4+	1998 10 27	683	0.1-	0.2+	1999 12 07	704	0.2+	0.1+
1998 09 21	683	0.2-	0.5+	1998 10 27	683	0.1-	0.1+	1999 12 08	704	0.4+	0.4+
1998 09 21	683	0.2-	0.3+	1998 10 27	683	0.0	0.0	1999 12 08	704	0.6-	0.0
1998 09 28	683	0.0	0.1-	1998 10 28	683	0.0	0.2-	1999 12 08	704	0.0	0.1-
1998 09 28	683	0.2+	0.2-	1998 10 28	683	0.0	0.3-	1999 12 08	704	0.5-	0.1-
1998 09 28	683	0.1-	0.4-	1998 10 28	683	0.2+	0.1+				

1998 SY₁₅ = 1999 XH₉₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	315.62263		(2000.0)	P	Q
<i>n</i>	0.17530774	ω	157.12753	-0.27872737	-0.96030748
<i>a</i>	3.1618068	Ω	309.05493	+0.87892161	-0.25046340
<i>e</i>	0.0883716	<i>i</i>	0.81030	+0.38705021	-0.12279102
<i>P</i>	5.62	<i>H</i>	13.0	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1998 09 14	704	0.0	0.2-	1998 09 23	691	0.3-	0.3+	1998 09 27	704	0.2+	0.3-
1998 09 14	704	0.1-	0.8+	1998 09 23	691	0.2-	0.3+	1999 12 07	704	0.3-	0.1-
1998 09 14	704	0.9+	0.2+	1998 09 23	691	0.5+	0.3+	1999 12 07	704	0.2-	0.0
1998 09 14	704	0.0	0.3+	1998 09 26	704	0.5-	0.4-	1999 12 07	704	0.1+	0.0
1998 09 16	691	0.5-	0.1-	1998 09 26	704	0.9+	0.2-	1999 12 07	704	0.9+	0.1-
1998 09 16	691	0.2-	0.0	1998 09 26	704	(1.2+	2.2-)	1999 12 07	704	0.7-	0.2-
1998 09 16	691	0.2-	0.1+	1998 09 26	704	(2.0+	2.3-)	1999 12 10	704	0.5+	0.8

1998 SR₂₂ = 1999 XJ₁₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	52.70777	(2000.0)	P		Q	
<i>n</i>	0.17597227	ω	14.38084	+0.96854494	-0.24883869	
<i>a</i>	3.1538417	Ω	0.02816	+0.21503414	+0.83685129	
<i>e</i>	0.1240361	<i>i</i>	6.78780	+0.12522388	+0.48760559	
<i>P</i>	5.60	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i> 4
Residuals in seconds of arc						
1998 09 14	704	0.1+	0.6-	1998 09 26	704	1.1- 1.1- 1998 10 28 704 (0.5+ 2.5-)
1998 09 14	704	0.6+	0.7-	1998 09 26	704	(0.4- 2.2-) 1998 10 29 704 1.2- 0.9+
1998 09 14	704	0.2+	0.9+	1998 09 27	704	0.9+ 0.8+ 1998 10 29 704 0.3+ 0.7-
1998 09 18	704	0.4+	0.5+	1998 09 27	704	0.0 1.3+ 1998 10 29 704 1.8+ 0.9+
1998 09 18	704	0.1+	0.2+	1998 09 27	704	0.7- 0.4+ 1998 10 29 704 1.1+ 1.2+
1998 09 18	704	0.1-	1.1-	1998 10 11	120	(2.8- 0.5+) 1998 10 29 704 0.6- 0.2-
1998 09 18	704	0.4-	0.1-	1998 10 11	120	0.7- 0.4- 1998 12 10 704 0.1- 0.5+
1998 09 18	704	0.9-	1.1+	1998 10 11	120	0.2+ 0.5+ 1998 12 10 704 0.8+ 0.8-
1998 09 23	120	0.3-	0.3-	1998 10 14	699	0.5- 0.2- 1998 12 10 704 0.3+ 0.1-
1998 09 23	120	0.4+	0.5-	1998 10 14	699	0.1- 0.1- 1998 12 10 704 0.3+ 0.0
1998 09 23	120	0.1+	0.4+	1998 10 14	699	0.5- 0.2+ 1998 12 10 704 0.7+ 0.2+
1998 09 24	120	1.0+	0.4+	1998 10 15	120	1.0- 0.8+ 1998 12 12 704 0.2- 0.8+
1998 09 24	120	(5.9- 4.2-)		1998 10 15	120	0.1- 0.0 1998 12 12 704 0.0 0.8+
1998 09 24	120	0.6+	0.3-	1998 10 28	704	0.7+ 0.3- 1998 12 12 704 0.2- 0.2+
1998 09 26	704	(1.0- 2.3-)		1998 10 28	704	0.4+ 1.9- 1998 12 12 704 0.8- 0.4-
1998 09 26	704	0.2-	1.0-	1998 10 28	704	0.1- 1.1- 1998 12 12 704 0.9- 1.1-

1998 SA₂₄ = 1992 LW₂ = 1999 XT₈₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	341.48461	(2000.0)	P		Q	
<i>n</i>	0.20852884	ω	348.39667	-0.04481169	-0.99440195	
<i>a</i>	2.8163846	Ω	104.11712	+0.92427383	-0.07761764	
<i>e</i>	0.0556721	<i>i</i>	5.66261	+0.37909075	+0.07169556	
<i>P</i>	4.73	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i> 5
Residuals in seconds of arc						
1992 06 03	809	1.0+	0.2-	1998 09 18	704	0.4- 0.1+ 1998 09 27 704 1.4- 0.6+
1992 06 03	809	0.9-	0.6-	1998 09 18	704	0.3- 1.3+ 1998 09 27 704 0.7- 0.3-
1992 06 03	809	0.6-	1.6-	1998 09 24	699	0.6+ 0.1+ 1998 12 07 704 1.5+ 0.5+
1998 09 14	704	1.3+	1.2-	1998 09 24	699	1.3+ 0.1+ 1998 12 07 704 0.3+ 0.5-
1998 09 14	704	0.2-	0.3-	1998 09 24	699	0.3- 0.7- 1998 12 07 704 0.5- 0.9+
1998 09 14	704	1.2+	0.6-	1998 09 26	704	0.9+ 1.0- 1998 12 07 704 0.1+ 0.7+
1998 09 17	699	1.3+	0.2+	1998 09 26	704	0.5- 0.1+ 1998 12 07 704 1.6- 0.9+
1998 09 17	699	0.9+	0.3+	1998 09 26	704	(2.5+ 1.5-) 1998 12 08 704 0.2+ 0.9-
1998 09 17	699	0.5+	0.6+	1998 09 26	704	1.2+ 1.2- 1998 12 08 704 0.3+ 0.9-
1998 09 18	704	1.2-	0.5-	1998 09 26	704	0.2- 1.2- 1998 12 08 704 0.4+ 1.1-
1998 09 18	704	1.2-	0.4+	1998 09 27	704	0.3- 0.2- 1998 12 08 704 0.1- 1.8-
1998 09 18	704	0.6-	0.5+	1998 09 27	704	1.5- 1.7+ 1998 12 08 704 0.6- 0.2-

1998 SB₂₈ = 1998 TG₃₁Id. G. V. Williams (d, *MPC* 33385), P. G. Comba (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	115.04498	(2000.0)	P		Q	
<i>n</i>	0.18558492	ω	286.15235	+0.64585624	+0.75971700	
<i>a</i>	3.0439739	Ω	24.57747	-0.61259694	+0.57470826	
<i>e</i>	0.1401658	<i>i</i>	10.45811	-0.45562561	+0.30420468	
<i>P</i>	5.31	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i> 3
Residuals in seconds of arc						
1998 09 18	809	(2.8+ 0.0)		1998 09 29	684	0.5- 0.1+ 1998 11 10 704 0.1+ 0.6-
1998 09 18	809	0.5+ 0.2-		1998 10 10	699	0.2- 1.7+ 1998 11 10 704 1.0- 0.6+
1998 09 18	809	0.5+ 0.5+		1998 10 10	699	0.2- 0.5+ 1998 11 11 704 0.1+ 0.6-
1998 09 20	809	0.9+ 0.3-		1998 10 10	699	0.1+ 0.3+ 1998 11 11 704 0.2+ 0.1-
1998 09 20	809	0.5+ 0.8-		1998 10 13	684	0.1+ 0.1- 1998 11 11 704 1.3+ 0.0
1998 09 20	809	0.0 0.3-		1998 10 13	684	0.0 0.2- 1998 11 11 704 0.4- 0.7+
1998 09 26	704	0.7+ 0.7-		1998 10 14	684	0.3+ 0.3- 1998 11 11 684 0.2- 0.9-

1998 09 26	704	0.2-	0.3-	1998 10 14	684	0.1+	0.0	1998 11 11	684	0.2-	0.7-
1998 09 26	704	0.2-	0.4-	1998 10 17	699	0.6+	0.0	1998 11 14	684	0.5+	0.4+
1998 09 26	704	0.7+	1.5-	1998 10 17	699	0.7+	0.9+	1998 11 14	684	0.3-	0.7-
1998 09 26	684	0.6-	0.3+	1998 10 17	699	1.0+	0.5+	1998 11 14	684	0.4-	0.5-
1998 09 26	704	0.9+	1.9-	1998 10 28	704	0.3-	0.4+	1999 12 08	684	1.0-	0.0
1998 09 26	684	0.8-	0.1+	1998 10 28	704	0.8-	0.2+	1999 12 08	684	0.6+	0.0
1998 09 27	684	0.6-	0.3+	1998 10 28	704	0.5+	0.6+	1999 12 08	684	0.4+	0.1-
1998 09 27	684	0.5-	0.2+	1998 10 28	704	0.7-	0.2-	1999 12 09	684	0.4+	0.2-
1998 09 27	704	0.8-	0.3+	1998 10 28	704	1.1-	0.4+	1999 12 09	684	0.5-	0.0
1998 09 27	704	0.4+	0.8+	1998 10 29	704	0.3+	0.1-	1999 12 09	684	0.0	0.0
1998 09 27	704	0.3-	0.2+	1998 10 29	704	0.5+	1.8+	1999 12 12	704	0.3+	0.2-
1998 09 27	704	0.3+	0.9+	1998 10 29	704	0.4-	0.6+	1999 12 12	704	0.3-	0.2-
1998 09 27	704	1.2-	0.8-	1998 10 29	704	0.4-	1.1+	1999 12 12	704	0.0	0.4+
1998 09 28	684	(0.1-	2.2-)	1998 10 29	704	0.2+	0.6-	1999 12 12	704	0.0	0.2+
1998 09 28	684	(0.0	2.2-)	1998 11 10	704	0.4+	0.2-	1999 12 12	704	0.2+	0.1+
1998 09 29	684	0.7-	0.2+	1998 11 10	704	0.9+	1.7-				

1998 SO₄₃ = 1999 XT₈₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	94.91342		(2000.0)		P		Q		
<i>n</i>	0.17862749	ω	79.50811		+0.61115728		+0.79144626		
<i>a</i>	3.1225101	Ω	228.16988		-0.73133372		+0.55982595		
<i>e</i>	0.1753929	<i>i</i>	0.76745		-0.30271733		+0.24537263		
<i>P</i>	5.52	<i>H</i>	13.9		<i>G</i>	0.15	<i>U</i>	5	
Residuals in seconds of arc									
1998 09 14	704	0.6-	0.0	1998 09 18	704	1.6+	0.9+	1998 09 29	327 0.1+ 0.3-
1998 09 14	704	0.1-	0.7-	1998 09 18	704	1.2-	0.5+	1998 10 14	327 0.0 0.3+
1998 09 14	704	1.1-	0.8+	1998 09 18	704	1.6+	0.0	1998 10 14	327 0.1- 0.2-
1998 09 16	699	0.6-	0.3+	1998 09 25	699	0.2+	0.7+	1998 10 14	327 0.0 0.8+
1998 09 16	699	0.4+	0.3-	1998 09 25	699	0.6+	0.1-	1999 12 07	704 0.7+ 1.1-
1998 09 16	699	0.7-	0.6-	1998 09 25	699	0.1+	0.2-	1999 12 07	704 0.4- 0.2-
1998 09 17	327	0.3+	0.1-	1998 09 25	327	1.9-	0.3-	1999 12 07	704 0.8- 0.7+
1998 09 17	327	0.5+	0.3-	1998 09 25	327	0.7-	0.3-	1999 12 08	704 0.4+ 0.8-
1998 09 17	327	0.1-	0.5-	1998 09 25	327	1.0-	0.2-	1999 12 08	704 0.7+ 0.2-
1998 09 18	704	0.9+	1.3-	1998 09 29	327	0.2-	0.0	1999 12 08	704 0.3- 1.5+
1998 09 18	704	1.4+	0.7+	1998 09 29	327	0.6+	0.4+		

1998 SL₄₇ = 1999 XE₁₀₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	188.75573		(2000.0)	P		Q	
<i>n</i>	0.28972405	ω	232.32316	−0.36799554		+0.92976029	
<i>a</i>	2.2619327	Ω	16.09580	−0.83989628		−0.32721879	
<i>e</i>	0.1279505	<i>i</i>	2.31203	−0.39894050		−0.16874144	
<i>P</i>	3.40	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1998 09 14	704	(2.2− 0.3−)	1998 09 25	699	0.7− 0.7+	1998 10 12	910 0.4+ 0.2−
1998 09 14	704	0.3+ 0.8−	1998 09 26	704	0.7− 1.0−	1998 10 12	910 0.3+ 0.2−
1998 09 14	704	0.8− 0.3+	1998 09 26	704	1.4− 0.6−	1998 10 12	910 0.1+ 0.4−
1998 09 17	699	0.2+ 0.1−	1998 09 26	704	(1.0− 2.4−)	1999 12 07	704 0.1− 0.6−
1998 09 17	699	0.1− 0.8+	1998 09 26	691	0.2+ 0.5+	1999 12 07	704 0.3+ 0.4+
1998 09 17	699	0.4− 0.4+	1998 09 26	691	0.4+ 0.4+	1999 12 07	704 0.4+ 0.7−
1998 09 18	704	1.0+ 1.4−	1998 09 26	691	0.1+ 0.9+	1999 12 07	704 0.5+ 0.0
1998 09 18	704	(2.1+ 2.1−)	1998 09 27	704	0.9− 0.6−	1999 12 07	704 0.6− 0.1+
1998 09 18	704	(0.2+ 2.8−)	1998 09 27	704	0.8− 1.1−	1999 12 10	704 0.1− 0.6+
1998 09 18	704	1.3+ 0.8+	1998 09 27	704	1.0+ 1.0−	1999 12 10	704 0.6+ 0.4−
1998 09 18	704	0.1− 0.3+	1998 09 30	691	0.3− 0.1+	1999 12 10	704 0.8− 0.7+
1998 09 25	699	0.5− 0.0	1998 09 30	691	0.9+ 0.7+	1999 12 10	704 0.0 0.0
1998 09 25	699	0.5+ 1.3+	1998 09 30	691	0.0 0.2+		

1999 DEC. 22

M.P.C. 37173

1998 SC₄₉ = 1999 XM₈₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20327566	ω	263.86929	+0.47229662	−0.88131057		
<i>a</i>	2.8646999	Ω	157.92765	+0.82375347	+0.43523231		
<i>e</i>	0.0495436	<i>i</i>	2.30085	+0.31363374	+0.18402315		
<i>P</i>	4.85	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 09 14	704	0.2+	1.3−	1998 09 23	120	0.5+	0.2+	1998 09 29	120	0.0	0.9−
1998 09 14	704	(0.2+	2.6−)	1998 09 26	704	1.1−	1.6−	1998 09 29	120	0.2+	0.3−
1998 09 14	704	0.1+	0.8+	1998 09 26	704	0.7+	0.4−	1998 09 29	120	0.3+	0.0
1998 09 14	704	1.3+	0.3−	1998 09 26	704	0.9−	0.6+	1998 10 11	120	(2.9+	1.2+)
1998 09 14	704	0.6−	0.3+	1998 09 26	704	(0.8−	2.6−)	1998 10 11	120	0.5−	1.0+
1998 09 17	699	0.7−	0.0	1998 09 26	704	0.8−	1.4−	1998 10 11	120	0.7−	0.1−
1998 09 17	699	0.3+	0.4−	1998 09 27	704	0.4−	0.8+	1999 12 07	704	0.4+	0.5+
1998 09 17	699	0.5+	0.1+	1998 09 27	704	0.0	0.3−	1999 12 07	704	0.7−	0.6−
1998 09 18	704	0.6+	1.1+	1998 09 27	704	0.6−	1.1−	1999 12 07	704	0.3−	0.5+
1998 09 18	704	0.9−	1.2+	1998 09 29	120	1.9+	0.7−	1999 12 08	704	0.4−	0.3+
1998 09 18	704	0.9−	0.7+	1998 09 29	120	1.3+	0.3+	1999 12 08	704	0.1−	0.2+
1998 09 18	704	1.0−	0.3+	1998 09 29	120	1.2−	0.1+	1999 12 08	704	0.2−	0.1−
1998 09 18	704	(2.3−	0.4+)	1998 09 29	120	1.4+	0.3+	1999 12 08	704	1.2+	0.8−
1998 09 23	120	0.6+	0.1+	1998 09 29	120	0.1+	0.0				
1998 09 23	120	0.5−	0.3+	1998 09 29	120	0.7+	0.8+				

1998 SU₅₂ = 1999 WD₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.08472660	ω	148.23888	+0.28703846	−0.95714634		
<i>a</i>	5.1340041	Ω	285.05625	+0.87032208	+0.27735655		
<i>e</i>	0.1121107	<i>i</i>	2.28303	+0.40018546	+0.08333207		
<i>P</i>	11.63	<i>H</i>	11.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 09 14	699	0.3+	0.7+	1998 10 15	910	0.3+	0.0	1998 11 15	120	0.0	0.6−
1998 09 14	699	0.5−	0.5+	1998 10 26	910	0.3+	0.2+	1998 11 15	120	0.4+	0.1−
1998 09 14	699	0.5−	0.9+	1998 10 26	910	0.4+	0.7+	1998 11 17	699	0.7+	0.8+
1998 09 21	691	0.1+	0.1+	1998 10 26	910	0.3+	0.2+	1998 11 17	699	0.6+	0.9+
1998 09 21	691	0.3+	0.1+	1998 10 28	704	0.7+	0.4+	1998 11 17	699	0.2+	0.5+
1998 09 21	691	0.2+	0.2−	1998 10 28	704	0.3−	0.4−	1998 12 08	699	0.0	0.6+
1998 09 26	704	0.4+	0.1+	1998 10 28	704	1.1−	0.1−	1998 12 08	699	0.3+	0.3+
1998 09 26	704	0.5−	0.1+	1998 10 28	704	0.2+	1.0+	1998 12 08	699	0.1+	1.2+
1998 09 26	704	0.9+	0.7−	1998 10 29	704	0.2−	0.5−	1999 11 16	327	0.5+	0.4−
1998 09 26	704	0.5+	0.2−	1998 10 29	704	0.6+	0.2−	1999 11 16	327	0.9+	0.3−
1998 09 26	704	0.1−	1.4−	1998 10 29	704	0.7−	0.1−	1999 11 16	327	0.4−	0.8−
1998 09 27	704	0.5+	1.7−	1998 10 29	704	0.3+	0.4−	1999 11 19	327	0.0	0.5−
1998 09 27	704	(0.1+	2.1−)	1998 10 29	704	1.0−	0.3−	1999 11 19	327	0.3+	0.4−
1998 09 27	704	0.5−	1.0+	1998 10 30	327	0.2−	0.2−	1999 11 19	327	0.7+	0.0
1998 09 27	704	0.9+	1.0−	1998 10 30	327	0.2+	0.0	1999 12 07	106	0.3−	0.9+
1998 09 30	691	0.1+	0.3−	1998 10 30	327	0.0	0.8+	1999 12 07	106	0.2+	0.0
1998 09 30	691	0.7+	0.6−	1998 11 11	704	0.6−	1.0−	1999 12 07	106	0.2−	0.1−
1998 09 30	691	0.1+	0.0	1998 11 11	704	0.7−	1.6−	1999 12 07	704	0.1−	0.8+
1998 10 01	691	0.4−	0.2−	1998 11 11	704	(0.6−	2.1+)	1999 12 07	704	0.0	0.1−
1998 10 01	691	0.6−	0.3−	1998 11 11	704	0.0	1.3+	1999 12 07	704	0.1+	0.1+
1998 10 01	691	0.6−	0.3−	1998 11 11	704	1.2−	0.9+	1999 12 07	704	0.1−	0.0
1998 10 11	699	0.2+	0.5−	1998 11 13	120	(2.4−	1.4+)	1999 12 07	704	0.3+	0.5+
1998 10 11	699	0.4+	0.7−	1998 11 13	120	0.2−	0.2−	1999 12 10	704	0.0	0.5−
1998 10 11	699	0.3−	0.2−	1998 11 13	120	0.0	1.4+	1999 12 10	704	0.4−	0.8+
1998 10 12	910	1.4+	0.5+	1998 11 13	120	(1.4−	2.3−)	1999 12 10	704	0.6+	0.1−
1998 10 12	910	0.9+	0.5+	1998 11 13	120	(3.9−	1.0−)	1999 12 10	704	0.3−	0.8−
1998 10 13	910	1.0+	0.4+	1998 11 13	120	(3.0−	1.2−)	1999 12 10	704	0.0	0.4+
1998 10 14	910	0.3+	0.2+	1998 11 15	120	0.2+	0.5+				
1998 10 15	910	0.3+	0.1+	1998 11 15	120	0.1+	0.4−				

1998 SP₅₃ = 1999 XG₈₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20559981	ω	54.77924	+0.99551345	−0.07175258		
<i>a</i>	2.8430702	Ω	309.25391	+0.03713816	+0.89587243		
<i>e</i>	0.1374382	<i>i</i>	4.56874	+0.08702714	+0.43847937		
<i>P</i>	4.79	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 09 16	699	0.5+	0.1−	1998 09 27	704	0.3+	0.1+	1999 12 07	704	0.0	0.7+
1998 09 16	699	0.2−	0.1−	1998 09 27	699	0.2+	0.3+	1999 12 07	704	0.2+	0.5−
1998 09 16	699	0.1+	0.5−	1998 09 27	704	1.3+	0.3−	1999 12 07	704	0.5−	1.4+
1998 09 25	699	0.7−	0.9+	1998 09 27	704	0.1+	0.5+	1999 12 07	691	0.2−	0.3+
1998 09 25	699	0.4−	0.3−	1998 09 27	699	0.1−	0.3+	1999 12 07	691	0.1+	0.1+
1998 09 25	699	0.3−	0.0	1998 09 27	704	0.3+	0.5−	1999 12 07	691	0.1−	0.1+
1998 09 26	704	0.4−	0.0	1998 09 27	704	0.1−	0.4−	1999 12 08	704	0.7+	0.8−
1998 09 26	704	0.0	0.9+	1998 10 14	699	0.1−	0.9+	1999 12 08	704	0.7+	0.4−
1998 09 26	704	0.3−	1.3−	1998 10 14	699	0.4−	0.3−	1999 12 08	704	0.1+	1.1−
1998 09 26	704	0.0	0.2+	1998 10 14	699	0.1−	0.2+	1999 12 08	704	0.3+	0.2+
1998 09 26	704	0.1+	0.8−	1999 12 07	704	1.5−	0.8−				
1998 09 27	699	0.0	0.5+	1999 12 07	704	0.1+	0.6+				

1998 ST₅₆ = 1999 XV₁₀₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26023319	ω	279.27958	+0.41130873	+0.91141576		
<i>a</i>	2.4297463	Ω	15.02502	−0.81688724	+0.37447434		
<i>e</i>	0.1833101	<i>i</i>	2.67554	−0.40437652	+0.17055875		
<i>P</i>	3.79	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 09 14	704	0.1+	0.0	1998 09 25	699	0.1−	0.5+	1998 10 12	910	0.4+	0.3+
1998 09 14	704	0.6+	0.3−	1998 09 25	699	0.1−	0.6+	1998 10 18	910	0.0	0.3−
1998 09 14	704	0.0	0.8+	1998 09 26	704	0.4−	0.2−	1998 10 18	910	0.1+	0.4−
1998 09 14	704	0.4−	0.8+	1998 09 26	704	0.3−	0.7−	1998 10 18	910	0.1−	0.5−
1998 09 14	704	0.4−	0.1+	1998 09 26	704	0.4−	0.5−	1999 12 07	704	0.4+	0.7+
1998 09 17	699	0.3−	0.2+	1998 09 26	704	0.6−	0.5−	1999 12 07	704	0.4−	0.2−
1998 09 17	699	0.2+	0.1−	1998 09 26	704	0.7−	1.0−	1999 12 07	704	0.2−	0.6+
1998 09 17	699	0.1+	0.0	1998 09 27	704	1.0−	0.6+	1999 12 07	704	0.4+	0.2−
1998 09 18	704	0.1+	0.5−	1998 09 27	704	0.1+	0.7+	1999 12 07	704	0.5−	0.4−
1998 09 18	704	1.0+	1.1−	1998 09 27	704	0.4+	0.3−	1999 12 10	704	0.2+	0.1−
1998 09 18	704	1.0+	0.5−	1998 09 27	704	0.1+	0.2−	1999 12 10	704	0.2−	0.2−
1998 09 18	704	0.4+	0.6+	1998 09 27	704	0.1−	0.4+	1999 12 10	704	0.0	0.0
1998 09 18	704	0.8−	0.3+	1998 10 12	910	0.6+	0.4+	1999 12 10	704	0.2+	0.2−
1998 09 25	699	0.2−	0.5+	1998 10 12	910	0.6+	0.3+	1999 12 10	704	0.1+	0.1+

1998 SY₅₇ = 1999 XJ₁₀₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20007917	ω	238.44008	+0.70724095	+0.70506919		
<i>a</i>	2.8951304	Ω	76.66631	−0.62923734	+0.66121094		
<i>e</i>	0.0644511	<i>i</i>	3.05411	−0.32228963	+0.25627629		
<i>P</i>	4.93	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1998 09 14	704	0.2+	0.2−	1998 09 25	699	0.7−	0.5+	1998 09 27	704	0.9+	0.6+
1998 09 14	704	0.2+	0.6−	1998 09 25	699	0.5−	0.5+	1999 12 07	704	0.4−	0.1+

M.P.C. 37174

1998 09 18 704 0.4− 0.8+ 1998 09 27 704 0.5+ 0.2−
 1998 09 18 704 0.8− 0.0 1998 09 27 704 0.8+ 0.3−

1998 SE₅₉ = 1999 XK

Id. B. G. Marsden

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	183.76427		(2000.0)	P	Q
<i>n</i>	0.16948993	ω	132.99525	−0.60705238	+0.79316376
<i>a</i>	3.2337525	Ω	99.56441	−0.74272168	−0.54448052
<i>e</i>	0.0967316	<i>i</i>	2.83495	−0.28258082	−0.27282270
<i>P</i>	5.82	<i>H</i>	12.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 09 14	704	0.6+	0.3+	1998 09 26	704	0.8−	0.6−	1999 12 01	684	0.3+	0.4−
1998 09 14	704	0.4−	0.7+	1998 09 27	704	0.1+	0.7−	1999 12 02	684	0.1−	0.1−
1998 09 14	704	0.3+	1.2−	1998 09 27	704	0.2−	0.3−	1999 12 02	684	0.1+	0.1+
1998 09 17	699	0.8+	0.6−	1998 09 27	704	1.0−	0.5+	1999 12 03	684	1.0−	0.5+
1998 09 17	699	0.1+	0.6+	1998 09 27	704	1.8+	0.2+	1999 12 03	684	1.4−	1.9+
1998 09 17	699	0.1+	0.6+	1998 09 27	704	0.1−	0.5−	1999 12 07	704	0.3−	0.1−
1998 09 18	704	0.9+	0.2+	1998 10 28	704	1.9+	1.8−	1999 12 07	704	0.3+	0.2−
1998 09 18	704	0.5−	0.0	1998 10 28	704	1.1+	0.6+	1999 12 07	704	0.2−	0.1−
1998 09 18	704	1.2+	1.0−	1998 10 28	704	0.1+	1.0−	1999 12 07	704	0.0	0.1−
1998 09 18	704	(2.6−	2.3−)	1998 10 28	704	1.4−	1.5+	1999 12 07	704	0.3−	0.5−
1998 09 25	699	0.2−	0.3+	1998 10 29	704	0.0	0.9+	1999 12 08	704	0.3−	0.0
1998 09 25	699	0.2+	0.8+	1998 10 29	704	0.9−	0.6+	1999 12 08	704	0.0	0.2−
1998 09 25	699	0.2−	0.5+	1998 10 29	704	0.1+	0.8+	1999 12 08	704	0.2−	0.2−
1998 09 26	704	1.8−	0.2+	1998 10 29	704	(1.0+	4.0+)	1999 12 08	704	0.1+	0.3−
1998 09 26	704	0.8−	0.6−	1999 11 28	120	0.7+	0.6−	1999 12 08	704	0.3+	0.2+
1998 09 26	704	0.1+	0.2+	1999 11 28	120	1.5+	0.3+				
1998 09 26	704	1.2−	1.0−	1999 12 01	684	0.6+	0.3−				

1998 SN₆₀ = 1999 XT₈₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	65.41842		(2000.0)	P	Q
<i>n</i>	0.18358348	ω	235.29975	+0.99829931	+0.04032700
<i>a</i>	3.0660576	Ω	122.35480	−0.02175174	+0.92765105
<i>e</i>	0.0991406	<i>i</i>	2.85649	−0.05408649	+0.37126441
<i>P</i>	5.37	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 09 17	699	0.5+	0.0	1998 09 27	704	0.1−	0.3+	1998 10 28	704	0.1−	0.3−
1998 09 17	699	0.4+	0.3+	1998 09 27	704	0.8−	0.0	1998 10 29	704	0.2−	1.7−
1998 09 17	699	0.3+	0.1−	1998 09 27	704	0.7−	0.5+	1998 10 29	704	(1.1−	3.5−)
1998 09 25	699	0.7−	0.2+	1998 09 27	704	0.7+	0.6+	1998 10 29	704	0.4+	1.1−
1998 09 25	699	0.1+	1.3+	1998 10 17	699	0.3+	0.4+	1999 12 07	704	0.9+	0.3+
1998 09 25	699	0.1+	0.8+	1998 10 17	699	0.0	0.1−	1999 12 07	704	0.2−	0.8−
1998 09 26	704	0.0	0.1+	1998 10 17	699	0.1+	0.8+	1999 12 07	704	0.6−	0.0
1998 09 26	704	0.4−	1.2−	1998 10 28	704	0.7+	0.2−	1999 12 08	704	0.1+	0.3+
1998 09 26	704	0.1−	0.3−	1998 10 28	704	(1.6−	2.3−)	1999 12 08	704	0.6−	0.3−
1998 09 26	704	0.3+	0.2−	1998 10 28	704	0.4+	0.2−	1999 12 08	704	0.7−	0.7+
1998 09 26	704	1.2−	0.1−	1998 10 28	704	(2.0−	2.5−)	1999 12 08	704	1.0+	0.3+

1998 SA₆₁ = 1999 XJ₁₀₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	34.90746		(2000.0)	P	Q
<i>n</i>	0.19990622	ω	354.40004	+0.79600423	−0.60444392
<i>a</i>	2.8968000	Ω	42.84278	+0.55715508	+0.71100748
<i>e</i>	0.0679141	<i>i</i>	2.69838	+0.23654911	+0.35932703
<i>P</i>	4.93	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 09 14	704	0.6+	0.2−	1998 09 25	699	1.1+	0.9+	1998 10 14	699	0.6+	0.7−
1998 09 14	704	0.5+	0.8−	1998 09 26	704	0.2−	0.1−	1998 10 14	699	(3.0+	1.5−)
1998 09 14	704	1.1−	1.2−	1998 09 26	704	0.6−	0.9−	1998 10 14	699	0.9−	0.6−
1998 09 17	699	0.6+	0.1−	1998 09 26	704	0.4−	0.9−	1999 12 07	704	0.1−	1.3+

1999 DEC. 22

1998 09 17 699 0.6+ 0.2− 1998 09 26 704 0.7+ 1.1− 1999 12 07 704 0.6+ 0.2+
 1998 09 17 699 0.7+ 0.2+ 1998 09 27 704 0.2− 0.3+ 1999 12 07 704 0.1− 1.0−
 1998 09 18 704 0.2+ 0.1− 1998 09 27 704 0.8− 0.3+ 1999 12 07 704 0.2− 0.4+
 1998 09 18 704 1.1− 0.4− 1998 09 27 704 0.4− 0.4+ 1999 12 10 704 0.0 0.2+
 1998 09 18 704 0.4− 1.0+ 1998 09 27 704 0.1+ 0.1− 1999 12 10 704 0.2− 0.4−
 1998 09 18 704 0.7− 1.4+ 1998 09 27 704 0.3− 0.4− 1999 12 10 704 0.2− 0.4−
 1998 09 18 704 0.6− 0.5+ 1998 10 11 120 0.6− 0.5+ 1999 12 10 704 0.2+ 0.1+
 1998 09 25 699 (0.2+ 2.2+) 1998 10 11 120 0.2+ 0.7+ 1999 12 10 704 0.2− 0.2−
 1998 09 25 699 0.9+ 1.2+ 1998 10 11 120 0.6+ 0.2−

1998 SK₆₃

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	328.07825		(2000.0)	P	Q
<i>n</i>	0.18612359	ω	36.17738	−0.43114468	−0.89981823
<i>a</i>	3.0380979	Ω	79.44765	+0.81109640	−0.41887064
<i>e</i>	0.1049569	<i>i</i>	3.88708	+0.39526812	−0.12196120
<i>P</i>	5.30	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 09 14	704	0.5−	0.2+	1998 09 27	327	1.8+	0.7+	1998 10 29	704	0.9+	1.1+
1998 09 14	704	1.0+	1.0−	1998 10 02	327	0.1+	0.5+	1998 10 29	704	0.8−	0.1−
1998 09 14	704	1.4−	0.3−	1998 10 02	327	0.3+	0.2+	1998 10 29	704	1.8−	0.5+
1998 09 17	699	0.2+	0.0	1998 10 02	327	0.2+	0.4+	1998 11 06	699	0.3+	0.7−
1998 09 17	699	0.2−	0.7−	1998 10 13	327	0.6−	0.0	1998 11 06	699	0.1+	0.1+
1998 09 17	699	0.5−	0.0	1998 10 13	327	0.5−	0.3−	1998 11 06	699	0.3−	0.3−
1998 09 18	704	0.8−	1.2−	1998 10 13	327	0.4−	0.0	1999 12 03	699	0.1−	0.2−
1998 09 18	704	(0.9+	2.2−)	1998 10 14	327	0.4−	0.2+	1999 12 03	699	0.0	0.3−
1998 09 18	704	0.4−	1.2+	1998 10 14	327	0.2−	0.1+	1999 12 03	699	0.1+	0.5−
1998 09 18	704	0.4−	0.0	1998 10 14	327	0.2−	0.2+	1999 12 07	704	0.7+	1.8−
1998 09 18	704	0.1−	0.5−	1998 10 19	699	0.1+	1.2+	1999 12 07	704	0.1−	0.1+
1998 09 26	704	0.7−	0.9−	1998 10 19	699	1.0+	0.2+	1999 12 07	704	0.1+	0.7+
1998 09 26	704	0.7−	0.4−	1998 10 19	699	0.7+	0.5+	1999 12 07	704	0.4+	0.7+
1998 09 26	704	0.2+	0.5+	1998 10 19	327	0.4−	0.2+	1999 12 07	704	1.4−	0.3+
1998 09 26	704	0.6+	0.3−	1998 10 19	327	0.3−	0.4+	1999 12 07	691	0.1−	0.4−
1998 09 26	704	0.2−	0.2+	1998 10 19	327	0.4−	0.2+	1999 12 07	691	0.3−	0.2−
1998 09 27	704	0.1−	0.4−	1998 10 28	704	0.5−	0.3+	1999 12 07	691	0.1+	0.6−
1998 09 27	704	0.2−	0.5+	1998 10 28	704	0.2+	1.3−	1999 12 08	704	0.7+	0.8−
1998 09 27	704	0.1+	0.2+	1998 10 28	704	0.4+	0.4−	1999 12 08	704	0.5+	0.3−
1998 09 27	704	0.2+	0.2+	1998 10 28	704	0.7+	0.3+	1999 12 08	704	0.3+	1.2+
1998 09 27	704	1.1+	0.4−	1998 10 28	704	0.3+	0.7+	1999 12 08	704	0.2+	1.3+
1998 09 27	327	1.3+	0.2−	1998 10 29	704	0.6+	0.4−	1999 12 08	704	1.4−	0.7+
1998 09 27	327	1.8+	0.3−	1998 10 29	704	1.3−	1.3−				

1998 SU₁₂₈ = 1999 XR₁₀₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	128.57882		(2000.0)	P	Q
<i>n</i>	0.20209385	ω	235.76282	+0.59274705	+0.80384810
<i>a</i>	2.8758572	Ω	70.66672	−0.72049267	+0.55687904
<i>e</i>	0.0558762	<i>i</i>	3.02472	−0.35991838	+0.20907887
<i>P</i>	4.88	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1998 09 18	699	0.9−	1.0+	1998 10 28	704	0.3−	0.3−	1999 01 09	910	0.1−	0.2+
1998 09 18	699	0.5+	0.4+	1998 10 28	704	1.1−	0.4−	1999 01 09	910	0.2−	0.5+
1998 09 18	699	0.2−	0.5+	1998 10 28	704	(2.8−	1.4+)	1999 01 14	910	0.2−	1.0−
1998 09 26	704	0.1+	0.6+	1998 10 29	704	0.7−	1.7−	1999 01 14	910	0.3−	0.0
1998 09 26	704	0.6+	0.2−	1998 10 29	704	(0.8+	2.3−)	1999 01 14	910	0.5−	0.4−
1998 09 26	704	0.0	0.5−	1998 10 29	704	(1.0−	2.8−)	1999 12 03	699	1.0−	0.6−
1998 09 26	704	0.3−	0.1+	1998 10 29	704	(2.0+	3.2−)	1999 12 03	699	1.0+	0.4+
1998 09 26	704	0.8+	0.8−	1998 10 29	704	(0.6−	2.6−)	1999 12 03	699	0.7+	1.8+
1998 09 27	704	0.0	0.2+	1998 11 11	699	0.5−	0.5−	1999 12 07	704	0.1−	0.0
1998 09 27	704	0.9+	0.2+	1998 11 11	699	0.1−	0.2+	1999 12 07	704	0.1−	0.4+
1998 09 27	704	0.1−	0.2+	1998 11 11	699	0.1−	0.3+	1999 12 07	704	0.1+	0.1−
1998 09 27	704	0.1+	0.5−	1998 11 25	699	0.8+	0.7+	1999 12 07	704	0.1−	0.5−
1998 09 27	704	1.0−	1.5−	1998							

1999 DEC. 22

M.P.C. 37175

1998 10 10	699	0.2+	0.6+	1998 11 25	699	0.4+	1.5+	1999 12 10	704	0.2-	0.4-
1998 10 10	699	0.1+	0.5+	1999 01 05	910	0.5+	0.3-	1999 12 10	704	0.2+	0.2-
1998 10 10	699	0.3+	0.8+	1999 01 05	910	0.6+	0.1-	1999 12 10	704	0.4+	0.2-
1998 10 28	704	0.4-	0.3-	1999 01 05	910	0.4+	0.2-	1999 12 10	704	0.0	0.1-
1998 10 28	704	0.2-	0.1+	1999 01 09	910	0.3-	0.3+	1999 12 10	704	0.2-	0.2-

1998 SU₁₂₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	149.43202		(2000.0)	P	Q
<i>n</i>	0.18114501	ω	146.32159	+0.03290223	+0.99913113
<i>a</i>	3.0935120	Ω	125.55113	-0.92378138	+0.04017105
<i>e</i>	0.1396408	<i>i</i>	1.80183	-0.38150414	-0.01110244
<i>P</i>	5.44	<i>H</i>	12.7	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1998 09 18	699	0.1+	0.3+	1998 10 28	704	0.7-	0.7-	1998 12 17	327	0.6+	0.1-
1998 09 18	699	0.4+	0.0	1998 10 29	704	0.1-	0.0	1999 01 05	910	0.0	0.4-
1998 09 18	699	0.1+	0.6+	1998 10 29	704	0.2-	0.0	1999 01 05	910	0.0	0.3-
1998 09 26	704	0.0	0.1+	1998 10 29	704	0.0	0.3+	1999 01 05	910	0.2+	0.3-
1998 09 26	704	0.6+	0.5-	1998 10 29	704	0.2-	0.0	1999 01 14	910	0.3-	0.1-
1998 09 26	704	0.7+	0.9-	1998 10 29	704	1.2-	0.3-	1999 01 14	910	0.1-	0.1-
1998 09 26	704	0.6+	0.4-	1998 11 10	704	0.8+	0.1-	1999 01 14	910	0.0	0.0
1998 09 26	704	0.8-	0.8-	1998 11 10	704	1.2+	0.3-	1999 11 28	046	0.7+	0.3+
1998 09 27	704	0.8-	0.1+	1998 11 10	704	0.2+	0.4-	1999 11 28	046	0.2+	0.4+
1998 09 27	704	0.5+	0.2+	1998 11 10	704	0.4+	0.6-	1999 11 28	046	0.3+	0.0
1998 09 27	704	0.1-	0.2-	1998 11 10	704	1.0-	0.2-	1999 11 30	046	0.5+	0.2+
1998 09 27	704	0.6+	0.3-	1998 11 10	699	0.1-	1.2+	1999 11 30	046	0.6+	0.2+
1998 09 27	704	0.1+	1.4-	1998 11 10	699	0.4-	0.7+	1999 12 07	704	0.4-	0.4+
1998 10 11	699	0.3-	0.8+	1998 11 10	699	1.8+	0.2-	1999 12 07	704	0.2-	0.8-
1998 10 11	699	0.4-	0.8+	1998 11 11	704	0.9+	0.6-	1999 12 07	704	0.0	0.2-
1998 10 11	699	0.1+	0.7+	1998 11 11	704	0.5-	1.1+	1999 12 07	704	0.9-	0.2+
1998 10 28	704	0.5-	0.9-	1998 11 11	704	0.7-	1.6+	1999 12 08	704	0.3-	0.1+
1998 10 28	704	0.3-	0.3-	1998 11 11	704	0.3+	1.2+	1999 12 08	704	0.5-	0.8-
1998 10 28	704	0.7-	0.0	1998 12 17	327	0.3+	0.1-	1999 12 08	704	0.0	0.1+
1998 10 28	704	1.2-	0.7+	1998 12 17	327	0.2+	0.1-	1999 12 08	704	0.1-	0.1-

1998 SE₁₃₀ = 1999 XV₈₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	144.56780		(2000.0)	P	Q
<i>n</i>	0.19619894	ω	99.55622	+0.35793568	+0.93372390
<i>a</i>	2.9331770	Ω	191.42363	-0.86898069	+0.33056929
<i>e</i>	0.0497000	<i>i</i>	1.86906	-0.34169375	+0.13741769
<i>P</i>	5.02	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 09 26	704	0.1+	0.7-	1998 10 11	699	0.5+	0.3+	1998 11 11	704	1.5+	0.4-
1998 09 26	704	0.9+	1.0+	1998 10 11	699	0.0	0.2+	1998 11 11	704	0.6-	0.3-
1998 09 26	704	0.3+	1.0-	1998 10 17	699	0.4-	0.4+	1998 11 11	704	0.5+	0.7-
1998 09 26	704	0.1-	0.7-	1998 10 17	699	1.0+	0.8+	1999 12 07	704	0.1+	0.6-
1998 09 26	704	0.0	0.8-	1998 10 17	699	0.5-	0.3-	1999 12 07	704	0.0	0.3+
1998 09 27	704	0.6-	0.7+	1998 11 10	704	1.1+	0.1-	1999 12 07	704	0.7+	0.1+
1998 09 27	704	0.3-	0.9+	1998 11 10	704	0.9-	0.8+	1999 12 08	704	0.1-	0.6+
1998 09 27	704	1.0+	1.0+	1998 11 10	704	1.5-	0.6+	1999 12 08	704	0.8-	0.5+
1998 09 27	704	0.1-	1.0-	1998 11 10	704	1.9-	1.0+	1999 12 08	704	0.2+	0.1+
1998 09 27	704	1.3-	0.3+	1998 11 11	704	0.2+	0.8-	1999 12 08	704	0.0	1.1-
1998 10 11	699	0.4-	0.6-	1998 11 11	704	1.6+	0.6-				

1998 SX₁₃₂ = 1999 XY₃₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	224.40055		(2000.0)	P	Q
<i>n</i>	0.24671088	ω	261.89977	-0.61046915	+0.79158591
<i>a</i>	2.5177379	Ω	330.42457	-0.70360780	-0.55754534
<i>e</i>	0.0266798	<i>i</i>	3.11460	-0.36368046	-0.25006989
<i>P</i>	3.99	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 09 14	699	1.0-	0.5+	1998 10 11	699	0.9+	1.3+	1998 10 29	704	0.5-	1.4-
1998 09 14	699	0.1-	0.5-	1998 10 11	699	0.7+	0.5+	1998 10 29	704	0.2-	1.4-
1998 09 14	699	0.0	0.8-	1998 10 17	699	0.5+	0.5+	1998 10 29	704	(0.1-	2.8-)
1998 09 26	704	0.0	0.7+	1998 10 17	699	0.1-	0.1-	1998 10 29	704	0.9+	1.1-
1998 09 26	704	0.1-	0.4+	1998 10 17	699	0.1+	0.3-	1999 12 06	704	0.5+	0.4-
1998 09 26	704	0.6+	1.2-	1998 10 19	910	1.3+	0.3+	1999 12 06	704	0.4-	0.4-
1998 09 26	704	0.2-	0.3-	1998 10 19	910	1.0+	0.2+	1999 12 06	704	0.3+	0.6-
1998 09 26	704	0.3+	0.3-	1998 10 20	910	1.4+	0.4+	1999 12 06	704	0.1-	0.4+
1998 09 27	704	1.2-	0.5+	1998 10 28	704	0.7-	0.1-	1999 12 07	704	1.0-	0.8+
1998 09 27	704	0.0	0.1+	1998 10 28	704	0.7-	0.6-	1999 12 07	704	0.3+	0.3-
1998 09 27	704	(0.6+	2.2+)	1998 10 28	704	1.3-	0.8-	1999 12 07	704	0.3+	0.1-
1998 09 27	704	0.5-	1.1+	1998 10 28	704	1.0-	0.9+	1999 12 07	704	0.1+	0.9+
1998 10 11	699	(4.0+	0.8-)	1998 10 28	704	0.4-	1.4+	1999 12 07	704	0.1+	0.1-

1998 SR₁₃₉ = 1999 XQ₉₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	221.06451		(2000.0)	P	Q
<i>n</i>	0.21644619	ω	312.24308	-0.67127297	+0.73357134
<i>a</i>	2.7472789	Ω	275.26606	-0.64479450	-0.64856039
<i>e</i>	0.1339524	<i>i</i>	6.11877	-0.36555801	-0.20308252
<i>P</i>	4.55	<i>H</i>	13.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 09 26	704	0.7-	0.6-	1998 10 28	704	0.6-	0.5-	1998 11 11	704	0.3-	0.9+
1998 09 26	704	1.0-	0.4-	1998 10 28	704	0.5+	0.9-	1998 11 11	704	0.2+	0.3-
1998 09 26	704	0.7-	1.3-	1998 10 28	704	0.2-	0.5-	1998 11 11	704	1.7-	1.2-
1998 09 26	704	0.2-	0.7-	1998 10 29	704	0.2+	1.0+	1999 12 07	704	0.4+	0.2-
1998 09 26	704	1.7-	0.6-	1998 10 29	704	0.2+	0.7-	1999 12 07	704	0.3-	0.3-
1998 09 27	704	0.7-	0.4+	1998 10 29	704	0.8+	0.9+	1999 12 07	704	0.1+	0.4-
1998 09 27	704	1.3+	1.2+	1998 10 29	704	0.3-	0.0	1999 12 07	704	0.3-	0.1-
1998 09 27	704	0.2+	0.5+	1998 10 29	704	0.3-	0.4-	1999 12 08	704	0.3+	0.5+
1998 09 27	704	0.6+	0.6+	1998 11 10	704	1.1-	0.9+	1999 12 08	704	0.4-	0.6+
1998 09 27	704	0.8+	0.1-	1998 11 10	704	0.1-	0.3-	1999 12 08	704	0.1-	0.4-
1998 10 11	699	0.2-	0.7+	1998 11 10	704	0.7-	0.3-	1999 12 08	704	1.2-	0.9+
1998 10 11	699	0.6-	0.1-	1998 11 10	704	0.1-	0.0	1999 12 08	704	0.2-	0.0
1998 10 11	699	0.5-	0.6+	1998 11 10	704	(5.0-	0.0)				
1998 10 28	704	1.3+	0.5+	1998 11 11	704	0.5+	1.3-				

1998 SD₁₅₉ = 1999 XT₃₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	0.50748		(2000.0)	P	Q
<i>n</i>	0.21832474	ω	130.03321	-0.05780323	-0.99774187
<i>a</i>	2.7314971	Ω	323.23753	+0.89766162	-0.03695085
<i>e</i>	0.0538285	<i>i</i>	3.27626	+0.43687802	-0.05608737
<i>P</i>	4.51	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 09 26	704	0.8-	0.2+	1998 10 11	699	0.3+	0.3+	1999 12 06	704	0.2+	0.8-
1998 09 26	704	0.1-	0.6+	1998 10 11	699	0.2+	0.2+	1999 12 06	704	0.7+	0.0
1998 09 26	704	0.4+	1.3-	1998 10 11	699	0.1-	0.4+	1999 12 07	704	0.5-	0.0
1998 09 26	704	0.4-	0.3-	1998 10 17	699	0.9+	0.8-	1999 12 07	704	0.0	0.1+
1998 09 26	704	0.5+	0.6-	1998 10 17	699	1.1-	0.2-	1999 12 07	704	0.0	0.2-
1998 09 27	704	0.3-	0.2+	1998 10 17	699	0.0	0.0	1999 12 07	704	0.3-	0.3-
1998 09 27	704	0.0	1.2+	1999 12 06	704	0.0	0.8+	1999 12 07	704	0.2+	0.4-
1998 09 27	704	0.6+	0.3+	1999 12 06	704	0.2-	0.7+				

1998 SN₁₆₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden

<i>M</i>	264.94911		(2000.0)	P	Q
<i>n</i>	0.00419102	ω	259.13917	-0.02149102	-0.99962728
<i>a</i>	38.0998418	Ω	192.13029	+0.94572317	-0.01486472
<i>e</i>	0.0255793	<i>i</i>	4.59533	+0.32426197	-0.02289847
<i>P</i>	235	<i>H</i>	5.8	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1998 09 15	691	0.2+	0.4-	1998 09 28	691	0.4-	1.0-	1999 09 13	695	0.1-	0.3+
1998 09 15	691	0.6-	0.7-	1998 09 28	691	0.0	0.7-	1999 10 09	691	0.1+	0.2+
1998 09 23	691	0.1-	0.5+	1998 08 10	675	0.0	0.0	1999 10 09	691	0.2+	0.1-
1998 09 23	691	1.0+	1.0+	1998 08 10	675	0.1+	0.1+	1999 10 09	691	0.2-	0.4-
1998 09 23	691	0.2+	1.6+	1999 08 10	675	0.0	0.2-				
1998 09 28	691	0.2-	0.3-	1999 09 13	695	0.0	0.1+				

1998 TA

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

M	200.60373		(2000.0)	P	Q		
n	0.27987223	ω	258.19020	-0.19929745	+0.97993879		
a	2.3147078	Ω	0.31651	-0.84193571	-0.17086186		
e	0.0895028	i	7.34536	-0.50142275	-0.10259725		
P	3.52	H	13.8	G	0.15	U	3

Residuals in seconds of arc

1998 09 14	699	0.2-	0.1-	1998 10 12	699	0.5-	0.1+	1998 10 31	886	0.2-	0.1+
1998 09 14	699	0.4-	0.3-	1998 10 12	910	0.2+	0.2-	1998 11 07	886	0.3+	0.7+
1998 09 14	699	0.5-	0.1-	1998 10 12	910	0.5+	0.1-	1998 11 07	886	0.9-	0.7-
1998 09 26	704	0.1-	0.4+	1998 10 12	910	0.4+	0.0	1998 11 10	704	0.2+	0.2-
1998 09 26	704	0.5+	0.2-	1998 10 18	886	0.1+	1.1-	1998 11 10	704	0.0	0.1-
1998 09 26	704	0.9+	0.1+	1998 10 18	886	0.6-	0.0	1998 11 10	704	0.6+	0.4+
1998 09 26	704	0.5+	1.1+	1998 10 18	886	0.8-	0.1-	1998 11 10	704	(0.4-	3.2+)
1998 09 26	704	0.2+	1.0+	1998 10 18	888	0.3+	0.2-	1998 11 15	886	0.9-	0.2-
1998 09 27	704	0.4+	0.3+	1998 10 18	888	0.2+	0.1-	1998 11 15	886	1.3+	0.2-
1998 09 27	704	0.3+	0.6+	1998 10 18	888	0.0	0.2-	1998 11 15	886	(2.3-	0.7-)
1998 09 27	704	0.7+	0.2-	1998 10 24	886	0.2-	0.4-	1998 11 23	886	0.4+	1.3+
1998 09 27	704	0.4+	0.3-	1998 10 24	888	0.1+	0.3-	1998 11 23	886	1.0-	0.2+
1998 09 27	704	0.8-	0.1-	1998 10 24	888	0.3+	0.3-	1998 12 16	888	0.0	0.3+
1998 10 02	886	0.1-	0.8-	1998 10 24	886	0.3+	0.2-	1998 12 16	888	0.4+	0.0
1998 10 02	886	(2.5-	1.3+)	1998 10 24	888	0.1-	0.4-	1999 01 05	699	0.3+	0.7-
1998 10 02	886	1.5-	0.3+	1998 10 28	704	0.7+	0.7-	1999 01 05	699	0.2+	0.5+
1998 10 03	888	0.6+	0.3+	1998 10 28	704	0.1-	0.5+	1999 01 05	699	0.2-	0.8+
1998 10 03	888	0.1+	0.5-	1998 10 28	704	0.4-	0.1+	1999 01 08	704	1.1-	1.1-
1998 10 04	888	0.6-	1.2-	1998 10 28	704	(0.6-	2.2+)	1999 01 08	704	0.2-	0.3+
1998 10 04	888	0.4-	0.5+	1998 10 28	704	0.1+	0.2+	1999 01 08	704	0.0	1.5+
1998 10 04	888	0.5+	0.6-	1998 10 29	704	0.3+	0.2-	1999 01 08	704	(1.2+	2.8+)
1998 10 09	886	1.0+	1.4-	1998 10 29	704	0.6+	0.2+	1999 12 06	888	0.1+	0.0
1998 10 09	886	1.1-	0.8-	1998 10 29	704	0.2-	0.7+	1999 12 06	888	0.1+	0.5-
1998 10 11	886	(2.7-	1.6-)	1998 10 29	704	0.2+	0.7+	1999 12 06	888	0.2+	0.2-
1998 10 11	886	0.4+	1.8+	1998 10 29	704	0.5+	1.1+	1999 12 07	888	0.5-	0.1-
1998 10 11	886	(4.0-	3.1+)	1998 10 31	886	1.2-	0.6-	1999 12 07	888	0.1-	0.2+
1998 10 12	699	0.2-	0.2+	1998 10 31	886	0.4-	0.9-	1999 12 07	888	0.3-	0.2-
1998 10 12	699	0.2-	0.1-	1998 10 31	886	(3.1+	2.1-)				

1998 TR₁ = 1999 XR₂₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	94.37221		(2000.0)	P	Q
n	0.22263435	ω	178.99020	+0.42511523	+0.88340244
a	2.6961327	Ω	116.14331	-0.83198117	+0.46716639
e	0.2255585	i	12.68810	-0.35648895	-0.03681968
P	4.43	H	14.5	G 0.15	U 4

Residuals in seconds of arc

1998 10 12	428	0.7-	0.0	1998 10 21	428	0.6-	0.1+	1999 12 05	704	1.5+	0.3-
1998 10 12	428	0.6+	0.2-	1998 10 21	428	0.1-	0.5-	1999 12 05	704	0.7-	0.4-
1998 10 13	428	0.1-	0.2-	1998 11 04	428	1.3+	0.3-	1999 12 05	704	1.2-	0.7+
1998 10 13	428	0.4-	0.4+	1998 11 04	428	0.0	1.3-	1999 12 05	704	0.6-	0.0
1998 10 13	428	0.2-	0.8+	1998 11 15	428	1.5+	0.4-	1999 12 07	704	0.3-	0.6+
1998 10 15	428	0.4-	0.4+	1998 12 08	704	(3.3+	0.2+)	1999 12 07	704	0.7-	0.3-
1998 10 15	428	0.3+	0.4-	1998 12 08	704	1.1-	0.5+	1999 12 07	704	1.2+	0.5-
1998 10 15	428	0.5-	0.0	1998 12 08	704	1.1-	0.7+	1999 12 07	704	0.8+	0.2+
1998 10 18	428	0.6+	0.7+	1998 12 08	704	0.5+	0.3-				
1998 10 18	428	0.2+	0.2+	1998 12 08	704	0.0	0.1-				

1998 UO₁

Id. DANEOPS (1992 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	190.77673		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.48906431	ω	252.03341	-0.32417099	+0.94596529		
a	1.5954826	Ω	358.94757	-0.61862983	-0.21832192		
e	0.7632651	i	25.56921	-0.71568869	-0.23976075		
P	2.02	H	16.4	G	0.15	U	5

Residuals in seconds of arc

1992 10 20	675	0.5-	0.4-	1998 10 21	673	0.1-	0.5-	1998 10 30	587	1.3+	0.1-
1992 10 20	675	0.3+	0.7+	1998 10 21	681	0.3+	0.4-	1998 11 07	046	0.6+	0.2-
1998 10 19	704	0.7+	0.0	1998 10 21	681	0.1+	0.4-	1998 11 07	046	0.5+	0.2+
1998 10 19	704	0.0	0.8+	1998 10 21	681	0.9+	0.7+	1998 11 07	046	0.2+	0.3-
1998 10 19	704	0.5+	0.2+	1998 10 21	557	0.0	0.6+	1998 11 07	046	0.0	0.4-
1998 10 19	704	0.3+	0.3+	1998 10 21	557	0.2-	0.1-	1998 11 07	046	0.1+	0.6+
1998 10 20	557	0.1+	0.1+	1998 10 21	557	0.4+	0.1-	1998 11 07	118	0.4+	0.3-
1998 10 20	557	0.1-	0.5+	1998 10 22	658	0.0	0.8-	1998 11 07	118	0.4+	0.3+
1998 10 20	557	0.2+	0.2+	1998 10 22	658	0.1-	0.5-	1998 11 08	658	0.3-	0.1+
1998 10 20	046	0.6+	0.3-	1998 10 22	658	0.2+	0.4-	1998 11 08	658	0.3-	0.2+
1998 10 20	046	0.1+	0.4+	1998 10 22	587	0.0	0.1+	1998 11 08	658	0.5-	0.2+
1998 10 20	046	0.2+	0.3-	1998 10 22	587	0.3+	0.2+	1998 11 08	360	0.4-	0.2+
1998 10 20	046	0.4+	0.1+	1998 10 23	046	0.3-	0.2-	1998 11 08	360	0.3-	0.1-
1998 10 20	673	0.6-	1.0+	1998 10 23	046	0.7-	0.3+	1998 11 08	360	0.3-	0.2-
1998 10 20	658	0.1-	0.1-	1998 10 23	046	0.5-	0.3+	1998 11 11	046	0.1+	0.4+
1998 10 20	658	0.2-	0.1+	1998 10 23	118	0.2-	0.3+	1998 11 11	046	0.0	0.1-
1998 10 20	658	0.0	0.0	1998 10 23	118	0.2-	0.2+	1998 11 11	046	0.0	0.2-
1998 10 20	673	0.1-	1.4-	1998 10 24	118	0.9-	0.2-	1998 11 11	046	0.1+	0.0
1998 10 20	104	0.1-	1.1+	1998 10 24	118	0.3-	0.3-	1998 11 12	557	0.2+	0.3-
1998 10 20	104	0.2-	0.7+	1998 10 25	402	0.5-	0.5-	1998 11 12	557	0.4+	0.2+
1998 10 20	104	1.3-	0.2+	1998 10 25	402	0.4-	0.7-	1998 11 12	557	0.2+	0.1+
1998 10 20	104	0.5-	0.5+	1998 10 25	402	0.4-	0.4-	1998 11 14	402	0.1-	0.1+
1998 10 20	106	0.1-	0.2-	1998 10 26	118	0.1+	0.2-	1998 11 14	402	0.4-	0.5-
1998 10 20	106	0.8-	0.1-	1998 10 26	118	0.1-	0.3-	1998 11 14	402	0.1+	0.2+
1998 10 20	106	0.1+	0.0	1998 10 27	658	0.5-	0.2-	1998 11 15	360	0.1+	0.1-
1998 10 20	557	0.2+	0.2-	1998 10 27	658	0.3-	0.1-	1998 11 15	360	0.0	0.2-
1998 10 20	106	0.3-	0.0	1998 10 27	658	0.6-	0.1-	1998 11 15	360	0.3-	0.0
1998 10 20	557	0.0	0.2+	1998 10 29	699	(2.1+	1.4+)	1998 11 15	587	0.1-	0.5+
1998 10 20	118	0.5+	0.2+	1998 10 29	699	0.1+	0.4+	1998 11 15	587	0.1-	0.2-
1998 10 20	118	0.6+	0.0	1998 10 29	699	(2.2+	0.0)	1998 11 16	118	0.5+	0.3+
1998 10 20	118	0.4+	0.3+	1998 10 29	360	0.6+	0.3-	1998 11 16	118	0.2+	0.2-
1998 10 20	046	0.2-	0.0	1998 10 29	360	0.7+	0.3-	1998 11 24	557	0.5-	0.1+
1998 10 20	046	0.3+	0.0	1998 10 29	360	0.8+	0.3-	1998 11 24	557	0.3+	0.2+
1998 10 20	046	0.2+	0.3+	1998 10 30	658	0.5+	0.6-	1998 11 25	402	0.4+	1.5+
1998 10 20	046	0.2+	0.0	1998 10 30	658	0.6+	0.7-	1998 11 25	402	0.3-	0.5+
1998 10 21	673	0.1-	0.3+	1998 10 30	658	0.3+	0.5-	1998 11 25	402	1.4-	0.8-
1998 10 21	681	1.5-	0.2+	1998 10 30	587	1.1+	0.8-				

1998 UB₁₆ = 1999 XC₁₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	255.30456		(2000.0)	P	Q
n	0.22708517	ω	154.25519	-0.88946171	+0.42300118
a	2.6607875	Ω	51.87091	-0.44803434	-0.73245059
e	0.1354398	i	12.70455	-0.09012818	-0.53346616
P	4.34	H	14.3	G 0.15	U 4

1998 11 11	704	1.1+	1.2+	1999 12 07	703	0.2-	0.9+	1999 12 12	704	0.5-	0.3-
1998 11 11	704	1.6-	0.6-	1999 12 07	703	0.3-	0.8-	1999 12 12	704	0.4-	0.3-
1998 11 19	699	0.8+	1.0-	1999 12 08	703	0.7+	1.2+	1999 12 12	704	0.2-	0.4-

1998 UQ₁₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	265.26853		(2000.0)	P	Q	Williams					
<i>n</i>	0.08224293	ω	110.29332	-0.96890152	-0.20569005						
<i>a</i>	5.2368526	Ω	58.06457	+0.11865365	-0.87401945						
<i>e</i>	0.0309682	<i>i</i>	9.32812	+0.21714319	-0.44020633						
<i>P</i>	11.98	<i>H</i>	10.3	<i>G</i>	0.15	<i>U</i>	4				

Residuals in seconds of arc

1998 10 26	120	0.8-	0.2-	1998 11 28	120	(2.9-	0.2+)	1999 12 07	106	0.3+	0.4+
1998 10 26	120	0.2+	0.6+	1998 11 28	120	0.6+	0.4-	1999 12 07	106	0.1+	0.7-
1998 10 27	120	(2.9-	1.7+)	1998 12 08	699	0.6+	0.3-	1999 12 07	106	0.1+	0.4+
1998 10 27	120	0.1+	0.6+	1998 12 08	699	0.8-	0.4-	1999 12 07	106	0.6-	0.5-
1998 10 28	120	0.1-	0.3+	1998 12 08	699	0.2-	0.0	1999 12 08	106	0.2-	0.2+
1998 10 28	120	1.1+	0.0	1998 12 17	120	0.4+	0.2-	1999 12 08	106	0.2+	0.2-
1998 11 24	120	0.7-	0.8+	1998 12 17	120	1.0+	0.4+	1999 12 08	106	0.8-	0.0
1998 11 24	120	0.0	0.3-	1998 12 17	120	0.2+	0.1-	1999 12 10	704	0.4+	0.2+
1998 11 24	120	1.0-	0.6-	1999 12 07	106	0.1-	0.4-	1999 12 10	704	0.1-	0.5+
1998 11 24	120	0.3-	0.1-	1999 12 07	106	0.2+	0.3-	1999 12 10	704	0.5+	0.4+

1998 UZ₂₁ = 1999 XC₁₃₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	120.81714		(2000.0)	P	Q	Williams					
<i>n</i>	0.21938887	ω	256.64582	+0.63451260	+0.75996763						
<i>a</i>	2.7226574	Ω	53.63938	-0.62402949	+0.611124519						
<i>e</i>	0.1524773	<i>i</i>	10.07413	-0.45604929	+0.22097176						
<i>P</i>	4.49	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4				

Residuals in seconds of arc

1998 09 22	699	1.1-	0.1+	1998 10 29	704	1.2+	0.8+	1998 11 14	699	0.5-	0.5-
1998 09 22	699	0.3-	0.1-	1998 10 29	704	0.2+	0.7+	1999 01 05	910	0.3-	0.0
1998 09 22	699	0.7+	0.9-	1998 10 29	704	0.7-	0.1+	1999 01 05	910	0.2-	0.2+
1998 10 17	699	0.1-	1.3+	1998 10 29	704	0.0	1.1-	1999 01 05	910	0.2-	0.3+
1998 10 17	699	0.3-	0.0	1998 11 10	704	1.0-	0.0	1999 12 12	704	0.3+	0.7-
1998 10 17	699	1.2+	1.7-	1998 11 10	704	0.3+	0.1-	1999 12 12	704	0.5+	0.8+
1998 10 20	699	0.9+	0.1+	1998 11 10	704	0.9-	0.7+	1999 12 12	704	0.4+	0.2-
1998 10 20	699	0.1-	0.6+	1998 11 10	704	0.2+	0.4-	1999 12 12	704	1.3+	0.1-
1998 10 20	699	1.1+	0.3-	1998 11 10	704	0.2-	0.7+	1999 12 12	704	0.3-	1.0+
1998 10 28	704	0.5+	0.6-	1998 11 11	704	0.8-	0.5-	1999 12 13	704	0.6-	0.4-
1998 10 28	704	0.1-	0.4+	1998 11 11	704	0.1-	1.4-	1999 12 13	704	0.8-	0.5-
1998 10 28	704	0.5-	0.6+	1998 11 11	704	0.6+	0.5+	1999 12 13	704	1.0-	0.1-
1998 10 28	704	1.4-	0.7+	1998 11 11	704	0.2+	0.2-				
1998 10 29	704	1.1+	0.1-	1998 11 14	699	1.1+	0.5+				

1998 VE₃₂

Id. DANEOPS (1951, 1983, 1984, 1992, 1993 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	146.09530		(2000.0)	P	Q	Gnädig					
<i>n</i>	0.38958885	ω	100.28265	+0.83675736	+0.39077443						
<i>a</i>	1.8566571	Ω	237.73316	-0.46856581	+0.87346583						
<i>e</i>	0.2899747	<i>i</i>	26.97698	+0.28334291	+0.29043553						
<i>P</i>	2.53	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	2				

Residuals in seconds of arc

1951 01 04	675	0.8-	1.1-	1998 11 16	711	0.3+	0.1-	1998 11 17	426	0.1+	0.4-
1951 01 04	675	1.0-	1.1-	1998 11 16	704	0.4-	0.1-	1998 11 17	426	0.0	0.3-
1983 12 08	413	1.7-	0.5-	1998 11 16	711	0.4+	0.2-	1998 11 17	428	0.5+	0.3-
1983 12 08	413	1.0+	1.3-	1998 11 16	758	0.0	0.4+	1998 11 17	355	0.5+	0.1+
1984 01 03	413	1.2+	1.6+	1998 11 16	758	0.2+	0.6+	1998 11 17	355	0.5-	0.1-
1984 01 03	413	0.2-	0.1+	1998 11 16	758	0.2+	0.4+	1998 11 17	355	0.3+	0.5-
1992 03 09	413	0.1+	0.5+	1998 11 16	758	0.2+	0.4+	1998 11 17	108	0.2-	0.4-

1993 09 26	675	0.6-	1.3+	1998 11 16	426	0.0	0.2-	1998 11 17	108	0.1-	1.1-
1993 09 26	675	0.7+	0.3+	1998 11 16	426	0.2+	0.3-	1998 11 17	108	0.4+	1.8-
1998 11 14	704	0.3+	1.1-	1998 11 16	426	0.2+	0.2-	1998 11 17	151	0.6-	0.5-
1998 11 14	704	0.1+	0.5-	1998 11 16	428	0.2-	0.3+	1998 11 17	151	(0.8-	3.3+)
1998 11 14	704	0.9+	1.2-	1998 11 16	428	0.0	0.5+	1998 11 17	151	0.1-	0.1-
1998 11 14	704	0.4-	0.3-	1998 11 16	428	0.5+	0.2+	1998 11 20	118	0.7-	0.1+
1998 11 14	704	0.3+	0.2-	1998 11 16	428	0.1+	0.1+	1998 11 20	118	0.6-	0.0
1998 11 15	046	0.0	0.0	1998 11 16	428	0.0	0.3+	1998 11 23	118	0.6+	0.8+
1998 11 15	046	0.0	0.1+	1998 11 16	118	0.2+	0.0	1998 11 23	118	0.7+	0.7+
1998 11 15	046	0.0	0.1+	1998 11 16	118	0.2+	0.0	1998 11 24	118	0.2-	0.2-
1998 11 15	046	0.1+	0.1-	1998 11 16	118	0.2+	0.0	1998 11 24	118	0.2-	0.0
1998 11 15	046	0.0	0.1-	1998 11 17	758	0.2+	0.2-	1998 11 24	118	0.2-	0.1-
1998 11 15	143	0.9-	1.3+	1998 11 17	758	0.1-	0.0	1998 11 28	118	0.3+	0.2+
1998 11 15	143	0.9-	0.7+	1998 11 17	758	0.1+	0.3-	1998 11 28	118	0.6+	0.1+
1998 11 16	704	0.0	0.4-	1998 11 17	758	0.1+	1.0-	1998 11 28	118	0.4+	0.2+
1998 11 16	704	0.0	0.1+	1998 11 17	711	0.2+	0.2+	1998 12 08	699	0.1-	0.8+
1998 11 16	704	0.7-	0.8+	1998 11 17	711	0.1+	0.2+	1998 12 08	699	0.4-	0.1+
1998 11 16	704	0.6-	0.4-	1998 11 17	711	0.0	0.1+	1998 12 08	699	0.4-	0.6+
1998 11 16	704	1.0-	0.5+	1998 11 17	734	0.1+	0.1-	1998 12 09	118	0.2-	0.8+
1998 11 16	704	0.1+	0.2+	1998 11 17	734	0.0	0.1+	1998 12 09	118	0.3-	0.5+
1998 11 16	704	(3.1-	0.6+)	1998 11 17	734	0.1-	0.0	1998 12 09	118	0.3-	0.6+
1998 11 16	704	0.2+	0.1+	1998 11 17	426	0.1+	0.2-	1999 01 21	561	0.0	0.3+
1998 11 16	704	0.3-	0.4+	1998 11 17	428	0.5+	0.3+	1999 01 21	561	0.2-	0.3+
1998 11 16	711	0.3+	0.2-	1998 11 17	428	0.3+	0.5+	1999 01 21	561	0.3-	0.3+

1998 WJ₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	110.65654		(2000.0)	P	Q	Williams					
<i>n</i>	0.17839610	ω	257.36806	+0.88014964	+0.37475250						
<i>a</i>	3.1252095	Ω	80.02583	-0.23090210	+0.87428183						
<i>e</i>	0.0799575	<i>i</i>	17.20807	-0.41475395	+0.30853176						
<i>P</i>	5.52	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	3				

Residuals in seconds of arc

1998 10 29	699	0.2+	0.1+	1998 12 04	428	0.1-	0.2+	1999 02 03	428	0.2-	0.0
1998 10 29	699	0.0	0.0	1998 12 07	428	0.3-	0.3-	1999 02 04	704	1.3+	0.4+
1998 10 29	699	0.3+	0.0	1998 12 07	428	0.1+	0.1+	1999 02 04	704	0.1+	0.1-
1998 11 13	704	0.0	0.5-	1998 12 14	699	0.2+	0.3+	1999 02 04	704	0.5-	0.3-
1998 11 13	704	0.5-	0.2-	1998 12 14	699	0.4+	0.4+	1999 12 03	428	0.5-	0.9-
1998 11 13	704	0.4-	0.5-	1998 12 14	699	0.9+	0.3+	1999 12 03	428	0.1+	0.0
1998 11 13	704	0.7-	0.0	1998 12 19	428	0.1+	0.3-	1999 12 03	428	0.1-	0.7-
1998 11 13	704	0.8-	0.8+	1998 12 19	428	0.4+	0.0	1999 12 05	428	0.0	0.5-
1998 11 14	699	1.6+	0.3+	1998 12 26	428	0.6-	0.6-	1999 12 05	428	0.2+	0.6-
1998 11 14	699	1.0+	0.7+	1998 12 26	428	0.2+	1.1-	1999 12 05	428	0.2+	0.3-
1998 11 14	699	0.6+	0.2+	1999 01 07	699	0.5+	0.4-	1999 12 07	703	0.8+	0.3+
1998 11 26	428	0.2-	0.2-	1999 01 07	699	0.2+	0.4-	1999 12 07	703	0.0	0.2+
1998 11 26	428	0.1+	0.0	1999 01 07	699	0.6+	0.2-	1999 12 07	703	0.1+	1.0+
1998 11 27	428	1.1-	0.6-	1999 01 11	704	0.1+	0.6-	1999 12 07	703	0.8+	0.7+
1998 11 27	428	0.7-	0.5-	1999 01 11	704	0.6-	0.2-	1999 12 12	704	0.2-	0.1+
1998 11 30	428	0.1+	0.0	1999 01 11	704	(0.7+	2.2-)	1999 12 12	704	0.3-	0.3+
1998 11 30	428	0.7-	0.0	1999 01 13	428	0.4-	0.5+	1999 12 12	704	0.1-	

M.P.C. 37178

1998 11 10	704	0.3+	0.6−	1998 11 21	704	(0.6−	2.8+)	1999 12 07	704	0.0	0.6+
1998 11 10	704	1.1+	0.2+	1998 11 23	699	0.0	1.0−	1999 12 07	704	0.1−	0.4+
1998 11 10	704	0.5−	1.0−	1998 11 23	699	(2.5+	1.9−)	1999 12 07	704	0.4+	0.7+
1998 11 10	704	1.1+	0.4−	1998 11 23	699	0.1−	0.3+	1999 12 08	704	0.2−	0.4−
1998 11 18	704	1.4−	0.1−	1998 11 24	704	0.4+	0.3−	1999 12 08	704	0.2−	0.1+
1998 11 18	704	0.5−	0.1−	1998 11 24	704	0.5+	1.1−	1999 12 08	704	0.0	0.7−
1998 11 18	704	(2.9−	0.3+)	1998 11 24	704	0.8+	1.8−	1999 12 08	704	0.1−	1.3−
1998 11 18	704	1.2−	1.8+	1998 11 24	704	(0.7+	2.2−)	1999 12 08	704	0.2−	0.1+
1998 11 18	704	0.6−	0.8+	1998 12 17	120	0.1−	0.1+				
1998 11 21	704	0.3−	0.2+	1998 12 17	120	1.5−	1.1−				

1998 WU₃₀ = 1999 XY₃₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams							
<i>M</i>	51.89644	(2000.0)	P	Q			
<i>n</i>	0.18342980	ω	294.97895	+0.54391497	−0.81056042		
<i>a</i>	3.0677699	Ω	120.33505	+0.83163284	+0.48615364		
<i>e</i>	0.0767005	<i>i</i>	14.57111	+0.11199703	+0.32656767		
<i>P</i>	5.37	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 11 21	699	1.3−	0.2+	1998 12 09	120	0.3−	0.5+	1999 01 13	699	0.3+	0.2+
1998 11 21	699	0.4+	0.6−	1998 12 14	120	0.5−	0.6+	1999 01 13	699	0.1+	0.5−
1998 11 21	699	0.2−	0.3−	1998 12 14	120	0.6−	0.0	1999 12 06	704	0.5−	0.3+
1998 11 28	120	0.5−	0.9+	1998 12 15	120	0.5+	0.0	1999 12 06	704	0.0	0.2+
1998 11 28	120	0.4+	0.5+	1998 12 15	120	0.5−	0.1−	1999 12 06	704	0.8+	0.3−
1998 12 07	120	1.7+	0.3+	1998 12 17	699	0.1+	0.4−	1999 12 07	704	0.1−	0.1−
1998 12 07	120	0.6+	0.5−	1998 12 17	699	0.3−	0.3−	1999 12 07	704	0.0	0.1−
1998 12 09	120	1.8+	0.9−	1998 12 17	699	1.0−	0.4−	1999 12 07	704	0.2−	0.0
1998 12 09	120	0.1−	0.2−	1999 01 13	699	0.7−	0.9+				

1998 XQ₁₆

Id. DANEOPS (1987 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams							
<i>M</i>	56.72593	(2000.0)	P	Q			
<i>n</i>	0.26866758	ω	151.04752	−0.29027047	−0.95069952		
<i>a</i>	2.3786244	Ω	315.57860	+0.84521556	−0.20122228		
<i>e</i>	0.4271417	<i>i</i>	8.97146	+0.44872455	−0.23596613		
<i>P</i>	3.67	<i>H</i>	18.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1987 11 27	675	0.5+	1.1−	1998 12 17	704	0.1+	1.0+	1998 12 28	402	0.2−	0.6−
1987 11 27	675	0.8−	1.8−	1998 12 17	704	0.5−	0.0	1998 12 28	402	0.2−	0.4−
1998 12 12	704	(1.4+	2.1+)	1998 12 17	704	0.3+	1.3−	1999 01 16	704	0.3−	0.5+
1998 12 12	704	0.2+	1.4+	1998 12 17	704	1.5+	0.8−	1999 01 16	704	0.3−	0.0
1998 12 12	704	1.1+	1.0+	1998 12 17	557	0.4+	0.0	1999 01 16	704	0.4−	0.4−
1998 12 12	704	(2.5−	0.6+)	1998 12 17	557	0.1+	0.6+	1999 01 16	704	0.5−	0.4+
1998 12 12	704	0.7+	0.0	1998 12 17	540	0.4−	0.1+	1999 01 18	402	0.2−	0.1+
1998 12 15	704	0.3+	0.7+	1998 12 17	540	0.7−	0.1+	1999 01 18	402	0.0	0.2+
1998 12 15	704	1.1−	0.0	1998 12 17	540	0.7−	0.2−	1999 01 18	402	0.1−	0.1+
1998 12 15	704	0.1+	1.4+	1998 12 17	540	0.1−	0.4+	1999 01 18	104	0.4+	0.4+
1998 12 15	704	1.5−	1.3+	1998 12 17	046	0.1+	0.4+	1999 01 18	104	0.2−	0.4+
1998 12 15	704	0.1−	1.2−	1998 12 17	046	0.0	0.6+	1999 01 18	104	0.8−	0.4+
1998 12 15	704	0.3+	0.4+	1998 12 17	046	0.1−	0.5+	1999 01 22	071	0.1+	0.5−
1998 12 15	704	0.2−	0.3+	1998 12 17	118	0.1+	0.2+	1999 01 22	071	0.2−	0.2−
1998 12 15	704	(2.4+	0.6−)	1998 12 17	118	0.2−	0.3+	1999 01 24	071	0.6+	0.3−
1998 12 15	704	1.7+	1.1+	1998 12 17	118	0.1+	0.2+	1999 01 24	071	(1.0+	2.3−)
1998 12 17	704	0.5+	1.0+	1998 12 18	734	0.2−	0.7+	1999 01 24	658	0.2+	0.9−
1998 12 17	704	1.2+	0.7+	1998 12 18	734	0.2−	0.8+	1999 01 24	658	0.2+	0.7−
1998 12 17	704	0.8−	0.1−	1998 12 18	734	0.1+	0.1+	1999 01 24	658	0.0	0.6−
1998 12 17	704	0.2+	1.4−	1998 12 18	108	1.2+	0.3−	1999 01 26	402	0.2−	0.1−
1998 12 17	704	0.5+	0.4+	1998 12 18	108	0.5−	1.8−	1999 01 26	402	0.1−	0.2+
1998 12 17	704	0.3+	0.3+	1998 12 23	402	0.2−	0.7−	1999 01 26	402	0.9−	0.0
1998 12 17	704	0.8−	0.6−	1998 12 23	402	0.2−	1.0−	1999 03 20	658	0.7+	0.5+
1998 12 17	704	0.2+	0.3−	1998 12 23	402	0.1+	0.7−	1999 03 20	658	0.3+	1.1+
1998 12 17	704	0.5+	0.7−	1998 12 28	402	0.2−	0.7−	1999 03 20	658	0.4+	0.6−

1999 DEC. 22

1998 XY₉₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden

(2000.0)				P	Q
<i>M</i>	337.39454				
<i>n</i>	0.00201907	ω	84.08246	−0.65630686	−0.74966489
<i>a</i>	61.9966348	Ω	47.31191	+0.63822407	−0.61186172
<i>e</i>	0.3772220	<i>i</i>	6.65831	+0.40240692	−0.25224549
<i>P</i>	488	<i>H</i>	6.1	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1998 12 12	950	0.4−	0.8−	1999 02 09	709	0.6+	0.5+	1999 02 10	709	0.5+	0.7−
1998 12 13	950	0.4+	0.6−	1999 02 09	709	0.7−	0.4+	1999 11 30	695	0.1+	0.0
1998 12 13	950	0.3+	0.5−	1999 02 09	709	0.2−	0.7+	1999 11 30	695	0.0	0.0
1998 12 13	950	0.1−	0.6−	1999 02 09	709	0.6+	1.6+	1999 11 30	695	0.0	0.1+
1998 12 14	950	0.0	0.6−	1999 02 09	709	1.1−	1.1+	1999 11 30	695	0.1+	0.1+
1999 01 18	709	0.5+	0.3+	1999 02 09	709	1.4−	1.6+	1999 12 13	709	1.4+	0.5+
1999 01 19	709	0.1+	0.3−	1999 02 09	709	0.3−	1.4+	1999 12 13	709	0.9−	0.0
1999 01 19	709	0.9−	0.2+	1999 02 10	709	0.3+	0.7−	1999 12 13	709	0.2+	0.9−
1999 01 19	709	0.8+	0.8−	1999 02 10	709	0.9+	0.5−	1999 12 13	709	0.9−	0.4−
1999 01 19	709	0.4−	0.2+	1999 02 10	709	0.2+	1.1−				

1999 CW₇

Id. DANEOPS (1993 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

(2000.0)				P	Q
<i>M</i>	91.42798				
<i>n</i>	0.39945549	ω	125.03141	−0.35010362	−0.93444942
<i>a</i>	1.8259566	Ω	345.04539	+0.75618070	−0.24096031
<i>e</i>	0.2871184	<i>i</i>	14.60101	+0.55282746	−0.26218775
<i>P</i>	2.47	<i>H</i>	16.4	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1993 09 24	675	0.6+	1.1+	1999 02 15	428	0.1+	0.3−	1999 03 17	557	0.0	0.2−
1993 09 24	675	0.9−	0.9+	1999 02 15	151	0.5−	0.1−	1999 03 19	704	0.1−	0.8−
1999 02 10	704	0.5−	0.1−	1999 02 15	151	0.3+	0.2−	1999 03 19	704	(0.9+	2.8−)
1999 02 10	704	0.4+	0.0	1999 02 15	151	0.2+	0.1−	1999 03 19	704	1.9−	1.1+
1999 02 10	704	0.7−	0.2−	1999 02 15	151	0.3+	0.0	1999 03 19	704	0.6−	0.3−
1999 02 10	704	(0.9−	2.2+)	1999 02 15	046	0.0	0.4+	1999 03 20	704	0.2−	0.4+
1999 02 13	699	0.8+	0.9+	1999 02 15	046	0.1+	0.4+	1999 03 20	704	0.3+	0.8+
1999 02 13	699	0.9+	0.7+	1999 02 15	046	0.0	0.5+	1999 03 20	704	0.0	0.9+
1999 02 13	699	0.7+	0.8+	1999 02 15	046	0.1+	0.5+	1999 03 20	704	0.9−	1.4+
1999 02 13	704	0.2−	0.5−	1999 02 15	557	0.3−	0.5−	1999 03 20	704	1.3−	0.1+
1999 02 13	704	0.4+	0.0	1999 02 15	557	0.4−	0.5−	1999 03 23	699	0.9+	1.0+
1999 02 13	704	0.4+	0.4−	1999 02 15	557	0.5−	0.4−	1999 03 23	699	0.6+	1.5+
1999 02 13	704	0.1+	0.7+	1999 03 12	557	0.2+	0.1+	1999 03 23	699	0.8+	1.3+
1999 02 13	704	0.7+	1.0+	1999 03 12	557	0.2+	0.3+	1999 04 15	118	0.2−	1.5−
1999 02 15	761	0.1+	0.0	1999 03 12	557	0.0	0.1+	1999 04 15	118	0.5+	1.1−
1999 02 15	761	0.5−	0.0	1999 03 12	557	0.2+	0.1+	1999 04 15	118	0.1+	0.7−
1999 02 15	747	0.2−	0.4−	1999 03 13	557	0.2+	0.1−	1999 05 07	704	1.5−	0.4−
1999 02 15	732	0.5−	0.9−	1999 03 13	557	0.2+	0.2−	1999 05 07	704	1.7+	0.8−
1999 02 15	732	0.0	0.4−	1999 03 13	557	0.2+	0.0	1999 05 07	704	0.5+	1.2−
1999 02 15	732	0.3+	1.0−	1999 03 13	557	0.1+	0.2−	1999 05 07	704	0.8−	1.0−
1999 02 15	747	0.2−	0.3−	1999 03 15	118	0.2−	0.4−	1999 05 08	704	0.3+	0.7+
1999 02 15	658	0.2−	0.3+	1999 03 15	118	0.2−	0.3−	1999 05 08	704	0.8+	0.5+
1999 02 15	747	0.2−	0.2−	1999 03 15	118	0.2−	0.4−	1999 05 08	704	0.1+	1.4+
1999 02 15	658	0.4−	0.3−	1999 03 17	557	0.2+	0.1−	1999 05 08	704	1.7+	1.7+
1999 02 15	658	0.5−	0.8−	1999 03 17	557	0.0	0.2−	1999 05 08	704	0.3+	1.0−
1999 02 15	428	0.4−	0.8−	1999 03 17	557	0.2+	0.3−				

1999 DEC. 22

M.P.C. 37179

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	332.78653		(2000.0)	P	Q
<i>n</i>	0.23276634	ω	88.23892	+0.97391136	-0.00725730
<i>a</i>	2.6173146	Ω	272.13098	-0.08520754	+0.91466101
<i>e</i>	0.1053472	<i>i</i>	13.11873	+0.21032436	+0.40415662
<i>P</i>	4.23	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1974 10 11	033	0.1+	0.5-	1999 07 22	704	0.0	0.0	1999 10 09	704	0.3-	0.7+
1974 10 11	033	0.2+	0.3-	1999 09 08	704	0.3+	0.4+	1999 10 09	704	0.8+	0.2+
1982 07 24	413	0.0	0.9-	1999 09 08	704	0.4-	0.3+	1999 10 09	704	0.5+	0.3-
1982 07 24	413	0.2+	0.0	1999 09 08	704	0.0	0.1+	1999 10 09	704	0.2+	1.1-
1999 07 12	704	0.0	0.1+	1999 09 08	704	1.8-	0.2-	1999 11 06	704	0.2-	0.1+
1999 07 12	704	0.1+	0.1-	1999 09 08	704	0.2-	0.8+	1999 11 06	704	0.2+	0.1+
1999 07 12	704	0.6+	0.8-	1999 09 10	704	0.1+	0.1-	1999 11 06	704	0.1+	0.4+
1999 07 12	704	0.4+	0.4+	1999 09 10	704	0.1+	0.2+	1999 11 06	704	1.3+	0.8+
1999 07 12	704	0.1+	0.2+	1999 09 10	704	0.5-	0.5+	1999 11 06	704	0.2+	0.9+
1999 07 22	704	0.2+	0.3-	1999 09 16	704	0.6-	0.3-	1999 12 03	704	1.6-	0.5-
1999 07 22	704	0.3+	0.2+	1999 09 16	704	0.2+	0.4-	1999 12 03	704	1.0-	1.2-
1999 07 22	704	0.3+	0.2-	1999 09 16	704	0.3-	0.2-	1999 12 03	704	0.4+	0.2-
1999 07 22	704	0.4+	0.1+	1999 09 16	704	0.7-	0.5+				

1999 NB₅₇ = 1987 XU

Id. A. Gnädig, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	284.41265		(2000.0)	P	Q
<i>n</i>	0.23508675	ω	177.40250	+0.19858167	-0.96003842
<i>a</i>	2.6000635	Ω	261.09078	+0.89557299	+0.25948691
<i>e</i>	0.2297519	<i>i</i>	11.51461	+0.39813860	-0.10484649
<i>P</i>	4.19	<i>H</i>	14.1	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1987 12 15	046	0.1-	0.5-	1999 09 08	704	1.0+	0.2-	1999 10 04	704	1.2-	1.7+
1987 12 15	046	0.8-	0.6-	1999 09 08	704	0.2+	0.4+	1999 11 06	704	0.3+	0.0
1991 10 05	675	1.0+	0.0	1999 09 10	704	0.3+	0.5+	1999 11 06	704	0.2-	0.5-
1991 10 05	675	0.7+	1.4+	1999 09 10	704	0.7+	0.9+	1999 11 06	704	0.4-	0.0
1995 10 26	675	0.6-	0.1+	1999 09 10	704	0.0	0.3+	1999 11 06	704	0.4-	0.9-
1995 10 26	675	1.0-	0.1+	1999 09 16	704	1.0-	0.2-	1999 11 06	704	0.5+	0.3+
1999 07 12	704	0.7+	0.1+	1999 09 16	704	1.1-	1.1-	1999 11 12	703	0.8-	1.1+
1999 07 12	704	0.2-	0.9+	1999 09 16	704	0.7-	0.5-	1999 11 12	703	1.8-	1.0+
1999 07 12	704	0.1+	0.1+	1999 09 16	704	0.2-	0.8-	1999 11 12	703	0.1+	0.4+
1999 07 12	704	0.3+	0.5+	1999 09 16	704	0.4-	1.0-	1999 11 12	703	0.8+	0.9+
1999 07 22	704	0.9+	1.0-	1999 09 30	703	0.3-	0.2+	1999 12 03	704	0.7+	1.6-
1999 07 22	704	0.7+	0.0	1999 09 30	703	0.6-	0.1-	1999 12 03	704	0.3+	0.1-
1999 07 22	704	0.5+	0.1+	1999 09 30	703	0.1-	0.2+	1999 12 03	704	0.0	0.2-
1999 07 22	704	0.6+	0.6-	1999 09 30	703	0.3-	0.1-	1999 12 03	704	0.6-	0.3-
1999 07 22	704	0.9+	0.7+	1999 10 04	704	0.3+	0.8-	1999 12 03	704	0.3+	0.7-
1999 09 08	704	0.7+	0.4-	1999 10 04	704	0.5+	1.0-				

1999 RS

Id. A. Gnädig (1987, 1990 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	291.92353		(2000.0)	P	Q
<i>n</i>	0.17412712	ω	283.16597	+0.07567515	-0.99579595
<i>a</i>	3.1760824	Ω	162.24780	+0.96782888	+0.06089690
<i>e</i>	0.0698424	<i>i</i>	9.74545	+0.23995942	+0.06842503
<i>P</i>	5.66	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1987 09 18	413	0.0	0.2+	1999 09 08	699	0.5+	0.8+	1999 10 02	704	1.6+	0.2-
1987 09 18	413	0.1-	0.3+	1999 09 09	704	0.5-	0.6-	1999 10 03	703	0.7-	0.2+
1990 03 16	675	0.9-	1.0+	1999 09 09	704	0.5-	0.8+	1999 10 03	703	1.1-	0.3-
1990 03 16	675	1.0+	0.1-	1999 09 09	704	0.3-	0.2-	1999 10 03	703	0.3-	0.1-
1999 09 04	557	0.3-	1.6+	1999 09 09	704	0.9-	0.2-	1999 10 03	703	0.2-	0.1-
1999 09 04	557	0.3+	0.0	1999 09 09	704	0.4-	0.5-	1999 11 02	703	0.1-	0.0

1999 09 05	557	0.2+	0.5-	1999 09 10	557	0.2+	0.2-	1999 11 02	703	0.1-	0.6+
1999 09 05	557	0.1+	0.2-	1999 09 10	557	0.2+	0.1-	1999 11 02	703	0.2+	0.6-
1999 09 05	557	0.5+	0.4-	1999 09 20	557	0.0	0.0	1999 11 02	703	0.5-	0.3+
1999 09 08	557	0.0	0.4-	1999 09 20	557	0.1+	0.4-	1999 11 28	557	0.2-	0.7-
1999 09 08	557	0.1-	0.5-	1999 10 02	704	1.5+	0.3-	1999 11 28	557	0.1-	0.4-
1999 09 08	699	0.2+	1.4+	1999 10 02	704	0.3+	0.6+	1999 11 28	557	0.0	0.3-
1999 09 08	699	0.8-	1.5+	1999 10 02	704	1.0+	0.6-				

1999 RG₁ = 1988 AR₂

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	262.40340		(2000.0)	P	Q
<i>n</i>	0.23306346	ω	70.02225	-0.16692029	-0.98245117
<i>a</i>	2.6150897	Ω	29.96813	+0.83083798	-0.18560782
<i>e</i>	0.2063760	<i>i</i>	9.59145	+0.53089158	-0.01842373
<i>P</i>	4.23	<i>H</i>	14.4	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1988 01 11	033	0.1-	0.2-	1999 09 09	704	0.3+	0.6+	1999 09 30	704	0.1+	1.0-
1988 01 11	033	0.1+	0.2+	1999 09 09	704	0.7-	1.1-	1999 10 01	557	0.6+	0.1+
1990 09 19	413	0.1-	0.0	1999 09 09	704	0.8+	0.3+	1999 10 01	557	0.1+	0.0
1999 09 04	557	0.3+	0.5+	1999 09 09	704	0.8+	0.5+	1999 10 04	703	0.8+	0.0
1999 09 05	557	0.3-	0.0	1999 09 10	557	0.0	0.1-	1999 10 04	703	1.1+	0.7+
1999 09 05	557	0.5-	0.1-	1999 09 10	557	0.1+	0.2-	1999 10 04	703	0.1-	0.5-
1999 09 05	557	1.0-	0.4-	1999 09 12	557	0.3+	0.2-	1999 10 04	703	0.2-	0.0
1999 09 05	557	0.9-	0.6-	1999 09 12	557	0.0	0.4-	1999 10 31	557	0.4-	0.6+
1999 09 05	557	1.1-	0.5-	1999 09 12	557	0.0	0.2-	1999 10 31	557	0.2-	0.7+
1999 09 07	699	0.2-	0.6+	1999 09 30	704	0.3-	0.5+	1999 11 29	557	0.6+	0.3-
1999 09 07	699	0.7-	0.7+	1999 09 30	704	0.5+	0.3+	1999 11 29	557	0.6-	0.2+
1999 09 07	699	0.1-	0.8+	1999 09 30	704	0.0	0.2-	1999 11 29	557	0.7-	0.3-
1999 09 09	704	0.7+	0.0	1999 09 30	704	0.8+	0.7-				

1999 RC₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	8.96130		(2000.0)	P	Q
<i>n</i>	0.47832432	ω	347.69778	+0.76071397	+0.61715175
<i>a</i>	1.6192767	Ω	331.01438	-0.55480438	+0.45742107
<i>e</i>	0.1484954	<i>i</i>	24.51764	-0.33690705	+0.64022627
<i>P</i>	2.06	<i>H</i>	16.2	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1989 12 22	675	0.9-	0.3+	1999 09 10	046	0.2+	0.2+	1999 10 11	744	0.2+	0.3+
1989 12 22	675	0.8+	0.5-	1999 09 10	046	0.2+	0.3+	1999 10 11	744	0.4-	0.1-
1999 09 06	703	0.3+	0.5+	1999 09 10	046	0.3+	0.1+	1999 10 20	402	0.2-	0.3-
1999 09 06	703	0.2-	0.1+	1999 09 11	046	0.1+	0.1-	1999 10 20	402	0.1+	0.2-
1999 09 06	703	0.5-	0.2+	1999 09 11	046	0.2+	0.0	1999 10 21	402	0.1+	0.3-
1999 09 06	703	0.2+	0.5-	1999 09 11	046	0.1+	0.1-	1999 10 21	402	0.0	0.2-
1999 09 06	658	0.7+	0.7-	1999 09 11	046	0.2+	0.1-	1999 10 27	723	1.3+	0.5-
1999 09 06	658	0.6+	0.3-	1999 09 13	703	0.1+	0.1-	1999 10 27	723	0.7+	0.1-
1999 09 06	658	0.4+	0.4-	1999 09 13	703	0.3+	0.2+	1999 10 27	723	0.5+	0.4-
1999 09 07	703	0.1+	0.3-	1999 09 13	703	0.6-	0.5+	1999 11 03	049	0.3-	0.1-
1999 09 07	703	0.1-	0.0	1999 09 13	703	0.1+	0.8+	1999 11 03	049	0.3-	0.3-
1999 09 07	703	0.6-	0.1+	1999 09 27	848	0.2+	0.6-	1999 11 03	049	0.8-	0.0
1999 09 07	703	0.2+	0.1-	1999 09 27	848	0.1+	0.3-	1999 11 18	118	0.2+	0.1-
1999 09 07	703	0.1-	0.5+	1999 09 28	848	0.2+	0.3+	1999 11 18	118	0.5+	0.2-
1999 09 07	703	0.1+	0.4+	1999 09 28	848	0.0	0.1-	1999 11 28	587	0.6-	1.0+
1999 09 07	703	0.2-	0.1+	1999 09 28	848	0.1-	0.2+	1999 11 28	587	0.3-	0.6+
1999 09 07	703	0.7-	0.2-	1999 09 29	848	0.1+	0.3-	1999 11 28	587	0.5-	0.7-
1999 09 08	703	0.8+	0.4+	1999 10 05	704	1.0-	0.4-	1999 12 12	704	0.2+	0.6+
1999 09 08	703	1.4-	1.2+	1999 10 05	704	1.5-	0.9-	1999 12 12	704	0.0	0.4+
1999 09 08	703	1.8+	0.2+	1999 10 05	704	0.9-	0.9-	1999 12 12	704	0.1-	0.5+
1999 09 09	703 (5.9-	4.7+)		1999 10 05	704	1.0-	0.9-	1999 12 12	704	1.0+	0.1-
1999 09 10	046	0.2+	0.1-	1999 10 05	704	1.4-	0.4-	1999 12 12	704	1.0+	0.9+
1999 09 10	046	0.1+	0.2+	1999 10 09	900	0.5+	0.3+				
1999 09 10	046	0.0	0.3+	1999 10 09	900	0.0	0.4+				

1999 RJ₁₀ = 1976 SG₈ = 1982 SN₁₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	357.99583		(2000.0)		P		Q				
<i>n</i>	0.17131811	<i>ω</i>	300.06068		+0.77689950		+0.62960944				
<i>a</i>	3.2107060	<i>Ω</i>	20.91900		−0.57337083		+0.71034001				
<i>e</i>	0.2484870	<i>i</i>	0.70176		−0.26014047		+0.31465699				
<i>P</i>	5.75	<i>H</i>	14.3		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1976 09 28	095	0.2+	0.4−	1999 09 07	704	0.1−	0.0	1999 09 08	704	0.1−	0.3+
1982 09 27	095	0.1−	0.3+	1999 09 07	704	0.2+	0.7−	1999 09 08	704	0.1−	0.2−
1999 09 07	704	0.5+	0.2−	1999 09 07	704	0.2−	0.2+	1999 09 08	704	0.1+	0.3−
1999 09 07	704	0.0	0.2+	1999 09 08	704	0.3+	0.8+	1999 09 08	704	0.6−	0.1+

1999 RK₁₂ = 1993 FK₆₇

Id. G. V. Williams, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	352.65351		(2000.0)		P		Q				
<i>n</i>	0.21680526	<i>ω</i>	124.90777		+0.95287083		+0.30146821				
<i>a</i>	2.7442447	<i>Ω</i>	217.57899		−0.29334005		+0.88698852				
<i>e</i>	0.0554219	<i>i</i>	3.19333		−0.07738734		+0.34981178				
<i>P</i>	4.55	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1993 03 21	809	3.5−	0.7+	1999 09 08	704	0.2−	1.3+	1999 09 14	704	0.5+	0.2+
1993 03 21	809	3.5+	0.4+	1999 09 08	704	0.5+	0.2−	1999 09 14	704	0.4−	0.2+
1993 03 22	809	0.1−	1.3−	1999 09 09	704	0.3−	0.3−	1999 09 14	704	0.4+	0.3−
1999 09 07	704	0.1−	0.0	1999 09 09	704	0.1−	0.4+	1999 10 02	703	0.2+	0.4−
1999 09 07	704	0.0	0.3−	1999 09 09	704	0.0	0.0	1999 10 02	703	0.8+	0.1+
1999 09 07	704	0.8−	0.5−	1999 09 09	704	0.6+	0.8+	1999 10 02	703	0.1−	0.2+
1999 09 07	704	0.2−	0.0	1999 09 09	704	0.5+	0.2+	1999 10 02	703	0.8−	0.6−
1999 09 07	704	0.1−	0.0	1999 09 14	704	0.6−	0.2+				
1999 09 08	704	0.1+	0.6−	1999 09 14	704	0.2+	0.5−				

1999 RN₁₄

Id. A. Doppler (1996, 1998 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	347.70895		(2000.0)			P		Q		
<i>n</i>	0.31710106	<i>ω</i>	164.43934			+0.97623536		+0.21670102		
<i>a</i>	2.1297940	<i>Ω</i>	183.04808			−0.20311802		+0.91128226		
<i>e</i>	0.1206167	<i>i</i>	2.45297			−0.07554855		+0.35015041		
<i>P</i>	3.11	<i>H</i>	16.4		<i>G</i>	0.15		<i>U</i>	3	
Residuals in seconds of arc										
1996 11 29	327	0.3+	0.5+	1999 09 07	704	0.1−	0.8+	1999 09 14	704	0.6− 0.0
1996 11 29	327	0.7−	0.2+	1999 09 08	704	0.2−	0.2−	1999 09 14	704	0.1+ 0.0
1996 11 29	327	0.2−	1.0+	1999 09 08	704	0.8−	1.0+	1999 10 01	704	1.2+ 0.0
1998 03 05	910	0.1−	0.3+	1999 09 08	704	0.5−	0.3+	1999 10 01	704	0.8+ 0.4−
1998 03 06	910	0.5+	0.5+	1999 09 08	704	0.1−	0.0	1999 10 01	704	1.7+ 0.9−
1998 03 06	910	0.1+	0.5+	1999 09 09	704	0.8−	0.3−	1999 10 01	704	0.4− 0.6−
1999 08 08	699	0.7−	1.3+	1999 09 09	704	0.3−	0.3−	1999 10 01	704	0.5− 0.8+
1999 08 08	699	1.3+	0.7+	1999 09 09	704	0.2+	0.2−	1999 10 01	704	0.5+ 0.8−
1999 08 08	699	0.5+	0.1+	1999 09 09	704	0.1+	0.3−	1999 10 01	704	0.2− 1.0−
1999 09 07	704	0.3−	0.1−	1999 09 09	704	0.2+	0.2+	1999 10 08	704	0.2− 0.3+
1999 09 07	704	0.5−	0.7+	1999 09 14	704	1.5+	0.1−	1999 10 08	704	0.2+ 0.1+
1999 09 07	704	0.5−	0.3−	1999 09 14	704	0.0	0.2−	1999 10 08	704	0.4+ 0.2+
1999 09 07	704	0.1−	0.2+	1999 09 14	704	0.8−	0.5−	1999 10 08	704	1.1− 0.3−

1999 RK₂₅ = 1994 RK₂₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	352.23416		(2000.0)		P		Q				
<i>n</i>	0.20069117	<i>ω</i>	12.46884		+0.99931772		−0.02501863				
<i>a</i>	2.8892417	<i>Ω</i>	348.85737		+0.00723004		+0.85390242				
<i>e</i>	0.3139521	<i>i</i>	8.08194		+0.03621907		+0.51983144				
<i>P</i>	4.91	<i>H</i>	15.1		<i>G</i>	0.15	<i>U</i>	3			
Residuals in seconds of arc											
1994 09 05	809	0.3−	0.9−	1999 09 07	704	0.0	0.2+	1999 09 08	699	0.1+	0.4+
1994 09 05	809	0.5+	1.0−	1999 09 07	704	0.9−	0.5−	1999 12 05	704	1.3+	0.5−
1994 09 05	809	0.7−	0.7−	1999 09 08	699	0.2−	0.3+	1999 12 05	704	0.4−	0.8−
1994 09 06	809	0.3+	1.0+	1999 09 08	704	0.8+	0.5+	1999 12 05	704	0.5−	0.8+
1994 09 06	809	0.1+	1.1+	1999 09 08	704	0.3−	0.3−	1999 12 05	704	1.7−	1.0+
1994 09 06	809	0.1−	0.9+	1999 09 08	704	0.5−	0.5+	1999 12 06	704	0.2+	0.3+
1999 09 07	704	1.0+	0.5−	1999 09 08	699	0.7−	0.2+	1999 12 06	704	0.8+	0.6+
1999 09 07	704	0.2+	0.2−	1999 09 08	704	0.4+	0.0	1999 12 06	704	0.1+	1.3−
1999 09 07	704	1.0+	0.3−	1999 09 08	704	0.5−	0.5−				

1999 RG₂₇ = 1991 TD₁₃

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	330.45573		(2000.0)		P		Q				
<i>n</i>	0.37299096	<i>ω</i>	23.03054		+0.88810833		−0.45857860				
<i>a</i>	1.9113366	<i>Ω</i>	4.63560		+0.33844556		+0.60661508				
<i>e</i>	0.1746075	<i>i</i>	22.65747		+0.31099549		+0.64940265				
<i>P</i>	2.64	<i>H</i>	16.4		<i>G</i>	0.15	<i>U</i>	2			
Residuals in seconds of arc											
1975 08 08	413	1.2−	0.1+	1999 09 09	704	0.2+	0.4+	1999 10 12	704	0.8−	0.8−
1975 08 08	413	0.7+	0.3−	1999 09 09	704	0.2+	0.4+	1999 10 31	703	(2.2−	0.9+)
1991 10 05	413	0.8+	0.8+	1999 09 09	704	0.2+	0.5+	1999 10 31	703	0.7+	0.3−
1991 10 05	413	(2.5+	0.7−)	1999 09 09	704	0.4+	0.1−	1999 10 31	703	1.1−	0.4+
1999 09 05	699	0.7+	0.7+	1999 10 01	703	0.4−	0.8+	1999 10 31	703	0.0	0.1−
1999 09 05	699	1.5−	0.3+	1999 10 01	703	0.7−	0.8+	1999 12 12	704	0.2−	0.0
1999 09 05	699	1.0−	0.3−	1999 10 01	703	0.4−	0.6+	1999 12 12	704	0.5−	0.4−
1999 09 07	704	0.3+	0.1+	1999 10 01	703	0.4−	0.5+	1999 12 12	704	1.0−	0.7−
1999 09 07	704	0.1+	0.7−	1999 10 03	704	0.5+	0.3−	1999 12 12	704	1.2−	0.6+
1999 09 07	704	0.5−	0.2−	1999 10 03	704	0.8+	0.9−	1999 12 12	704	0.6+	0.9+
1999 09 08	704	0.2+	1.0+	1999 10 03	704	0.3+	0.6−	1999 12 12	704	1.3+	1.2−
1999 09 08	704	0.2+	0.3−	1999 10 03	704	0.5+	0.5−	1999 12 12	704	0.0	0.8+
1999 09 08	704	0.3+	0.5+	1999 10 12	704	0.2−	0.8−	1999 12 12	704	0.3+	1.2+
1999 09 08	704	0.6−	0.1+	1999 10 12	704	0.0	0.8−	1999 12 12	704	0.6+	1.5+
1999 09 08	704	0.3+	0.4−	1999 10 12	704	0.2+	0.6−				
1999 09 09	704	0.5+	0.1−	1999 10 12	704	0.3+	1.2−				

1999 RU₂₇

Id. A. Gnädig (1985, 1990, 1991 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	283.19881		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$				
n	0.17015061	ϖ	81.60063		+0.19965049		-0.97975434				
a	3.2253762	Ω	356.76736		+0.76279478		+0.16492910				
e	0.1110366	i	15.28981		+0.61504781		+0.11348936				
P	5.79	H	13.5	G	0.15	U	2				
Residuals in seconds of arc											
1985 03 03	413	0.9+	1.2+	1999 09 08	120	0.2+	1.0-	1999 09 14	704	0.2-	0.0
1990 01 05	675	1.0-	1.0+	1999 09 09	120	0.8+	1.9-	1999 09 14	704	0.5-	0.3-
1990 01 05	675	1.3+	0.5-	1999 09 09	120	(3.0+ 0.1-)		1999 09 14	704	0.1-	0.3+
1991 04 11	413	0.4+	0.3-	1999 09 09	120	0.6-	0.8-	1999 09 14	704	0.3-	0.0
1991 04 11	413	0.0	0.6+	1999 09 09	704	0.8-	0.7-	1999 09 29	120	0.4-	0.5+
1999 08 22	703	0.3-	1.0+	1999 09 09	704	0.5-	0.1-	1999 09 29	120	0.8+	1.0+
1999 08 22	703	0.2-	0.3+	1999 09 09	704	0.7-	1.8-	1999 10 02	691	0.0	0.7+
1999 08 22	703	0.2+	0.8+	1999 09 09	704	0.6-	0.8-	1999 10 02	691	0.2+	0.3+
1999 08 22	703	0.1-	0.0	1999 09 09	704	(1.2- 2.3-)		1999 10 02	691	0.3+	0.3+
1999 09 05	699	(0.1+ 2.6+)		1999 09 10	734	0.4+	1.1+	1999 10 07	704	0.5-	0.1-

1999 DEC. 22

M.P.C. 37181

1999 09 05	699	(0.4− 2.5+)	1999 09 10	734	0.1− 0.9+	1999 10 07	704	0.0 0.5+
1999 09 05	699	0.3− 1.4+	1999 09 10	734	0.1+ 1.0+	1999 10 07	704	0.0 0.4+
1999 09 07	704	0.0 0.4−	1999 09 10	734	0.2− 0.9+	1999 10 07	704	0.4+ 1.0+
1999 09 07	704	0.2+ 1.2−	1999 09 10	734	0.1− 0.8+	1999 10 07	704	0.0 1.0+
1999 09 07	704	0.6+ 0.9−	1999 09 10	734	0.0 0.8+	1999 11 01	703	0.3+ 1.3+
1999 09 07	704	0.0 0.2−	1999 09 11	120	0.5+ 0.1+	1999 11 01	703	0.5+ 0.7+
1999 09 07	704	0.2+ 0.3−	1999 09 11	120	0.5− 0.2−	1999 11 01	703	0.3+ 0.7+
1999 09 07	120	0.5− 1.2−	1999 09 13	120	0.6− 0.3−	1999 11 01	703	1.2+ 0.0
1999 09 08	120	0.1− 1.8−	1999 09 13	120	1.2− 0.2−	1999 11 01	691	0.4+ 0.5+
1999 09 08	120	0.2− 1.0−	1999 09 13	120	0.1− 0.1−	1999 11 01	691	0.3+ 0.6+
1999 09 08	120	0.7+ 2.3−	1999 09 14	704	0.5− 0.0	1999 11 01	691	0.4+ 0.6+

1999 RE₃₅ = 1989 EJ₇

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	104.61000		(2000.0)	P	Q
<i>n</i>	0.22721546	<i>ω</i>	163.39919	−0.71175049	+0.70045724
<i>a</i>	2.6597703	<i>Ω</i>	61.18640	−0.65110421	−0.62976639
<i>e</i>	0.0437099	<i>i</i>	3.44426	−0.26358025	−0.33578856
<i>P</i>	4.34	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1982 11 07	413	1.0+ 0.2+	1999 09 09	704	0.4− 0.9+	1999 09 16	684	0.2− 0.5−
1982 11 07	413	0.8− 0.7−	1999 09 09	704	0.3+ 1.0+	1999 09 18	684	0.1+ 0.0
1989 03 06	033	0.4− 0.8−	1999 09 09	704	1.1− 1.2+	1999 09 18	684	0.2− 0.0
1989 03 06	033	0.2− 0.6−	1999 09 11	684	0.4+ 0.2+	1999 09 30	684	0.2+ 0.3−
1991 10 06	675	0.2− 0.5+	1999 09 11	684	0.1+ 0.2−	1999 09 30	684	0.1+ 0.4−
1997 01 10	675	0.6− 0.3+	1999 09 12	684	0.1− 0.4−	1999 09 30	704	0.2+ 0.2+
1997 01 10	675	0.5+ 0.4−	1999 09 12	684	0.4− 0.2−	1999 09 30	704	0.5+ 0.2+
1999 09 07	704	0.6− 0.9−	1999 09 13	704	0.3+ 0.6−	1999 09 30	704	1.6+ 0.1+
1999 09 07	704	0.2− 0.3+	1999 09 13	704	0.1+ 0.3+	1999 10 31	684	0.3+ 0.0
1999 09 07	704	0.3− 0.0	1999 09 13	704	0.4− 0.3−	1999 10 31	684	0.4+ 0.7−
1999 09 07	704	0.2− 0.1−	1999 09 13	704	0.1+ 0.4−	1999 11 01	684	0.2+ 0.3−
1999 09 07	704	0.6− 0.5−	1999 09 13	704	0.5+ 0.2−	1999 11 01	684	0.9+ 0.6−
1999 09 09	704	0.8− 1.1+	1999 09 16	684	0.2+ 0.4−			

1999 RH₃₅ = 1978 NB₂ = 1982 VX₄ = 1982 XV₄ = 1998 FS₄₀Id. G. V. Williams (*MPC* 36038, unpublished), M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	28.02137		(2000.0)	P	Q
<i>n</i>	0.28596961	<i>ω</i>	138.61743	+0.67153128	+0.74095081
<i>a</i>	2.2816873	<i>Ω</i>	173.55935	−0.69340457	+0.63131541
<i>e</i>	0.1912967	<i>i</i>	3.13518	−0.26121992	+0.22898199
<i>P</i>	3.45	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1978 07 06	095	0.2− 1.6+	1999 09 05	699	0.5− 0.5+	1999 10 12	711	0.1+ 0.3−
1982 11 14	381	0.4− 1.9+	1999 09 10	164	1.0− 0.3−	1999 10 12	711	0.2+ 0.3−
1982 11 14	381	0.5+ 0.4+	1999 09 10	164	0.9+ 0.8−	1999 10 12	711	0.4+ 0.3−
1982 12 13	381	1.1− 0.2+	1999 09 10	164	0.9+ 0.3+	1999 10 13	704	0.2+ 0.8−
1982 12 13	381	(3.3− 0.9−)	1999 09 10	164	1.1+ 0.2−	1999 10 13	704	0.1+ 0.9−
1982 12 14	381	0.4− 0.5+	1999 09 12	164	1.0− 1.2+	1999 10 13	704	0.0 0.7−
1982 12 14	381	(3.8+ 0.0)	1999 09 12	164	0.7+ 0.4+	1999 10 13	704	0.3+ 0.4−
1982 12 14	381	0.1− 0.4+	1999 09 12	164	0.3− 0.2+	1999 10 13	704	0.5+ 0.7−
1982 12 14	381	0.3+ 1.1+	1999 09 12	164	1.7− 0.1−	1999 10 15	704	0.3+ 0.2−
1998 02 25	566	0.0 0.2+	1999 09 16	120	0.7+ 0.7−	1999 10 15	704	0.1− 0.4−
1998 02 25	566	0.1+ 0.2−	1999 09 16	120	1.0+ 0.3+	1999 10 15	704	0.3+ 0.6−
1998 02 25	566	0.1+ 0.0	1999 09 16	120	0.4+ 0.3+	1999 10 15	704	0.0 0.7−
1998 03 20	704	0.7− 1.6+	1999 09 17	120	0.1− 0.2−	1999 10 15	704	0.2− 0.7−
1998 03 20	704	0.7+ 1.1+	1999 09 18	120	0.6+ 0.3+	1999 10 28	699	0.1+ 1.1+
1998 03 20	704	0.5− 0.9+	1999 10 01	699	0.0 0.7+	1999 10 28	699	0.2− 0.5+
1998 03 20	704	1.9− 1.3−	1999 10 01	699	0.0 1.1+	1999 10 28	699	0.1− 0.6+
1998 03 22	704	0.6− 1.1−	1999 10 01	699	0.1+ 1.1+	1999 10 30	691	0.6+ 0.2−
1998 03 22	704	0.3+ 0.5+	1999 10 02	703	0.0 0.3+	1999 10 30	691	0.7+ 0.3−
1998 03 22	704	0.1− 1.7−	1999 10 02	703	0.0 0.2+	1999 10 30	691	0.3+ 0.4−
1998 03 22	704	0.5− 0.1+	1999 10 02	703	0.2− 0.4+	1999 11 04	691	0.2+ 0.6+

1998 03 22	704	0.0 0.4−	1999 10 02	703	0.1+ 0.6+	1999 11 04	691	0.0 0.3−
1998 03 29	704	0.6+ 0.9−	1999 10 04	704	0.1+ 0.5−	1999 11 04	691	0.0 0.2−
1998 03 29	704	0.3− 0.0	1999 10 04	704	0.1+ 0.5−	1999 11 06	704	0.4+ 0.1−
1998 03 29	704	0.3− 1.1−	1999 10 04	704	0.1− 0.2−	1999 11 06	704	0.3+ 0.2−
1998 03 29	704	0.9− 0.6−	1999 10 04	704	0.1− 0.2−	1999 11 06	704	0.2− 0.5−
1998 03 29	704	1.1− 0.7−	1999 10 04	704	0.3+ 0.4−	1999 11 06	704	0.1− 1.4−
1998 04 19	704	1.4+ 0.4−	1999 10 07	704	0.4− 0.3−	1999 11 06	704	0.4+ 0.3−
1998 04 19	704	0.3+ 1.0−	1999 10 07	704	0.3− 0.1−	1999 11 27	699	0.0 0.5+
1998 04 19	704	0.2+ 0.5−	1999 10 07	704	0.5− 0.3+	1999 11 27	699	0.0 0.7+
1998 04 19	704	0.9+ 0.1+	1999 10 07	704	0.2− 0.1+	1999 11 27	699	0.5− 1.5+
1998 04 19	704	1.6+ 1.8+	1999 10 07	704	0.2− 0.1−	1999 12 07	704	1.0− 0.0
1999 08 13	699	0.2+ 0.0	1999 10 09	704	0.3− 0.1−	1999 12 07	704	0.4+ 0.1+
1999 08 13	699	0.0 0.1−	1999 10 09	704	0.4− 0.5−	1999 12 07	704	0.0 0.9−
1999 08 13	699	0.7+ 1.5−	1999 10 09	704	0.3− 0.6−	1999 12 07	704	0.1+ 0.4+
1999 09 05	699	0.5− 0.6+	1999 10 09	704	0.3− 0.7−	1999 12 07	704	0.1− 0.0
1999 09 05	699	0.4− 0.0	1999 10 09	704	0.2− 0.5−			

1999 RK₃₇ = 1986 RL₂

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	300.79600		(2000.0)	P	Q
<i>n</i>	0.36983528	<i>ω</i>	45.16698	+0.93287684	−0.28557288
<i>a</i>	1.9221937	<i>Ω</i>	329.34314	+0.05390506	+0.71326915
<i>e</i>	0.0752841	<i>i</i>	25.50052	+0.35613907	+0.64007441
<i>P</i>	2.66	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1954 10 04	675	1.2− 0.5+	1999 09 13	704	0.3− 0.3+	1999 09 29	704	0.8+ 0.3−
1954 10 04	675	0.2+ 0.6+	1999 09 13	704	0.4− 0.1−	1999 09 29	704	0.6+ 0.2−
1986 09 06	675	0.0 0.6+	1999 09 13	704	0.5− 0.3−	1999 09 29	704	0.1+ 0.3+
1986 09 06	675	0.3+ 1.1−	1999 09 13	704	0.3− 0.3−	1999 09 29	704	0.0 0.5+
1990 01 26	675	0.8− 0.0	1999 09 13	704	0.4− 0.1+	1999 11 08	704	0.3+ 0.0
1990 01 26	675	0.3+ 0.7−	1999 09 14	704	0.6− 0.0	1999 11 08	704	0.2− 0.1+
1999 09 11	704	0.3+ 0.2+	1999 09 14	704	0.5− 0.8+	1999 11 08	704	0.3+ 0.3−
1999 09 11	704	0.6+ 0.0	1999 09 14	704	0.7− 0.4+	1999 11 08	704	0.5+ 0.1+
1999 09 11	704	0.9+ 0.1+	1999 09 14	704	0.0 0.2+	1999 11 08	704	0.4+ 0.4−
1999 09 11	704	0.6+ 0.9−	1999 09 14	704	0.8− 0.0			
1999 09 11	704	0.6+ 0.4+	1999 09 29	704	0.5+ 2.0−			

1999 RP₃₉ = 1988 VM₈

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	351.05742		(2000.0)	P	Q
<i>n</i>	0.17400710	<i>ω</i>	329.81814	+0.99676931	−0.02887009
<i>a</i>	3.1775428	<i>Ω</i>	32.09946	+0.06281328	+0.86175344
<i>e</i>	0.2004885	<i>i</i>	8.10829	−0.05005426	+0.50650521
<i>P</i>	5.66	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1982 10 15	413	0.1− 0.9−	1999 09 14	704	0.4+ 0.5−	1999 10 07	704	0.6− 0.7−
1982 10 15	413	0.7+ 0.2−	1999 09 14	704	0.4+ 0.3−	1999 10 07	704	0.4+ 0.8+
1988 11 04	033	0.9− 0.8−	1999 09 14	704	0.3+ 0.3−	1999 10 11	727	0.1− 0.1−
1988 11 04	033	1.3+ 0.2+	1999 09 14	704	0.5+ 0.4−	1999 10 11	727	0.4− 0.1+
1999 09 05	699	0.3− 1.1+	1999 09 14	704	0.3+ 0.5−	1999 10 11	727	0.4− 0.3+
1999 09 05	699	0.1− 1.0+	1999 09 17	727	0.3+ 0.6−	1999 10 20	727	0.7− 0.7+
1999 09 05	699	0.2− 1.0+	1999 09 17	727	0.5+ 0.5−	1999 10 20	727	0.7− 0.4+
1999 09 07	704	0.0 0.1−	1999 09 17	727	0.5+ 0.6−	1999 10 20	727	1.4− 0.2+
1999 09 07	704	0.2+ 0.7−	1999 09 22	727	0.1+ 0.1+	1999 11 03	727	0.5− 1.0+
1999 09 07	704	0.6− 0.4−	1999 09 22	727	0.2− 0.1+	1999 11 03	727	0.4− 0.6+
1999 09 07	704	0.9− 1.0−	1999 09 30	727	0.3− 0.4+	1999 11 03	727	0.8− 0.2+
1999 09 07	704	0.9− 1.4−	1999 09 30	727	0.1− 0.2+	1999 11 16	727	0.1− 0.5+
1999 09 08	703	0.8− 0.2+	1999 09 30	727	0.3− 0.5+	1999 11 16	727	0.6− 0.8+</

1999 09 09	704	0.4+	0.4−	1999 10 02	704	1.3+	0.4+	1999 12 02	704	0.9+	1.7−
1999 09 09	704	0.2+	1.0−	1999 10 07	704	0.1+	0.2+	1999 12 02	704	0.4+	0.9−
1999 09 09	704	0.2−	1.0−	1999 10 07	704	0.2+	0.4+	1999 12 02	704	0.7+	1.8−
1999 09 09	704	0.3−	0.9−	1999 10 07	704	0.1−	0.7+	1999 12 07	704	0.5−	0.7−
1999 09 13	727	0.6+	0.7−	1999 10 07	704	0.2−	0.4+	1999 12 07	704	0.2−	0.3−
1999 09 13	727	0.5+	0.0	1999 10 07	704	0.3+	0.6+	1999 12 07	704	0.0	0.1+
1999 09 14	727	0.3+	0.4−	1999 10 07	704	0.1−	0.5+	1999 12 07	704	0.2+	0.3+
1999 09 14	727	0.5+	0.5−	1999 10 07	704	0.1−	0.6+	1999 12 07	704	0.1+	0.2−
1999 09 14	727	0.3+	0.7−	1999 10 07	704	0.1+	0.3+				

1999 RV₃₉

Id. A. Gnädig (1991 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	358.07250		(2000.0)	P	Q
<i>n</i>	0.26130494	ω	9.21267	+0.99747640	−0.06985791
<i>a</i>	2.4230979	Ω	354.74319	+0.05307660	+0.85229256
<i>e</i>	0.1648539	<i>i</i>	7.95331	+0.04715625	+0.51837945
<i>P</i>	3.77	<i>H</i>	15.4	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1991 09 06	413	0.6−	0.2−	1999 09 14	703	0.3+	0.0	1999 11 04	704	0.5+	0.0
1991 09 06	413	0.6+	0.1−	1999 10 03	704	0.7+	0.1+	1999 11 04	704	0.4+	0.5−
1999 09 12	703	0.3−	0.9−	1999 10 03	704	0.8−	0.9−	1999 11 11	703	0.2−	0.1+
1999 09 12	703	0.2−	0.7+	1999 10 03	704	0.1−	0.6−	1999 11 11	703	0.4+	0.1+
1999 09 12	703	0.4−	0.8+	1999 10 03	704	0.4−	0.4−	1999 11 11	703	0.2−	0.0
1999 09 12	703	0.4+	1.0+	1999 10 03	704	0.7−	0.5−	1999 11 11	703	0.4+	0.3+
1999 09 14	703	0.2+	0.2+	1999 11 04	704	0.2−	0.3−	1999 12 03	699	0.4−	1.1+
1999 09 14	703	0.2−	0.5+	1999 11 04	704	0.2+	0.3−	1999 12 03	699	(0.5+	2.3+)
1999 09 14	703	0.1−	0.0	1999 11 04	704	0.0	0.2+	1999 12 03	699	0.7+	0.3−

1999 RE₄₆ = 1998 FB₃₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	326.98255		(2000.0)	P	Q
<i>n</i>	0.27801929	ω	8.99262	+0.99273977	+0.11573897
<i>a</i>	2.3249811	Ω	344.24819	−0.11649202	+0.85734674
<i>e</i>	0.1530329	<i>i</i>	6.92793	−0.02995587	+0.50155863
<i>P</i>	3.55	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 03 20	704	0.4−	0.3−	1998 03 22	704	1.6+	0.9−	1999 09 07	704	0.0	0.3+
1998 03 20	704	1.2+	0.6+	1998 03 22	704	0.7−	1.6−	1999 09 11	704	0.0	0.2+
1998 03 20	704	1.1−	0.4+	1998 03 22	704	0.2+	0.7+	1999 09 11	704	0.0	0.0
1998 03 20	704	0.6−	1.3+	1999 09 07	704	0.5+	0.5−	1999 09 11	704	0.2−	0.1+
1998 03 20	704	0.2−	0.5+	1999 09 07	704	1.4+	0.0	1999 09 11	704	0.0	0.0
1998 03 22	704	0.0	0.7−	1999 09 07	704	0.9−	0.1+	1999 09 11	704	0.7−	0.7+
1998 03 22	704	(1.1+	3.4+)	1999 09 07	704	0.3−	0.8−				

1999 RL₆₄ = 1977 EE₃ = 1998 KF₂₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	287.37800		(2000.0)	P	Q
<i>n</i>	0.24380863	ω	5.30426	+0.58696412	−0.80813466
<i>a</i>	2.5376789	Ω	48.76428	+0.74039356	+0.51136266
<i>e</i>	0.0970027	<i>i</i>	3.72859	+0.32755228	+0.29227831
<i>P</i>	4.04	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1977 03 12	381	0.2−	0.2+	1998 05 24	704	0.5+	0.4−	1999 09 07	704	0.1−	0.4−
1977 03 12	381	0.1+	0.2−	1998 05 24	704	0.9−	0.1+	1999 09 07	704	0.1−	0.1+
1977 03 15	381	0.0	0.5+	1998 05 24	704	0.1−	1.2+	1999 09 07	704	0.6−	0.2−
1977 03 15	381	0.2+	0.5−	1998 05 24	704	(0.6+	3.0+)	1999 09 13	704	0.3−	0.2−
1998 05 22	704	1.2+	0.5−	1999 09 07	699	0.2−	0.3+	1999 09 13	704	0.3+	0.2−
1998 05 22	704	0.9−	0.3+	1999 09 07	699	0.1−	0.1+	1999 09 13	704	0.6+	0.1−
1998 05 22	704	0.9−	0.6−	1999 09 07	699	0.0	0.1+	1999 09 13	704	0.0	0.1+
1998 05 22	704	0.2+	0.2+	1999 09 07	704	0.1−	0.1+	1999 09 13	704	0.5+	0.2−
1998 05 22	704	0.9+	0.3−	1999 09 07	704	0.1+	0.4+				

1999 RA₈₇ = 1992 DV₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	332.54054		(2000.0)	P	Q
<i>n</i>	0.20439065	ω	345.24081	+0.94078932	−0.33826339
<i>a</i>	2.8542721	Ω	34.55591	+0.31485244	+0.84763604
<i>e</i>	0.0882100	<i>i</i>	2.24421	+0.12563202	+0.40876769
<i>P</i>	4.82	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1992 02 29	809	0.1+	0.5−	1999 09 07	704	0.1+	0.5−	1999 12 02	704	0.2+	0.6+
1992 03 03	809	0.4−	0.8−	1999 09 07	704	0.2+	0.5−	1999 12 02	704	0.2−	0.8+
1992 03 07	809	0.5−	0.5−	1999 09 07	704	0.2+	0.0	1999 12 02	704	0.2−	0.6+
1999 09 05	699	0.1−	0.6+	1999 09 14	704	0.4−	0.9−	1999 12 02	704	0.7+	0.2+
1999 09 05	699	0.7+	0.2+	1999 09 14	704	0.2−	0.8−	1999 12 07	704	0.3−	0.0
1999 09 05	699	0.3+	1.4+	1999 09 14	704	0.2−	0.9−	1999 12 07	704	0.8−	0.7−
1999 09 07	704	0.2+	0.3−	1999 09 14	704	0.1−	0.6−	1999 12 07	704	0.4−	0.2+
1999 09 07	704	0.6+	0.3+	1999 09 14	704	0.1+	0.5−	1999 12 07	704	0.0	0.4−

1999 RJ₈₈ = 1982 JU₄ = 1992 GP₈ = 1998 MT₈

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	9.61527		(2000.0)	P	Q
<i>n</i>	0.18722400	ω	156.40464	+0.93550611	+0.35319668
<i>a</i>	3.0261820	Ω	182.95648	−0.34548916	+0.90919035
<i>e</i>	0.0990714	<i>i</i>	10.01334	−0.07392944	+0.22051080
<i>P</i>	5.26	<i>H</i>	12.4	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1982 05 15	095	0.0	0.4+	1999 09 07	704	0.2+	0.1+	1999 11 28	699	0.2−	0.3+
1992 04 10	372	1.6+	2.0−	1999 09 07	704	0.3+	0.0	1999 12 02	704	1.2−	0.1−
1992 04 10	372	2.0−	0.1−	1999 09 07	704	0.3+	0.1−	1999 12 02	704	1.1−	1.1−
1998 06 19	704	0.1+	0.6−	1999 09 07	704	0.1+	0.3−	1999 12 02	704	1.1−	0.2−
1998 06 19	704	0.7−	1.0+	1999 09 07	704	0.2−	0.4−	1999 12 02	704	0.4+	0.4−
1998 06 19	704	0.1−	0.2+	1999 09 09	704	0.1+	0.1+	1999 12 07	704	0.1+	0.5−
1998 06 19	704	0.5−	0.2+	1999 09 09	704	0.6+	0.0	1999 12 07	704	0.0	0.0
1998 06 19	704	0.3−	0.3+	1999 09 09	704	0.2+	0.0	1999 12 07	704	0.3+	0.4−
1998 06 25	704	0.2+	0.1−	1999 09 09	704	0.1+	0.3+	1999 12 07	704	0.3+	0.0
1998 06 25	704	0.7+	0.4−	1999 09 09	704	0.3+	0.0	1999 12 07	704	0.3+	0.6−
1998 06 25	704	0.1+	0.4+	1999 11 28	699	0.4−	0.6+				
1998 06 25	704	0.3+	1.0−	1999 11 28	699	0.5+	0.8+				

1999 RP₈₉ = 1983 HT₁ = 1995 YR₇

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	256.85832		(2000.0)	P	Q
<i>n</i>	0.21520254	ω	322.55844	−0.34388490	−0.93846000
<i>a</i>	2.7578530	Ω	147.51949	+0.87537216	−0.33279457
<i>e</i>	0.1409167	<i>i</i>	3.43621	+0.33980401	−0.09241540
<i>P</i>	4.58	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1983 04 16	033	0.2+	1.3+	1999 09 07	704	0.3−	0.6+	1999 12 02	704	0.2+	0.1−
1983 04 16	033	0.5+	0.6+	1999 09 07	704	0.1+	0.6−	1999 12 02	704	0.2−	0.3−
1995 12 16	691	0.2+	0.0	1999 09 07	704	0.3−	0.2+	1999 12 02	704	0.1+	0.7+
1995 12 16	691	0.1+	0.2−	1999 09 07	704	0.7−	0.5+	1999 12 07	704	0.1−	0.2−
1995 12 16	691	0.1−	0.1+	1999 09 14	704	0.2+	0.4+	1999 12 07	704	0.2+	0.9−
1995 12 27	691	0.2+	0.2+	1999 09 14	704	0.0	0.5+	1999 12 07	704	0.3+	0.5+
1995 12 27	691	0.2−	0.1+	1999 09 14	704	0.3−	0.0	1999 12 07	704	0.1+	0.8−
1995 12 27	691	0.2−	0.1+	1999 09 14	704	0.1+	0.9+	1999 12 07	704	0.3+	0.2+
1999 09 07	704	0.5−	0.2+	1999 09 14	704	0.4+	0.3−				

1999 RR₉₀ = 1998 FD₆₀

Id. A. Doppler

1999 DEC. 22

M.P.C. 37183

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Williams						
M	3.89082		(2000.0)	P		Q					
n	0.28378786	ω	317.61324	+0.92215478		+0.38356985					
a	2.2933667	Ω	20.00038	−0.30393004		+0.79849240					
e	0.1612526	i	8.41406	−0.23928454		+0.46398713					
P	3.47	H	14.9	G	0.15	U	4				
Residuals in seconds of arc											
1998 03 20	704	0.4+	0.3+	1998 03 22	704	(3.4−	1.6−)	1999 09 14	704	0.2−	0.4+
1998 03 20	704	0.6+	0.7+	1999 09 07	704	0.0	0.2+	1999 09 14	704	0.7+	0.4−
1998 03 20	704	0.5+	0.0	1999 09 07	704	0.0	0.4+	1999 12 07	704	0.3+	0.2+
1998 03 20	704	0.9+	0.4−	1999 09 07	704	0.4−	0.4−	1999 12 07	704	0.1+	0.2−
1998 03 20	704	(1.2−	3.0+)	1999 09 07	704	0.4−	0.2−	1999 12 07	704	0.0	0.0
1998 03 22	704	0.4−	0.2−	1999 09 07	704	0.5−	0.4−	1999 12 07	704	0.1+	0.2−
1998 03 22	704	1.9−	0.6−	1999 09 14	704	0.6+	0.1−	1999 12 07	704	0.5−	0.1+
1998 03 22	704	0.3−	0.1+	1999 09 14	704	0.1+	0.4+				
1998 03 22	704	(2.3−	0.7+)	1999 09 14	704	0.3+	0.0				

1999 RH ₉₂ = 1997 EQ ₅₀											
Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
<i>M</i>	10.44753		(2000.0)	P		Q					
<i>n</i>	0.19437669	ω	9.06389	+0.96166646		+0.27402954					
<i>a</i>	2.9514806	Ω	335.02457	−0.25309291		+0.87253464					
<i>e</i>	0.0254583	<i>i</i>	1.39344	−0.10555374		+0.40446398					
<i>P</i>	5.07	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	3				
Residuals in seconds of arc											
1997 03 05	809	(3.7+	4.4+)	1999 09 29	703	0.7−	0.4+	1999 10 07	704	0.2+	1.3+
1997 03 05	809	(2.6+	4.1+)	1999 09 29	703	0.5−	0.1+	1999 10 07	704	0.4−	0.3+
1997 03 05	809	(2.7+	4.2+)	1999 09 29	703	0.3+	0.6+	1999 10 07	704	0.1−	0.9+
1997 03 06	809	0.7−	0.6+	1999 09 29	703	0.3−	0.0	1999 10 12	678	(2.8+	1.6−
1997 03 06	809	0.6+	0.9+	1999 10 04	704	0.3+	0.3+	1999 10 12	678	1.2+	0.3−
1997 03 06	809	0.9+	0.1+	1999 10 04	704	0.0	0.3+	1999 10 13	678	0.3−	0.4−
1999 09 07	704	0.3+	0.6+	1999 10 04	704	0.1+	0.7+	1999 10 13	678	1.5−	0.2−
1999 09 07	704	0.4−	0.7+	1999 10 04	704	0.5−	1.0+	1999 12 07	704	0.3+	0.1+
1999 09 07	704	0.1−	0.3−	1999 10 04	704	0.2+	0.9+	1999 12 07	704	0.3+	0.4+
1999 09 07	704	0.1+	0.4+	1999 10 06	704	0.1−	0.6−	1999 12 07	704	0.5+	0.3−
1999 09 07	704	0.2+	0.5−	1999 10 06	704	0.3−	0.3−	1999 12 07	704	0.5−	0.6−
1999 09 09	704	0.7−	0.2−	1999 10 06	704	0.0	1.6−	1999 12 07	704	0.2−	0.7−
1999 09 09	704	0.1+	0.6−	1999 10 06	704	0.1−	0.8−				
1999 09 09	704	0.6+	1.0−	1999 10 07	704	1.5+	0.6+				

1999 RJ ₉₃ = 1977 DX ₂											
Epoch 1999 Aug. 10.0 TT = JDT 2451400.5											
<i>M</i>	269.44088		(2000.0)	P			Q				
<i>n</i>	0.20101402	<i>ω</i>	331.82435	+0.02674335			−0.99843264				
<i>a</i>	2.8861472	<i>Ω</i>	116.60658	+0.92717210			+0.00639000				
<i>e</i>	0.0287847	<i>i</i>	3.15208	+0.37367992			+0.05560055				
<i>P</i>	4.90	<i>H</i>	15.0	<i>G</i>	0.15		<i>U</i>	7			
Residuals in seconds of arc											
1977 02 18	381	1.2−	1.4−	1999 09 07	704	0.4−	0.4+	1999 09 14	704	0.7+	0.1−
1977 02 18	381	0.9+	0.1+	1999 09 07	704	0.1−	0.3−	1999 09 14	704	0.7+	0.6+
1977 02 19	381	0.1+	0.8+	1999 09 07	704	0.1+	1.7−	1999 09 14	704	0.4−	0.5+
1977 02 19	381	0.2+	0.5+	1999 09 14	704	0.7+	0.7+				
1999 09 07	704	0.1−	0.7−	1999 09 14	704	1.2−	0.5+				

1999 RL₉₆ = 1988 XD₅ = 1994 LH₇
Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
<i>M</i>	272.96338		(2000.0)			P			Q		
<i>n</i>	0.26065415		ω 26.75197			−0.20325680		−0.97807285			
<i>a</i>	2.4271295		Ω 75.00361			+0.88970691		−0.20384996			
<i>e</i>	0.1772356		<i>i</i> 2.69329			+0.40878880		−0.04264609			
<i>P</i>	3.78		<i>H</i>	14.3	<i>G</i>	0.15		<i>U</i>	4		
Residuals in seconds of arc											
1988 12 07	381	2.0−	2.3+	1999 09 07	704	0.0	0.2+	1999 09 14	704	0.1−	0.2+
1988 12 08	381	1.4+	0.3+	1999 09 07	704	0.7−	0.3+	1999 09 14	704	0.2−	0.8+
1994 06 03	809	0.9+	0.2−	1999 09 07	704	0.8−	0.0	1999 12 07	704	0.4+	0.2+
1994 06 03	809	0.1+	0.2+	1999 09 07	704	0.9−	0.9−	1999 12 07	704	0.5+	1.0−
1994 06 03	809	1.4+	0.1−	1999 09 07	704	0.3+	0.6−	1999 12 07	704	0.0	0.6−
1994 06 04	809	0.6−	1.3+	1999 09 14	704	0.7+	0.1−	1999 12 07	704	0.2+	0.6−
1994 06 04	809	1.0−	0.3+	1999 09 14	704	0.3+	0.9+				
1994 06 04	809	0.4−	0.8+	1999 09 14	704	0.8+	0.2+				

1999 RF ₁₀₂ = 1984 WS ₁												
Epoch 1999 Aug. 10.0 TT = JDT 2451400.5												
				Gnädig								
<i>M</i>	255.37546		(2000.0)		P				Q			
<i>n</i>	0.18781158		ω 159.35451		−0.05823998				−0.97237025			
<i>a</i>	3.0198669		Ω 293.41216		+0.87790170				+0.05792445			
<i>e</i>	0.1048718		<i>i</i> 14.26126		+0.47528593				−0.22614345			
<i>P</i>	5.25		<i>H</i> 13.0		<i>G</i> 0.15		<i>U</i> 1					
Residuals in seconds of arc												
1984 11 21	675	0.9−	0.7−	1999 09 08	704	0.7−	0.6−	1999 09 22	704	0.2+	0.2−	
1984 11 21	675	0.8+	0.2+	1999 09 08	704	0.4−	0.6−	1999 09 22	704	0.1+	0.0	
1986 03 15	413	0.7+	0.4+	1999 09 08	704	0.8−	0.9−	1999 09 30	703	0.2+	0.2−	
1986 03 15	413	0.2−	0.3+	1999 09 10	704	0.3−	0.8+	1999 09 30	703	0.2−	0.1+	
1989 11 22	675	0.3−	1.0−	1999 09 10	704	0.3−	0.2−	1999 09 30	703	0.4−	0.1+	
1989 11 22	675	0.4+	1.1+	1999 09 10	704	0.5−	0.3+	1999 09 30	703	0.2+	0.0	
1992 03 14	413	0.7−	1.2−	1999 09 16	704	0.3+	0.8+	1999 10 04	704	1.0+	0.4−	
1992 03 14	413	0.7+	0.7+	1999 09 16	704	0.0	0.3+	1999 10 04	704	1.0+	1.1−	
1999 07 12	704	0.8+	0.4−	1999 09 16	704	0.1+	0.6+	1999 10 04	704	1.1+	0.7−	
1999 07 12	704	0.8+	0.0	1999 09 16	704	0.2+	1.2+	1999 10 04	704	0.6+	0.9−	
1999 07 12	704	0.2+	0.3−	1999 09 16	704	0.1−	1.4+	1999 10 04	704	0.3+	1.1−	
1999 07 12	704	0.7−	0.3−	1999 09 18	704	0.2−	0.6+	1999 10 07	703	0.1−	0.1−	
1999 09 04	703	0.2−	0.1−	1999 09 18	704	0.5+	1.0+	1999 10 07	703	0.1+	0.3−	
1999 09 04	703	0.5−	0.1−	1999 09 18	704	0.2−	0.6+	1999 10 07	703	0.4−	0.3+	
1999 09 04	703	1.1−	0.2+	1999 09 18	704	0.2+	0.7+	1999 10 07	703	0.1−	0.1−	
1999 09 04	703	1.3−	0.1−	1999 09 22	704	0.3+	0.3−					
1999 09 08	704	0.7−	0.0	1999 09 22	704	1.1+	0.5+					

1999 RX ₁₂₇ = 1985 SR ₄ = 1998 HU ₅₉												
Id. A. Doppler, G. V. Williams												
Epoch 1999 Aug. 10.0 TT = JDT 2451400.5												
				Williams								
<i>M</i>	320.90799			(2000.0)			P		Q			
<i>n</i>	0.27826557			ω	147.42199		+0.92029608		−0.39036697			
<i>a</i>	2.3236091			Ω	235.57661		+0.35189075		+0.85484897			
<i>e</i>	0.2211873			<i>i</i>	1.79654		+0.17096207		+0.34182872			
<i>P</i>	3.54			<i>H</i>	14.7		<i>G</i>	0.15		<i>U</i>	5	
Residuals in seconds of arc												
1985 09 20	095	2.6−	1.2−	1998 04 22	704	2.0+	1.8−	1999 09 09	704	0.4+	0.3−	
1985 09 21	095	(5.2+	5.8−)	1998 04 22	704	0.7+	0.3+	1999 09 13	704	0.1−	0.2+	
1985 09 22	095	2.8+	0.5+	1998 04 22	704	1.0−	1.3+	1999 09 13	704	0.0	0.2−	
1998 04 21	704	1.6−	1.9+	1998 04 22	704	0.3+	0.6+	1999 09 13	704	0.4−	0.1+	
1998 04 21	704	1.6+	0.6−	1999 09 09	704	0.4−	0.4+	1999 09 13	704	0.0	0.3−	
1998 04 21	704	0.7+	1.3−	1999 09 09	704	0.0	0.0	1999 09 13	704	0.1−	0.1−	
1998 04 21	704	2.6−	1.0−	1999 09 09	704	0.5+	0.4+					
1998 04 22	704	0.4−	0.1−	1999 09 09	704	0.0	0.2+					

1999 RL₁₃₀ = 1988 VA₁₃ = 1998 KK₅₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	308.89817		(2000.0)	P		Q		Doppler	
<i>n</i>	0.26143020	ω	238.67209	+0.78300621		−0.62129757			
<i>a</i>	2.4223239	Ω	159.69002	+0.59590860		+0.73552675			
<i>e</i>	0.1949945	<i>i</i>	4.93229	+0.17830934		+0.27016610			
<i>P</i>	3.77	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	3		

Residuals in seconds of arc

1988 11 04	327	0.7+	0.7−	1998 05 24	704	1.1+	0.5+	1999 09 13	704	0.1−	0.1−
1988 11 04	327	0.7−	0.7+	1998 05 24	704	1.3−	0.0	1999 09 13	704	0.6+	0.2+
1998 05 22	704	0.3−	1.1−	1999 09 09	704	0.0	0.2−	1999 09 13	704	0.8+	0.7−
1998 05 22	704	0.4+	0.2−	1999 09 09	704	0.7−	0.6+	1999 09 13	704	0.1+	0.0
1998 05 22	704	0.7−	0.4+	1999 09 09	704	0.4−	0.3−	1999 09 13	704	0.3−	0.1+
1998 05 24	704	0.9+	0.4+	1999 09 09	704	0.2−	0.1+				
1998 05 24	704	(0.3−	2.5+)	1999 09 09	704	0.2+	0.3+				

1999 RT₁₃₀

Id. A. Gnädig (1982, 1989 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	357.43111		(2000.0)	P		Q		Gnädig	
<i>n</i>	0.22570852	ω	163.12094	+0.87664952		+0.47913543			
<i>a</i>	2.6715957	Ω	167.95978	−0.46210442		+0.86381799			
<i>e</i>	0.1838227	<i>i</i>	12.10928	−0.13395940		+0.15571682			
<i>P</i>	4.37	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	3		

Residuals in seconds of arc

1982 12 09	413	0.7−	0.1+	1999 09 09	704	0.0	0.0	1999 09 29	704	1.5−	0.2+
1982 12 09	413	0.7+	0.5−	1999 09 09	704	0.4+	0.5−	1999 09 30	704	0.7+	0.4−
1989 02 15	413	1.0−	0.2−	1999 09 09	704	0.3−	0.7−	1999 09 30	704	0.5+	0.0
1989 02 15	413	0.7+	0.9−	1999 09 14	704	0.7−	0.5+	1999 09 30	704	0.2−	0.0
1999 09 07	704	0.1−	0.4−	1999 09 14	704	0.1+	0.6−	1999 09 30	704	0.8+	0.3−
1999 09 07	704	0.2+	0.0	1999 09 14	704	0.1−	0.1+	1999 09 30	704	0.1+	0.7+
1999 09 07	704	0.5+	0.1+	1999 09 14	704	0.2+	0.3+	1999 10 04	703	0.5−	1.0−
1999 09 07	704	0.1−	0.1+	1999 09 14	704	0.3+	0.4+	1999 10 04	703	0.1+	0.6+
1999 09 07	704	0.2−	0.1−	1999 09 29	704	0.9+	0.3−	1999 10 04	703	0.0	0.0
1999 09 09	704	0.6+	0.6+	1999 09 29	704	0.4−	0.2−	1999 10 04	703	0.9−	0.3+
1999 09 09	704	0.8−	0.4−	1999 09 29	704	0.4+	0.0				

1999 RX₁₃₄ = 1998 FE₉₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	56.14307		(2000.0)	P		Q		Doppler	
<i>n</i>	0.23932703	ω	291.73658	−0.16521919		+0.97856681			
<i>a</i>	2.5692609	Ω	327.97317	−0.79740307		−0.20588473			
<i>e</i>	0.1346904	<i>i</i>	13.40239	−0.58038864		+0.00429902			
<i>P</i>	4.12	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1998 03 31	704	1.8+	1.3+	1998 04 01	704	(0.1−	3.6−)	1999 09 09	704	0.3−	0.1+
1998 03 31	704	0.7−	0.0	1998 04 01	704	0.9−	0.4+	1999 09 14	704	0.5+	0.9−
1998 03 31	704	0.6−	1.1−	1999 09 09	704	0.3+	0.8+	1999 09 14	704	0.4+	0.1−
1998 03 31	704	0.6−	1.6−	1999 09 09	704	0.2−	0.3−	1999 09 14	704	0.8−	0.3−
1998 04 01	704	0.5+	0.3+	1999 09 09	704	0.3−	0.1+	1999 09 14	704	0.3+	0.5+
1998 04 01	704	0.5+	0.8+	1999 09 09	704	0.4+	0.7−	1999 09 14	704	0.3−	0.7+

1999 RT₁₃₇ = 1989 UB₁₀

Id. A. Gnädig, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	299.82669		(2000.0)	P		Q		Gnädig	
<i>n</i>	0.19049571	ω	67.02731	+0.75124069		−0.65639644			
<i>a</i>	2.9914328	Ω	333.83680	+0.53346655		+0.66553573			
<i>e</i>	0.0871159	<i>i</i>	9.02226	+0.38865263		+0.35525470			
<i>P</i>	5.17	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1953 10 12	675	1.0+	0.2−	1999 09 07	704	0.0	0.3−	1999 09 30	704	0.2−	0.3+
1953 10 12	675	0.7−	0.4−	1999 09 07	704	0.1−	0.9−	1999 09 30	704	0.3−	0.4+
1953 11 13	675	1.0−	0.5+	1999 09 09	704	0.3+	0.1−	1999 09 30	704	0.3−	0.9+
1953 11 13	675	0.8+	0.2+	1999 09 09	704	0.9+	1.2−	1999 09 30	704	0.2−	0.7+
1989 10 21	399	0.0	0.5+	1999 09 09	704	0.5+	1.1−	1999 09 30	704	0.6−	0.5+
1989 10 21	399	0.6+	1.5−	1999 09 09	704	0.5+	1.2−	1999 10 01	704	0.3−	0.3+
1989 10 21	399	0.1−	0.3−	1999 09 09	704	0.6+	0.2−	1999 10 01	704	0.0	0.4+
1999 08 07	699	0.2−	0.4+	1999 09 13	704	0.2−	0.6−	1999 10 01	704	0.5−	0.8+
1999 08 07	699	0.8−	0.4+	1999 09 13	704	0.0	0.4−	1999 10 01	704	0.2−	0.9+
1999 08 07	699	0.7+	0.1−	1999 09 13	704	0.4−	0.3−	1999 10 01	704	0.6−	0.4+
1999 08 08	699	0.1−	0.5−	1999 09 13	704	0.3−	0.0	1999 10 06	704	(2.2+ 0.0)	
1999 08 08	699	0.1−	0.1−	1999 09 13	704	0.9−	0.1+	1999 10 06	704	0.5+	0.4+
1999 08 08	699	0.5+	0.1+	1999 09 29	704	0.1−	1.4+	1999 10 06	704	0.4+	0.2−
1999 09 04	699	0.1−	0.6+	1999 09 29	704	0.7+	1.6−	1999 10 06	704	1.0+	1.7+
1999 09 04	699	0.1−	0.4+	1999 09 29	704	0.8+	0.4+	1999 10 06	704	1.3−	1.4+
1999 09 04	699	0.4−	0.3+	1999 09 29	704	0.2+	0.2+	1999 10 10	106	0.4−	1.1+
1999 09 07	704	0.8+	0.6−	1999 09 29	704	1.4−	1.2−	1999 10 10	106	0.5+	0.1−
1999 09 07	704	0.5+	0.3−	1999 09 29	704	0.2−	0.2+				
1999 09 07	704	0.5+	0.6−	1999 09 29	704	0.1−	1.5−				

1999 RH₁₄₄

Id. A. Gnädig (1986 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	14.33882		(2000.0)	P		Q		Gnädig	
<i>n</i>	0.18831090	ω	120.15870	+0.77759051		+0.62572106			
<i>a</i>	3.0145262	Ω	201.30167	−0.61941178		+0.74538989			
<i>e</i>	0.0975732	<i>i</i>	9.80361	−0.10808357		+0.22992841			
<i>P</i>	5.23	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1988 06 13	413	1.8−	1.7−	1999 09 08	699	0.9+	0.5−	1999 09 14	704	0.1−	0.9−
1988 06 13	413	1.8+	1.6+	1999 09 09	704	0.3+	0.1+	1999 09 14	704	0.0	0.1−
1999 09 05	703	0.7+	0.7+	1999 09 09	704	0.1−	0.3+	1999 09 14	704	0.5+	0.1+
1999 09 05	703	0.5−	0.3+	1999 09 09	704	1.1−	0.6−	1999 10 07	703	0.5−	0.3+
1999 09 05	703	0.6−	0.8+	1999 09 09	704	0.3+	0.2+	1999 10 07	703	0.5+	0.6+
1999 09 05	703	1.1−	0.2+	1999 09 09	704	0.2+	0.7−	1999 10 07	703	0.0	0.7−
1999 09 08	699	0.1+	1.1−	1999 09 14	704	0.1+	0.2+	1999 10 07	703	0.2−	0.2+
1999 09 08	699	0.6+	1.2+	1999 09 14	704	0.2−	0.4−				

1999 RZ₁₅₅ = 1991 VN₁₃

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	352.94799		(2000.0)	P		Q		Williams	
<i>n</i>	0.24073969	ω	141.87457	+0.96779865		+0.24921863			
<i>a</i>	2.5592001	Ω	203.76679	−0.24711340		+0.91377893			
<i>e</i>	0.2893511	<i>i</i>	5.04466	−0.04796608		+0.32077740			
<i>P</i>	4.09	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	2		

Residuals in seconds of arc

1991 09 13	675	0.1−	0.5+	1999 09 09	704	0.2+	0.0	1999 10 03	678	1.6−	0.6+
1991 09 13	675	0.1+	0.8+	1999 09 14	704	0.1+	0.2−	1999 10 07	703	1.1+	1.8+
1991 11 04	399	0.3−	0.9−	1999 09 14	704	0.3−	0.1+	1999 10 07	703	0.0	0.2−
1991 11 04	399	0.5+	0.7−	1999 09 14	704	0.1−	0.3−	1999 10 07	703	1.3−	0.1+
1999 07 12	704	0.4−	0.2+	1999 09 14	704	0.1+	0.7−	1999 10 07	703	0.0	0.1−
1999 07 12	704	0.0	0.6−	1999 09 14	704	0.6+	0.7−	1999 10 07	704	0.1+	0.2−
1999 07 12	704	0.1+	0.3+	1999 09 27	699	0.0	0.2+	1999 10 07	704	0.6−	0.5+
1999 07 12	704	0.1−	0.3−	1999 09 27	699	1.4+	0.1−	1999 10 07	704	0.2+	0.5+
1999 07 12	704	0.0	0.3+	1999 09 27	699	(0.9−	2.3+)	1999 10 07	704	0.3+	0.6−
1999 08 22	699	0.4−	0.4+	1999 09 30	678	(2.1−	0.2−)	1999 10 07	704	0.1−	1.5−
1999 08 22	699	0.2−	0.4+	1999 09 30	678	1.2−	0.1−	1999 11 07	704	0.7+	0.8+
1999 08 22	699	0.5+	0.4+	1999 09 30	678	1.1−	0.3+	1999 11 07	704	0.2−	0.6−
1999 09 05	703	0.3+	0.4+	1999 09 30	699	0.8+	0.6+	1999 11 07	704	0.2+	0.0
1999 09 05	703	0.2+	0.2+	1999 09 30	699	0.8+	0.1+	1999 11 07	704	0.2−	1.0+
1999 09 05	703	0.3+	0.3+	1999 09 30	699	1.0+	0.0	1999 11 12	704	0.3+	0.3+
1999 09 05	703	0.4−	0.2−	1999 10 01	678	1.8−	0.2−	1999 11 12	704	1.0+	0.1+

1999 DEC. 22

M.P.C. 37185

1999 09 07	704	0.4+	0.1−	1999 10 01	678	1.4−	0.2−	1999 11 12	704	0.3+	0.0
1999 09 07	704	0.5+	0.4−	1999 10 01	678	0.6−	0.7−	1999 11 12	704	0.2+	0.3+
1999 09 07	704	0.3+	0.1+	1999 10 02	678	0.3+	0.2−	1999 11 16	704	0.6+	0.5+
1999 09 07	704	0.2+	0.4−	1999 10 02	678	1.2−	0.4+	1999 11 16	704	0.3−	0.6−
1999 09 07	704	0.3+	0.7−	1999 10 02	678	1.4−	0.3+	1999 11 16	704	0.6−	0.8+
1999 09 09	704	(0.3+ 2.1−)		1999 10 03	699	1.9+	0.7+	1999 12 07	704	0.0	0.2−
1999 09 09	704	0.9+	0.7−	1999 10 03	699	0.3+	1.0+	1999 12 07	704	0.5−	0.8−
1999 09 09	704	0.2−	0.6−	1999 10 03	678	0.3−	0.4−	1999 12 07	704	0.0	0.4−
1999 09 09	704	0.3+	0.4−	1999 10 03	699	0.1−	0.0				

1999 RH₁₆₃ = 1991 RL₁₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Doppler			
<i>M</i> 321.83244 (2000.0)				<i>P</i> <i>Q</i>			
<i>n</i>	0.24445470	<i>ω</i>	52.49327	+0.93541197	−0.34379721		
<i>a</i>	2.5332057	<i>Ω</i>	327.37933	+0.25635880	+0.82023382		
<i>e</i>	0.0343281	<i>i</i>	8.80423	+0.24348432	+0.45718701		
<i>P</i>	4.03	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 6		

Residuals in seconds of arc

1991 09 14	675	0.2+	0.4+	1999 09 09	704	0.1−	0.2−	1999 09 14	704	0.5+	0.3−
1991 09 14	675	0.3−	0.3−	1999 09 09	704	0.1−	0.1+	1999 09 14	704	0.5−	0.3+
1991 09 17	675	0.0	0.2+	1999 09 09	704	0.3−	0.2−	1999 09 14	704	0.1−	0.2−
1991 09 17	675	0.1+	0.3−	1999 09 09	704	0.4+	0.2+	1999 09 14	704	0.0	0.1+
1999 09 09	704	0.2+	0.0	1999 09 14	704	0.1+	0.1+				

1999 RG₁₆₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Gnädig			
<i>M</i> 82.14200 (2000.0)				<i>P</i> <i>Q</i>			
<i>n</i>	0.17871131	<i>ω</i>	268.44114	−0.38044530	+0.91988100		
<i>a</i>	3.1215336	<i>Ω</i>	338.41770	−0.71153805	−0.35697288		
<i>e</i>	0.1337810	<i>i</i>	15.01409	−0.59074104	−0.16244786		
<i>P</i>	5.52	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1989 10 04	675	0.0	0.1−	1999 09 07	704	0.3+	0.6−	1999 09 14	704	0.3−	0.7−
1989 10 04	675	(5.0+ 3.1−)		1999 09 09	704	0.2+	0.1−	1999 10 02	704	0.7+	0.7+
1999 07 16	704	0.2−	0.9−	1999 09 09	704	0.4+	0.1+	1999 10 02	704	0.7−	0.6+
1999 07 16	704	0.1−	0.7−	1999 09 09	704	0.6+	0.1+	1999 10 02	704	0.3−	0.4+
1999 07 16	704	0.6+	1.5+	1999 09 09	704	0.0	0.3+	1999 10 07	703	0.6+	0.6+
1999 09 04	703	0.4−	0.6+	1999 09 09	704	0.1−	0.6+	1999 10 07	703	1.1−	0.3−
1999 09 04	703	0.5−	0.4+	1999 09 11	699	0.3+	1.1+	1999 10 07	703	0.4+	0.3+
1999 09 04	703	1.0−	0.4−	1999 09 11	699	0.7−	1.1+	1999 10 07	703	0.7+	0.5−
1999 09 04	703	1.3−	0.3−	1999 09 11	699	0.6+	0.1−	1999 10 07	704	0.7+	1.2+
1999 09 07	704	0.0	0.4+	1999 09 14	704	0.3+	0.2−	1999 10 07	704	0.4+	0.2−
1999 09 07	704	0.0	0.0	1999 09 14	704	0.2−	1.4−	1999 10 07	704	0.1−	0.1−
1999 09 07	704	0.2−	0.2−	1999 09 14	704	0.6+	1.8−	1999 10 07	704	0.1−	0.1+
1999 09 07	704	0.1−	0.0	1999 09 14	704	0.0	1.3−	1999 10 07	704	0.1−	0.1−

1999 RV₁₆₅

Id. A. Gnädig (1954, 1984, 1986, 1996 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Gnädig			
<i>M</i> 48.52450 (2000.0)				<i>P</i> <i>Q</i>			
<i>n</i>	0.08315413	<i>ω</i>	123.78962	+0.26044913	+0.96455646		
<i>a</i>	5.1985255	<i>Ω</i>	161.16925	−0.92355657	+0.26169668		
<i>e</i>	0.1202972	<i>i</i>	7.54683	−0.28144183	+0.03384785		
<i>P</i>	11.85	<i>H</i>	12.1	<i>G</i> 0.15	<i>U</i> 0		

Residuals in seconds of arc

1954 12 22	675	0.8+	0.0	1999 08 17	691	0.1+	0.1+	1999 09 11	699	0.5−	1.0−
1984 05 30	413	0.0	0.6+	1999 08 17	691	0.2+	0.0	1999 09 11	699	0.4−	1.2+
1984 05 30	413	0.3+	0.2+	1999 08 17	691	0.3+	0.0	1999 09 11	699	0.7+	0.1+
1986 09 21	413	0.1+	0.0	1999 09 07	704	0.2−	0.4+	1999 09 14	704	0.3+	1.0−
1986 09 21	413	0.3−	0.8−	1999 09 07	704	0.6−	0.0	1999 09 14	704	0.3−	0.7−
1988 11 03	413	0.7−	0.4+	1999 09 07	704	0.0	0.1+	1999 09 14	704	0.4+	0.1+
1988 11 03	413	0.5−	0.6+	1999 09 07	704	0.5−	0.4−	1999 09 14	704	0.1−	0.3+

1996 03 25	413	1.0+	0.4−	1999 09 07	704	0.3+	0.1+	1999 09 28	120	0.5+	0.4+
1996 03 25	413	0.6−	0.8+	1999 09 09	704	0.5−	0.3−	1999 09 28	120	0.1−	0.0
1999 08 12	699	0.2+	0.5+	1999 09 09	704	0.1−	1.0+	1999 10 07	704	1.1+	1.1+
1999 08 12	699	0.1+	0.3+	1999 09 09	704	0.1+	0.1−	1999 10 07	704	0.7−	1.0−
1999 08 12	699	0.8+	1.2−	1999 09 09	704	0.5+	0.9+	1999 10 07	704	0.8−	0.2−

1999 RJ₁₆₇ = 1979 UN₃ = 1979 VF = 1985 JE = 1998 DQ₁₁Id. A. Doppler (*MPC* 36457), M. E. Sansaturio, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i> 33.88940 (2000.0)				<i>P</i> <i>Q</i>			
<i>n</i>	0.29295509	<i>ω</i>	256.78115	+0.28746731	+0.95663229		
<i>a</i>	2.2452706	<i>Ω</i>	30.05447	−0.83832588	+0.27508405		
<i>e</i>	0.1814341	<i>i</i>	5.39491	−0.46321946	+0.09583024		
<i>P</i>	3.36	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 1		

Residuals in seconds of arc

1979 10 16	095	0.3−	0.9+	1999 09 07	704	0.4−	0.1+	1999 10 05	699	0.4+	0.9+
1979 11 11	095	0.2+	1.4−	1999 09 07	704	0.1−	0.3+	1999 10 05	699	0.2+	0.1+
1985 05 15	688	1.0−	1.3+	1999 09 07	704	0.3−	0.3−	1999 10 07	704	0.2+	0.7−
1985 05 15	688	1.8+	0.6−	1999 09 07	704	0.4−	0.1+	1999 10 07	704	0.1−	0.3+
1998 01 28	566	0.1−	0.2+	1999 09 08	703	0.0	0.6−	1999 10 07	704	0.1−	0.2+
1998 01 28	566	0.6+	0.1−	1999 09 08	703	0.1+	0.1−	1999 10 07	704	0.3+	0.8+
1998 01 28	566	0.1−	0.1+	1999 09 08	703	0.4+	0.2−	1999 10 07	704	0.3−	0.6+
1998 02 24	566	0.1−	0.3+	1999 09 08	703	0.9+	1.0−	1999 11 08	704	0.4−	0.1−
1998 02 24	566	0.8−	0.3−	1999 09 09	704	0.6+	0.2+	1999 11 08	704	0.3+	0.1+
1998 02 24	566	0.2−	0.3+	1999 09 09	704	0.1−	0.2−	1999 11 08	704	0.4+	0.1+
1998 02 25	566	0.2+	0.4+	1999 09 09	704	0.0	0.9−	1999 11 08	704	0.3+	0.2+
1998 02 25	566	0.1−	0.3+	1999 09 09	704	0.7−	0.5−	1999 11 08	704	0.4+	0.8+
1998 02 25	566	0.1−	0.4+	1999 09 09	704	1.7−	1.6−	1999 11 15	704	0.2−	0.3−
1998 03 24	566	0.7+	0.3+	1999 09 13	704	0.1−	0.4+	1999 11 15	704	0.5−	0.4−
1998 03 24	566	0.7+	0.2+	1999 09 13	704	0.3−	0.4+	1999 11 15	704	0.3+	0.0
1998 03 24	566	0.5+	0.5+	1999 09 13	704	0.4−	0.1+	1999 11 15	704	0.3−	0.4−
1999 07 16	704	0.1−	0.2+	1999 09 13	704	0.6−	0.1+	1999 11 15	704	0.3+	0.6−
1999 07 16	704	0.0	0.2+	1999 09 30	704	0.1+	0.4−	1999 12 07	704	0.2−	0.8+
1999 07 16	704	0.7−	0.3+	1999 09 30	704	0.3+	0.2+	1999 12 07	704	0.4+	1.2+
1999 07 16	704	0.2+	0.5+	1999 09 30	704	0.2+	0.3−	1999 12 07	704	0.4+	0.8+
1999 08 12	699	0.2−	0.4+	1999 09 30	704	0.7+	0.5+	1999 12 07	704	0.7+	0.7+
1999 08 12	699	0.0	0.6+	1999 09 30	704	0.2+	0.7−	1999 12 07	704	0.0	1.3+
1999 08 12	699	0.1−	0.3+	1999 10 05	699	0.3−	0.7+				

1999 RX₁₈₄ = 1982 XL₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i> 10.13245 (2000.0)				<i>P</i> <i>Q</i>			
<i>n</i>	0.22571092	<i>ω</i>	276.35177	+0.86132453	+0.50204859		
<i>a</i>	2.6715768	<i>Ω</i>	53.54031	−0.41940200	+0.78915175		
<i>e</i>	0.1051002	<i>i</i>	5.55771	−0.28674380	+0.35381737		
<i>P</i>	4.37	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 5		

Residuals in seconds of arc

1982 12 13	381	0.7−	0.3+	1999 09 09	704	0.1+	0.0	1999 09 13	704	0.6−	0.0
1982 12 13	381	0.3+	0.1+	1999 09 09	704	0.1−	1.0−	1999 12 04	699	0.1−	1.0+
1982 12 14	381	0.2−	0.4−	1999 09 09	704	0.0	0.1+	1999 12 04	699	0.7+	0.1+
1982 12 14	381	0.5+	0.2+	1999 09 13	704	0.2+	0.6+	1999 12 04	699	0.1−	1.8−
1999 09 09	704	0.2+	0.6−	1999 09 13	704	0.2−	0.7+				
1999 09 09	704	0.2+	0.0	1999 09 13	704	0.1−	0.6+				

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	311.40079		(2000.0)	P	Q
<i>n</i>	0.22887488	ω	187.96030	+0.65060092	-0.75694116
<i>a</i>	2.6468985	Ω	221.48248	+0.70175330	+0.63009259
<i>e</i>	0.1693954	<i>i</i>	5.31054	+0.29027701	+0.17327262
<i>P</i>	4.31	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1982 10 20	095	0.3-	2.5+	1999 09 07	704	0.1-	0.3+	1999 12 03	704	0.1+	1.1-
1982 11 08	095	0.6-	1.0+	1999 09 07	704	0.3-	0.2-	1999 12 03	704	0.2-	1.1-
1995 10 18	114	1.7-	0.6-	1999 09 16	704	0.5+	0.7+	1999 12 03	704	0.3+	1.0-
1995 10 19	114	0.3-	0.7+	1999 09 16	704	0.3+	0.4+	1999 12 07	704	0.7+	1.4-
1995 10 19	114	1.2+	1.9+	1999 09 16	704	0.0	1.1+	1999 12 07	704	0.1-	1.9-
1999 09 07	704	0.4-	0.6+	1999 09 16	704	0.5-	0.6+	1999 12 07	704	0.3+	1.7-
1999 09 07	704	0.3-	0.0	1999 12 03	704	0.3+	0.5-	1999 12 07	704	0.6+	1.8-
1999 09 07	704	0.1-	0.5+	1999 12 03	704	0.4+	1.3-	1999 12 07	704	1.3+	0.8-

1999 RB₁₉₅ = 1992 SX₂₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	348.96347		(2000.0)	P	Q
<i>n</i>	0.27941537	ω	114.05474	+0.98440188	+0.15530440
<i>a</i>	2.3172303	Ω	237.10723	-0.17451259	+0.92156385
<i>e</i>	0.2172474	<i>i</i>	5.64975	+0.02232245	+0.35580980
<i>P</i>	3.53	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1992 09 30	675	0.2-	0.3+	1999 09 08	704	0.1+	0.4+	1999 09 16	704	0.9-	0.8+
1992 09 30	675	0.2-	0.3-	1999 09 08	704	0.1+	0.4+	1999 12 03	704	0.6+	0.4+
1992 10 03	675	0.5+	0.3-	1999 09 08	704	0.5+	0.3-	1999 12 03	704	0.4-	1.1-
1992 10 03	675	(1.1-	3.2+)	1999 09 16	704	0.1+	0.2+	1999 12 03	704	0.3+	0.7-
1999 09 08	704	0.3-	0.0	1999 09 16	704	0.0	0.2+	1999 12 03	704	0.9-	0.4+
1999 09 08	704	0.6+	1.0-	1999 09 16	704	0.3-	0.5-	1999 12 03	704	0.5+	1.1+

1999 RS₁₉₆ = 1982 HD₂ = 1989 SW₇ = 1998 ML₁₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	119.81755		(2000.0)	P	Q
<i>n</i>	0.19060487	ω	7.14468	-0.73728294	+0.66950163
<i>a</i>	2.9902905	Ω	215.42968	-0.62729989	-0.72813185
<i>e</i>	0.0336543	<i>i</i>	8.97655	-0.25081608	-0.14694073
<i>P</i>	5.17	<i>H</i>	12.8	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1982 04 29	801	1.5+	1.0+	1998 06 19	704	0.2+	1.4-	1999 09 08	704	0.4+	0.1-
1989 09 27	675	1.0-	0.8+	1998 06 19	704	0.7-	0.6-	1999 09 08	704	0.7+	0.3+
1989 09 28	675	0.5-	0.4-	1998 06 25	704	0.9+	0.1-	1999 09 16	704	1.3+	0.1+
1989 09 28	675	0.7+	1.1-	1998 06 25	704	0.5-	1.0+	1999 09 16	704	0.9+	0.6+
1989 09 29	675	1.4-	0.3-	1998 06 25	704	0.8+	0.2-	1999 09 16	704	0.8+	0.2-
1989 09 29	675	(4.4-	2.2-)	1998 06 25	704	0.5-	0.2-	1999 12 03	704	1.2-	1.4+
1998 06 19	704	1.5-	0.3-	1998 06 25	704	0.9-	1.1+	1999 12 03	704	0.3-	0.3-
1998 06 19	704	(0.1+	2.5-)	1999 09 08	704	0.8+	0.4+	1999 12 03	704	1.4-	0.4+

1999 RT₁₉₆ = 1989 WS₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	293.65315		(2000.0)	P	Q
<i>n</i>	0.28437840	ω	149.30037	+0.56802389	-0.81564277
<i>a</i>	2.2901907	Ω	265.87099	+0.73095873	+0.56133358
<i>e</i>	0.0936270	<i>i</i>	6.32544	+0.37821713	+0.14011239
<i>P</i>	3.47	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1989 11 28	033	(3.9-	2.1-)	1999 09 08	704	0.2+	0.1-	1999 09 16	704	0.4+	0.4-
1989 11 28	033	1.1+	0.8-	1999 09 08	704	0.1-	0.0	1999 09 16	704	0.8-	0.2+
1989 11 29	033	1.6-	1.0-	1999 09 08	704	0.3+	0.1+	1999 12 07	699	0.1+	1.0-
1989 11 29	033	0.7-	0.9+	1999 09 08	704	0.4+	0.1+	1999 12 07	699	0.2+	0.9+
1989 12 03	033	1.2+	0.8+	1999 09 16	704	0.4-	0.1+	1999 12 07	699	0.3-	0.2+

1999 RU₁₉₆ = 1982 JT₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	257.78805		(2000.0)	P	Q
<i>n</i>	0.18893530	ω	218.69407	+0.10464974	-0.98737951
<i>a</i>	3.0078810	Ω	225.65712	+0.94878308	+0.13494903
<i>e</i>	0.0317746	<i>i</i>	9.56768	+0.29809244	-0.08288821
<i>P</i>	5.22	<i>H</i>	13.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1982 05 15	675	0.6+	1.0+	1999 09 08	704	0.1+	0.3+	1999 09 16	704	0.2+	0.2+
1982 05 16	675	0.5-	1.1-	1999 09 08	704	0.1+	0.1-	1999 09 16	704	0.5-	0.2+
1982 05 16	675	1.0-	0.4+	1999 09 08	704	0.2-	0.1+	1999 12 03	704	0.2-	0.1-
1982 05 17	675	0.2+	2.1-	1999 09 08	704	0.3+	0.3-	1999 12 03	704	0.4-	0.1+
1982 05 18	675	0.7+	1.8+	1999 09 16	704	0.1-	0.3-	1999 12 03	704	0.6+	0.0

1999 RX₁₉₆ = 1998 HP₈₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	22.92722		(2000.0)	P	Q
<i>n</i>	0.19697793	ω	90.85884	+0.60197705	+0.78710596
<i>a</i>	2.9254387	Ω	217.24635	-0.79206998	+0.56723590
<i>e</i>	0.1953452	<i>i</i>	12.83886	-0.10123626	+0.24229659
<i>P</i>	5.00	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 04 21	704	0.1+	1.0+	1998 04 22	704	0.3+	0.3-	1999 09 16	704	1.7+	1.0+
1998 04 21	704	0.1-	0.5+	1998 04 22	704	0.3+	1.1-	1999 09 16	704	0.6+	0.4-
1998 04 21	704	0.2+	0.3-	1999 09 08	704	1.1-	0.5+	1999 09 16	704	1.1+	0.3-
1998 04 21	704	0.2+	0.3+	1999 09 08	704	0.1-	0.3-	1999 12 03	704	0.4+	0.8+
1998 04 21	704	(3.7-	2.2-)	1999 09 08	704	0.8-	0.2-	1999 12 03	704	0.4-	0.6+
1998 04 22	704	0.4-	0.4+	1999 09 08	704	0.4-	0.1-	1999 12 03	704	1.4-	1.0+
1998 04 22	704	0.3+	0.2-	1999 09 08	704	1.0-	0.3-	1999 12 03	704	0.2+	1.8-
1998 04 22	704	1.0-	0.5-	1999 09 16	704	0.3+	0.4+	1999 12 03	704	0.9+	1.3-

1999 RC₁₉₇ = 1994 NB₆ = 1998 KS₁₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	69.52195		(2000.0)	P	Q
<i>n</i>	0.22099824	ω	338.50778	-0.07745876	+0.99193271
<i>a</i>	2.7094232	Ω	286.93858	-0.89875826	-0.11303810
<i>e</i>	0.1131908	<i>i</i>	6.02131	-0.43154806	+0.05737494
<i>P</i>	4.46	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1994 07 11	809	0.4-	0.1-	1998 05 22	704	0.3+	0.6-	1999 09 08	704	0.2+	0.5-
1994 07 11	809	0.1-	0.3-	1998 05 22	704	0.2-	0.5-	1999 09 08	704	0.2+	0.4+
1994 07 11	809	0.6+	0.6-	1998 05 22	704	(2.5-	0.2-)	1999 09 08	704	0.3-	0.5+
1994 07 12	809	0.2+	0.0	1998 05 24	704	1.1+	0.3+	1999 09 08	704	0.4+	0.3-
1994 07 12	809	0.1+	0.8+	1998 05 24	704	0.5-	0.3+	1999 09 08	704	0.3+	0.0
1994 07 12	809	0.4-	0.2+	1998 05 24	704	0.6+	0.6+	1999 09 16	704	(0.4-	2.8+)
1998 05 22	704	0.1+	0.6+	1998 05 24	704	0.4+	0.5-	1999 09 16	704	0.5-	0.1+
1998 05 22	704	0.2-	0.0	1998 05 24	704	1.7-	0.2-	1999 09 16	704	0.3-	0.3-

1999 RU₁₉₇ = 1998 KR₆₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	182.96451		(2000.0)	P	Q
<i>n</i>	0.23716701	ω	304.39706	-0.93743880	-0.31488878
<i>a</i>	2.5848372	Ω	217.86956	+0.34110547	-0.91609601
<i>e</i>	0.0490599	<i>i</i>	13.99969	-0.06968178	-0.24821998
<i>P</i>	4.16	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 05 22	704	0.5+	0.4+	1998 05 26	704	0.4+	1.2-	1999 09 16	704	0.6+	0.7+
1998 05 22	704	0.3-	0.7+	1998 05 26	704	0.2-	0.1-	1999 09 16	704	0.2+	0.0
1998 05 22	704	0.2+	0.2-	1999 09 08	704	0.1-	0.6-	1999 12 03	704	0.4-	0.1-
1998 05 22	704	0.5-	0.1+	1999 09 08	704	0.3-	0.1-	1999 12 03	704	0.7+	0.2-
1998 05 22	704	0.3-	0.3-	1999 09 08	704	0.5-	0.1-	1999 12 03	704	0.5-	0.5-
1998 05 26	704	0.3+	0.0	1999 09 08	704	0.4-	0.4-	1999 12 03	704	0.0	0.4+
1998 05 26	704	0.4-	0.5+	1999 09 16	704	0.0	0.1+				
1998 05 26	704	0.5+	0.2+	1999 09 16	704	0.5+	0.6+				

1999 RQ₂₀₁

Id. A. Gnädig (1991 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	303.07367		(2000.0)	P	Q
<i>n</i>	0.23541305	ω	195.12317	+0.48100266	-0.86231981
<i>a</i>	2.5976603	Ω	226.42377	+0.82534126	+0.50625844
<i>e</i>	0.1301345	<i>i</i>	12.61684	+0.29571650	-0.01034052
<i>P</i>	4.19	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1991 10 12	675	0.3+	0.4-	1999 09 18	704	0.4+	0.2+	1999 10 28	703	1.9-	1.6+
1991 10 12	675	0.4-	0.4-	1999 09 18	704	0.1+	0.1-	1999 11 04	703	0.1-	0.3-
1999 09 08	704	0.5-	0.3-	1999 10 03	704	0.4-	0.4-	1999 11 04	703	0.5+	0.0
1999 09 08	704	0.2-	0.5-	1999 10 03	704	0.5-	0.1-	1999 11 04	703	0.3-	0.3+
1999 09 08	704	0.0	0.3-	1999 10 03	704	0.1-	0.0	1999 11 04	703	0.1+	0.2+
1999 09 08	704	0.3-	0.2-	1999 10 03	704	0.0	0.5+	1999 12 05	704	0.1-	0.1-
1999 09 08	704	0.7+	0.2+	1999 10 03	704	0.1-	0.2-	1999 12 05	704	1.0+	0.1-
1999 09 18	704	0.7+	0.5-	1999 10 28	703	(2.7-	0.1-)	1999 12 05	704	1.1+	0.3-
1999 09 18	704	1.0+	0.2-	1999 10 28	703	1.3-	1.4+				
1999 09 18	704	0.6+	0.3-	1999 10 28	703	(3.8-	2.1+)				

1999 RA₂₀₈ = 1998 FY₁₁₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	94.25910		(2000.0)	P	Q
<i>n</i>	0.26042108	ω	10.10203	-0.38466955	+0.90723843
<i>a</i>	2.4285774	Ω	237.46348	-0.86034366	-0.41917275
<i>e</i>	0.1545965	<i>i</i>	11.64315	-0.33442208	+0.03482311
<i>P</i>	3.78	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 03 31	704	0.1-	0.2-	1998 04 01	704	0.2+	0.3-	1999 09 18	704	0.2+	0.1+
1998 03 31	704	0.2+	0.9+	1998 04 01	704	0.8-	0.4-	1999 09 18	704	0.1-	0.1+
1998 03 31	704	0.3+	0.4+	1999 09 08	704	0.0	0.3-	1999 09 18	704	0.2+	0.1-
1998 03 31	704	0.3-	0.2-	1999 09 08	704	0.2-	0.1+	1999 09 18	704	0.4-	0.4-
1998 03 31	704	0.2-	0.4-	1999 09 08	704	0.1+	0.1+	1999 12 05	704	1.6+	0.2-
1998 04 01	704	0.1+	0.1-	1999 09 08	704	0.6-	0.2+	1999 12 05	704	0.4-	1.3-
1998 04 01	704	0.3+	0.1+	1999 09 08	704	0.0	0.1+	1999 12 05	704	0.3+	1.1+
1998 04 01	704	0.3+	0.5-	1999 09 18	704	0.1-	0.2-	1999 12 05	704	0.3-	0.2+

1999 RM₂₀₉ = 1998 MC₄₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	307.35725		(2000.0)	P	Q
<i>n</i>	0.18257700	ω	160.85728	+0.20809554	-0.96341437
<i>a</i>	3.0773153	Ω	276.85380	+0.87374561	+0.26071436
<i>e</i>	0.1978794	<i>i</i>	9.79486	+0.43961899	-0.06213516
<i>P</i>	5.40	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 06 26	809	0.4+	0.3+	1999 09 08	704	0.4+	1.2+	1999 09 18	704	0.0	0.4-
1998 06 26	809	0.7-	0.8-	1999 09 08	704	0.3+	0.3-	1999 09 18	704	0.4-	0.4-
1998 06 26	809	0.4-	0.7-	1999 09 08	704	1.0+	0.0	1999 12 06	704	1.0-	0.5-
1998 06 27	809	0.3+	0.3+	1999 09 08	704	0.6-	0.2+	1999 12 06	704	0.3+	0.4-
1998 06 27	809	0.1+	0.3+	1999 09 18	704	0.7-	0.3-	1999 12 06	704	1.4+	0.2-
1998 06 27	809	0.6+	0.2+	1999 09 18	704	0.3-	0.1-				
1999 09 08	704	0.4+	1.3+	1999 09 18	704	0.5-	0.3-				

1999 RX₂₀₉ = 1977 DN₃ = 1998 FX₁₁₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	68.48628		(2000.0)	P	Q
<i>n</i>	0.24036794	ω	294.15954	+0.07204807	+0.99432682
<i>a</i>	2.5618381	Ω	339.50796	-0.81463722	+0.01339771
<i>e</i>	0.1770298	<i>i</i>	12.91620	-0.57547831	+0.10552101
<i>P</i>	4.10	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1977 02 18	381	0.6-	0.8-	1998 04 01	704	0.1+	0.4+	1999 09 08	704	0.1+	0.2-
1977 02 18	381	0.2+	0.3+	1998 04 01	704	0.3+	0.6+	1999 09 08	704	0.1+	0.0
1977 02 19	381	0.5+	0.3+	1998 04 01	704	0.2-	0.2-	1999 09 18	704	0.3+	0.2+
1998 03 31	704	0.3+	1.0-	1998 04 01	704	0.0	0.7-	1999 09 18	704	0.0	0.3+
1998 03 31	704	0.2-	0.2+	1999 09 08	704	0.3-	0.3-	1999 09 18	704	0.2+	0.3+
1998 03 31	704	1.0+	0.4+	1999 09 08	704	0.2+	0.1-	1999 09 18	704	0.0	0.1+
1998 03 31	704	1.4-	0.3+	1999 09 08	704	0.5-	0.0	1999 09 18	704	0.0	0.2-

1999 RS₂₁₀ = 1995 WN₂₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	15.32118		(2000.0)	P	Q
<i>n</i>	0.23073868	ω	115.09615	+0.90407869	+0.39594105
<i>a</i>	2.6326257	Ω	222.09642	-0.42407040	+0.87779238
<i>e</i>	0.1640858	<i>i</i>	13.88282	+0.05297195	+0.26965019
<i>P</i>	4.27	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 11 17	691	0.1+	0.1+	1999 09 08	704	0.6-	0.4+	1999 12 07	704	0.2+	0.1+
1995 11 17	691	0.1-	0.2+	1999 09 18	704	0.1+	0.2-	1999 12 07	704	0.5+	0.0
1995 11 17	691	0.1-	0.1+	1999 09 18	704	1.0+	0.3-	1999 12 07	704	0.1-	0.1+
1995 11 28	691	0.2+	0.4-	1999 09 18	704	0.3+	1.0-	1999 12 07	704	0.2-	1.0+
1995 11 28	691	0.1+	0.1+	1999 09 18	704	1.1+	1.0-	1999 12 08	557	0.3-	0.0
1995 11 28	691	0.1-	0.1-	1999 09 18	704	0.4+	0.5-	1999 12 08	557	0.1+	0.1+
1999 09 08	704	0.1-	0.3+	1999 12 05	704	0.1+	0.2-	1999 12 08	557	0.4-	1.4-
1999 09 08	704	0.6-	1.0+	1999 12 05	704	0.1+	0.3-	1999 12 11	557	0.5-	0.2+
1999 09 08	704	0.8-	0.2+	1999 12 05	704	0.4+	0.6+	1999 12 11	557	0.8-	0.7+
1999 09 08	704	0.8-	0.8+	1999 12 05	704	0.6+	0.5-				

1999 RF₂₁₁ = 1998 KB₂₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	354.60988		(2000.0)	P	Q
<i>n</i>	0.27319734	ω	72.26681	+0.99064003	-0.11005773
<i>a</i>	2.3522587	Ω	293.98907	+0.06510231	+0.90086643
<i>e</i>	0.0492513	<i>i</i>	5.07030	+0.11997508	+0.41991305
<i>P</i>	3.61	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 05 22	704	0.5+	0.4-	1999 09 08	704	0.8+	0.2+	1999 09 18	704	0.4-	0.4-
1998 05 22	704	(1.2- 2.3-)		1999 09 08	704	0.0	0.3-	1999 09 18	704	0.1+	0.3-
1998 05 22	704	1.1+	0.1+	1999 09 08	704	0.1-	0.6+	1999 09 18	704	0.4-	0.3-
1998 05 24	704	0.0	1.4+	1999 09 08	704	0.1+	0.5+	1999 11 27	699	0.3+	0.4+
1998 05 24	704	0.0	0.0	1999 09 08	704	0.4-	0.4-	1999 11 27	699	0.2-	0.2+
1998 05 24	704	0.7-	1.5-	1999 09 18	704	0.3+	0.2+	1999 11 27	699	0.3-	0.3-
1998 05 24	704	0.9-	0.5+	1999 09 18	704	0.1+	0.1+				

1999 RV₂₁₁ = 1998 FU₁₁₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	88.46960		(2000.0)	P	Q						
<i>n</i>	0.28323824	ω	332.19616	-0.08936802	+0.99078865						
<i>a</i>	2.2963326	Ω	292.52577	-0.89215809	-0.12504501						
<i>e</i>	0.0967351	<i>i</i>	6.32362	-0.44279488	+0.05197688						
<i>P</i>	3.48	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5				

Residuals in seconds of arc

1998 03 31	704	0.1+	0.2-	1998 04 01	704	0.1-	0.8-	1999 09 08	704	0.1-	0.1-
1998 03 31	704	0.1-	0.1-	1998 04 01	704	0.4-	0.4+	1999 09 08	704	0.7+	0.2+
1998 03 31	704	0.2+	0.5-	1998 04 01	704	(2.3- 1.2-)		1999 09 18	704	0.2-	0.3-
1998 03 31	704	0.0	0.0	1999 09 08	704	0.0	0.3-	1999 09 18	704	0.2-	0.1+
1998 03 31	704	0.4+	0.5+	1999 09 08	704	0.3-	0.3+	1999 09 18	704	0.3+	0.1+
1998 04 01	704	0.1-	0.8+	1999 09 08	704	0.1-	0.1-	1999 09 18	704	0.1-	0.1+

1999 RO₂₁₂ = 1981 UE₇ = 1986 YE₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	320.85427		(2000.0)	P	Q						
<i>n</i>	0.21574731	ω	174.18312	+0.64657410	-0.75747300						
<i>a</i>	2.7532086	Ω	235.49519	+0.69540428	+0.63398324						
<i>e</i>	0.1384437	<i>i</i>	6.29964	+0.31361573	+0.15588428						
<i>P</i>	4.57	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	3				

Residuals in seconds of arc

1981 10 30	381	0.1-	0.1+	1987 01 04	675	0.6-	0.3-	1999 09 18	704	0.5+	0.2-
1981 10 30	381	0.0	0.2+	1999 09 08	704	1.6-	1.2+	1999 09 18	704	0.7+	0.2+
1986 12 30	675	0.4+	0.2+	1999 09 08	704	0.2+	0.7+	1999 09 18	704	0.4+	0.3+
1986 12 30	675	0.2-	0.1+	1999 09 08	704	0.7+	1.6-	1999 09 18	704	0.2-	0.0
1987 01 04	675	0.4+	0.2-	1999 09 08	704	0.8-	1.3-	1999 09 18	704	0.2+	0.5+

1999 SS₂ = 1976 UX₅

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	336.49044		(2000.0)	P	Q						
<i>n</i>	0.21301415	ω	358.60097	+0.92779359	-0.35105847						
<i>a</i>	2.7767093	Ω	23.22755	+0.34534246	+0.67992417						
<i>e</i>	0.1728100	<i>i</i>	18.68105	+0.14120071	+0.64378652						
<i>P</i>	4.63	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	2				

Residuals in seconds of arc

1976 10 22	381	0.3+	0.4-	1999 09 21	046	0.6+	0.1+	1999 10 02	704	1.3-	0.6-
1976 10 22	381	0.1+	0.2-	1999 09 21	046	0.4+	0.0	1999 10 02	704	1.1-	0.5-
1990 11 13	675	0.8-	0.2+	1999 09 23	046	0.4+	0.4+	1999 10 02	704	0.0	0.3-
1990 11 13	675	0.3+	0.7+	1999 09 23	046	0.3+	0.6+	1999 10 02	704	0.1-	0.1-
1999 09 08	703	0.1-	0.1+	1999 09 23	046	0.1+	0.5+	1999 10 12	046	0.2-	0.6+
1999 09 08	703	0.1+	0.5-	1999 09 23	046	0.3+	0.8+	1999 10 12	046	0.0	0.3+
1999 09 08	703	0.1+	0.1+	1999 09 23	046	0.6+	0.5+	1999 10 12	046	0.1-	0.5+
1999 09 08	703	0.5+	0.2-	1999 09 23	046	0.4+	0.6+	1999 10 18	046	0.1+	0.3+
1999 09 13	704	0.6-	1.0-	1999 09 27	046	0.5+	0.2+	1999 10 18	046	0.8+	0.1-
1999 09 13	704	0.9-	0.5-	1999 09 27	046	0.8+	0.3+	1999 10 18	046	0.1+	0.2+
1999 09 13	704	1.2-	0.7-	1999 09 27	046	0.7+	0.2+	1999 10 19	046	0.1-	0.5+
1999 09 13	704	0.8-	1.0-	1999 09 27	046	0.7+	0.9+	1999 10 19	046	0.2+	0.4+
1999 09 13	704	0.5-	0.1-	1999 09 30	704	0.4-	0.0	1999 10 19	046	0.0	0.1+
1999 09 21	046	0.3-	0.6+	1999 09 30	704	0.4-	0.8-	1999 12 03	704	1.7-	1.3+
1999 09 21	046	0.1+	0.3+	1999 09 30	704	0.6-	0.8-	1999 12 03	704	1.0+	0.1+

1999 09 21	046	0.2+	0.2-	1999 09 30	704	0.1-	0.8-	1999 12 03	704	0.5+	0.4-
1999 09 21	046	0.2-	0.7+	1999 10 02	046	0.3-	0.2+	1999 12 07	704	0.4+	0.4-
1999 09 21	046	0.0	0.5+	1999 10 02	046	0.1-	0.1-	1999 12 07	704	0.3+	0.7-
1999 09 21	046	0.8+	0.1-	1999 10 02	046	0.0	0.2+	1999 12 07	704	0.4+	0.3+
1999 09 21	046	0.7+	0.1+	1999 10 02	046	0.2+	0.0	1999 12 07	704	0.1+	0.8-
1999 09 21	046	0.2+	0.0	1999 10 02	704	1.3-	1.3-	1999 12 07	704	0.1+	1.3-

1999 SN₃ = 1991 JK₆

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	36.70253		(2000.0)	P	Q						
<i>n</i>	0.28666420	ω	48.62883	+0.54362104	+0.74253332						
<i>a</i>	2.2780001	Ω	258.58397	-0.83851415	+0.45989809						
<i>e</i>	0.2072482	<i>i</i>	23.52843	-0.03701613	+0.48696819						
<i>P</i>	3.44	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	2				

Residuals in seconds of arc

1989 11 24	675	1.6-	0.8-	1999 09 27	704	0.7+	0.3+	1999 10 15	744	0.2-	1.4-
1989 11 24	675	0.4+	0.1-	1999 09 27	704	0.0	0.2-	1999 11 01	704	0.7+	0.4-
1989 12 22	675	0.4+	1.8+	1999 09 27	704	0.4-	0.2+	1999 11 01	704	0.9+	0.0
1989 12 22	675	1.4+	1.6+	1999 09 27	704	0.7-	0.1+	1999 11 01	704	1.0+	0.2+
1991 05 07	413	0.0	1.8-	1999 09 27	704	0.1-	0.1+	1999 11 01	704	0.5+	0.1+
1991 05 07	413	1.3-	0.4-	1999 09 28	704	0.3-	1.1+	1999 11 01	704	1.0+	0.4+
1999 09 24	704	0.1+	0.6+	1999 09 28	704	0.1-	1.3-	1999 12 10	704	0.6+	0.3-
1999 09 24	704	0.5-	0.5+	1999 09 28	704	0.4-	0.1-	1999 12 10	704	0.3+	0.7-
1999 09 24	704	0.5-	0.6+	1999 09 28	704	0.2-	0.9-	1999 12 10	704	0.5+	0.4-
1999 09 24	704	0.3-	0.8+	1999 09 28	704	0.5-	1.0-	1999 12 10	704	0.4+	0.9-
1999 09 24	704	0.1+	0.9+	1999 10 15	744	1.7-	1.2-	1999 12 10	704	0.2+	0.2-

1999 SH₆ = 1988 FN₃ = 1998 FG₉₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	101.49055		(2000.0)	P	Q						
<i>n</i>	0.29516930	ω	112.39184	-0.58530815	+0.80166735						
<i>a</i>	2.2340279	Ω	121.21529	-0.78630749	-0.52468024						
<i>e</i>	0.0934746	<i>i</i>	8.16238	-0.19782544	-0.28642645						
<i>P</i>	3.34	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	3				

Residuals in seconds of arc

1988 03 17	399	0.7+	0.6+	1998 03 25	704	1.1-	0.5+	1999 09 30	704	0.6+	0.9+
1988 03 17	399	0.5-	0.0	1998 03 25	704	0.1-	0.2+	1999 10 01	704	0.1-	0.9-
1988 03 17	399	(3.1- 1.8+)		1998 03 25	704	0.1-	0.4-	1999 10 01	704	0.0	0.3+
1998 03 24	704	0.3+	0.1-	1998 03 25	704	0.3+	0.2+	1999 10 01	704	1.1-	0.4+
1998 03 24	704	0.1-	0.4-	1999 09 30	704	0.2-	0.3-	1999 10 01	704	0.2-	0.1-
1998 03 24	704	0.6+	0.5-	1999 09 30	704	0.4-	0.2-	1999 10 01	704	0.6+	0.3-
1998 03 24	704	0.4+	0.5-	1999 09 30	704	0.7+	0.7+				
1998 03 25	704	0.3-	0.4+	1999 09 30	704	0.2+	0.5-				

1999 SW₁₁ = 1981 US₁₇ = 1990 DF₇Id. A. Doppler (*MPC* 36836), M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	332.22557		(2000.0)	P	Q						
<i>n</i>	0.27346672	ω	338.50720	+0.75209650	-0.65041166						
<i>a</i>	2.3507136	Ω	62.51620	+0.62079955	+0.64496453						
<i>e</i>	0.0929668	<i>i</i>	6.88673	+0.22126629	+0.40122989						
<i>P</i>	3.60	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	2				

Residuals in seconds of arc

1981 10 24	095	0.8+	1.8-	1999 10 07	704	0.6+	0.1+	1999 12 05	704	0.1+	0.0
1990 02 20	372	1.4-	0.3-	1999 10 07	704	0.2+	0.1+	1999 12 05	704	0.4+	0.3-
1990 02 20	372	0.5+	1.6-	1999 10 07	704	0.1+	0.1-	1999 12 05	704	0.3-	0.6+
1996 12 02	327	0.3+	0.7+	1999 10 07	704	0.1-	0.2-	1999 12 05	106	0.5+	0.2-
1996 12 02	327	0.2+	0.6+	1999 10 07	704	0.7-	0.2+	1999 12 05	106	0.3+	0

1999 DEC. 22

M.P.C. 37189

1999 08 22	703	0.5+	0.3+	1999 10 29	703	0.1−	0.0	1999 12 06	106	0.1−	0.0
1999 08 22	703	0.8+	0.2+	1999 11 03	703	0.4−	0.1+	1999 12 07	704	0.6+	0.7−
1999 09 30	703	0.3+	0.0	1999 11 03	703	0.2−	0.2+	1999 12 07	704	0.6+	0.3+
1999 09 30	703	0.2−	0.1−	1999 11 03	703	0.3−	0.0	1999 12 07	704	1.1+	0.4+
1999 09 30	703	0.1−	0.2+	1999 11 03	703	0.4−	0.2−	1999 12 07	704	0.1−	0.0
1999 09 30	703	0.4−	0.4−	1999 12 02	699	0.2+	0.6−	1999 12 07	704	0.3−	0.6+
1999 10 04	703	0.3−	0.2+	1999 12 02	699	0.2−	0.2+	1999 12 07	106	0.5−	0.0
1999 10 04	703	0.0	0.2+	1999 12 02	699	0.1+	0.3+	1999 12 07	106	0.2−	0.2+
1999 10 04	703	0.2−	0.1+	1999 12 05	704	0.5+	0.6−	1999 12 13	106	1.1−	0.6−
1999 10 04	703	0.1−	0.2−	1999 12 05	704	0.4+	0.1+	1999 12 13	106	0.4−	0.2+

1999 TA₄ = 1981 UW₅

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	96.42144	(2000.0)		P	Q		
<i>n</i>	0.21664531	<i>ω</i>	38.39303	−0.01795628	+0.98563546		
<i>a</i>	2.7455953	<i>Ω</i>	231.22933	−0.96229682	−0.06262870		
<i>e</i>	0.1650590	<i>i</i>	12.43832	−0.27140818	+0.15684513		
<i>P</i>	4.55	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1949 11 21	675	0.0	0.8−	1999 11 01	557	0.1+	0.2−	1999 11 28	557	0.2+	0.1+
1949 11 21	675	0.2+	1.7−	1999 11 01	557	0.2−	0.2−	1999 12 04	703	0.7−	0.6−
1980 07 17	413	0.3−	0.2−	1999 11 01	557	0.1−	0.0	1999 12 04	703	0.5−	0.4−
1980 07 17	413	0.1−	0.1−	1999 11 01	557	0.2−	0.1−	1999 12 04	703	0.8−	0.2−
1981 10 30	381	1.6+	0.5−	1999 11 04	704	0.6+	0.6+	1999 12 04	703	0.8−	1.0+
1981 10 30	381	1.2+	0.1+	1999 11 04	704	0.5+	0.5+	1999 12 04	699	0.5+	0.1−
1983 01 13	413	0.9−	0.5−	1999 11 04	704	0.2+	0.3−	1999 12 04	699	0.5+	1.1+
1983 01 13	413	0.8+	0.2+	1999 11 04	704	0.2+	0.2−	1999 12 04	699	0.7+	0.4+
1983 01 15	413	1.3−	0.5+	1999 11 04	704	0.6+	0.3−	1999 12 06	704	0.2−	0.1+
1990 11 10	675	1.2−	0.2−	1999 11 11	703	0.8+	0.2+	1999 12 06	704	0.6+	0.8−
1990 11 10	675	0.3+	0.5+	1999 11 11	703	0.5−	0.5+	1999 12 06	704	0.1+	0.1+
1993 04 01	413	0.6−	0.0	1999 11 11	703	0.5−	0.3+	1999 12 06	704	0.1−	0.6+
1993 04 01	413	1.2+	0.8−	1999 11 11	703	0.2+	0.7+	1999 12 07	704	0.4−	0.2+
1999 10 02	557	0.2−	0.3+	1999 11 15	557	0.3−	0.1+	1999 12 07	704	0.3+	0.2−
1999 10 02	557	0.1−	0.4+	1999 11 15	557	0.4−	0.1+	1999 12 07	704	0.9+	0.3−
1999 10 04	557	0.2−	0.4−	1999 11 16	557	0.3−	0.1−	1999 12 07	704	0.2+	0.0
1999 10 04	557	0.0	0.0	1999 11 16	557	0.4−	0.0	1999 12 07	704	0.7+	0.1+
1999 10 04	557	0.0	0.2−	1999 11 16	557	0.3−	0.5+	1999 12 12	703	0.7−	0.5−
1999 10 13	557	0.1+	0.3−	1999 11 19	557	0.3−	0.1+	1999 12 12	703	0.2+	0.3−
1999 10 13	557	0.3+	0.1−	1999 11 19	557	0.3−	0.1+	1999 12 12	703	0.5−	0.2−
1999 10 18	557	0.1−	0.6−	1999 11 19	557	0.1−	0.3+	1999 12 12	703	0.7+	0.2+
1999 10 18	557	0.3−	0.4−	1999 11 28	557	0.4−	0.3+				

1999 TR₅ = 1974 OX₁ = 1988 AL₂ = 1998 KN₂₂

Id. A. Doppler (MPC 36840), M. E. Sansaturio, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	9.79190	(2000.0)		P	Q		
<i>n</i>	0.24159155	<i>ω</i>	323.23396	+0.98517689	+0.15799615		
<i>a</i>	2.5531807	<i>Ω</i>	27.89822	−0.10246536	+0.85435912		
<i>e</i>	0.2101274	<i>i</i>	8.20922	−0.13757667	+0.49508354		
<i>P</i>	4.08	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1974 07 24	413	0.1+	0.4+	1998 05 24	704	0.2−	0.2−	1999 10 07	704	0.3+	0.1+
1988 01 11	033	0.8−	0.1+	1999 09 14	703	0.2−	0.0	1999 10 07	704	0.2−	0.7−
1988 01 11	033	0.4+	0.6+	1999 09 14	703	0.5−	0.1+	1999 10 07	704	0.3+	0.2−
1998 04 22	704	1.1+	0.8−	1999 09 14	703	0.2−	0.1+	1999 10 07	704	0.2+	0.3−
1998 04 22	704	0.8−	1.5+	1999 09 14	703	0.4−	0.4+	1999 10 07	704	0.0	0.2+
1998 04 22	704	0.3−	1.4+	1999 10 02	120	0.0	0.3−	1999 11 04	704	0.3−	0.0
1998 04 22	704	0.7+	0.4−	1999 10 02	120	0.3+	0.6−	1999 11 04	704	0.2−	0.0
1998 04 22	704	1.8+	0.3+	1999 10 03	704	0.8+	0.4−	1999 11 04	704	0.2−	0.0
1998 05 22	704	0.4−	0.0	1999 10 03	704	0.4+	0.3−	1999 11 04	704	0.4−	0.1−
1998 05 22	704	0.2+	0.7+	1999 10 03	704	(0.5+	3.1+)	1999 11 11	703	0.4−	0.2+
1998 05 22	704	1.2−	1.1+	1999 10 03	704	0.3+	2.0+	1999 11 11	703	0.1−	0.3+
1998 05 22	704	(3.2−	0.8+)	1999 10 03	704	0.3+	0.3+	1999 11 11	703	0.1−	0.3+

1998 05 24	704	0.4+	0.0	1999 10 03	704	0.5−	1.3+	1999 11 11	703	0.0	0.5+
1998 05 24	704	0.6−	0.5−	1999 10 03	704	0.0	1.0−	1999 12 03	699	0.0	0.4+
1998 05 24	704	1.4+	0.1−	1999 10 05	120	0.1+	1.1−	1999 12 03	699	0.0	0.3+
1998 05 24	704	0.9−	0.3−	1999 10 07	120	0.1−	0.2−	1999 12 03	699	0.4−	0.5+

1999 TF₁₄ = 2135 T-1 = 1984 WB₁ = 1998 KH₂₄Id. G. V. Williams (MPC 36489, unpublished), M. E. Sansaturio; 2135 T-1 = 1999 RU₅₇ (MPC 36868) is invalid

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	350.75733	(2000.0)		P	Q		
<i>n</i>	0.26125359	<i>ω</i>	322.48231	+0.97046678	−0.23665180		
<i>a</i>	2.4234154	<i>Ω</i>	51.27243	+0.23330803	+0.87142426		
<i>e</i>	0.1795589	<i>i</i>	3.43918	+0.06133190	+0.42966928		
<i>P</i>	3.77	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1971 03 25	675	1.4−	0.4+	1999 10 13	120	0.9+	0.1−	1999 11 14	699	0.4−	0.6−
1971 03 25	675	0.0	0.2−	1999 10 19	120	0.4−	0.0	1999 11 17	704	0.4+	0.2+
1971 03 26	675	0.2−	0.9−	1999 10 19	120	0.3−	0.0	1999 11 17	704	0.0	0.8+
1971 03 27	675	1.2+	1.9−	1999 11 02	703	0.0	0.0	1999 11 17	704	0.3+	0.7+
1984 11 27	046	1.0+	1.9−	1999 11 02	703	0.0	0.1+	1999 11 17	704	0.3+	0.7+
1984 11 27	046	1.2−	0.5+	1999 11 02	703	0.4+	0.1+	1999 11 17	704	0.0	0.2+
1998 05 22	704	0.7+	1.0+	1999 11 02	703	0.1−	0.1+	1999 11 30	106	0.2−	0.5+
1998 05 22	704	1.8−	0.3+	1999 11 05	704	0.1−	1.0+	1999 11 30	106	0.2−	0.1+
1998 05 22	704	1.7+	0.6−	1999 11 05	704	0.1−	0.1+	1999 11 30	106	0.2−	0.2−
1998 05 22	704	0.6+	0.9+	1999 11 05	704	0.3−	0.0	1999 12 02	699	0.2+	0.1+
1998 05 22	704	0.4−	0.8−	1999 11 05	704	0.1+	0.2−	1999 12 02	699	0.7−	0.2−
1998 05 24	704	0.0	0.9−	1999 11 05	704	0.3+	0.3+	1999 12 02	699	0.0	0.1−
1998 05 24	704	1.3−	0.4+	1999 11 09	704	0.8+	0.1+	1999 12 05	704	1.0−	1.1−
1998 05 24	704	0.4+	0.5+	1999 11 09	704	0.8−	0.3−	1999 12 05	704	2.1−	0.5+
1998 05 24	704	0.5+	1.0+	1999 11 09	704	0.1−	0.2+	1999 12 05	704	0.8−	0.5−
1998 05 24	704	1.0−	0.9−	1999 11 09	704	0.0	0.1+	1999 12 05	704	0.8−	0.5−
1999 10 07	704	1.2+	0.6−	1999 11 09	704	0.6−	0.1+	1999 12 05	704	0.6+	0.4+
1999 10 07	704	0.2+	1.1−	1999 11 12	704	0.1+	0.7+	1999 12 07	704	0.5−	0.7−
1999 10 07	704	0.4+	1.2−	1999 11 12	704	0.2−	0.0	1999 12 07	704	0.1−	0.4−
1999 10 07	704	0.0	1.1−	1999 11 12	704	0.5−	0.6+	1999 12 07	704	0.2−	0.4−
1999 10 07	704	0.0	0.4−	1999 11 12	704	0.4−	0.9+	1999 12 07	704	0.2−	0.0
1999 10 10	120	1.7+	0.4−	1999 11 12	704	0.4−	1.4+	1999 12 07	704	0.0	0.2+
1999 10 11	120	1.8+	0.4−	1999 11 14	699	0.8+	0.4−				
1999 10 13	120	0.4+	0.3+	1999 11 14	699	0.4−	0.2+				

1999 TO₁₇ = 1998 HX₁₅₁

Id. B. G. Marsden

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	327.37389	(2000.0)		P	Q		
<i>n</i>	0.35404016	<i>ω</i>	19.08333	+0.65315013	−0.73458241		
<i>a</i>	1.9789479	<i>Ω</i>	30.97163	+0.63998312	+0.40576957		
<i>e</i>	0.1123629	<i>i</i>	20.92633	+0.40474254	+0.54381959		
<i>P</i>	2.78	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1998 04 21	704	1.0+	0.3−	1999 10 07	704	0.2−	0.5+	1999 11 27	649	0.3−	0.7+
1998 04 21	704	0.1−	0.7+	1999 10 15	684	0.1−	0.2−	1999 11 27	684	1.1+	0.0
1998 04 21	704	0.6−	1.8+	1999 10 15	684	0.1−	0.2−	1999 11 28	684	0.2+	0.6+
1998 04 21	704	0.2−	0.3+	1999 10 18	739	0.3−	0.6−	1999 11 28	684	0.2+	0.7+
1998 04 21	704	0.4−	1.4+	1999 10 18	849	0.2−	0.5+	1999 11 28	684	0.2+	0.6+
1998 04 22	704	0.1−	0.6−	1999 10 18	849	0.6+	0.6+	1999 12 05	106	0.5−	0.8+
1998 04 22	704	0.4+	0.3−	1999 10 18	739	0.9−	0.8+	1999 12 05	106	0.6+	0.7−
1998 04 22	704	0.4+	0.9−	1999 10 18	849	0.2−	0.6+	1999 12 05	106	0.6−	0.9−
1998 04 22	704	0.8+	0.8−	1999 10 19	739	0.9+	0.2−	1999 12 11	704	0.3+	0.4−
1998 04 22	704	(4.6−	0.6−)	1999 10 19	739	0.2+	0.6+	1999 12 11	704	0.0	0.1+
1999 10 03	704	0.5−	0.7−	1999 10 19	739	0.6+	0.3−	1999 12 11	704	0.2+	1.2−
1999 10 03	704	0.2+	0.2−	1999 10 21	739	0.5+	0.2+	1999 12 11	704	0.1−	0.9−
1999 10 03	704	0.7−	0.0	1999 10 21	739	0.3+	0.2−	1999 12 12	704	0.1−	0.4+
1999 10 03	704	0.1−	0.1−	1999 11 02	704	0.5+	0.4+	1999 12 12	704	0.4−	0.3+

1999 10 03	704	0.0	0.8−	1999 11 02	704	0.2+	0.3+	1999 12 12	704	0.4−	0.6−
1999 10 07	704	1.4−	0.1−	1999 11 02	704	0.1+	0.2−	1999 12 12	704	0.3−	0.3−
1999 10 07	704	0.6−	0.4−	1999 11 02	704	0.1+	0.0	1999 12 12	704	0.7−	0.6−
1999 10 07	704	0.1−	0.0	1999 11 02	704	0.2−	0.4+				
1999 10 07	704	0.3−	0.4+	1999 11 27	649	0.8+	1.1+				

1999 TL₂₁ = 1996 DG₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	233.23345	(2000.0)		P		Q
<i>n</i>	0.17361962	ω	300.60425	−0.62053157	−0.78418128	
<i>a</i>	3.1822687	Ω	187.75078	+0.72083537	−0.57013401	
<i>e</i>	0.1314206	<i>i</i>	0.22925	+0.30876680	−0.24496311	
<i>P</i>	5.68	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1996 02 16	010	0.4+	1.1+	1999 10 16	621	0.1−	0.4−	1999 10 29	621	0.2+	0.6+
1996 02 16	010	0.6+	0.6+	1999 10 16	621	0.9−	0.0	1999 10 29	621	0.3+	0.5+
1996 02 16	010	0.5+	1.0+	1999 10 16	621	0.9−	0.1+	1999 10 31	621	0.1−	0.3+
1996 02 17	010	0.9−	1.6−	1999 10 18	012	1.1+	0.4+	1999 10 31	621	0.4−	0.5+
1996 02 17	010	0.5−	1.1−	1999 10 18	012	0.7+	0.3−	1999 10 31	621	0.6−	0.1−
1996 02 17	010(0.7+ 2.8−)			1999 10 18	012	0.4−	0.0	1999 11 03	621	0.4−	0.5−
1999 10 12	621	0.4+	0.0	1999 10 18	012	0.7+	0.3−	1999 11 03	621	0.0	0.1−
1999 10 12	621	0.1+	0.1−	1999 10 18	012	0.5−	0.7−	1999 11 03	621	0.2+	0.2+
1999 10 12	621	0.2+	0.4+	1999 10 29	691	0.0	0.2−	1999 11 03	621	0.6+	0.4+
1999 10 15	621	0.2−	0.2+	1999 10 29	691	0.2+	0.0	1999 11 04	691	0.3+	0.0
1999 10 15	621	0.2+	0.3−	1999 10 29	691	0.2+	0.3−	1999 11 04	691	0.0	0.5−
1999 10 15	621	0.3−	0.1−	1999 10 29	621	0.3−	0.6+	1999 11 04	691	0.2−	0.4−

1999 TW₂₄ = 1997 EO₃₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	294.44287	(2000.0)		P		Q
<i>n</i>	0.27006532	ω	97.52784	+0.29724124	−0.95471356	
<i>a</i>	2.3704102	Ω	335.16815	+0.86332858	+0.27456607	
<i>e</i>	0.1846955	<i>i</i>	1.77737	+0.40781296	+0.11461016	
<i>P</i>	3.65	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1997 03 04	704	0.5+	0.5−	1999 10 02	704	0.3−	0.4+	1999 10 06	704	0.2−	0.1−
1997 03 04	704	0.4+	0.1−	1999 10 02	704	0.0	0.2+	1999 10 06	704	0.2−	0.1−
1997 03 06	704	(2.8+ 1.0+)		1999 10 02	704	0.4+	0.2+	1999 10 06	704	0.1−	0.3−
1997 03 06	704	1.0−	0.5+	1999 10 06	704	0.0	0.0				
1999 10 02	704	0.6+	0.2−	1999 10 06	704	0.2−	0.1−				

1999 TM₂₇ = 1990 VX₉ = 1994 RF₁₉ = 1997 EO₂₂

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	31.80999	(2000.0)		P		Q
<i>n</i>	0.21901459	ω	349.16832	+0.96449907	+0.26407447	
<i>a</i>	2.7257583	Ω	355.51739	−0.23984721	+0.87198268	
<i>e</i>	0.0738936	<i>i</i>	1.82816	−0.11052085	+0.41220246	
<i>P</i>	4.50	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1990 11 13	675	0.9+	1.2+	1997 03 11	691	0.8+	0.0	1999 10 06	704	0.3+	1.1−
1990 11 13	675	0.9−	1.2−	1997 03 11	691	0.3+	0.2+	1999 10 06	704	0.0	0.5−
1994 09 05	809	0.7−	0.6−	1997 03 11	691	0.1+	0.1+	1999 10 06	704	0.2+	0.1−
1994 09 05	809	0.7−	0.8−	1997 03 15	691	0.0	0.4−	1999 12 06	704	0.1+	0.1+
1994 09 05	809	0.3−	0.6−	1997 03 15	691	0.3−	0.1−	1999 12 06	704	0.6+	0.4+
1994 09 06	809	0.9+	1.0+	1997 03 15	691	0.2+	0.3−	1999 12 06	704	0.1−	0.2+
1994 09 06	809	0.2−	0.7+	1999 10 03	704	0.2+	1.0−	1999 12 07	704	0.5+	0.1+
1994 09 06	809	0.6+	1.2+	1999 10 03	704	0.2−	0.3−	1999 12 07	704	1.3−	0.2+
1997 03 05	691	0.3−	0.2+	1999 10 03	704	0.3−	0.1−	1999 12 07	704	0.7−	0.7+
1997 03 05	691	0.5−	0.1+	1999 10 06	704	1.2+	0.2−	1999 12 07	704	0.9−	0.8+
1997 03 05	691	0.3−	0.3+	1999 10 06	704	0.4+	0.3+				

1999 TX₃₂ = 1998 MG₃₆

Id. M. E. Sansaturio, S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	110.74050	(2000.0)		P		Q
<i>n</i>	0.17476974	ω	9.52034	−0.40528067	+0.91406985	
<i>a</i>	3.1682921	Ω	236.57233	−0.83993018	−0.37877064	
<i>e</i>	0.0706067	<i>i</i>	1.02729	−0.36092224	−0.14494520	
<i>P</i>	5.64	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1998 06 24	704	0.4+	0.2−	1999 10 01	703	0.7−	0.2+	1999 10 30	703	1.2+	1.1+
1998 06 24	704	(1.2− 2.6−)		1999 10 04	704	1.5+	0.8−	1999 10 30	703	(2.5− 0.9+)	
1998 06 24	704	0.5−	1.6−	1999 10 04	704	(2.0+ 2.7−)		1999 10 30	703	1.0−	0.2−
1998 06 26	704	0.8−	0.3−	1999 10 04	704	1.4+	1.6−	1999 11 12	704	1.4+	0.0
1998 06 26	704	0.3+	0.0	1999 10 06	704	0.5+	0.4−	1999 11 12	704	1.3−	0.1+
1998 06 26	704	0.4+	1.1+	1999 10 06	704	0.1+	0.5−	1999 11 12	704	1.0−	0.2−
1998 06 26	704	0.1+	1.3+	1999 10 06	704	0.2+	0.3−	1999 11 14	049	0.1+	0.2−
1999 10 01	703	0.3−	0.2+	1999 10 06	704	0.0	0.3−	1999 11 14	049	0.4−	0.6+
1999 10 01	703	0.7−	0.5+	1999 10 06	704	0.3+	0.9−	1999 11 14	049	0.3−	0.5+
1999 10 01	703	0.9−	0.9+	1999 10 30	703	0.3+	0.6+				

1999 UW₁ = 1998 VK₃₈

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	247.83671	(2000.0)		P		Q
<i>n</i>	0.17515276	ω	150.25959	−0.93269080	+0.32567282	
<i>a</i>	3.1636716	Ω	49.58783	−0.35784898	−0.78185890	
<i>e</i>	0.0742107	<i>i</i>	11.74595	−0.04507739	−0.53163321	
<i>P</i>	5.63	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1998 11 10	704	0.9−	0.9−	1998 11 11	704	0.4+	0.3−	1999 10 19	557	0.5−	0.2−
1998 11 10	704	0.5−	0.5+	1998 11 14	699	0.2+	0.7+	1999 10 19	557	0.3+	0.8+
1998 11 10	704	1.3−	1.7−	1998 11 14	699	0.9−	0.8+	1999 12 12	704	0.4+	0.2−
1998 11 11	704	1.2+	0.2+	1998 11 14	699	1.0+	0.3+	1999 12 12	704	0.1+	0.4−
1998 11 11	704	0.1−	1.2+	1999 10 18	557	0.3+	0.5−	1999 12 12	704	0.6−	0.2−
1998 11 11	704	0.9+	1.0−	1999 10 18	557	0.0	0.5−	1999 12 12	704	0.1−	0.2+
1998 11 11	704	0.1+	0.2+	1999 10 18	557	0.0	0.1+	1999 12 12	704	0.2+	0.9+

1999 UN₃ = 1989 EM₃ = 1991 TT₃

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	6.97651	(2000.0)		P		Q
<i>n</i>	0.25790673	ω	164.57787	+0.90235453	−0.42588119	
<i>a</i>	2.4443362	Ω	220.83381	+0.38394917	+0.86409416	
<i>e</i>	0.1409836	<i>i</i>	5.81018	+0.19580433	+0.26826573	
<i>P</i>	3.82	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1989 03 02	809	0.3+	0.6+	1991 10 05	033	0.6−	0.3+	1999 12 05	120	0.2+	0.0
1989 03 02	809	1.0+	0.4+	1999 10 16	120	0.2+	1.0−	1999 12 06	704	0.0	0.0
1989 03 02	809	1.0+	0.2+	1999 10 16	120	0.8−	0.3+	1999 12 06	704	0.1−	0.0
1989 03 03	809	1.0−	0.8−	1999 10 20	120	(1.2+ 2.2+)		1999 12 06	704	0.2−	0.3−
1989 03 03	809	0.4+	0.6−	1999 10 20	120	0.7+	0.3+	1999 12 06	704	0.5+	0.1+
1989 03 03	809	1.6−	0.1+	1999 11 29	120	0.3−	0.2+	1999 12 06	704	0.4+	0.2−
1991 10 04	033	0.4+	0.1−	1999 11 29	120	0.4−	0.4+	1999 12 13	120	0.2−	0.5+
1991 10 04	033	0.2+	0.1−	1999 12 05	120	0.9−	0.9−	1999 12 13	120	0.8+	0.6+

1999 UC₄ = 1998 HE₆₇

Id. G. V. Williams, A. Doppler

1999 DEC. 22

M.P.C. 37191

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	25.73712		(2000.0)	P		Q	
<i>n</i>	0.25202628	ω	287.51633	+0.77635156	+0.62504256		
<i>a</i>	2.4822118	Ω	33.92955	-0.50888246	+0.69762402		
<i>e</i>	0.1539919	<i>i</i>	8.36899	-0.37190980	+0.35020356		
<i>P</i>	3.91	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 04 21	704	0.5+	0.4-	1999 10 27	611	0.3+	0.3+	1999 11 15	611	0.3+	0.4+
1998 04 21	704	0.2-	0.8-	1999 10 27	611	0.6-	1.0+	1999 11 15	611	0.0	0.8+
1998 04 21	704	0.8+	0.8+	1999 10 29	611	0.1-	1.2-	1999 11 15	611	0.1+	0.9+
1998 04 21	704	0.7-	1.1+	1999 10 29	611	0.2+	0.4-	1999 11 15	611	0.1-	0.2+
1998 04 22	704	(2.3+ 0.2+)		1999 11 03	611	0.5-	0.2+	1999 11 26	611	0.6+	0.5+
1998 04 22	704	0.3+	0.7+	1999 11 03	611	0.2-	0.6-	1999 12 09	691	0.5-	0.2-
1998 04 22	704	0.1-	0.5+	1999 11 11	691	0.2+	0.3-	1999 12 09	691	0.1-	0.3-
1998 04 22	704	0.4+	1.8-	1999 11 11	691	0.2+	0.2-	1999 12 09	691	0.3-	0.1-
1998 04 22	704	0.6-	0.5+	1999 11 11	691	0.2+	0.3-				

1999 UE₄ = 1994 CB₁₂ = 1998 HU₆₁

Id. G. V. Williams, A. Doppler, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	28.72065		(2000.0)	P		Q	
<i>n</i>	0.28064833	ω	290.66368	+0.86417810	+0.50083070		
<i>a</i>	2.3104385	Ω	39.32498	-0.42837969	+0.78296213		
<i>e</i>	0.1618162	<i>i</i>	4.40101	-0.26398305	+0.36897008		
<i>P</i>	3.51	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1994 02 07	809	1.9+	0.7-	1998 04 22	704	0.0	1.5+	1999 11 12	704	0.3-	0.2-
1994 02 07	809	0.4+	0.3-	1999 10 27	120	1.1+	0.2+	1999 11 12	704	0.3-	0.3-
1994 02 07	809	0.9-	0.1-	1999 10 27	120	0.1+	0.7+	1999 11 12	704	0.3-	0.2-
1994 02 09	809	1.4-	0.5+	1999 10 28	120	0.0	0.7+	1999 11 25	120	0.7-	0.0
1994 02 09	809	0.1-	0.6+	1999 10 28	120	0.0	0.4-	1999 11 25	120	0.2-	0.2+
1994 02 09	809	0.6-	0.7+	1999 10 29	120	0.2+	0.1+	1999 12 04	703	0.8-	0.4-
1994 02 12	809	1.1+	0.8-	1999 10 29	120	(3.5- 2.8-)		1999 12 04	703	0.1-	0.2+
1994 02 12	809	0.5+	0.8-	1999 11 04	704	0.2+	0.2+	1999 12 04	703	0.4-	0.3+
1994 02 12	809	1.7-	0.7-	1999 11 04	704	0.1+	0.2+	1999 12 04	703	0.6-	0.3+
1998 04 21	704	0.1-	0.4+	1999 11 04	704	0.2+	0.0	1999 12 04	699	0.3-	0.6+
1998 04 21	704	0.3+	0.3+	1999 11 04	704	0.0	0.2-	1999 12 04	699	0.3-	0.4+
1998 04 21	704	0.3+	0.0	1999 11 04	704	0.3+	0.0	1999 12 04	699	0.5-	0.3-
1998 04 21	704	0.5+	0.2+	1999 11 05	120	0.2+	0.0	1999 12 06	704	1.3+	1.0+
1998 04 21	704	0.0	1.1+	1999 11 05	120	0.2+	0.4+	1999 12 06	704	0.9+	0.0
1998 04 22	704	0.5+	0.3-	1999 11 07	120	0.3+	0.5+	1999 12 06	704	0.5-	0.1-
1998 04 22	704	0.4+	0.4+	1999 11 07	120	0.4-	0.6+	1999 12 06	704	0.9-	0.3+
1998 04 22	704	0.7+	0.5+	1999 11 12	704	0.4-	0.5-				
1998 04 22	704	0.3-	0.9+	1999 11 12	704	0.2-	0.3-				

1999 UJ₄ = 1997 EK₄₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	334.91923		(2000.0)	P		Q	
<i>n</i>	0.26252609	ω	209.03340	+0.84292806	-0.53794673		
<i>a</i>	2.4155780	Ω	183.55187	+0.51796093	+0.81602420		
<i>e</i>	0.2065480	<i>i</i>	8.58909	+0.14556361	+0.21146586		
<i>P</i>	3.75	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 03 11	704	0.3+	1.4+	1999 10 29	734	0.9+	0.1-	1999 11 03	734	0.2-	0.1+
1997 03 11	704	0.9-	0.7-	1999 11 01	734	0.5-	0.4+	1999 11 03	734	0.4-	0.2+
1997 03 12	704	0.1-	0.3-	1999 11 01	734	0.4-	0.8+	1999 11 04	734	(3.1- 0.7+)	
1997 03 12	704	0.7+	0.5-	1999 11 01	734	0.8-	0.3+	1999 11 04	734	(2.2- 2.0+)	
1999 10 29	734	0.3+	0.5-	1999 11 01	734	0.4+	0.2+	1999 11 04	734	(0.5+ 3.0+)	
1999 10 29	734	0.9+	0.3-	1999 11 03	734	0.6-	0.3+	1999 11 27	734	0.2-	0.4+
1999 10 29	734	0.2+	0.4-	1999 11 03	734	0.9-	0.4-	1999 11 27	734	0.6+	0.3+
1999 10 29	734	0.6+	0.7-	1999 11 03	734	0.2+	0.1+				

1999 UD₅ = 1993 FY₃₂ = 1997 ER₅₈ = 1998 MB₄₁

Id. A. Doppler, S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	295.93232		(2000.0)	P		Q	
<i>n</i>	0.24595636	ω	27.46909	-0.08917484	-0.99482356		
<i>a</i>	2.5228844	Ω	67.68112	+0.90389111	-0.10137726		
<i>e</i>	0.1083591	<i>i</i>	3.01909	+0.41836432	+0.00698141		
<i>P</i>	4.01	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1993 03 19	809	(1.6+ 2.3+)		1999 10 29	703	0.1+	1.2-	1999 12 04	703	0.2-	0.4+
1993 03 20	809	(1.5+ 2.5+)		1999 10 29	703	0.8-	0.4+	1999 12 04	703	0.1-	0.7+
1993 03 24	809	0.7+	1.5+	1999 10 29	703	0.6-	0.3-	1999 12 06	704	0.2+	1.0+
1997 03 10	809	0.1+	0.6+	1999 10 29	703	0.2-	0.2-	1999 12 06	704	0.0	0.2-
1997 03 10	809	0.5+	0.1+	1999 10 30	703	0.3-	0.4-	1999 12 06	704	(0.5- 4.1-)	
1997 03 10	809	0.3+	0.5+	1999 10 30	703	0.6-	0.1+	1999 12 07	704	0.5+	0.2+
1997 03 11	809	0.5-	0.4-	1999 10 30	703	0.2-	0.1-	1999 12 07	704	0.5+	0.4+
1997 03 11	809	0.4-	0.6-	1999 10 30	703	0.0	0.2-	1999 12 07	704	0.3+	0.2-
1997 03 11	809	0.1-	0.2-	1999 11 12	704	0.1+	0.0	1999 12 07	704	0.2+	0.1+
1998 06 28	809	0.8-	0.4+	1999 11 12	704	0.4+	0.1-	1999 12 07	704	0.3-	0.2-
1998 06 28	809	1.1-	0.4-	1999 11 12	704	0.3+	0.3-	1999 12 12	703	0.3-	0.7+
1998 06 28	809	1.6-	0.3-	1999 11 12	704	0.4+	0.3-	1999 12 12	703	0.1-	0.5+
1998 07 01	809	0.9+	1.2+	1999 11 12	704	0.4+	0.4-	1999 12 12	703	0.1-	0.3+
1998 07 01	809	1.0+	0.5+	1999 12 04	703	0.2-	0.7+	1999 12 12	703	0.2-	1.0+
1998 07 01	809	1.4+	0.6+	1999 12 04	703	0.1-	0.1+				

1999 UQ₅ = 1996 BK₁ = 1998 MR₃₈

Id. A. Doppler, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	309.58760		(2000.0)	P		Q	
<i>n</i>	0.21399107	ω	174.02441	+0.28686012	-0.95551234		
<i>a</i>	2.7682520	Ω	259.29058	+0.87600569	+0.29062888		
<i>e</i>	0.0547181	<i>i</i>	4.00405	+0.38771807	+0.05030930		
<i>P</i>	4.61	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 01 16	560	1.5+	0.5-	1998 06 26	704	(6.5- 3.5-)		1999 11 04	704	0.4+	0.0
1996 01 16	560	(0.8+ 3.1+)		1998 06 26	704	(4.5- 3.0-)		1999 11 04	704	0.4+	0.3-
1996 01 16	560	(1.8+ 2.9+)		1998 06 27	809	(0.9+ 2.8+)		1999 11 04	704	0.2+	0.1+
1996 01 21	596	1.0-	0.1+	1998 06 27	809	(1.0- 2.7+)		1999 11 11	703	1.3-	0.5+
1996 01 21	596	0.9-	0.0	1998 06 27	809	(0.1- 3.1+)		1999 11 11	703	0.2-	0.4+
1996 01 21	596	0.8-	0.2-	1999 10 29	703	0.4+	0.3+	1999 11 11	703	0.5-	0.3-
1996 01 25	596	0.8+	1.1+	1999 10 29	703	1.6+	0.6+	1999 11 11	703	1.1-	0.1-
1996 01 25	596	0.3+	0.8+	1999 10 29	703	0.3+	0.3+	1999 12 03	699	0.4-	0.4+
1996 01 25	596	0.4+	0.6+	1999 10 29	703	0.3+	0.7+	1999 12 03	699	0.5+	1.2-
1998 06 26	809	0.1-	0.7+	1999 10 31	703	0.4+	0.2+	1999 12 03	699	0.4-	0.4+
1998 06 26	809	0.4-	0.2+	1999 10 31	703	0.3-	0.5+	1999 12 04	703	0.1-	1.0-
1998 06 26	809	0.1+	0.5+	1999 10 31	703	0.6-	0.1+	1999 12 04	703	0.5+	0.6-
1998 06 26	704	(2.5- 4.8-)		1999 10 31	703	0.2-	0.5+	1999 12 04	703	0.3+	0.9-
1998 06 26	704	(4.6- 4.2-)		1999 11 04	704	0.6-	0.8-	1999 12 04	703	0.5+	0.3-

1999 UX₅ = 1970 WL₁ = 1986 TF₁ = 1986 TN₁₇ = 1991 BG₄
= 1996 XW₃₂ = 1998 FC₉₇

Id. A. Doppler, G. V. Williams (d), S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	35.63580		(2000.0)	P		Q	
<i>n</i>	0.30441912	ω	52.92077	+0.67708312	+0.73110697		
<i>a</i>	2.1885414	Ω	259.91827	-0.69933946	+0.60374630		
<i>e</i>	0.2163717	<i>i</i>	4.88907	-0.22909116	+0.31776249		
<i>P</i>	3.24	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1970 11 23	033	0.1-	0.2-	1998 03 31	704	1.9-	0.6+	1999 11 03	704	0.1+	0.0
1986 10 04	688	(6.5+ 1.8+)		1998 03 31	704	0.5+	0.2+	1999 11 03	704	0.0	0.0

1986 10 04	688	(1.4– 2.6–)	1998 04 01	704	0.6+ 0.4+	1999 11 03	704	0.2+ 0.1+
1986 10 11	095	0.0 0.1–	1998 04 01	704	0.7+ 0.4–	1999 11 03	704	0.1– 0.3+
1991 01 18	801	1.4+ 0.2–	1998 04 01	704	0.1+ 0.6+	1999 11 11	703	0.0 0.5+
1991 01 18	801	0.5+ 0.7–	1998 04 01	704	0.0 0.1–	1999 11 11	703	0.7+ 0.7–
1996 12 04	098	0.3– 1.1–	1998 04 01	704	0.7– 0.0	1999 11 11	703	0.1+ 0.0
1996 12 04	098	0.0 0.1–	1999 10 29	703	0.1– 0.2+	1999 11 11	703	0.2+ 0.3–
1996 12 06	098	(2.9+ 0.9+)	1999 10 29	703	0.3– 0.1+	1999 12 03	699	0.6– 1.0+
1996 12 06	098	(3.4+ 0.9+)	1999 10 29	703	0.2– 0.1–	1999 12 03	699	0.1+ 0.9+
1996 12 08	098	1.6– 0.6–	1999 10 31	703	0.3– 0.0	1999 12 04	703	0.3– 0.4+
1996 12 08	098	0.2– 0.6–	1999 10 31	703	0.2+ 0.1–	1999 12 04	703	0.5– 0.8+
1998 03 31	704	0.8+ 0.4+	1999 10 31	703	0.4+ 0.9–	1999 12 04	703	0.2+ 0.9+
1998 03 31	704	0.3– 0.5–	1999 10 31	703	0.1+ 0.1–	1999 12 04	703	0.1+ 0.6+
1998 03 31	704	0.1+ 0.4+	1999 11 03	704	0.3+ 0.1+			

1999 US₆ = 1995 YX₈ = 1997 AP₂₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	41.42119		(2000.0)	P	Q
n	0.22915663	ω	94.82266	+0.60479882	+0.79624710
a	2.6447285	Ω	212.40569	−0.74093767	+0.55594865
e	0.1954925	i	1.54560	−0.29194135	+0.23856165
P	4.30	H	16.1	G 0.15	U 5

Residuals in seconds of arc

1995 12 18	691	0.1– 0.4+	1997 01 11	691	0.2+ 0.3–	1999 10 31	327	0.1– 0.9–
1995 12 18	691	0.1+ 0.6+	1997 01 17	691	0.5– 0.1–	1999 10 31	327	0.6– 0.8–
1995 12 18	691	0.2+ 0.6+	1997 01 17	691	0.4– 0.3–	1999 11 12	704	0.0 1.1+
1995 12 23	691	0.0 0.2–	1997 01 17	691	0.4– 0.2–	1999 11 12	704	0.1+ 1.2+
1995 12 23	691	0.4– 0.3+	1999 10 29	327	0.1– 1.2–	1999 11 12	704	0.5+ 1.2+
1995 12 23	691	0.2– 0.2+	1999 10 29	327	0.8– 1.4–	1999 11 12	704	0.3+ 0.8+
1997 01 11	691	0.3+ 0.1–	1999 10 29	327	0.3+ 1.1–	1999 11 12	704	0.8+ 0.1+
1997 01 11	691	0.4+ 0.4–	1999 10 31	327	0.4+ 0.3–			

1999 UO₇ = 1995 WK₃₀ = 1998 HE₈₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	42.52332		(2000.0)	P	Q
n	0.22829358	ω	264.77268	+0.51036127	+0.84967966
a	2.6513898	Ω	36.90348	−0.67531732	+0.49143677
e	0.1859851	i	12.75509	−0.53242642	+0.19113971
P	4.32	H	14.0	G 0.15	U 2

Residuals in seconds of arc

1995 11 19	691	0.1– 0.3–	1998 04 22	704	0.1– 0.2+	1999 11 26	132	0.6+ 0.9–
1995 11 19	691	0.1– 0.0	1998 04 22	704	0.1+ 0.1+	1999 11 26	132	(1.4+ 2.4–)
1995 11 19	691	0.1+ 0.2+	1999 10 31	132	0.5+ 0.0	1999 11 26	132	0.5– 1.1–
1995 11 24	691	0.0 0.1+	1999 10 31	132	0.7– 0.3+	1999 11 27	699	(0.8– 2.5+)
1995 11 24	691	0.1+ 0.2+	1999 10 31	132	0.1– 0.1–	1999 11 27	699	0.5– 0.5+
1995 11 24	691	0.1– 0.0	1999 10 31	132	0.4– 0.2–	1999 11 27	699	(0.2– 2.7+)
1998 04 21	704	0.5+ 0.0	1999 11 04	691	0.2+ 0.4–	1999 12 07	704	0.3+ 0.7–
1998 04 21	704	0.6+ 0.5–	1999 11 04	691	0.2+ 0.3–	1999 12 07	704	0.2– 0.3+
1998 04 21	704	0.2+ 0.3–	1999 11 04	691	1.0+ 0.4–	1999 12 07	704	0.8+ 0.1+
1998 04 21	704	0.4+ 0.4–	1999 11 04	132	0.4– 0.1–	1999 12 07	704	0.2+ 0.0
1998 04 21	704	1.4– 0.6+	1999 11 04	132	0.4+ 0.6+	1999 12 07	704	0.2– 0.2–
1998 04 22	704	0.2– 0.2–	1999 11 04	132	0.2+ 0.3+	1999 12 09	691	0.6+ 0.0
1998 04 22	704	0.1+ 0.3–	1999 11 05	132	1.6– 0.9+	1999 12 09	691	0.5+ 0.1+
1998 04 22	704	0.6– 0.1+	1999 11 26	132	0.3– 0.2+	1999 12 09	691	0.5+ 0.1+

1999 US₇ = 1992 DH₂

Id. G. V. Williams, A. Doppler, S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	10.20350		(2000.0)	P	Q		
n	0.21518905	ω	311.47509	+0.98808131	−0.11128594		
a	2.7579683	Ω	55.17859	+0.14822444	+0.87424919		
e	0.1316994	i	7.44357	−0.04153111	+0.47255030		
P	4.58	H	13.6	G	0.15	U	4

Residuals in seconds of arc

1992 02 29	033	0.1+ 0.2–	1999 11 04	704	0.4– 0.4–	1999 12 05	691	0.0 0.0
1992 02 29	033	0.1– 0.4+	1999 11 04	704	0.1– 0.5–	1999 12 06	704	0.8+ 0.1+
1992 03 01	033	0.1– 0.2–	1999 11 04	704	0.5– 0.4–	1999 12 06	704	0.2– 0.5–
1999 10 29	703	0.3+ 0.1–	1999 11 12	704	0.4+ 0.2–	1999 12 06	704	0.2+ 0.5–
1999 10 29	703	0.1– 0.1–	1999 11 12	704	0.2+ 0.2–	1999 12 06	704	0.9+ 0.2–
1999 10 29	703	0.5– 0.1+	1999 11 12	704	0.4+ 0.1–	1999 12 06	704	0.3– 0.8–
1999 10 29	703	0.2+ 0.5+	1999 11 12	704	0.4+ 0.2–	1999 12 07	704	0.7+ 0.5–
1999 11 01	703	0.1– 0.1+	1999 11 12	704	0.2+ 0.3–	1999 12 07	704	0.3+ 0.2–
1999 11 01	703	0.3+ 0.6+	1999 11 28	691	0.1– 0.0	1999 12 07	704	0.3– 0.3–
1999 11 01	703	0.1– 0.1–	1999 11 28	691	0.1– 0.1–	1999 12 07	704	0.3+ 0.3–
1999 11 01	703	0.0 0.3+	1999 11 28	691	0.1– 0.1–	1999 12 07	704	0.4– 0.0
1999 11 01	703	0.1– 0.3+	1999 12 04	703	0.2+ 0.5+	1999 12 12	703	0.4+ 0.7+
1999 11 01	703	0.1+ 0.6+	1999 12 04	703	0.3– 0.3+	1999 12 12	703	0.5– 0.4+
1999 11 01	703	0.1– 0.4–	1999 12 04	703	0.1– 0.3+	1999 12 12	703	0.2– 0.7+
1999 11 01	703	0.2– 0.5+	1999 12 04	703	0.4– 0.5+	1999 12 12	703	0.6– 0.5+
1999 11 04	704	0.3– 0.0	1999 12 05	691	0.0 0.0			
1999 11 04	704	0.4– 0.1–	1999 12 05	691	0.0 0.1–			

1999 UJ₈ = 1979 SY₁₃ = 1992 HP₆ = 1997 GO₃₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	329.66479		(2000.0)	P	Q		
n	0.20166613	ω	33.56283	+0.49464931	−0.86892637		
a	2.8799221	Ω	26.80223	+0.78885623	+0.44068703		
e	0.0653084	i	2.16074	+0.36472991	+0.22530405		
P	4.89	H	13.8	G	0.15	U	2

Residuals in seconds of arc

1979 09 20	675	0.0 0.6–	1999 10 29	703	0.1+ 0.5+	1999 12 06	704	0.2+ 0.1–
1979 09 21	675	0.3+ 0.1–	1999 11 01	703	0.7– 0.4+	1999 12 06	704	0.0 1.0–
1992 04 25	809	0.4– 1.8–	1999 11 01	703	0.2– 0.1–	1999 12 06	704	0.1– 0.5–
1992 04 25	809	0.9– 1.4–	1999 11 01	703	0.1– 0.2+	1999 12 07	704	0.4+ 0.4+
1992 04 25	809	(0.3+ 2.7–)	1999 11 01	703	0.1+ 0.5+	1999 12 07	704	0.0 0.2+
1997 04 06	704	0.5+ 0.2+	1999 11 04	704	0.1+ 0.4+	1999 12 07	704	0.4– 0.5+
1997 04 06	704	0.0 0.5+	1999 11 04	704	0.5+ 0.1–	1999 12 07	704	0.4+ 0.1+
1997 04 11	704	0.3– 0.1+	1999 11 04	704	0.3+ 0.1+	1999 12 07	704	0.0 0.1–
1997 04 11	704	0.1+ 0.3+	1999 11 04	704	0.0 0.4–	1999 12 12	703	0.3+ 0.2–
1999 10 29	703	0.5+ 0.3–	1999 11 04	704	0.3– 0.8–	1999 12 12	703	0.1– 0.2–
1999 10 29	703	0.7– 0.7–	1999 12 06	704	0.5– 0.2–	1999 12 12	703	0.4– 0.3+
1999 10 29	703	0.3+ 0.2–	1999 12 06	704	1.3+ 0.3–	1999 12 12	703	0.3– 0.3+

1999 UQ₈ = 1977 XN₃ = 1998 QU₆₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	35.50830		(2000.0)	P	Q
n	0.17612234	ω	115.05544	+0.97829191	+0.17796997
a	3.1520499	Ω	234.86363	−0.20332843	+0.92329473
e	0.0637887	i	7.45941	+0.04003110	+0.34037264
P	5.60	H	13.3	G 0.15	U 3

Residuals in seconds of arc

1977 12 07	675	0.2+	0.9−	1999 11 01	703	0.1+	0.7−	1999 12 04	703	0.1+	0.1+
1977 12 08	675	0.2−	0.5−	1999 11 01	703	0.7−	0.2−	1999 12 06	704	0.0	0.4−
1998 08 24	704	0.5+	1.4+	1999 11 01	703	0.2−	0.5−	1999 12 06	704	0.1+	0.4+
1998 08 24	704	1.5+	1.0+	1999 11 01	703	0.2+	0.0	1999 12 06	704	0.4−	0.1−
1998 08 24	704	0.4−	0.6+	1999 11 04	704	0.1+	0.0	1999 12 06	704	0.1+	1.4+
1998 08 24	704	1.0−	0.2+	1999 11 04	704	0.2+	0.2−	1999 12 06	704	0.1+	0.6−
1998 08 24	704	0.1−	0.2−	1999 11 04	704	0.2−	0.1+	1999 12 07	704	0.0	0.6+
1998 08 27	704	0.4−	0.3−	1999 11 04	704	0.3−	0.0	1999 12 07	704	0.2−	0.3+
1998 08 27	704	0.0	0.6−	1999 11 04	704	0.1−	0.6−	1999 12 07	704	0.4−	0.6+
1998 08 27	704	1.1+	0.5−	1999 11 25	120	(2.2+ 0.6+)		1999 12 07	704	0.4−	0.5+
1998 08 27	704	0.3−	0.8−	1999 11 25	120	1.1+	0.6−	1999 12 07	704	0.5−	1.1+
1998 08 27	704	0.8−	1.1−	1999 11 26	120	0.2+	0.5+	1999 12 12	703	0.1−	0.6−
1999 10 29	703	0.0	0.1+	1999 11 26	120	0.1−	0.0	1999 12 12	703	0.1+	0.2−
1999 10 29	703	0.1−	0.1−	1999 12 04	703	0.5+	0.1+	1999 12 12	703	0.8+	0.4−
1999 10 29	703	0.0	0.2+	1999 12 04	703	0.7−	0.2+	1999 12 12	703	0.2+	0.3−
1999 10 29	703	0.2−	0.3+	1999 12 04	703	0.6+	0.4+				

1999 DEC. 22

M.P.C. 37193

1999 UU₈ = 1980 PL₃ = 1985 SH₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	37.54331	(2000.0)	P		Q	
<i>n</i>	0.21574653	ω	97.29317	+0.93419540	+0.35055585	
<i>a</i>	2.7532153	Ω	242.20480	−0.34969796	+0.86299798	
<i>e</i>	0.1107739	<i>i</i>	4.29519	−0.07064198	+0.36379264	
<i>P</i>	4.57	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1980 08 03	675	0.2+	0.3+	1999 11 03	704	0.1+	0.1+	1999 12 06	704	0.2+	0.1+
1980 08 05	675	0.5−	0.5+	1999 11 03	704	0.3+	0.1−	1999 12 06	704	0.1+	0.3−
1985 09 21	095	0.6+	1.5−	1999 11 03	704	0.0	0.1−	1999 12 06	704	1.4+	1.3−
1999 10 29	703	0.4+	0.4+	1999 11 03	704	0.1+	0.1−	1999 12 06	704	(0.2+ 2.4−)	
1999 10 29	703	1.6−	0.3−	1999 11 03	704	0.1−	0.4+	1999 12 07	704	0.2+	0.0
1999 10 29	703	0.5+	1.0+	1999 11 25	120	0.8+	0.3+	1999 12 07	704	0.3−	0.0
1999 10 29	703	1.5−	0.3−	1999 11 25	120	0.3+	0.5+	1999 12 07	704	0.0	0.5−
1999 11 01	703	0.1+	0.0	1999 12 04	703	1.0−	0.1−	1999 12 07	704	0.0	0.0
1999 11 01	703	0.0	0.3+	1999 12 04	703	0.2−	0.6+	1999 12 07	704	0.4−	0.2−
1999 11 01	703	0.3−	0.1−	1999 12 04	703	0.5+	0.8+				
1999 11 01	703	0.1+	0.0	1999 12 04	703	0.3+	0.3+				

1999 UV₈ = 1996 XX₁₁

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	329.18871	(2000.0)	P		Q	
<i>n</i>	0.30108662	ω	345.22521	+0.62373792	−0.78045915	
<i>a</i>	2.2046606	Ω	66.16642	+0.72180099	+0.55410008	
<i>e</i>	0.1750045	<i>i</i>	2.68382	+0.29992388	+0.28958008	
<i>P</i>	3.27	<i>H</i>	16.9	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1996 12 04	691	0.1−	0.4+	1999 11 04	704	0.1−	0.7−	1999 12 04	703	0.1+	0.1−
1996 12 04	691	0.2−	0.3+	1999 11 04	704	0.0	1.4−	1999 12 06	691	0.6+	0.0
1996 12 04	691	0.1−	0.0	1999 11 04	704	0.0	0.8−	1999 12 06	691	0.2+	0.1+
1996 12 09	691	0.2+	0.3+	1999 11 04	704	0.1+	1.3−	1999 12 06	691	0.3+	0.0
1996 12 09	691	0.1+	0.2+	1999 11 12	704	0.0	0.2+	1999 12 07	704	0.0	0.4−
1996 12 09	691	0.2+	0.6−	1999 11 12	704	0.2−	0.1+	1999 12 07	704	0.4+	0.5−
1999 10 29	703	0.6−	1.2+	1999 11 12	704	0.1+	0.0	1999 12 07	704	0.3−	0.5−
1999 10 29	703	0.5−	0.6+	1999 11 12	704	0.2−	0.2−	1999 12 07	704	0.3−	1.3−
1999 10 29	703	0.2−	1.3+	1999 11 12	704	0.3−	0.2−	1999 12 07	704	0.3−	0.8−
1999 10 29	703	1.3+	0.2+	1999 11 29	691	0.1−	0.1−	1999 12 12	703	0.5+	0.4+
1999 11 01	703	0.1+	0.2+	1999 11 29	691	0.2+	0.1+	1999 12 12	703	0.2+	0.3+
1999 11 01	703	0.6−	0.5+	1999 11 29	691	0.1+	0.2+	1999 12 12	703	0.1+	0.5+
1999 11 01	703	0.6+	0.6+	1999 12 04	703	0.3+	0.5+	1999 12 12	703	0.0	0.2+
1999 11 01	703	0.2−	0.7+	1999 12 04	703	0.8−	0.6+				
1999 11 04	704	0.2+	0.7−	1999 12 04	703	0.2−	0.2+				

1999 UX₈ = 1997 LV₁₁ = 1998 QA₈₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	161.19850	(2000.0)	P		Q	
<i>n</i>	0.19021286	ω	14.77026	−0.65784863	+0.74888947	
<i>a</i>	2.9943976	Ω	214.20461	−0.70463113	−0.64949493	
<i>e</i>	0.0281366	<i>i</i>	8.18142	−0.26595140	−0.13160887	
<i>P</i>	5.18	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1997 06 07	809	0.0	1.3+	1999 10 29	703	0.5−	0.6+	1999 12 04	703	0.8−	1.2+
1997 06 07	809	0.2+	1.1+	1999 10 29	703	0.5−	0.6+	1999 12 04	703	0.1+	0.4+
1997 06 07	809	0.4+	0.8+	1999 10 29	703	0.4−	0.4+	1999 12 04	703	0.6+	0.2+
1997 06 08	809	0.6+	1.3+	1999 11 01	703	0.2−	0.8+	1999 12 04	703	0.7−	0.9+
1997 06 08	809	0.1−	1.7+	1999 11 01	703	0.5−	0.4+	1999 12 07	704	0.7+	1.1+
1997 06 08	809	0.1+	1.6+	1999 11 01	703	0.7−	0.4+	1999 12 07	704	0.4−	0.4+
1998 08 24	704	0.8−	1.4+	1999 11 01	703	0.7−	0.3+	1999 12 07	704	0.2−	0.2+
1998 08 24	704	1.2+	0.3+	1999 11 04	704	0.9+	0.3−	1999 12 07	704	0.3−	0.3+
1998 08 24	704	1.0+	0.5−	1999 11 04	704	0.9+	1.1−	1999 12 07	704	0.1−	1.2+

1998 08 27	704	0.7−	0.2−	1999 11 04	704	1.0+	0.9−	1999 12 12	703	0.3−	1.0+
1998 08 27	704	0.7−	0.9−	1999 11 04	704	0.8+	0.8−	1999 12 12	703	0.5+	0.6+
1998 08 27	704	0.8−	0.2+	1999 11 04	704	0.3+	0.9−	1999 12 12	703	0.2−	0.5+
1998 08 27	704	0.2+	0.3−	1999 11 14	595	0.3−	0.2−	1999 12 12	703	0.0	0.6+
1998 08 27	704	0.5+	1.2−	1999 11 14	595	0.1+	0.1−				
1999 10 29	703	0.0	0.4+	1999 11 14	595	0.1−	0.2+				

1999 UY₈ = 1998 KH₄₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	100.94416	(2000.0)	P		Q	
<i>n</i>	0.27608905	ω	59.74151	+0.02196524	+0.99832385	
<i>a</i>	2.3358050	Ω	211.65269	−0.94874711	+0.00392531	
<i>e</i>	0.1146537	<i>i</i>	5.85634	−0.31527202	+0.05774156	
<i>P</i>	3.57	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1998 05 22	704	0.5+	0.6+	1998 05 24	704	0.7+	0.2+	1999 11 01	703	1.1−	0.4+
1998 05 22	704	0.5−	0.7+	1998 05 24	704	0.1−	0.4−	1999 11 01	703	0.4−	0.0
1998 05 22	704	0.0	0.7−	1999 10 29	703	1.4+	0.3−	1999 11 04	704	1.0+	0.7−
1998 05 22	704	0.8−	0.6+	1999 10 29	703	0.9−	0.1−	1999 11 04	704	0.5+	0.2−
1998 05 22	704	0.2+	1.0−	1999 10 29	703	0.9+	0.6+	1999 11 04	704	0.4−	0.1+
1998 05 24	704	0.9−	1.3−	1999 10 29	703	0.3+	0.9−	1999 11 04	704	0.1+	0.3−
1998 05 24	704	0.7+	0.6+	1999 11 01	703	0.7−	0.8+				
1998 05 24	704	0.3+	0.7+	1999 11 01	703	0.7−	0.7+				

1999 UC₉ = 1978 UL₈ = 1997 AU₁₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	358.85606	(2000.0)	P		Q	
<i>n</i>	0.28366959	ω	346.58838	+0.93367037	−0.35593426	
<i>a</i>	2.2940042	Ω	34.34547	+0.33472158	+0.82792392	
<i>e</i>	0.0367572	<i>i</i>	4.02785	+0.12736213	+0.43341986	
<i>P</i>	3.47	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1978 10 27	675	0.2−	0.3+	1999 11 01	703	0.1−	0.7−	1999 12 07	704	0.4+	0.1−
1978 10 28	675	0.6−	0.1+	1999 11 01	703	0.7−	0.2+	1999 12 07	704	0.0	0.1+
1978 10 29	675	0.2+	0.8+	1999 11 01	703	0.4−	0.6+	1999 12 07	699	0.1−	0.2+
1997 01 11	566	0.1+	0.3+	1999 11 04	704	0.2+	0.3−	1999 12 07	699	0.1+	0.9+
1997 01 11	566	0.2+	0.3+	1999 11 04	704	0.3+	0.7−	1999 12 07	699	1.5−	0.2−
1997 01 11	566	0.1+	0.2+	1999 11 04	704	0.1−	0.3−	1999 12 08	704	0.6+	0.0
1997 01 12	566	0.1−	0.2−	1999 11 04	704	0.2+	0.4−	1999 12 08	704	1.1+	0.2−
1997 01 12	566	0.0	0.2−	1999 12 04	703	0.1−	0.6+	1999 12 08	704	0.5+	0.5−
1997 01 12	566	0.2−	0.0	1999 12 04	703	0.0	0.0	1999 12 08	704	0.2+	0.1+
1999 10 29	703	0.6+	0.2+	1999 12 04	703	0.1+	0.3−	1999 12 08	704	0.6+	0.4+
1999 10 29	703	1.0+	0.0	1999 12 04	703	0.4−	0.1+	1999 12 12	703	0.0	0.2+
1999 10 29	703	1.0−	0.3−	1999 12 07	704	0.1+	0.1−	1999 12 12	703	0.2+	0.2−
1999 10 29	703	0.5−	0.1−	1999 12 07	704	0.1−	0.2−	1999 12 12	703	0.4−	0.5−
1999 11 01	703	0.7+	0.1−	1999 12 07	704	0.4−	0.2−	1999 12 12	703	0.4−	0.4+

1999 UG₉ = 1998 QM₆₇

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	299.10398	(2000.0)	P		Q	
<i>n</i>	0.17419632	ω	232.31308	−0.12804316	−0.98599538	
<i>a</i>	3.1752412	Ω	225.41218	+0.95061591	−0.09130128	
<i>e</i>	0.0507406	<i>i</i>	8.62929	+0.28272663	−0.13956067	
<i>P</i>	5.66	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1998 08 24	704	0.5−	0.5+	1999 11 01	703	0.6+	0.5+	1999 12 06	691	0.2−	0.2−
1998 08 24	704	1.3+	0.5+	1999 11 01	703	0.0	0.2−	1999 12 06	691	0.2+	0.0
1998 08 24	704	0.6+	1.6−	1999 11 04	704	0.5+	0.1−	1999 12 07	704	0.5+	0.6−
1998 08 24	704	(1.4−	2.1−)	1999 11 04	704	0.2+	0.0	1999 12 07	704	0.1−	0.6−
1998 08 24	704	(3.1−	0.8+)	1999 11 04	704	0.5+	0.7−	1999 12 07	704	0.4+	0.3−

M.P.C. 37194

1998 08 27	704	1.0−	0.4+	1999 11 12	704	0.1−	0.6+	1999 12 07	704	0.7+	0.2−
1998 08 27	704	0.0	1.2+	1999 11 12	704	0.2−	0.8+	1999 12 07	704	0.1+	0.2+
1998 08 27	704	0.5−	1.1−	1999 11 12	704	0.8−	0.1−	1999 12 12	691	0.6+	0.2−
1998 08 27	704	(2.7−	0.3+)	1999 11 12	704	0.1−	0.4+	1999 12 12	691	0.1+	0.1−
1999 10 29	703	0.1+	0.6−	1999 11 12	704	0.1+	0.2−	1999 12 12	691	0.4+	0.1−
1999 10 29	703	0.2−	0.3−	1999 12 04	703	0.1−	0.7+	1999 12 12	703	1.6−	0.6+
1999 10 29	703	0.1−	0.4−	1999 12 04	703	0.8+	0.0	1999 12 12	703	0.5−	0.9−
1999 10 29	703	0.5−	0.7+	1999 12 04	703	0.3+	0.2+	1999 12 12	703	0.9−	0.9+
1999 11 01	703	0.3−	0.3−	1999 12 04	703	0.9−	0.1−	1999 12 12	703	0.0	0.6+
1999 11 01	703	0.4−	0.5+	1999 12 06	691	0.6+	0.3−				

1999 UL₉ = 9569 P-L

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

P				Q			
<i>M</i>	149.22021		(2000.0)				
<i>n</i>	0.25552596	ω	195.40762	−0.56760870	+0.82043576		
<i>a</i>	2.4594955	Ω	40.07648	−0.74365455	−0.47516538		
<i>e</i>	0.0754445	<i>i</i>	6.11639	−0.35326799	−0.31796703		
<i>P</i>	3.86	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1960 10 17	675	0.8+	0.4+	1999 11 01	703	1.0−	0.5+	1999 12 07	704	0.3−	0.0
1960 10 22	675	1.2−	0.3−	1999 11 01	703	0.1−	0.6+	1999 12 07	704	0.1+	0.0
1960 10 26	675	0.5+	0.2−	1999 11 03	704	1.2+	0.8−	1999 12 07	704	0.8+	0.2−
1999 10 29	703	0.0	0.2−	1999 11 03	704	0.4+	0.4−	1999 12 08	704	0.7+	0.5+
1999 10 29	703	0.2−	0.3+	1999 11 03	704	0.3+	1.0−	1999 12 08	704	0.4−	0.1−
1999 10 29	703	0.4+	0.5+	1999 12 04	695	0.6−	0.1+	1999 12 08	704	0.8−	1.1+
1999 10 29	703	0.2+	0.4−	1999 12 04	695	0.2+	0.2−	1999 12 08	704	0.6+	0.4−
1999 11 01	703	1.4−	0.5+	1999 12 07	704	0.6+	0.7+	1999 12 08	704	0.1+	0.4−
1999 11 01	703	0.5−	0.1+	1999 12 07	704	0.2−	0.8−				

1999 UG₁₁ = 1998 QM₆₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

P				Q			
<i>M</i>	342.67303		(2000.0)				
<i>n</i>	0.17434867	ω	133.79974	−0.09660768	−0.95944740		
<i>a</i>	3.1733913	Ω	319.40781	+0.75566713	+0.10245926		
<i>e</i>	0.3408405	<i>i</i>	24.01587	+0.64779175	−0.26260768		
<i>P</i>	5.65	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1998 08 27	327	0.3−	0.7+	1999 10 31	704	0.0	0.5−	1999 12 03	699	0.0	0.5+
1998 08 27	327	0.3+	0.5−	1999 10 31	704	0.4−	0.5−	1999 12 03	699	0.3+	0.4+
1998 08 27	327	0.3+	0.1+	1999 10 31	704	0.5+	0.1+	1999 12 03	699	0.0	0.6+
1998 08 31	327	0.4+	0.5+	1999 11 01	704	0.5+	0.6−	1999 12 13	704	0.6+	0.4+
1998 08 31	327	0.5−	0.2−	1999 11 01	704	0.1−	0.1+	1999 12 13	704	0.0	0.3+
1998 08 31	327	0.1−	0.6−	1999 11 01	704	0.2−	0.7+	1999 12 13	704	0.3+	0.4−
1999 10 31	704	0.4+	0.0	1999 11 01	704	0.5−	0.2+	1999 12 13	704	0.0	0.7−
1999 10 31	704	0.3+	0.1−	1999 11 01	704	0.5−	0.4+	1999 12 13	704	1.2−	0.7−

1999 UF₁₃ = 1979 YT₄ = 1998 MH₄₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

P				Q			
<i>M</i>	237.10790		(2000.0)				
<i>n</i>	0.18975537	ω	276.88380	−0.59032205	−0.80251192		
<i>a</i>	2.9992086	Ω	209.83283	+0.79212203	−0.55536498		
<i>e</i>	0.0441811	<i>i</i>	10.02173	+0.15512110	−0.21804669		
<i>P</i>	5.19	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1979 12 18	095	0.0	0.1+	1998 06 25	704	1.0+	0.3−	1999 12 03	704	0.5−	1.9+
1998 06 19	704	0.3+	1.2−	1999 10 29	703	0.1+	0.1+	1999 12 03	704	1.7+	0.4−
1998 06 19	704	0.3+	0.0	1999 10 29	703	0.8+	0.7−	1999 12 03	704	0.2−	0.1+
1998 06 19	704	1.4−	0.0	1999 10 29	703	0.3+	0.4+	1999 12 03	704	1.1+	1.1−

1999 DEC. 22

1998 06 19	704	1.0+	1.2−	1999 10 29	703	0.3−	0.0	1999 12 07	704	0.7−	0.2−
1998 06 19	704	1.9−	1.8+	1999 11 03	703	0.9−	0.2+	1999 12 07	704	0.5−	0.3+
1998 06 25	704	0.6+	0.7+	1999 11 03	703	0.4−	0.2−	1999 12 07	704	0.5−	0.0
1998 06 25	704	0.1+	0.7+	1999 11 03	703	0.1−	0.0	1999 12 07	704	0.2−	0.0
1998 06 25	704	0.1+	0.4−	1999 11 03	703	0.4−	0.1−	1999 12 07	704	0.6+	0.1−

1999 UH₁₃ = 1997 EJ₃₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

P				Q			
<i>M</i>	359.40088		(2000.0)				
<i>n</i>	0.24127817	ω	25.15494	+0.99633034	+0.08332273		
<i>a</i>	2.5553910	Ω	330.04550	−0.08365426	+0.89959644		
<i>e</i>	0.0880437	<i>i</i>	2.24677	−0.01810566	+0.42869985		
<i>P</i>	4.08	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 03 05	704	0.5−	0.0	1999 10 29	703	0.2+	0.2+	1999 12 07	704	0.2+	0.1+
1997 03 05	704	0.0	0.4+	1999 10 29	703	0.5+	0.0	1999 12 07	704	0.2−	0.0
1997 03 06	704	0.2−	0.0	1999 11 03	703	0.9−	0.1−	1999 12 07	704	0.4−	0.3−
1997 03 06	704	0.8+	0.3−	1999 11 03	703	0.3−	0.4+	1999 12 07	704	0.1−	0.2+
1999 10 29	703	0.6−	0.2+	1999 11 03	703	0.5−	0.4+	1999 12 07	704	0.7+	0.6−
1999 10 29	703	0.2+	0.9−	1999 11 03	703	1.2+	0.3+				

1999 UJ₁₃ = 1998 FR₁₄₀

Id. B. G. Marsden

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

P				Q			
<i>M</i>	34.89704		(2000.0)				
<i>n</i>	0.26548447	ω	80.38089	+0.48034999	+0.87486635		
<i>a</i>	2.3975995	Ω	218.52829	−0.83879305	+0.43749111		
<i>e</i>	0.2166091	<i>i</i>	5.73376	−0.25630081	+0.20787111		
<i>P</i>	3.71	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 03 29	704	0.7+	0.5+	1999 10 29	703	0.4+	0.3−	1999 11 29	046	0.2−	0.2+
1998 03 29	704	0.3−	0.4+	1999 11 03	703	1.4−	0.1+	1999 11 29	046	0.6−	0.1+
1998 03 29	704	0.3+	1.3−	1999 11 03	703	0.2+	0.3+	1999 11 29	046	0.3−	0.0
1998 03 29	704	1.0−	0.5−	1999 11 03	703	0.7+	0.2−	1999 11 29	046	0.2+	0.0
1998 04 01	704	0.2−	1.6+	1999 11 03	703	0.7+	0.4+	1999 12 07	704	0.5+	0.1+
1998 04 01	704	0.9+	0.7−	1999 11 28	046	0.5+	0.3−	1999 12 07	704	0.5−	0.1−
1998 04 01	704	0.4−	0.1−	1999 11 28	046	0.5+	0.1−	1999 12 07	704	0.3+	0.3+
1999 10 29	703	0.5+	0.3−	1999 11 28	046	0.9−	0.9+	1999 12 07	704	0.3+	1.0−
1999 10 29	703	0.0	0.1+	1999 11 28	046	0.4−	0.1+				
1999 10 29	703	0.9−	0.6−	1999 11 28	046	0.4+	0.2+				

1999 UY₁₃ = 1989 YH₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

P				Q			
<i>M</i>	242.55648		(2000.0)				
<i>n</i>	0.28500426	ω	19.69036	−0.79257648	−0.60753565		
<i>a</i>	2.2868367	Ω	122.78793	+0.55080705	−0.75002056		
<i>e</i>	0.1293863	<i>i</i>	3.55870	+0.26159915	−0.26147580		
<i>P</i>	3.46	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1989 12 30	511	0.0	1.1+	1999 10 29	703	0.4+	0.0	1999 11 03	703	0.3−	0.2+
1989 12 30	511	0.3−	0.3−	1999 10 29	703	0.1−	0.1−	1999 11 03	703	0.2+	0.2−
1990 01 01	511	0.0	0.6+	1999 10 29	703	0.0	0.1−	1999 11 03	703	0.1−	0.2+
1990 01 02	511	0.3+	1.4−	1999 10 29	703	0.2+	0.0	1999 11 03	703	0.2−	0.2−

1999 DEC. 22

1999 UF₁₄ = 1998 MA₂₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	82.48110	(2000.0)	P		Q	
<i>n</i>	0.24191366	ω	116.53932	+0.18557788	+0.98241906	
<i>a</i>	2.5509138	Ω	164.11604	-0.92592380	+0.18176050	
<i>e</i>	0.1060944	<i>i</i>	4.26164	-0.32897715	+0.04261352	
<i>P</i>	4.07	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1998 06 24	704	0.6+	0.4-	1998 06 26	704	0.2+	0.2-	1999 11 03	703	0.1-	0.4-
1998 06 24	704	0.1-	0.6-	1998 06 26	704	0.3+	0.0	1999 11 03	703	0.3+	0.1+
1998 06 24	704	1.0-	1.3+	1999 10 29	703	0.9-	0.1-	1999 11 03	703	0.1+	0.1+
1998 06 24	704	(2.2-	2.7-)	1999 10 29	703	0.4+	0.2+	1999 11 03	703	0.0	0.4-
1998 06 26	704	0.2-	0.0	1999 10 29	703	0.1-	0.0				
1998 06 26	704	0.2+	0.1-	1999 10 29	703	0.3+	0.5+				

1999 UD₁₅ = 1997 GK₄₁

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	14.50235	(2000.0)	P		Q	
<i>n</i>	0.18326713	ω	310.93547	+0.99146934	+0.01712773	
<i>a</i>	3.0695849	Ω	48.50472	+0.04975896	+0.86650704	
<i>e</i>	0.0965611	<i>i</i>	9.93364	-0.12046825	+0.49887091	
<i>P</i>	5.38	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1997 04 09	809	0.5-	0.1-	1997 04 12	809	0.4-	0.1+	1999 12 02	699	0.7-	0.3+
1997 04 09	809	1.1-	0.0	1997 04 12	809	1.0-	0.6+	1999 12 02	699	0.1+	0.5+
1997 04 09	809	0.4-	1.4-	1999 10 29	703	0.4+	0.0	1999 12 02	699	0.0	0.5+
1997 04 10	809	0.9+	0.3+	1999 10 29	703	0.1+	0.2-	1999 12 05	704	(0.5+	3.6+)
1997 04 10	809	0.6+	0.4+	1999 10 29	703	0.3+	0.1+	1999 12 05	704	(0.6+	3.8+)
1997 04 10	809	0.2-	1.0-	1999 10 29	703	0.2+	0.2-	1999 12 05	704	1.1-	0.1+
1997 04 11	809	0.9+	0.1+	1999 11 03	703	0.0	0.1+	1999 12 07	704	1.3+	0.6-
1997 04 11	809	0.5+	0.2-	1999 11 03	703	0.1+	0.1+	1999 12 07	704	0.5+	0.4-
1997 04 11	809	1.4+	1.1+	1999 11 03	703	0.0	0.1-	1999 12 07	704	0.7+	0.0
1997 04 12	809	0.5-	0.2+	1999 11 03	703	1.4-	0.3+	1999 12 07	704	0.6-	0.4-

1999 UK₁₅ = 1992 EM₁₁ = 1995 YT₂₄ = 1997 EZ₅₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	357.20169	(2000.0)	P		Q	
<i>n</i>	0.21366894	ω	285.67626	+0.94819867	-0.31474414	
<i>a</i>	2.7710336	Ω	92.68426	+0.30547881	+0.86615211	
<i>e</i>	0.0872155	<i>i</i>	2.47146	+0.08718934	+0.38822242	
<i>P</i>	4.61	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1992 03 06	809	0.6-	0.1-	1997 03 10	809	0.0	0.3+	1999 11 03	703	0.7-	0.9+
1992 03 08	809	0.0	1.1+	1997 03 11	809	0.3-	1.0-	1999 12 05	704	1.6+	0.0
1992 03 09	809	1.4+	1.4+	1997 03 11	809	0.3-	1.0-	1999 12 05	704	0.9+	1.1-
1995 12 24	566	0.4+	0.4-	1997 03 11	809	1.7-	0.8-	1999 12 05	704	1.6-	1.3-
1995 12 24	566	0.0	0.2-	1999 10 29	703	0.3-	0.6+	1999 12 07	704	1.0+	0.4-
1995 12 24	566	0.1+	0.4-	1999 10 29	703	0.5+	0.4+	1999 12 07	704	0.4+	0.7-
1995 12 25	566	0.1-	0.3-	1999 10 29	703	1.3-	0.0	1999 12 07	704	0.2-	0.3+
1995 12 25	566	0.2-	0.1+	1999 10 29	703	1.2+	0.5+	1999 12 07	704	1.1-	0.3-
1995 12 25	566	0.2-	0.1+	1999 11 03	703	0.3-	0.6+	1999 12 07	704	0.6-	0.0
1997 03 10	809	1.4+	0.9+	1999 11 03	703	0.1+	0.8+				
1997 03 10	809	0.5+	0.7+	1999 11 03	703	0.0	0.3+				

1999 UM₁₅ = 1998 KQ₄₁

Id. A. Doppler

M.P.C. 37195

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	142.73597	(2000.0)	P		Q	
<i>n</i>	0.28729664	ω	195.71399	-0.69361221	+0.71758812	
<i>a</i>	2.2746558	Ω	30.45390	-0.64679314	-0.58189758	
<i>e</i>	0.1301713	<i>i</i>	7.14059	-0.31711312	-0.38270418	
<i>P</i>	3.43	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1998 05 22	704	0.4+	0.0	1999 11 03	703	0.8-	0.5+	1999 11 12	120	1.2+	0.3-
1998 05 22	704	1.6-	0.9-	1999 11 03	703	(3.3-	0.2+)	1999 12 04	703	0.7-	0.3-
1998 05 22	704	0.6+	0.4-	1999 11 03	703	0.4-	0.0	1999 12 04	703	0.3-	0.6-
1998 05 22	704	0.7+	0.2-	1999 11 04	704	1.0+	0.3-	1999 12 04	703	0.4-	0.4+
1998 05 22	704	0.8+	0.7+	1999 11 04	704	1.5-	1.1-	1999 12 04	703	0.5-	1.1+
1998 05 24	704	1.1+	1.4-	1999 11 04	704	0.0	0.1-	1999 12 04	699	0.4-	0.1-
1998 05 24	704	0.2-	0.1+	1999 11 04	704	0.4+	0.0	1999 12 04	699	0.3+	0.4+
1998 05 24	704	0.3-	1.4+	1999 11 04	704	0.4+	0.9-	1999 12 04	699	0.1-	1.0-
1998 05 24	704	0.3+	0.3-	1999 11 10	120	0.5-	0.1-	1999 12 06	704	0.8+	0.9+
1998 05 24	704	1.8-	1.0+	1999 11 10	120	0.2-	0.4-	1999 12 06	704	0.5+	0.2-
1999 10 29	703	0.3-	0.6+	1999 11 12	704	0.6+	0.1+	1999 12 06	704	0.2-	0.4+
1999 10 29	703	0.2-	0.4+	1999 11 12	704	0.3+	0.2-	1999 12 06	704	0.6+	0.7-
1999 10 29	703	0.5-	0.7+	1999 11 12	704	0.6+	0.2-	1999 12 06	704	0.9-	0.7+
1999 10 29	703	0.2-	0.3+	1999 11 12	704	0.5+	0.5-				
1999 11 03	703	0.6+	0.5+	1999 11 12	120	0.2+	0.1+				

1999 UC₁₆ = 1998 MH₂₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	178.20195	(2000.0)	P		Q	
<i>n</i>	0.29312510	ω	351.90572	-0.94960305	+0.31194069	
<i>a</i>	2.2444023	Ω	206.33432	-0.28356428	-0.89674044	
<i>e</i>	0.0754443	<i>i</i>	3.97794	-0.13358647	-0.31392609	
<i>P</i>	3.36	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1998 06 24	704	0.3-	0.4+	1999 10 29	703	0.3+	0.5+	1999 11 12	704	0.2-	0.0
1998 06 24	704	0.7+	0.6-	1999 11 03	703	0.2-	0.1-	1999 11 12	704	0.2-	0.3-
1998 06 24	704	0.8-	0.8+	1999 11 03	703	(2.6-	0.3-)	1999 11 12	691	0.2+	0.4-
1998 06 24	704	0.5+	0.1-	1999 11 03	703	0.5-	0.1+	1999 11 12	691	0.3+	0.3-
1998 06 24	704	0.3-	0.3+	1999 11 03	703	0.2+	0.0	1999 11 12	691	0.3+	0.3-
1998 06 26	704	0.2+	0.3-	1999 11 04	704	0.4-	0.1-	1999 12 04	699	0.5-	0.3+
1998 06 26	704	0.5-	0.4-	1999 11 04	704	0.1+	0.0	1999 12 04	699	0.5-	0.8+
1998 06 26	704	0.0	0.6-	1999 11 04	704	0.3-	0.2-	1999 12 04	699	0.4-	0.0
1998 06 26	704	0.4+	0.2-	1999 11 04	704	0.4-	0.2+	1999 12 07	704	0.3+	1.1+
1998 06 26	704	0.2+	0.7+	1999 11 04	704	0.4+	0.3+	1999 12 07	704	0.5+	0.6-
1999 10 29	703	0.4+	0.1+	1999 11 12	704	0.2+	0.2-	1999 12 07	704	0.0	0.0
1999 10 29	703	0.0	0.1+	1999 11 12	704	0.0	0.0	1999 12 07	704	1.1+	0.3-
1999 10 29	703	0.0	0.1+	1999 11 12	704	0.1+	0.4-	1999 12 07	704	0.7-	0.3-

1999 UU₁₆ = 1995 WR₄₁

Id. A. Doppler, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	286.53501	(2000.0)	P		Q	
<i>n</i>	0.23444819	ω	78.63326	-0.31948276	-0.94592549	
<i>a</i>	2.6047825	Ω	30.18510	+0.82000002	-0.30568905	
<i>e</i>	0.1615948	<i>i</i>	6.41488	+0.47490076	-0.10853185	
<i>P</i>	4.20	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1995 11 16	358	(3.3+	1.6+)	1999 10 29	703	0.3-	0.6+	1999 11 04	704	0.3+	0.3-
1995 11 16	358	0.5+	0.5-	1999 10 29	703	0.1+	0.4+	1999 11 04	704	0.1-	1.2-
1995 11 17	358	1.1+	1.0-	1999 11 03	703	0.0	0.3+	1999 11 04	704	0.2-	1.1-
1995 11 17	358	0.8-	0.0	1999 11 03	703	0.6+	0.1-	1999 11 11	703	0.6-	0.3-
1995 11 21	358	(0.4-	3.5-)	1999 11 03	703	0.6-	0.5+	1999 11 11	703	0.2+	0.3+
1995 11 21	358	0.7-	1.4+	1999 11 03	703	0.3-	0.2-	1999 11 11	703	0.7+	0.1-

1999 10 29 703 0.2− 0.4+ 1999 11 04 704 0.5+ 0.4− 1999 11 11 703 0.3+ 0.8+
 1999 10 29 703 (2.0+ 1.0−) 1999 11 04 704 0.5− 0.3+

1999 UH₁₈ = 1998 HC₆₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	19.85771		(2000.0)	P	Q
<i>n</i>	0.26270724	ω	286.65291	+0.85488623	+0.51214588
<i>a</i>	2.4144675	Ω	42.63757	−0.41702768	+0.77341134
<i>e</i>	0.1483677	<i>i</i>	7.03181	−0.30863805	+0.37355253
<i>P</i>	3.75	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 04 21	704	0.2−	0.9+	1998 04 22	704	0.3+	0.6−	1999 12 03	704	0.7+	0.4+
1998 04 21	704	0.5+	1.0−	1998 04 22	704	0.4−	1.0+	1999 12 03	704	1.3+	1.3−
1998 04 21	704	0.9+	1.0−	1999 10 30	691	0.1−	0.1−	1999 12 03	704	0.2+	0.3−
1998 04 21	704	(0.1−	4.2−)	1999 10 30	691	0.1−	0.1−	1999 12 03	704	1.1+	0.8+
1998 04 21	704	1.6−	0.3+	1999 10 30	691	0.3−	0.2+	1999 12 07	704	0.7−	0.4−
1998 04 22	704	1.0+	0.7−	1999 11 04	691	0.1−	0.2+	1999 12 07	704	1.5−	0.7+
1998 04 22	704	0.8−	0.9+	1999 11 04	691	0.1+	0.1+	1999 12 07	704	0.9−	0.5+
1998 04 22	704	0.5+	0.9+	1999 11 04	691	0.1+	0.1+				

1999 US₂₃ = 1977 XW

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	268.54255		(2000.0)	P	Q
<i>n</i>	0.26372567	ω	220.30524	−0.08510196	−0.99325243
<i>a</i>	2.4082475	Ω	234.71841	+0.93719092	−0.05295058
<i>e</i>	0.0831617	<i>i</i>	5.53844	+0.33827627	−0.10317876
<i>P</i>	3.74	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1977 12 07	675	1.0−	0.2−	1999 11 04	703	0.2+	0.3+	1999 12 03	704	0.6−	0.2−
1977 12 08	675	1.0+	0.3+	1999 11 04	703	0.6+	0.6−	1999 12 07	704	0.3+	0.4−
1999 10 28	703	0.1−	0.1−	1999 11 04	703	0.2−	0.3−	1999 12 07	704	0.3+	0.2−
1999 10 28	703	0.1+	0.1+	1999 12 03	704	0.2+	0.3+	1999 12 07	704	0.8−	0.2−
1999 10 28	703	0.5+	0.0	1999 12 03	704	0.6+	0.6+	1999 12 07	704	0.3−	0.1−
1999 10 28	703	1.1−	0.3+	1999 12 03	704	0.6+	0.1+	1999 12 07	704	0.1+	0.5−
1999 11 04	703	0.1−	0.5+	1999 12 03	704	0.2−	0.3+				

1999 UN₂₄ = 1985 SP₅ = 1985 UO₅ = 1998 HG₆₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	9.03200		(2000.0)	P	Q
<i>n</i>	0.28302347	ω	17.88616	+0.97816025	+0.20461879
<i>a</i>	2.2974942	Ω	330.23172	−0.19855697	+0.86792611
<i>e</i>	0.1693350	<i>i</i>	4.21818	−0.06146257	+0.45258747
<i>P</i>	3.48	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1985 09 21	095	0.5+	0.6+	1998 04 22	704	0.4+	0.5−	1999 10 28	703	0.3+	0.1+
1985 10 18	095	0.3−	0.7−	1998 04 22	704	1.4+	0.5−	1999 10 28	703	0.1+	0.2+
1998 04 21	704	0.2−	0.6+	1998 04 22	704	0.1+	0.4−	1999 11 04	703	0.2−	0.2+
1998 04 21	704	1.1−	0.1−	1998 04 22	704	0.6−	0.7+	1999 11 04	703	0.1−	0.2−
1998 04 21	704	0.1−	0.4−	1998 04 22	704	0.2+	0.1+	1999 11 04	703	0.0	0.1+
1998 04 21	704	0.2+	0.0	1999 10 28	703	0.1−	0.1+	1999 11 04	703	0.0	0.1+
1998 04 21	704	0.1−	0.9+	1999 10 28	703	0.0	0.1−				

1999 UN₂₅ = 1989 SH₁₂

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	50.24163		(2000.0)	P	Q
<i>n</i>	0.20607727	ω	23.38857	+0.89031811	+0.45504328
<i>a</i>	2.8386771	Ω	309.53340	−0.42105321	+0.80902519
<i>e</i>	0.0673349	<i>i</i>	1.21915	−0.17334320	+0.37204013
<i>P</i>	4.78	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1989 09 27	675	0.1+	0.8−	1989 10 02	809	0.9−	0.2+	1999 12 07	704	0.1+	0.3−
1989 09 27	675	1.6−	1.3−	1999 10 29	703	0.8−	0.5−	1999 12 07	704	0.4+	0.2−
1989 09 30	809	0.7+	0.1+	1999 10 29	703	0.1+	0.8+	1999 12 07	704	0.1−	0.2−
1989 09 30	809	1.1+	0.1+	1999 10 29	703	1.0+	0.2+	1999 12 07	704	0.0	0.4−
1989 09 30	809	1.3+	0.2+	1999 10 29	703	0.5−	0.6+	1999 12 08	704	0.5−	0.0
1989 10 01	809	0.6+	0.3+	1999 11 04	703	0.2−	0.4+	1999 12 08	704	0.2−	0.0
1989 10 01	809	0.8+	0.2+	1999 11 04	703	0.1+	0.3+	1999 12 08	704	0.3−	0.2−
1989 10 01	809	1.1+	0.2+	1999 11 04	703	0.2+	0.0	1999 12 08	704	0.1−	0.3+
1989 10 02	809	1.6−	0.3+	1999 11 04	703	0.4+	0.1−	1999 12 08	704	0.5+	0.7−
1989 10 02	809	1.3−	0.2+	1999 12 07	704	0.0	0.1+				

1999 UT₂₅ = 1991 PD₂₂ = 1991 PT₂₉ = 1995 UH₁₈ = 1998 HE₉₄

Id. S. Nakano, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	59.37359		(2000.0)	P	Q
<i>n</i>	0.26482585	ω	334.41821	+0.57259998	+0.81967067
<i>a</i>	2.4015730	Ω	330.50527	−0.74634358	+0.51288435
<i>e</i>	0.1893479	<i>i</i>	1.90988	−0.33926467	+0.25512669
<i>P</i>	3.72	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1991 08 02	809	0.3+	0.1+	1998 04 22	704	0.5+	0.6+	1999 11 04	704	0.3+	0.5+
1991 08 02	809	1.5−	0.3−	1998 04 22	704	0.1−	1.1−	1999 11 04	703	0.3−	0.1−
1991 08 02	809	1.5−	0.7+	1998 04 22	704	0.4+	0.0	1999 11 04	704	0.4+	0.1−
1991 08 14	809	(2.7+ 1.2−)		1999 10 29	703	1.2−	0.1+	1999 11 04	703	0.8−	0.1−
1991 08 14	809	1.2+	1.2−	1999 10 29	703	0.5+	0.4+	1999 12 04	703	(2.2− 0.9+)	
1991 08 14	809	1.9+	0.4−	1999 10 29	703	0.3−	0.3+	1999 12 04	703	0.3+	0.9−
1995 10 18	691	0.4−	0.3+	1999 10 29	703	0.9+	0.1−	1999 12 04	703	1.2+	0.9−
1995 10 18	691	0.3−	0.5+	1999 11 03	704	1.1+	1.1+	1999 12 04	703	1.2−	0.9−
1995 10 18	691	0.0	0.4+	1999 11 03	704	0.1+	0.0	1999 12 08	704	0.0	0.1+
1995 10 28	691	0.2−	0.3+	1999 11 03	704	0.4+	0.1−	1999 12 08	704	0.0	0.5+
1995 10 28	691	0.1+	0.0	1999 11 03	704	0.3−	0.4−	1999 12 08	704	0.4+	0.3−
1995 10 28	691	0.0	0.3+	1999 11 03	704	0.1+	0.4−	1999 12 08	704	0.2+	0.3−
1998 04 21	704	0.1−	0.3−	1999 11 04	704	0.4+	0.1+	1999 12 08	704	0.5+	0.0
1998 04 21	704	0.8−	0.3−	1999 11 04	704	0.5−	0.1−	1999 12 12	703	0.3−	0.3+
1998 04 21	704	0.3−	0.1−	1999 11 04	703	1.5−	0.0	1999 12 12	703	0.1+	0.4−
1998 04 21	704	0.5−	0.6+	1999 11 04	704	0.6+	0.0	1999 12 12	703	0.9−	0.1+
1998 04 21	704	0.9+	0.6+	1999 11 04	703	0.5+	0.2−	1999 12 12	703	0.0	0.1+

1999 UX₂₅ = 1977 XY₁ = 1982 SG₁ = 1998 MB₂₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	33.18277		(2000.0)	P	Q
<i>n</i>	0.17503748	ω	83.37705	+0.72618363	+0.68523451
<i>a</i>	3.1650605	Ω	233.35128	−0.65504839	+0.66499294
<i>e</i>	0.2189843	<i>i</i>	3.98639	−0.20873173	+0.29704891
<i>P</i>	5.63	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1977 12 07	675	0.5+	0.5+	1998 06 24	704	0.0	0.5−	1999 10 30	703	0.3−	0.1−
1977 12 08	675	0.5−	0.0	1998 06 24	704	0.3−	0.1+	1999 11 04	703	0.6+	0.1+
1982 09 19	095	1.4+	0.5+	1998 06 26	704	0.2+	0.0	1999 11 04	703	0.6−	0.1+
1982 09 21	095	0.2−	0.5+	1998 06 26	704	0.2+	0.2−	1999 11 04	703	0.3−	0.2−
1982 09 22	688	(3.5− 4.3−)		1998 06 26	704	0.3+	0.8+	1999 11 04	703	0.4+	0.0
1982 09 22	688	(18.5− 28.7+)		1998 06 26	704	0.1−	0.2−	1999 11 27	699	0.0	0.2+
1982 09 28	095	1.1−	1.2−	1998 06 26	704	0.1−	0.1−	1999 11 27	699	0.2+	0.8+
1998 06 24	704	0.3+	0.5−	1999 10 30	703	0.2+	0.2−	1999 11 27	699	0.3+	0.2−

1999 DEC. 22

M.P.C. 37197

1998 06 24 704 0.2- 1.5+ 1999 10 30 703 0.4- 0.0
 1998 06 24 704 0.3- 0.3- 1999 10 30 703 0.0 0.3-

1999 VG = 1981 QG₄ = 1990 SP₂₇

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	356.69577		(2000.0)	P	Q				
<i>n</i>	0.22288963	ω	175.89409	+0.97895743	-0.20334403				
<i>a</i>	2.6940737	Ω	195.86985	+0.18539584	+0.92134056				
<i>e</i>	0.2357084	<i>i</i>	3.59224	+0.08526856	+0.33133484				
<i>P</i>	4.42	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	3		

Residuals in seconds of arc

1981 08 30	675	0.7-	0.6-	1999 11 03	732	0.5-	0.1+	1999 11 12	704	0.7+	0.2-
1981 08 31	675	1.0+	0.6-	1999 11 03	732	0.0	0.1-	1999 11 12	704	0.5+	0.5-
1990 09 23	095	0.3-	1.1+	1999 11 03	703	0.1-	0.4+	1999 11 12	704	0.7+	0.5-
1999 11 01	732	1.6-	1.0+	1999 11 03	703	0.3-	0.3+	1999 11 12	704	0.6+	0.4-
1999 11 01	732	0.3-	0.4+	1999 11 03	703	0.5-	0.4+	1999 11 13	739	0.1+	0.4-
1999 11 01	732	0.6-	0.5+	1999 11 03	703	0.1-	0.5+	1999 11 13	739	0.9+	0.4-
1999 11 01	732	0.6-	0.2-	1999 11 04	732	0.0	0.4-	1999 11 16	732	0.2+	0.6-
1999 11 01	732	0.6+	0.3+	1999 11 04	732	0.0	0.2-	1999 11 16	732	0.8-	0.3-
1999 11 01	732	0.4+	0.1-	1999 11 04	732	0.2+	0.0	1999 11 27	732	0.9+	0.1-
1999 11 02	732	1.9+	0.2-	1999 11 05	732	0.3-	0.2+	1999 11 27	732	0.4-	0.0
1999 11 02	732	0.1-	0.0	1999 11 05	732	0.1+	0.0	1999 11 27	732	0.6-	0.4-
1999 11 02	732	0.0	0.1+	1999 11 05	732	0.0	0.4+	1999 11 28	732	0.0	0.1-
1999 11 03	732	0.2+	0.0	1999 11 09	732	0.7-	0.2+	1999 11 28	732	0.7-	0.1-
1999 11 03	732	0.2-	0.1-	1999 11 09	732	0.5-	0.1+	1999 11 28	732	0.1+	0.8-
1999 11 03	732	0.1+	0.3+	1999 11 09	732	0.3-	0.1-				
1999 11 03	732	0.2+	0.4+	1999 11 12	704	0.9+	0.3-				

1999 VJ = 1990 UV₃

Id. A. Doppler, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	30.17062		(2000.0)	P	Q				
<i>n</i>	0.23112333	ω	333.93052	+0.86469780	-0.45091136				
<i>a</i>	2.6297040	Ω	54.65018	+0.49510144	+0.69084566				
<i>e</i>	0.1332734	<i>i</i>	15.74346	+0.08468925	+0.56516478				
<i>P</i>	4.26	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1990 10 16	809	0.5+	0.1+	1999 11 01	557	0.3+	0.0	1999 11 15	557	0.3-	0.2-
1990 10 16	809	(3.2+ 0.8-)		1999 11 01	557	0.0	0.2-	1999 12 03	699	0.5+	0.1-
1990 10 16	809	0.4-	0.4+	1999 11 01	557	0.5-	0.1+	1999 12 03	699	0.3-	1.0-
1990 10 20	809	0.2+	0.8-	1999 11 02	557	0.0	0.7+	1999 12 03	699	0.5+	0.6-
1990 10 20	809	0.4-	0.3-	1999 11 02	557	0.4-	0.3+	1999 12 13	704	0.5-	0.2-
1990 10 20	809	0.9+	0.8-	1999 11 02	557	0.1-	0.4+	1999 12 13	704	0.5-	0.4+
1990 10 24	809	0.6-	0.7+	1999 11 04	557	0.1+	0.2+	1999 12 13	704	0.3-	0.5+
1990 10 24	809	0.9-	0.7+	1999 11 04	557	0.2+	0.1+	1999 12 13	704	0.0	0.2-
1990 10 24	809	0.8+	0.1-	1999 11 15	557	0.1+	0.3-	1999 12 13	704	1.0+	0.3+

1999 VU = 1977 OA

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	235.73548		(2000.0)	P	Q				
<i>n</i>	0.60264013	ω	202.93504	-0.99600062	-0.05360522				
<i>a</i>	1.3881317	Ω	333.68557	+0.08327100	-0.84690707				
<i>e</i>	0.5535613	<i>i</i>	9.27910	-0.03238360	-0.52903203				
<i>P</i>	1.64	<i>H</i>	17.1	<i>G</i>	0.15	<i>U</i>	3		

Residuals in seconds of arc

1977 07 18	413	1.3-	1.0+	1999 11 04	413	0.6+	0.0	1999 11 28	587	0.2-	0.2+
1977 07 18	413	0.9+	1.5-	1999 11 04	413	0.3-	0.1+	1999 11 29	726	0.0	0.5+
1977 07 19	413	1.2-	0.5+	1999 11 08	726	0.7+	1.2-	1999 11 29	726	0.9-	0.3+
1977 07 19	413	1.6+	0.0	1999 11 08	726	1.2-	0.7-	1999 11 29	726	0.0	1.1-
1999 11 01	704	0.3+	0.1-	1999 11 09	595	0.2+	0.5-	1999 11 29	726	0.6+	1.0-
1999 11 01	704	0.3+	0.0	1999 11 09	595	0.0	0.0	1999 11 29	557	1.2+	0.3-

1999 11 01	704	0.5+	0.2+	1999 11 10	402	0.1-	0.0	1999 11 29	557	0.8+	0.0
1999 11 01	704	0.4-	0.1-	1999 11 10	402	0.2-	0.2-	1999 11 30	726	1.1+	1.1-
1999 11 01	704	0.3-	0.1-	1999 11 10	402	0.0	0.0	1999 11 30	726	(2.0+ 0.0)	
1999 11 01	046	0.1+	0.1+	1999 11 10	360	0.2-	0.1+	1999 11 30	726	0.2+	0.5-
1999 11 01	046	0.1-	0.3-	1999 11 10	360	0.3-	0.1+	1999 11 30	726	0.6-	0.9-
1999 11 01	046	0.4-	0.0	1999 11 10	360	0.3-	0.1+	1999 11 30	726	(2.7+ 2.1-)	
1999 11 01	046	0.2-	0.0	1999 11 12	853	0.3+	0.3+	1999 11 30	726	0.8+	0.0
1999 11 02	557	0.1-	0.2+	1999 11 12	853	0.2+	0.4+	1999 12 02	726	1.3-	1.2-
1999 11 02	557	0.0	0.2+	1999 11 12	853	0.1+	0.2+	1999 12 02	726	0.1+	0.8-
1999 11 02	557	0.2-	0.1+	1999 11 13	360	0.0	0.2+	1999 12 02	726	0.5-	0.1+
1999 11 02	853	0.1-	0.0	1999 11 13	360	0.0	0.2+	1999 12 02	726	0.0	1.2-
1999 11 02	853	0.0	0.0	1999 11 13	360	0.2+	0.4+	1999 12 02	726	1.0-	0.5+
1999 11 02	853	0.1-	0.0	1999 11 15	118	0.4-	0.5+	1999 12 03	658	0.1+	0.3+
1999 11 02	704	0.2+	0.1+	1999 11 15	118	0.2-	0.4+	1999 12 03	658	0.2-	0.3+
1999 11 02	704	0.2+	0.3+	1999 11 15	118	0.2-	0.5+	1999 12 03	658	0.3+	0.6+
1999 11 02	704	0.2+	0.2-	1999 11 16	670	0.1+	0.5+	1999 12 03	402	0.1+	0.0
1999 11 02	704	0.1+	0.2+	1999 11 16	670	0.0	0.2+	1999 12 03	402	0.3+	0.0
1999 11 02	704	0.2+	0.1+	1999 11 18	402	0.3-	0.3+	1999 12 03	402	0.4+	0.2+
1999 11 02	046	0.1-	0.1+	1999 11 18	402	0.5+	0.2+	1999 12 03	360	0.1-	0.1+
1999 11 02	046	0.1+	0.2-	1999 11 18	402	0.1-	0.4+	1999 12 03	360	0.0	0.1+
1999 11 02	046	0.1-	0.2+	1999 11 18	118	0.1+	0.0	1999 12 03	360	0.0	0.0
1999 11 02	046	0.6-	0.1-	1999 11 18	118	0.3+	0.0	1999 12 06	726	0.4+	0.7-
1999 11 03	853	0.3-	0.2-	1999 11 26	046	0.0	0.5+	1999 12 06	726	0.5-	0.8-
1999 11 03	853	0.0	0.0	1999 11 26	046	0.1+	0.7+	1999 12 06	726	0.2-	0.5+
1999 11 03	853	0.1-	0.0	1999 11 26	046	0.1-	0.7+	1999 12 06	726	1.0-	0.4+
1999 11 03	711	0.2+	0.0	1999 11 26	046	0.1+	0.6+	1999 12 08	402	0.2+	0.2+
1999 11 03	711	1.0+	0.7-	1999 11 27	151	0.0	0.0	1999 12 08	402	0.2+	0.1+
1999 11 03	711	1.2+	0.1-	1999 11 27	151	0.2-	0.3-	1999 12 08	402	0.0	0.4+
1999 11 04	557	0.4-	0.0	1999 11 27	151	0.6-	0.3+	1999 12 11	118	0.2-	0.3+
1999 11 04	557	0.2-	0.1-	1999 11 27	151	0.1-	0.4+	1999 12 11	118	0.2-	0.3+
1999 11 04	557	0.3-	0.0	1999 11 27	151	0.7-	0.2-	1999 12 13	888	0.2+	0.1+
1999 11 04	853	0.0	0.1-	1999 11 28	557	0.5+	0.1-	1999 12 13	888	0.3+	0.1-
1999 11 04	853	0.4-	0.2-	1999 11 28	557	0.5+	0.1-	1999 12 13	888	0.1-	0.2-
1999 11 04	853	0.2-	0.1-	1999 11 28	557	0.1+	0.1+				
1999 11 04	413	0.2+	0.0	1999 11 28	587	0.3+	0.0				

1999 VW = 1987 KR₄

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	29.15931		(2000.0)	P	Q				
<i>n</i>	0.19180048	ω	303.59828	+0.98695842	+0.07454561				
<i>a</i>	2.9778508	Ω	52.53753	+0.00529435	+0.87080137				
<i>e</i>	0.1113694	<i>i</i>	10.35502	-0.16088829	+0.48595053				
<i>P</i>	5.14	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	2		

Residuals in seconds of arc

1983 07 16	413	0.5-	0.1+	1999 10 22	292	1.7-	1.3-	1999 11 12	704	0.9+	0.2-
1983 07 16	413	0.1+	0.6+	1999 11 03	734	0.4-	0.4+	1999 11 12	704	0.6+	0.1-
1987 05 30	413	0.1-	0.2-	1999 11 03	734	0.3-	0.6+	1999 11 12	704	1.4-	0.1+
1987 05 30	413	0.0	0.0	1999 11 03	734	0.4-	0.0	1999 11 13	734	0.3-	0.1-
1989 11 22	675	0.2-	0.4+	1999 11 03	734	0.8-	0.3+	1999 11 13	734	0.2-	0.3+
1999 10 12	292	0.4+	0.7-	1999 11 03	734	0.0	0.7+	1999 11 13	734	0.3-	0.2+
1999 10 12	292	0.6+	0.0	1999 11 03	734	0.2-	0.4+	1999 11 13	734	0.2-	0.0
1999 10 12	292	0.1+	0.7+	1999 11 03	704	1.1+	0.5+	1999 11 27	734	0.7+	0.1+
1999 10 13	292	1.1+	0.7-	1999 11 03	704	0.1+	0.1-	1999 11 27	734	0.1-	0.6+
1999 10 13	292	0.4+	1.7-	1999 11 03	704	0.3+	0.5-	1999 11 27	734	1.1+	0.4+
1999 10 13	292	0.5-	0.0	1999 11 03	704	0.6-	1.1-	1999 12 02	699	1.8+	0.7+
1999 10 15	292	0.3-	0.1+	1999 11 04	734	0.7-	0.4-	1999 12 02	699	0.3+	1.7+
1999 10 15	292	0.0	0.0	1999 11 04	734	0.4-	0.4-	1999 12 02	699	0.6+	0.9+
1999 10 15	292	0.1+	0.4-	1999 11 04	734	0.3-	0.0	1999 12 08	704	0.3+	0.0
1999 10 16	292	0.2+	0.7-	1999 11 05	734	0.1-	1.4+	1999 12 08	704	0.5+	0.3-
1999 10 16	292	0.3+	0.3-	1999 11 05	734	1.0-	0.5-	1999 12 08	704	0.3+	0.4-
1999 10 22	292	1.0-	0.7-	1999 11 05	734	0.6-	0.5-	1999 12 08	704	0.4+	0.5+
1999 10 22	292	0.5-	0.2-	1999 11 12	704	0.7+	0.0	1999 12 08	704	0.1+	0.1+

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	267.48397		(2000.0)	P		Q	
<i>n</i>	0.27558792	ω	100.29774	−0.83721724	−0.44330077		
<i>a</i>	2.3386358	Ω	54.13878	+0.19822199	−0.79175095		
<i>e</i>	0.2719271	<i>i</i>	23.27473	+0.50968160	−0.42025571		
<i>P</i>	3.58	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1992 11 21	675	0.4−	0.1−	1999 11 06	402	0.1−	0.4−	1999 11 18	355	0.4−	0.2+
1992 11 21	675	1.0+	0.1−	1999 11 06	355	0.1−	0.1−	1999 11 18	355	0.5−	0.2−
1992 11 22	675	0.5−	0.1+	1999 11 06	355	0.0	1.0−	1999 11 18	355	0.5−	0.1+
1999 11 03	704	0.2+	0.4−	1999 11 06	355	0.3+	0.5−	1999 11 28	900	0.2−	0.1+
1999 11 03	704	0.0	0.6−	1999 11 07	367	0.2−	0.2+	1999 11 28	900	0.6−	0.2+
1999 11 03	704	0.3+	0.4−	1999 11 07	367	0.1−	0.3+	1999 12 05	703	0.6−	0.1+
1999 11 03	704	0.1−	0.5−	1999 11 07	367	0.2−	0.3−	1999 12 05	703	0.6−	0.1+
1999 11 03	704	0.0	0.2−	1999 11 09	900	0.5−	0.3−	1999 12 05	703	0.4−	0.2+
1999 11 03	367	(0.0	4.3−)	1999 11 09	900	0.3−	0.4+	1999 12 05	703	0.6−	0.1+
1999 11 03	367	(0.5−	3.4−)	1999 11 09	402	0.1−	0.2+	1999 12 09	355	0.1−	0.1−
1999 11 03	367	(0.6+	3.2−)	1999 11 09	402	0.1−	0.1+	1999 12 09	355	0.6+	0.5−
1999 11 04	367	0.2+	0.6−	1999 11 09	402	0.1−	0.1+	1999 12 09	355	0.2+	0.4−
1999 11 04	367	0.3+	1.0−	1999 11 14	704	0.3+	0.7+	1999 12 10	704	0.2−	0.1+
1999 11 04	367	0.1−	0.5−	1999 11 14	704	0.4+	0.5+	1999 12 10	704	0.0	0.2−
1999 11 05	367	0.0	0.5+	1999 11 14	704	0.4+	0.4+	1999 12 10	704	0.2+	0.3−
1999 11 05	367	0.0	0.1−	1999 11 14	704	0.3+	0.2+	1999 12 10	704	0.5−	0.2+
1999 11 05	367	0.2−	0.5+	1999 11 14	704	0.1+	0.2+	1999 12 10	704	0.2−	0.4+
1999 11 05	900	0.1−	0.4+	1999 11 15	704	0.4+	0.2+	1999 12 13	703	2.0−	0.6−
1999 11 05	900	0.8−	0.4+	1999 11 15	704	0.0	0.8+	1999 12 13	703	0.3+	0.1−
1999 11 05	355	0.1−	0.2+	1999 11 15	704	0.4+	0.3+	1999 12 13	703	0.1−	0.2−
1999 11 05	355	0.5+	0.3−	1999 11 15	704	1.5+	0.7+	1999 12 13	703	0.0	0.0
1999 11 05	355	0.1−	0.1+	1999 11 15	704	0.3+	0.4+	1999 12 15	704	0.5+	0.0
1999 11 05	402	0.3−	0.1+	1999 11 16	704	0.1+	0.2+	1999 12 15	704	1.5+	0.7−
1999 11 05	402	0.3−	0.2+	1999 11 16	704	0.4+	0.1+	1999 12 15	704	0.9+	0.1−
1999 11 05	402	0.2−	0.2+	1999 11 16	704	0.2+	0.3+	1999 12 15	704	0.1+	0.1−
1999 11 06	402	0.2+	0.1−	1999 11 16	704	0.2+	0.3+				
1999 11 06	402	0.3+	0.6−	1999 11 16	704	0.0	0.3+				

1999 VF₁ = 1995 UK₄₉

Id. G. V. Williams, S. Nakano, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	357.29736		(2000.0)	P		Q	
<i>n</i>	0.26314925	ω	127.90124	+0.95671950	−0.27269949		
<i>a</i>	2.4117630	Ω	248.12791	+0.22059869	+0.90730192		
<i>e</i>	0.2495475	<i>i</i>	6.28545	+0.18979994	+0.32005971		
<i>P</i>	3.75	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 10 26	704	0.3+	1.0−	1999 11 05	727	0.2−	0.3+	1999 12 02	699	0.0	0.5+
1995 10 26	704	0.4−	0.7+	1999 11 05	727	0.3−	0.2−	1999 12 04	703	0.4−	0.1−
1995 10 27	704	0.1−	0.5+	1999 11 05	727	0.3−	0.2+	1999 12 04	703	0.3−	0.1+
1995 10 28	704	0.2+	0.3+	1999 11 08	727	0.0	0.1−	1999 12 04	703	0.3−	0.1+
1995 10 28	704	0.4−	0.2+	1999 11 08	727	0.5−	0.3−	1999 12 04	703	0.6−	0.0
1999 11 01	012	0.5+	0.0	1999 11 08	727	0.1−	0.1−	1999 12 07	704	0.1+	0.0
1999 11 01	012	0.3+	0.7−	1999 11 10	012	0.5+	0.1−	1999 12 07	704	0.2+	0.3+
1999 11 03	704	0.2−	0.5−	1999 11 10	012	1.2+	0.4+	1999 12 07	704	0.6+	0.2−
1999 11 03	704	0.0	0.3−	1999 11 11	727	0.2−	0.2−	1999 12 07	704	0.0	0.3+
1999 11 03	704	0.1+	0.1−	1999 11 11	727	0.4−	0.2−	1999 12 07	704	0.3+	0.2+
1999 11 03	704	0.3+	0.1−	1999 11 11	727	0.2−	0.4−	1999 12 08	704	0.4+	0.1−
1999 11 03	704	0.3+	0.2+	1999 11 17	727	0.2−	0.2−	1999 12 08	704	0.0	0.1+
1999 11 04	727	0.2+	0.5−	1999 11 17	727	0.1−	0.1−	1999 12 08	704	0.2+	0.2+
1999 11 04	727	0.2−	0.0	1999 11 17	727	0.1−	0.3−	1999 12 08	704	0.5+	0.5+
1999 11 04	727	0.4−	0.4−	1999 11 30	727	0.1+	0.0	1999 12 08	704	0.8+	0.1−
1999 11 04	703	0.3−	0.2+	1999 11 30	727	0.0	0.1−	1999 12 12	703	0.0	0.1+
1999 11 04	703	0.3−	0.0	1999 11 30	727	0.1+	0.2−	1999 12 12	703	0.1−	0.0
1999 11 04	703	0.4−	0.0	1999 12 02	699	0.2+	0.6+	1999 12 12	703	0.1+	0.0
1999 11 04	703	0.2−	0.3+	1999 12 02	699	0.0	0.6+	1999 12 12	703	0.2−	0.0

1999 VZ₁ = 1981 EH₄₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	288.23797		(2000.0)	P		Q	
<i>n</i>	0.29968075	ω	214.70274	−0.11740546	−0.99295117		
<i>a</i>	2.2115503	Ω	242.04455	+0.91525134	−0.10184060		
<i>e</i>	0.0908234	<i>i</i>	1.05386	+0.38539714	−0.06063391		
<i>P</i>	3.29	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1981 03 02	413	0.4+	1.4+	1999 11 05	732	0.4−	0.3+	1999 11 18	732	0.3−	0.9−
1981 03 02	413	1.3+	0.0	1999 11 06	732	0.9+	0.9−	1999 11 29	732	0.7+	0.4−
1981 03 06	413	(5.9+	2.6−)	1999 11 06	732	0.1+	0.8−	1999 12 02	732	0.8+	1.2−
1981 03 11	413	1.8−	0.2+	1999 11 10	732	0.1+	0.2+	1999 12 02	732	0.6+	1.6−
1981 03 11	413	1.0−	0.3+	1999 11 10	732	0.4+	0.2−	1999 12 06	704	0.5−	1.1+
1981 03 15	413	0.5+	1.0−	1999 11 10	732	0.1−	0.2−	1999 12 06	704	0.3−	0.4+
1981 03 15	413	1.7+	0.9−	1999 11 11	703	0.7−	0.4+	1999 12 06	704	0.2+	0.7+
1999 11 04	704	1.0+	0.8+	1999 11 11	703	1.2−	0.6+	1999 12 07	704	1.2−	0.7+
1999 11 04	704	1.0+	0.1−	1999 11 11	703	0.4−	1.0+	1999 12 07	704	0.4+	0.3−
1999 11 04	704	1.1+	0.6−	1999 11 11	703	1.6−	1.0+	1999 12 07	704	1.2+	0.5−
1999 11 04	704	0.5+	1.2−	1999 11 17	732	1.1−	0.4+	1999 12 07	704	0.3−	0.6−
1999 11 04	704	0.7+	0.2+	1999 11 17	732	0.1−	0.1+	1999 12 07	704	0.2−	0.2+
1999 11 05	732	0.2−	0.3+	1999 11 17	732	0.0	0.8+				
1999 11 05	732	0.9−	0.1+	1999 11 18	732	(0.3+	2.9−)				

1999 VO₂ = 1990 YG₁ = 1998 MA₃₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	23.29756		(2000.0)	P		Q	
<i>n</i>	0.22538945	ω	276.89661	+0.73856973	−0.53067376		
<i>a</i>	2.6741165	Ω	115.98578	+0.63552283	+0.75386954		
<i>e</i>	0.3251516	<i>i</i>	27.55358	−0.22500108	+0.38738362		
<i>P</i>	4.37	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1990 12 17	675	0.1−	0.1−	1999 11 05	703	0.2+	0.6−	1999 12 06	704	0.6+	0.0
1990 12 17	675	0.0	0.3+	1999 11 05	703	1.0−	0.3−	1999 12 06	704	1.4+	0.7−
1998 06 24	704	0.2+	0.3−	1999 11 05	703	1.1−	0.3+	1999 12 06	704	0.4−	0.6−
1998 06 24	704	0.6+	1.5+	1999 11 05	703	0.2−	0.6+	1999 12 06	704	0.0	0.0
1998 06 24	704	0.2−	0.1+	1999 11 06	703	0.1+	0.5+	1999 12 07	704	0.1+	0.4+
1998 06 24	704	0.9−	0.2+	1999 11 06	703	0.8−	0.5+	1999 12 07	704	0.3−	0.1+
1998 06 26	704	0.2+	0.1−	1999 12 04	703	0.1+	0.3+	1999 12 07	704	0.1+	0.0
1998 06 26	704	0.1−	0.0	1999 12 04	703	0.2−	0.6+	1999 12 07	704	0.1+	0.1+
1998 06 26	704	0.2+	0.9−	1999 12 04	703	0.2−	0.4+	1999 12 07	704	0.0	0.2−
1998 06 26	704	0.3+	0.7+	1999 12 04	703	(0.4−	2.6+)				

1999 VQ₂ = 1994 GR₁₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	302.25571		(2000.0)	P		Q	
<i>n</i>	0.27778652	<i>ω</i>	23.39342	+0.19013052	−0.97581543		
<i>a</i>	2.3262797	<i>Ω</i>	55.80979	+0.87889803	+0.12022163		
<i>e</i>	0.0669803	<i>i</i>	7.49271	+0.43747988	+0.18256780		
<i>P</i>	3.55	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 04 14	675	0.2−	0.7+	1999 11 19	757	0.3−	0.1−	1999 12 07	704	0.9+	0.3−
1994 04 14	675	0.1−	0.6+	1999 12 04	703	0.3+	0.2+	1999 12 07	704	0.3+	0.1−
1994 04 15	675	0.3+	1.4−	1999 12 04	699	0.3+	0.1−	1999 12 07	704	0.5+	0.4−
1994 04 15	675	(2.1−	2.6−)	1999 12 04	703	0.2+	0.1+	1999 12 07	704	0.3+	0.3−
1999 11 05	757	0.0	0.4+	1999 12 04	703	0.2+	0.2+	1999 12 07	704	0.4−	0.2−
1999 11 05	757	0.2−	0.1+	1999 12 04	703	0.3−	0.1+	1999 12 12	703	0.1+	0.1+
1999 11 07	757	0.3+	0.6−	1999 12 04	699	0.5+	0.3+	1999 12 12	703	0.4−	0.1−
1999 11 07	757	0.4+	0.9−	1999 12 04	699	0.4+	0.3+	1999 12 12	703	0.5−	0.5−
1999 11 08	757	0.2+	0.0	1999 12 06	704	(2.1+	3.6+)	1999 12 12	703	0.0	0.1−

1999 DEC. 22

M.P.C. 37199

1999 11 08 757 0.4+ 0.2+ 1999 12 06 704 (0.3+ 3.0+)
 1999 11 19 757 1.4- 1.2+ 1999 12 06 704 1.9- 0.5+

1999 VG₃ = 1998 OW₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	313.94276	(2000.0)	P		Q	
<i>n</i>	0.17476591	ω	303.78560	-0.02939288	-0.99941416	
<i>a</i>	3.1683385	Ω	147.88495	+0.92764400	-0.03380696	
<i>e</i>	0.1417302	<i>i</i>	1.88995	+0.37230722	+0.00533205	
<i>P</i>	5.64	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1998 07 26	809	1.3+	0.3-	1999 11 02	691	0.2+	0.1-	1999 12 06	704	0.2-	0.6+
1998 07 26	809	0.0	0.4+	1999 11 02	691	0.1+	0.3-	1999 12 07	704	0.0	0.1+
1998 07 26	809	1.3-	0.1+	1999 11 04	704	0.3-	0.1+	1999 12 07	704	0.2-	0.1-
1998 07 27	809	(1.1+ 4.1+)		1999 11 04	704	0.2-	0.5+	1999 12 07	704	0.3+	1.3-
1998 07 27	809	(1.1+ 2.9+)		1999 11 04	704	0.2+	0.2-	1999 12 07	704	0.1-	0.5-
1998 07 27	809	(1.0+ 3.8+)		1999 11 04	704	0.0	0.0	1999 12 07	704	0.2+	0.1-
1999 11 01	691	0.1+	0.1+	1999 11 04	704	0.3-	0.1-	1999 12 12	703	0.4-	1.3+
1999 11 01	691	0.1-	0.1+	1999 12 06	704	0.2+	0.8-	1999 12 12	703	0.1-	0.8+
1999 11 01	691	0.2+	0.0	1999 12 06	704	0.0	0.2-	1999 12 12	703	0.2-	1.5+
1999 11 02	691	0.1+	0.2-	1999 12 06	704	0.8+	1.8-	1999 12 12	703	0.5-	0.9+

1999 VM₃ = 1996 DR₆ = 1998 QG₁₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	77.73152	(2000.0)	P		Q	
<i>n</i>	0.17921793	ω	197.66057	+0.52664325	+0.84903953	
<i>a</i>	3.1156482	Ω	104.13712	-0.77459653	+0.49972409	
<i>e</i>	0.1484737	<i>i</i>	2.49273	-0.35021009	+0.17148676	
<i>P</i>	5.50	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1996 02 16	010	0.7+	0.1-	1998 08 23	704	0.9+	0.1-	1999 11 04	704	0.6-	0.6+
1996 02 16	010	0.1+	0.9+	1998 08 23	704	0.3-	0.0	1999 11 04	704	0.1+	0.2+
1996 02 16	010	0.7-	0.8+	1998 08 23	704	(0.3- 2.4+)		1999 11 04	704	0.2+	0.7-
1996 02 17	010	0.7+	0.9-	1998 08 23	704	1.5+	1.1-	1999 11 04	704	0.5-	0.3-
1996 02 17	010	0.0	0.1-	1998 08 23	704	0.1-	1.0+	1999 11 04	704	0.3-	0.5-
1996 02 17	010	0.6-	0.1+	1999 11 01	691	0.0	0.2-	1999 12 12	703	0.4-	0.6+
1998 08 17	704	0.4-	0.6-	1999 11 01	691	0.0	0.2-	1999 12 12	703	0.3-	0.7+
1998 08 17	704	0.3-	0.4+	1999 11 01	691	0.1+	0.0	1999 12 12	703	0.6+	0.4+
1998 08 17	704	0.8-	0.2+	1999 11 02	691	0.4+	0.4-	1999 12 12	703	0.1+	0.6+
1998 08 17	704	0.1-	0.0	1999 11 02	691	0.3+	0.4-				
1998 08 17	704	0.6-	0.9+	1999 11 02	691	0.2+	0.3-				

1999 VL₄ = 1988 PW

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	14.96861	(2000.0)	P		Q	
<i>n</i>	0.27179588	ω	217.58261	+0.68673577	+0.72511741	
<i>a</i>	2.3603377	Ω	95.85253	-0.65387521	+0.64685553	
<i>e</i>	0.3744491	<i>i</i>	2.93739	-0.31755502	+0.23618356	
<i>P</i>	3.63	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1988 08 13	675	(1.6- 4.8-)		1999 11 01	703	0.6-	0.3+	1999 12 03	704	0.9+	1.2-
1988 08 14	675	0.2+	0.3-	1999 11 02	703	0.0	0.5+	1999 12 03	704	0.8+	1.0-
1988 09 11	675	0.2+	0.1+	1999 11 02	703	0.1-	0.5+	1999 12 03	704	0.6+	0.2-
1988 09 11	675	0.2+	0.9-	1999 11 02	703	0.2-	0.3+	1999 12 07	704	0.3-	0.2-
1988 09 13	675	0.3+	0.3-	1999 11 02	703	0.3-	0.3+	1999 12 07	704	0.0	0.2-
1988 09 16	675	0.8-	0.9+	1999 11 27	699	0.2-	0.1+	1999 12 07	704	0.1-	0.0
1999 11 01	703	0.5-	0.3+	1999 11 27	699	0.1+	0.2+	1999 12 07	704	0.3-	0.1-
1999 11 01	703	0.1-	0.4+	1999 11 27	699	0.0	0.0	1999 12 07	704	0.1-	0.1-
1999 11 01	703	0.0	0.2+	1999 12 03	704	0.6+	0.5-				

1999 VT₄ = 1995 SB₄₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	349.88777	(2000.0)	P		Q	
<i>n</i>	0.25081558	ω	348.84455	+0.93084327	-0.36541535	
<i>a</i>	2.4901932	Ω	32.58873	+0.33548766	+0.85289855	
<i>e</i>	0.2225300	<i>i</i>	0.16600	+0.14484076	+0.37287488	
<i>P</i>	3.93	<i>H</i>	16.1	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1995 09 25	691	0.1+	0.1+	1999 11 04	704	0.5+	0.9-	1999 11 12	704	0.2-	0.6-
1995 09 25	691	0.5-	0.2+	1999 11 05	120	0.3+	0.3-	1999 11 12	704	1.0-	0.2-
1995 09 30	691	0.1+	0.0	1999 11 05	120	0.2+	0.4-	1999 11 12	120	0.5-	0.2-
1995 09 30	691	0.0	0.0	1999 11 07	120	0.6+	2.0+	1999 11 12	120	0.7+	0.2+
1995 09 30	691	0.1+	0.0	1999 11 07	120	0.7+	1.0+	1999 11 25	120	1.3+	0.1+
1999 11 04	704	0.1-	0.8-	1999 11 12	704	0.3-	0.2+	1999 11 25	120	0.6-	0.2+
1999 11 04	704	0.2-	0.5-	1999 11 12	704	0.5-	0.3+	1999 11 25	120	0.6-	0.2+
1999 11 04	704	0.2+	0.8-	1999 11 12	704	0.3-	0.2+				

1999 VX₄ = 1993 FK₇₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	320.47960	(2000.0)	P		Q	
<i>n</i>	0.24323270	ω	224.47095	+0.41138524	-0.91144933	
<i>a</i>	2.5416831	Ω	201.23853	+0.83983972	+0.38106671	
<i>e</i>	0.1210813	<i>i</i>	0.74681	+0.35416300	+0.15507505	
<i>P</i>	4.05	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1993 03 21	809	0.6-	0.1+	1999 11 10	120	0.2+	0.0	1999 12 04	703	(2.7- 1.8+)	
1993 03 22	809	0.3+	0.8-	1999 11 12	704	0.3+	0.3+	1999 12 04	703	0.1+	1.1-
1999 11 04	704	0.1-	0.5-	1999 11 12	704	0.4+	0.0	1999 12 04	703	0.7-	0.2+
1999 11 04	704	0.2-	0.3-	1999 11 12	704	0.6+	0.3+	1999 12 04	703	1.7-	0.2+
1999 11 04	704	0.3-	0.0	1999 11 12	704	0.1+	0.1+	1999 12 06	704	0.5-	0.8+
1999 11 04	704	0.4+	0.3-	1999 11 12	704	0.2+	0.0	1999 12 06	704	0.3+	0.5+
1999 11 04	704	0.0	0.2+	1999 11 12	120	0.1+	0.1-	1999 12 06	704	1.2+	0.3-
1999 11 05	120	0.2+	0.2-	1999 11 12	120	0.6+	0.7-	1999 12 07	704	0.3-	0.4+
1999 11 05	120	0.7+	0.9-	1999 11 26	120	0.9-	0.9+	1999 12 07	704	0.5+	0.5+
1999 11 07	120	1.6-	0.5-	1999 11 26	120	1.7-	0.4+	1999 12 07	704	0.1-	0.2+
1999 11 07	120	0.5+	0.2+	1999 11 30	120	0.1-	0.2-	1999 12 07	704	0.2+	0.3-
1999 11 10	120	0.1+	0.1-	1999 11 30	120	1.1+	0.2-	1999 12 07	704	0.6+	0.2+

1999 VA₅ = 1982 SX₁₁ = 1997 JQ₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	1.00787	(2000.0)	P		Q	
<i>n</i>	0.17588366	ω	332.48562	+0.94862604	-0.31207599	
<i>a</i>	3.1549008	Ω	45.80029	+0.30201169	+0.84399894	
<i>e</i>	0.2004072	<i>i</i>	4.16967	+0.09432701	+0.43620449	
<i>P</i>	5.60	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1982 09 28	095	0.3+	0.5-	1999 11 07	120	0.5+	0.1-	1999 12 04	703	0.7-	0.4+
1997 05 01	704	0.4-	0.1+	1999 11 07	120	0.6+	0.3+	1999 12 06	704	(2.6+ 1.0-)	
1997 05 01	704	0.2-	1.0+	1999 11 08	120	0.5-	0.1+	1999 12 06	704	1.3+	1.3-
1997 05 01	704	0.2+	0.1-	1999 11 08	120	0.7-	0.1+	1999 12 06	704	1.0+	0.4-
1997 05 01	704	1.4-	0.3+	1999 11 11	703	0.8-	0.0	1999 12 06	704	0.5+	1.0-
1997 05 05	704	1.1+	1.5-	1999 11 11	703	1.1-	0.0	1999 12 06	704	0.5-	1.4-
1997 05 05	704	0.4+	1.6+	1999 11 11	703	0.8-	0.1+	1999 12 07	704	1.6+	0.2+
1997 05 05	704	0.6+	0.1-	1999 11 11	703	0.7-	0.3+	1999 12 07	704	0.4+	0.4-
1997 05 05	704	0.1+	0.7-	1999 11 12	704	0.0	0.3-	1999 12 07	704	0.2+	0.6-
1999 11 04	704	0.0	0.2+	1999 11 12	704	0.2+	0.1-	1999 12 07	704	0.3+	0.8-
1999 11 04	704	0.1-	0.2+	1999 11 12	704	0.2+	0.3-	1999 12 07	704	0.0	0.7-
1999 11 04	704	0.2+	0.5+	1999 11 12	704	0.1+	0.1+	1999 12 12	703	0.2-	0.4+
1999 11 04	704	0.4+	0.3+	1999 11 12	704	0.2+	0.0	1999 12 12	703	0.3-	0.6+
1999 11 04	704	0.6+	0.8+	1999 12 04	703	0.4-	0.7+	1999 12 12	703	0.1-	0.8+

M.P.C. 37200

1999 11 05	120	0.1+	0.5+	1999 12 04	703	0.8−	0.5+	1999 12 12	703	0.2+	0.7+
1999 11 05	120	0.5−	0.3+	1999 12 04	703	0.7−	0.4+				

1999 VK₅ = 1993 FT₇₉

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	0.13652		(2000.0)		P		Q		Williams
<i>n</i>	0.23891968	ω	357.27024		+0.88076529		−0.47284145		
<i>a</i>	2.5721804	Ω	30.99117		+0.43542564		+0.78709142		
<i>e</i>	0.0627411	<i>i</i>	2.88892		+0.18616394		+0.39611621		
<i>P</i>	4.13	<i>H</i>	15.4		<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1993 03 21	809	0.4−	0.1+	1999 11 06	867	0.8+	0.1+	1999 11 14	867	0.3−	0.2−
1993 03 22	809	0.4+	0.2−	1999 11 07	867	0.4−	0.7+	1999 11 14	867	0.4−	0.6−
1999 11 06	867	1.0+	0.1+	1999 11 07	867	0.1−	0.6+	1999 11 14	867	0.4−	0.5−
1999 11 06	867	1.1+	0.0	1999 11 07	867	0.0	0.9+	1999 12 07	704	0.7+	0.5+
1999 11 06	867	0.7+	0.3+	1999 11 13	867	0.7−	0.4−	1999 12 07	704	0.0	0.3+
1999 11 06	867	0.8+	0.2+	1999 11 13	867	0.8−	0.8−	1999 12 07	704	0.1−	0.4−
1999 11 06	867	0.4+	0.1−	1999 11 13	867	1.4−	0.7−	1999 12 07	704	0.9−	0.6+
1999 11 06	867	0.8+	0.3−	1999 11 13	867	0.9−	0.4−				

1999 VD₆ = 1995 BD₁₂

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	354.93440		(2000.0)		P		Q		Williams
<i>n</i>	0.18113723	ω	302.65022		+0.67910552		−0.73324489		
<i>a</i>	3.0936006	Ω	104.53633		+0.68473971		+0.61603496		
<i>e</i>	0.1789711	<i>i</i>	2.02300		+0.26447538		+0.28784173		
<i>P</i>	5.44	<i>H</i>	13.7		<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1995 01 30	691	0.6+	0.0	1999 11 05	411	0.6+	0.1−	1999 12 07	704	0.1−	0.2−
1995 01 30	691	0.5+	0.1+	1999 11 08	411	0.8−	1.2+	1999 12 08	704	0.0	0.0
1995 01 30	691	0.5+	0.3+	1999 11 08	411	0.6−	0.4−	1999 12 08	704	0.3+	0.2+
1995 02 06	691	0.5−	0.0	1999 11 13	411	0.5−	0.6+	1999 12 08	704	0.1+	0.3+
1995 02 06	691	0.3−	0.0	1999 11 13	411	0.0	0.0	1999 12 08	704	0.1+	0.1−
1995 02 06	691	0.7−	0.3−	1999 11 30	411	0.5−	0.3−	1999 12 08	704	0.3−	0.1−
1999 11 03	704	0.4−	0.0	1999 11 30	411	1.5−	0.3+	1999 12 13	120	1.9+	0.4+
1999 11 03	704	0.4−	0.4−	1999 12 07	704	0.4−	0.0	1999 12 13	120	0.3+	0.5−
1999 11 03	704	0.3+	0.1+	1999 12 07	704	0.4−	0.0	1999 12 13	120	1.4+	0.1−
1999 11 03	704	0.5+	0.0	1999 12 07	704	0.3−	0.0				
1999 11 05	411	0.7+	0.8−	1999 12 07	704	0.1+	0.2−				

1999 VH₆ = 1972 TP₇ = 1981 UA₃₀ = 1990 VZ₃

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	56.74876		(2000.0)		P		Q		Williams
<i>n</i>	0.22184471	ω	125.98874		+0.93569361		+0.34573176		
<i>a</i>	2.7025267	Ω	213.94429		−0.35044094		+0.88766414		
<i>e</i>	0.0726599	<i>i</i>	7.23628		−0.04084874		+0.30417416		
<i>P</i>	4.44	<i>H</i>	13.0		<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1972 10 06	095	0.1−	0.5+	1999 11 04	704	0.5+	0.1+	1999 11 13	411	0.3−	0.2−
1981 10 23	095	(2.7+	3.0−)	1999 11 04	704	0.1+	0.3+	1999 11 30	411	0.3+	0.4+
1990 11 12	364	1.7+	0.7+	1999 11 04	704	0.1+	0.5+	1999 11 30	411	0.6−	0.3−
1990 11 12	364	0.8−	1.3−	1999 11 05	411	0.2−	0.9+	1999 12 06	704	0.1+	0.6+
1990 11 14	364	0.7−	0.4+	1999 11 05	411	0.4+	0.3+	1999 12 06	704	0.2+	0.3+
1990 11 14	364	0.2−	1.3−	1999 11 08	411	0.9−	1.1−	1999 12 06	704	0.1+	0.2+
1999 11 04	704	0.4+	0.4−	1999 11 08	411	0.3−	0.4−	1999 12 06	704	0.0	0.1+
1999 11 04	704	0.0	0.1+	1999 11 13	411	0.1+	0.2−				

1999 DEC. 22

1999 VO₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	237.58618		(2000.0)		P		Q		Williams
<i>n</i>	0.81472020	ω	302.43491		−0.77109269		−0.56566983		
<i>a</i>	1.1353516	Ω	207.00148		+0.52067204		−0.82441474		
<i>e</i>	0.7383163	<i>i</i>	40.07520		−0.36649242		+0.01892033		
<i>P</i>	1.21	<i>H</i>	17.0		<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1989 08 28	675	1.2−	0.1+	1999 11 06	704	0.6+	0.2+	1999 11 08	595	0.2−	0.1−
1989 08 28	675	1.8+	0.0	1999 11 06	704	0.2+	0.4+	1999 11 08	595	0.5−	0.6−
1993 08 21	675	0.2−	0.6−	1999 11 06	704	0.7+	0.4+	1999 11 10	402	0.1+	1.1−
1993 08 21	675	0.5−	0.6−	1999 11 06	704	0.6+	0.3+	1999 11 10	402	1.1+	0.0
1999 11 05	704	0.5+	0.5−	1999 11 06	704	0.9+	0.6+	1999 11 10	402	0.3+	0.3+
1999 11 05	704	0.3+	0.2−	1999 11 06	704	0.2−	0.1+	1999 11 10	360	0.3−	0.5+
1999 11 05	704	0.2+	0.0	1999 11 07	711	0.7−	0.7−	1999 11 10	360	0.1+	0.2+
1999 11 05	704	0.7−	0.1−	1999 11 07	711	0.3−	0.9−	1999 11 10	360	0.2−	0.3+
1999 11 05	704	0.1+	1.0−	1999 11 07	711	0.1−	0.8−	1999 11 12	853	0.0	0.0
1999 11 06	711	0.1−	0.3+	1999 11 07	402	0.4−	0.2+	1999 11 12	853	0.2+	0.3+
1999 11 06	711	0.2−	0.0	1999 11 07	402	0.7−	0.2−	1999 11 13	402	0.3−	0.4−
1999 11 06	711	0.4+	0.0	1999 11 07	402	0.3−	0.0	1999 11 13	402	0.2+	0.1+
1999 11 06	704	1.1+	0.2−	1999 11 07	402	0.8−	0.5−	1999 11 13	402	0.3+	0.7+
1999 11 06	704	0.5+	0.7+	1999 11 08	711	0.8−	0.4−	1999 11 29	595	0.8+	0.5+
1999 11 06	704	0.6+	0.5+	1999 11 08	711	0.9−	0.4−	1999 11 29	595	0.4−	0.0
1999 11 06	704	1.3+	1.2+	1999 11 08	711	1.1−	0.7−	1999 11 29	595	0.5+	0.5−
1999 11 06	704	0.7+	1.8+	1999 11 08	853	0.4−	0.2−	1999 11 29	595	0.9+	0.8+
1999 11 06	704	0.0	0.3+	1999 11 08	853	0.1−	0.3−	1999 11 29	595	0.5−	0.2+
1999 11 06	853	0.6−	0.2−	1999 11 08	853	0.3−	0.4+	1999 12 05	428	0.5+	1.5−
1999 11 06	853	0.5−	0.3−	1999 11 08	595	0.4−	1.0+	1999 12 05	428	0.6+	1.4−
1999 11 06	704	0.4−	0.4+	1999 11 08	595	0.8−	0.1−				
1999 11 06	853	0.4−	0.1−	1999 11 08	595	0.8−	0.2+				

1999 VW₆ = 1998 KH₅₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	359.93123		(2000.0)		P		Q		Williams
<i>n</i>	0.24141753	ω	216.61759		+0.97399222		−0.19632090		
<i>a</i>	2.5544075	Ω	154.00855		+0.21375828		+0.96173003		
<i>e</i>	0.1987696	<i>i</i>	14.95952		−0.07514353		+0.19113725		
<i>P</i>	4.08	<i>H</i>	13.1		<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1998 05 23	704	0.5−	0.2−	1998 05 26	704	0.9+	0.8−	1999 11 27	678	0.6+	0.5−
1998 05 23	704	0.5−	0.1+	1998 05 26	704	0.3−	0.1+	1999 11 27	678	0.1+	0.3−
1998 05 23	704	0.1−	0.4+	1999 11 08	678	0.1+	0.0	1999 12 01	704	0.6+	0.1−
1998 05 23	704	0.3+	1.1−	1999 11 08	678	0.3+	0.1+	1999 12 01	704	0.4−	0.3+
1998 05 23	704	0.1−	0.1+	1999 11 09	678	0.7−	0.3−	1999 12 01	704	0.6−	0.1+
1998 05 26	704	0.4+	0.0	1999 11 09	678	0.7−	0.1−	1999 12 01	704	0.4−	0.2+
1998 05 26	704	0.3+	1.0+	1999 11 12	678	0.6+	0.3+				
1998 05 26	704	0.3−	0.4+	1999 11 12	678	0.6+	0.1+				

1999 VX₆ = 1998 MR₁₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	6.38596		(2000.0)		P		Q		Williams
<i>n</i>	0.20858983	ω	238.13347		+0.96363039		−0.15966101		
<i>a</i>	2.8158356	Ω	130.11607		+0.20619614		+0.95433224		
<i>e</i>	0.1515298	<i>i</i>	16.27374		−0.16999890		+0.25250413		
<i>P</i>	4.73	<i>H</i>	14.9		<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1998 06 19	704	0.9+	0.4−	1998 06 25	704	0.8+	1.0−	1999 11 09	678	0.7−	1.2+
1998 06 19	704	0.3−	0.0	1998 06 25	704	0.2+	0.5−	1999 11 13	678	0.3+	0.7−
1998 06 19	704	0.9−	0.8+	1999 11 08	678	0.2+	1.3+	1999 11 13	678	0.6+	0.8−
1998 06 25	704	0.1+	0.3+	1999 11 08	678	0.6+	0.5+	1999 12 03	678	0.5+	1.1+
1998 06 25	704	0.7−	0.8+	1999 11 09	678	0.9−	1.5−	1999 12 03	678	0.5−	1.0−

1999 VB₇ = 1998 OO₁₀

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17135279	ω	195.75421	+0.90664476	+0.34695391		
<i>a</i>	3.2102727	Ω	141.11295	-0.33388467	+0.93786591		
<i>e</i>	0.0460519	<i>i</i>	22.47968	-0.25790756	+0.00552484		
<i>P</i>	5.75	<i>H</i>	11.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 07 26	809	0.6+	1.8+	1999 11 08	678	0.0	0.9+	1999 11 10	704	0.3-	0.3+
1998 07 26	809	0.1+	0.5+	1999 11 09	678	1.1-	0.8+	1999 11 12	678	0.7+	0.0
1998 07 26	809	0.1+	0.7+	1999 11 09	678	1.4-	0.2+	1999 11 12	678	1.1+	0.1+
1998 07 27	809	0.3-	1.4-	1999 11 10	704	0.2-	0.1-	1999 12 01	704	0.4+	0.2-
1998 07 27	809	0.4-	0.9-	1999 11 10	704	0.0	0.2+	1999 12 01	704	0.2+	1.4-
1998 07 27	809	0.1-	0.9-	1999 11 10	704	0.5+	0.2-	1999 12 01	704	0.0	1.2-
1999 11 08	678	0.2+	0.6+	1999 11 10	704	0.2-	0.1-	1999 12 01	704	(0.2+	2.5-)

1999 VD₇ = 1993 OU₁₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19203353	ω	216.49215	+0.56869066	+0.82251123		
<i>a</i>	2.9754409	Ω	88.16819	-0.75273717	+0.52438589		
<i>e</i>	0.1968746	<i>i</i>	0.46648	-0.33162883	+0.22021517		
<i>P</i>	5.13	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 07 19	809	0.1+	0.3+	1999 11 10	120	1.2+	0.1+	1999 12 04	699	0.3+	1.6+
1993 07 19	809	0.1-	0.0	1999 11 10	120	0.1-	0.2-	1999 12 04	703	0.2-	0.0
1993 07 19	809	0.2-	0.4+	1999 11 12	704	0.3+	0.2-	1999 12 04	703	0.2-	1.9+
1993 07 23	809	0.4+	0.0	1999 11 12	704	0.1-	0.5-	1999 12 04	703	0.3+	0.3+
1993 07 23	809	0.1+	0.7-	1999 11 12	704	0.3-	0.7-	1999 12 04	699	0.6+	1.7+
1993 07 23	809	0.2-	0.1+	1999 11 12	704	0.4-	0.7-	1999 12 04	699	0.3-	0.9+
1999 11 04	704	0.2-	0.1+	1999 11 12	704	0.3-	0.4-	1999 12 07	704	0.9+	0.7-
1999 11 04	704	0.9-	1.1+	1999 11 25	120	0.3-	0.2-	1999 12 07	704	0.0	0.3-
1999 11 04	704	0.1+	0.1-	1999 11 25	120	0.2-	0.1-	1999 12 07	704	0.2-	1.0-
1999 11 04	704	0.2+	0.7-	1999 11 25	120	0.5-	0.6-	1999 12 07	704	0.6-	0.7-
1999 11 04	704	0.2-	0.4+	1999 11 26	120	0.1-	0.6-	1999 12 07	704	0.6-	1.1-
1999 11 07	120	1.2+	0.2+	1999 11 26	120	0.4+	0.9-	1999 12 12	703	0.3+	1.2+
1999 11 07	120	0.3-	0.6-	1999 11 26	120	0.4+	0.5-	1999 12 12	703	0.7-	0.4+
1999 11 07	120	0.3-	0.0	1999 11 27	120	1.6+	0.1+	1999 12 12	703	0.1-	0.1+
1999 11 08	120	0.0	0.2+	1999 11 27	120	0.6-	0.2-	1999 12 12	703	0.1-	0.3+
1999 11 08	120	0.4+	0.5+	1999 12 04	703	0.6-	0.1-				

1999 VF₇ = 1998 HX₁₄₈

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27950733	ω	189.87752	-0.37629084	+0.92496105		
<i>a</i>	2.3167219	Ω	58.03621	-0.84569534	-0.31935690		
<i>e</i>	0.1657561	<i>i</i>	3.60922	-0.37842383	-0.20605395		
<i>P</i>	3.53	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 04 25	809	1.5+	0.4+	1999 10 31	143	0.1-	0.0	1999 11 12	704	1.0+	0.4+
1998 04 25	809	1.8+	0.9+	1999 11 04	704	0.9-	0.5+	1999 11 12	704	0.4+	1.2+
1998 04 25	809	1.4+	1.9+	1999 11 04	704	0.1-	0.2-	1999 11 12	704	0.0	0.7-
1998 04 28	809	1.4-	0.7-	1999 11 04	704	0.5-	0.3+	1999 12 04	703	0.5+	0.5+
1998 04 28	809	1.5-	1.3-	1999 11 04	704	1.1-	0.2-	1999 12 04	703	0.0	1.1-
1998 04 28	809	1.2-	0.2+	1999 11 04	704	0.6-	1.3+	1999 12 04	703	0.4-	1.4+
1999 10 27	143	0.1-	0.0	1999 11 07	120	1.3-	0.6-	1999 12 04	703	0.6-	0.3-
1999 10 27	143	0.6-	0.9-	1999 11 07	120	(2.1-	0.9+)	1999 12 07	704	0.1-	0.0
1999 10 27	143	(2.9-	0.3-)	1999 11 08	120	1.4+	0.2-	1999 12 07	704	0.2-	0.1-

1999 10 31	143	1.4+	0.1-	1999 11 08	120	(2.3+	1.8+)	1999 12 07	704	0.2+	0.7+
1999 10 31	143	0.1+	0.6-	1999 11 12	704	1.0+	0.2-	1999 12 07	704	0.1-	0.3+
1999 10 31	143	0.2-	0.1-	1999 11 12	704	0.1-	0.4+				

1999 VP₇ = 1998 KU₂₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24108645	ω	121.51398	+0.93167653	+0.34367060		
<i>a</i>	2.5567455	Ω	218.74153	-0.36286532	+0.89598654		
<i>e</i>	0.2208801	<i>i</i>	10.84693	+0.01753847	+0.28124478		
<i>P</i>	4.09	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 05 22	704	0.4-	0.1-	1999 11 04	704	0.0	0.2+	1999 11 30	120	0.2-	0.2-
1998 05 22	704	(1.0+	2.9+)	1999 11 04	704	1.0-	1.6+	1999 11 30	120	0.5-	0.2-
1998 05 22	704	1.5-	0.8-	1999 11 07	120	0.1+	0.5-	1999 12 06	704	0.2+	0.3+
1998 05 22	704	0.7+	1.5+	1999 11 07	120	0.0	0.7-	1999 12 06	704	0.2+	0.0
1998 05 22	704	1.7-	1.3+	1999 11 08	120	0.3+	0.1-	1999 12 06	704	0.0	0.1+
1998 05 24	704	0.4+	0.2-	1999 11 08	120	0.6+	0.1-	1999 12 06	704	0.4-	0.7+
1998 05 24	704	1.5-	1.3-	1999 11 10	120	0.3+	0.5-	1999 12 06	704	0.8-	0.8+
1998 05 24	704	1.8+	0.6-	1999 11 10	120	0.2-	0.4-	1999 12 06	106	0.6-	0.4-
1998 05 24	704	1.1+	0.9+	1999 11 26	120	0.3+	0.2-	1999 12 06	106	1.0-	0.4-
1998 05 24	704	1.2+	0.8-	1999 11 26	120	0.7+	0.1+	1999 12 06	106	0.3-	0.2-
1999 11 04	704	0.0	0.1+	1999 11 29	120	0.9+	0.1+	1999 12 07	106	0.1-	0.3-
1999 11 04	704	0.1-	0.1+	1999 11 29	120	0.9+	0.1+	1999 12 07	106	0.3-	0.3-
1999 11 04	704	0.4-	0.0	1999 11 30	120	1.5+	0.3-	1999 12 07	106	0.2-	0.3+

1999 VQ₇ = 1989 TT₄

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20235615	ω	199.06883	+0.78842183	+0.61398920		
<i>a</i>	2.8733714	Ω	122.99501	-0.55840126	+0.73996307		
<i>e</i>	0.1338864	<i>i</i>	2.56447	-0.25802919	+0.27472153		
<i>P</i>	4.87	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1989 10 07	809	0.1-	0.4+	1999 11 05	120	0.1+	0.4+	1999 12 06	704	1.5-	1.4+
1989 10 07	809	0.2+	0.3-	1999 11 06	120	0.8-	0.4-	1999 12 07	704	1.4+	0.7+
1989 10 07	809	1.0+	0.7+	1999 11 07	120	0.3+	0.5-	1999 12 07	704	0.0	0.1-
1989 10 08	809	0.1+	0.2-	1999 11 07	120	0.5+	0.8-	1999 12 07	704	0.2+	0.9-
1989 10 08	809	1.3-	0.3-	1999 11 08	120	0.2+	0.3+	1999 12 07	704	0.5+	1.7-
1989 10 08	809	0.1-	0.1+	1999 11 08	120	0.7+	0.1-	1999 12 12	703	0.3-	0.1+
1999 11 04	704	0.2+	0.1+	1999 11 10	120	0.6-	0.0	1999 12 12	703	(3.4-	1.2+)
1999 11 04	704	0.4+	0.4+	1999 11 10	120	0.9+	0.0	1999 12 12	703	0.8-	0.3+
1999 11 04	704	0.8-	0.0	1999 12 06	704	1.2+	1.1+	1999 12 12	703	0.5-	0.0
1999 11 04	704	0.3-	0.1-	1999 12 06	704	0.8-	0.2+				
1999 11 04	704	0.2+	1.0-	1999 12 06	704	0.4-	0.5+				

1999 VS₇ = 5480 T-2 = 1998 QS₆₄

Id. G. V. Williams, S. Nakano, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23098128	ω	265.32953	-0.65177104	-0.73789762		
<i>a</i>	2.6307820	Ω	226.97032	+0.75543857	-0.61119775		
<i>e</i>	0.1042970	<i>i</i>	13.86867	+0.06713473	-0.28625934		
<i>P</i>	4.27	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1973 09 29	675	0.4-	0.8+	1999 11 04	704	0.1+	0.4-	1999 11 28	120	0.4+	0.4-
1973 09 29	675	2.1-	1.2-	1999 11 04	704	0.2-	0.2+	1999 11 29	120	1.7+	0.5-
1973 09 30	675	0.6-	1.1-	1999 11 04	704	0.2-	0.4-	1999 11 29	120	1.5-	1.2-
1973 09 30	675	0.2+	0.3-	1999 11 04	704	0.3-	0.3-	1999 11 29	120	1.1+	0.5+
1973 10 04	675	0.8+	1.2+	1999 11 04	704	0.2+	0.2-	1999 12 02	699	0.5+	0.1+
1973 10 04	675	0.6+	1.0-	1999 11 07	120	0.3-	0.2-	1999 12 02	699	0.3-	0.2+

M.P.C. 37202

1973 10 05	675	0.5+	0.6+	1999 11 08	120	0.7+	1.3+	1999 12 02	699	0.5+	0.2+
1973 10 05	675	0.9+	1.1+	1999 11 08	120	0.1-	0.0	1999 12 04	703	0.6+	0.2-
1998 08 24	704	1.4-	0.0	1999 11 08	120	0.1-	0.4+	1999 12 04	703	0.7+	0.3+
1998 08 24	704	0.2-	1.3+	1999 11 09	120	0.3-	0.1-	1999 12 04	703	0.6-	0.4-
1998 08 24	704	0.5+	0.3-	1999 11 09	120	0.2+	0.1+	1999 12 04	703	0.0	0.4+
1998 08 24	704	1.8+	1.2+	1999 11 11	691	1.0-	0.0	1999 12 06	704	0.9-	0.2+
1998 08 27	704	0.3-	1.9-	1999 11 11	691	0.8-	0.0	1999 12 06	704	0.1-	0.0
1998 08 27	704	1.1+	0.3+	1999 11 11	691	1.2-	0.1+	1999 12 06	704	0.5+	0.0
1998 08 27	704	0.1+	1.0-	1999 11 12	120	0.1+	0.1-	1999 12 06	704	0.2+	0.3+
1998 08 27	704	1.9-	0.4+	1999 11 12	120	0.1-	0.1+	1999 12 06	704	0.3+	0.7+
1998 08 27	704	0.4+	0.0	1999 11 28	120	0.2+	0.6-				

1999 VT₇ = 1978 WT₁ = 1985 KY

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	15.96069		(2000.0)	P	Q
n	0.23390066	ω	307.16371	+0.96780622	-0.09772236
a	2.6088459	Ω	59.55107	+0.20623231	+0.83617718
e	0.1292780	i	15.60833	-0.14428916	+0.53968330
P	4.21	H	13.1	G 0.15	U 3

Residuals in seconds of arc

1978 11 29	675	0.5-	0.4+	1999 12 06	106	0.2-	0.1+	1999 12 08	691	0.1+	0.7+
1978 11 30	675	0.2+	0.3+	1999 12 06	106	0.1+	0.3+	1999 12 08	691	0.1+	0.8+
1985 05 25	801	0.9+	1.6+	1999 12 07	704	0.1-	0.4-	1999 12 08	704	0.0	0.2-
1999 11 04	704	0.5-	0.2+	1999 12 07	704	0.1+	0.4-	1999 12 08	691	0.0	0.9+
1999 11 04	704	0.3-	0.0	1999 12 07	704	0.1+	0.3-	1999 12 08	704	0.0	0.4-
1999 11 04	704	0.5-	0.3+	1999 12 07	704	0.0	0.4-	1999 12 08	704	0.0	0.3-
1999 11 04	704	0.6-	0.3-	1999 12 07	704	0.1+	0.7-	1999 12 08	704	0.0	0.5-
1999 11 04	704	0.4-	0.4-	1999 12 07	106	0.5+	0.1+	1999 12 08	704	0.4+	0.4-
1999 11 07	120	0.4-	0.0	1999 12 07	106	0.1-	0.1+	1999 12 13	703	0.4-	0.1-
1999 11 08	120	0.0	0.1+	1999 12 07	106	0.0	0.0	1999 12 13	703	0.1+	0.2+
1999 11 08	120	0.1-	0.0	1999 12 07	106	0.1-	0.1+	1999 12 13	703	0.2-	0.2+
1999 11 08	120	0.0	0.3+	1999 12 07	106	0.1+	0.1-	1999 12 13	703	0.1-	0.1+
1999 11 10	120	0.0	0.0	1999 12 07	106	0.2-	0.0	1999 12 13	106	0.1+	0.3-
1999 11 10	120	0.3-	0.1-	1999 12 08	649	0.1+	0.3+	1999 12 13	106	0.0	0.0
1999 12 02	699	0.8+	0.6+	1999 12 08	649	0.2+	0.0	1999 12 13	106	0.2-	0.0
1999 12 02	699	0.6+	0.5+	1999 12 08	649	0.0	0.1-				
1999 12 02	699	0.5+	0.3+	1999 12 08	649	0.3+	0.0				

1999 VB₈ = 1995 UF₂₅

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	321.85177		(2000.0)	P	Q
n	0.26659691	ω	292.17185	+0.10459567	-0.99433685
a	2.3909251	Ω	151.80428	+0.92649026	+0.09054750
e	0.1835591	i	2.28211	+0.36149072	+0.05563616
P	3.70	H	15.9	G 0.15	U 4

Residuals in seconds of arc

1995 10 20	691	0.1-	0.2-	1999 11 04	704	0.0	0.4-	1999 11 13	120	0.3-	0.0
1995 10 20	691	0.1-	0.1+	1999 11 08	120	0.1+	0.2-	1999 11 29	120	0.2+	0.1+
1995 10 20	691	0.1-	0.3+	1999 11 08	120	0.2-	1.0+	1999 11 30	120	0.3+	0.3+
1995 10 24	691	0.5+	0.2-	1999 11 08	120	0.7-	0.7-	1999 12 08	704	0.2+	0.7+
1995 10 24	691	0.3-	0.2-	1999 11 09	120	0.4-	0.1-	1999 12 08	704	0.2+	1.1-
1995 10 24	691	0.1+	0.4+	1999 11 09	120	0.6+	0.3-	1999 12 08	704	0.5-	0.1-
1999 11 04	704	0.9+	0.6+	1999 11 09	120	0.3+	0.3+	1999 12 08	704	0.0	0.6-
1999 11 04	704	0.2+	0.8+	1999 11 10	120	(3.3+ 1.2-)		1999 12 08	704	0.0	0.5-
1999 11 04	704	0.2+	0.7+	1999 11 10	120	0.8-	0.3+				
1999 11 04	704	0.8-	0.6-	1999 11 13	120	0.7+	0.1+				

1999 VJ₈ = 1998 QU₈₄

Id. A. Doppler

1999 DEC. 22

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	60.82359		(2000.0)	P	Q
n	0.22828939	ω	77.40461	+0.96399395	-0.18098702
a	2.6514222	Ω	292.75830	+0.07204784	+0.88301286
e	0.2152948	i	12.19743	+0.25597809	+0.43304964
P	4.32	H	13.3	G 0.15	U 4

Residuals in seconds of arc

1998 08 24	704	0.5-	0.2-	1999 11 08	120	0.1-	0.3-	1999 12 06	704	(0.8- 4.4+)
1998 08 24	704	0.1-	0.1+	1999 11 08	120	0.3-	0.5-	1999 12 06	704	0.2+ 1.4+
1998 08 24	704	0.3-	1.3+	1999 11 09	120	0.4-	0.1-	1999 12 06	704	(0.3+ 3.3-)
1998 08 24	704	0.7-	0.3-	1999 11 09	120	0.5+	0.3+	1999 12 07	704	0.1+ 0.7+
1998 08 24	704	0.4-	0.6+	1999 11 09	120	0.5+	0.6-	1999 12 07	704	0.6+ 0.2-
1998 08 27	704	0.2+	0.2-	1999 11 10	120	1.1-	0.5+	1999 12 07	704	0.4- 0.2-
1998 08 27	704	0.6+	0.7-	1999 11 10	120	0.2+	0.5-	1999 12 07	704	0.4+ 0.4-
1998 08 27	704	0.7+	0.4-	1999 11 10	120	0.3+	0.5+	1999 12 07	704	0.4- 1.0-
1998 08 27	704	0.0	0.1-	1999 12 06	120	0.1+	0.3+			
1998 08 27	704	0.4+	0.2-	1999 12 06	120	0.4-	0.1+			

1999 VT₈ = 1988 XT₅ = 1998 MB₃₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	0.57470		(2000.0)	P	Q
n	0.17796355	ω	264.67319	+0.81152742	-0.54863525
a	3.1302716	Ω	128.43346	+0.58375980	+0.77623833
e	0.2533703	i	14.87228	-0.02545062	+0.31056951
P	5.54	H	13.4	G 0.15	U 4

Residuals in seconds of arc

1988 12 08	808	0.6+	0.7+	1998 06 26	704	0.8-	1.1-	1999 11 27	678	(1.0- 2.4-)
1988 12 08	808	0.4-	1.8-	1998 06 26	704	1.2+	0.7-	1999 11 27	678	(1.2+ 3.4-)
1998 06 24	704	0.6+	0.0	1998 06 27	809	(0.4+ 4.3+)		1999 12 03	704	0.4- 0.3-
1998 06 24	704	0.9+	0.2+	1998 06 27	809	(0.3+ 4.0+)		1999 12 03	704	0.4- 0.0
1998 06 24	704	(3.5- 0.5+)		1998 06 27	809	(0.6+ 4.6+)		1999 12 03	704	1.0- 0.3-
1998 06 24	704	1.1-	0.7+	1999 11 08	678	0.6+	0.5+	1999 12 03	704	0.4- 0.0
1998 06 24	704	(3.4- 1.0+)		1999 11 08	678	0.1-	0.1-	1999 12 03	704	0.8- 0.1+
1998 06 26	809	(3.5- 1.1-)		1999 11 09	678	0.4-	0.9-	1999 12 05	699	0.9+ 1.2-
1998 06 26	809	(3.9- 1.1-)		1999 11 09	678	0.1+	0.2-	1999 12 05	699	0.2- 0.7+
1998 06 26	809	(4.0- 1.0-)		1999 11 13	678	0.8+	0.6+	1999 12 05	699	0.8+ 0.2+
1998 06 26	704	0.8-	0.5+	1999 11 13	678	1.1-	1.2+			
1998 06 26	704	(0.0 2.7+)		1999 11 13	678	1.2+	0.4+			

1999 VU₈ = 1996 DY₄ = 1997 FX₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	16.07107		(2000.0)	P	Q
n	0.20507905	ω	233.24363	+0.95388815	-0.25930972
a	2.8478811	Ω	141.13032	+0.28768453	+0.93351611
e	0.1479716	i	13.94009	-0.08564462	+0.24760076
P	4.81	H	14.0	G 0.15	U 3

Residuals in seconds of arc

1996 02 16	010	0.3-	0.5-	1997 04 10	691	0.2-	0.3-	1999 12 03	704	0.7+ 0.1+
1996 02 16	010	0.2-	0.5-	1997 04 10	691	0.9-	0.6+	1999 12 03	704	0.0 0.6-
1996 02 16	010	0.1+	1.0-	1999 11 08	678	1.2-	1.2+	1999 12 03	704	0.6- 1.1-
1996 02 17	010	0.5+	0.3+	1999 11 08	678	0.5-	0.5+	1999 12 03	704	0.2+ 0.7-
1996 02 17	010	0.3+	0.5+	1999 11 09	678	0.5+	0.6+	1999 12 03	704	0.3- 1.0-
1996 02 17	010	0.4-	1.4+	1999 11 09	678	0.8+	0.3-	1999 12 05	699	0.8+ 1.0+
1997 03 30	691	0.3+	0.3-	1999 11 12	739	1.1-	0.5-	1999 12 05	699	0.9+ 0.9+
1997 03 30	691	0.1+	0.2-	1999 11 12	739	0.1+	0.5-	1999 12 05	699	0.7+ 0.2+
1997 03 30	691	0.4+	0.0	1999 11 27	678	0.4-	0.0			
1997 04 10	691	0.3+	0.1+	1999 11 27	678	0.7-	0.2+			

1999 DEC. 22

M.P.C. 37203

1999 VC₉ = 1998 KZ₁₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21524252	<i>ω</i>	274.36259	+0.95213366	+0.18613897		
<i>a</i>	2.7575115	<i>Ω</i>	75.04700	−0.06152414	+0.89368346		
<i>e</i>	0.2506780	<i>i</i>	14.53508	−0.29942659	+0.40826726		
<i>P</i>	4.58	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 05 22	704	0.7−	0.1+	1998 05 24	704	0.7+	0.7−	1999 12 02	704	0.9−	0.1+
1998 05 22	704	0.2+	0.9+	1999 11 09	678	0.7+	0.9−	1999 12 02	704	0.2+	0.5+
1998 05 22	704	0.3−	0.0	1999 11 09	678	0.2−	0.3+	1999 12 02	704	0.4+	0.1−
1998 05 22	704	1.2−	0.3−	1999 11 10	678	0.3−	0.0	1999 12 02	704	0.5+	0.4−
1998 05 22	704	0.5+	1.5+	1999 11 10	678	0.6+	0.7+	1999 12 02	704	0.6+	0.3+
1998 05 24	704	0.3+	0.3−	1999 11 15	678	0.3−	0.3−	1999 12 09	699	0.7+	0.3−
1998 05 24	704	1.0+	1.2−	1999 11 15	678	0.2−	0.3+	1999 12 09	699	0.2−	0.2−
1998 05 24	704	0.5−	0.1−	1999 11 27	678	0.1−	0.3+	1999 12 09	699	0.1+	0.1+
1998 05 24	704	(2.8+	0.2+)	1999 11 27	678	1.5−	0.3−				

1999 VL₉ = 1998 QM₆₈

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21497420	<i>ω</i>	356.23277	−0.59300970	+0.76211150		
<i>a</i>	2.7598056	<i>Ω</i>	237.20362	−0.73043795	−0.64496888		
<i>e</i>	0.1175622	<i>i</i>	18.00694	−0.33882135	+0.05657920		
<i>P</i>	4.58	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 24	704	1.0−	1.1+	1999 11 12	704	0.4+	0.6−	1999 12 03	691	0.6−	0.3−
1998 08 24	704	(2.6−	1.1+)	1999 11 12	704	0.1+	0.0	1999 12 04	691	0.5−	0.4−
1998 08 24	704	0.3+	0.9−	1999 11 12	704	0.2+	0.5−	1999 12 04	691	0.6−	0.6−
1998 08 24	704	1.1−	1.0+	1999 11 12	704	0.2+	0.5−	1999 12 04	691	0.5−	0.7−
1998 08 24	704	0.5+	0.7+	1999 11 12	120	0.1+	0.0	1999 12 04	703	1.0−	0.3+
1998 08 27	704	0.5+	1.7−	1999 11 12	120	0.6+	0.2−	1999 12 04	703	0.4+	0.8+
1998 08 27	704	0.5−	0.6−	1999 11 28	049	1.0+	1.4+	1999 12 04	703	0.2+	0.4−
1998 08 27	704	0.3+	0.5+	1999 11 28	049	1.1+	1.4+	1999 12 04	703	0.8−	0.2+
1998 08 27	704	1.1+	0.2−	1999 11 28	049	1.4+	1.5+	1999 12 05	703	1.1−	0.3+
1999 11 03	704	1.3−	0.3−	1999 11 28	691	0.0	0.1+	1999 12 05	703	0.2+	0.2+
1999 11 03	704	0.2−	0.2+	1999 11 28	691	0.1+	0.0	1999 12 05	703	0.2−	0.1−
1999 11 03	704	0.6+	0.1−	1999 11 28	691	0.1+	0.0	1999 12 05	703	0.2−	0.2−
1999 11 03	704	0.3−	0.0	1999 11 28	120	1.3−	0.0	1999 12 07	704	0.3+	0.6−
1999 11 03	704	1.0−	0.2−	1999 11 28	120	0.1−	0.5+	1999 12 07	704	0.4+	0.2−
1999 11 08	120	0.2−	0.2+	1999 12 02	691	0.4−	0.1+	1999 12 07	704	0.5+	0.2−
1999 11 09	120	0.5−	0.2+	1999 12 02	691	0.1−	0.3+	1999 12 07	704	0.4+	0.5−
1999 11 09	120	0.9+	0.2+	1999 12 02	691	0.1+	0.1+	1999 12 07	704	1.5+	0.4−
1999 11 09	120	0.4+	0.1+	1999 12 03	691	0.5−	0.2−				
1999 11 12	704	0.4+	0.2−	1999 12 03	691	0.5−	0.3−				

1999 VO₉ = 1950 PT = 1980 RR₁ = 1991 PT₂₆ = 1998 KC₃₀Id. G. V. Williams (*MPC* 36863, unpublished), M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26377744	<i>ω</i>	147.89972	+0.99956294	+0.02907529		
<i>a</i>	2.4079323	<i>Ω</i>	210.43552	−0.02886052	+0.92061202		
<i>e</i>	0.1911755	<i>i</i>	0.60440	−0.00640287	+0.38939457		
<i>P</i>	3.74	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1950 08 14	760	0.8−	2.4−	1999 11 03	704	1.2+	0.1−	1999 12 02	691	0.0	0.5−
1950 08 14	760	1.9+	0.9−	1999 11 03	704	0.7−	0.4−	1999 12 03	699	0.4+	0.2+
1980 09 14	688	1.2−	1.6+	1999 11 03	704	0.3+	0.6−	1999 12 03	699	0.3+	0.5+
1980 09 14	688	0.1+	1.4+	1999 11 03	704	0.1+	0.1−	1999 12 03	699	0.3+	0.2+
1991 08 05	809	(0.8+	6.3+)	1999 11 03	704	0.1+	0.7−	1999 12 05	703	1.5+	1.2+
1991 08 05	809	(0.2−	5.8+)	1999 11 08	120	0.3−	0.6+	1999 12 05	703	0.1−	0.1+

1991 08 05	809	(0.1−	6.3+)	1999 11 09	120	0.2+	0.5+	1999 12 05	703	0.3−	0.3+
1998 05 22	704	1.0−	0.4+	1999 11 09	120	0.4+	0.0	1999 12 05	703	0.5−	0.1+
1998 05 22	704	0.1+	0.6−	1999 11 10	120	0.1+	0.2+	1999 12 07	704	0.2−	0.5−
1998 05 22	704	1.3+	2.1−	1999 11 10	704	0.0	0.2+	1999 12 07	704	0.1+	0.6−
1998 05 22	704	1.9+	1.1−	1999 11 10	704	0.1−	0.5+	1999 12 07	704	0.1−	0.8−
1998 05 22	704	1.0+	0.4+	1999 11 10	704	0.2+	0.6+	1999 12 07	704	0.1+	0.3−
1998 05 24	704	0.1−	0.1+	1999 11 10	704	0.1+	0.8+	1999 12 07	704	0.1+	0.2+
1998 05 24	704	1.2−	0.9−	1999 11 10	704	0.2+	0.8+	1999 12 08	691	0.1+	0.4−
1998 05 24	704	1.6−	0.8+	1999 11 10	120	0.3+	0.1+	1999 12 08	691	0.2−	0.5−
1998 05 24	704	1.0−	1.0+	1999 11 10	120	0.2+	0.0	1999 12 08	691	0.1−	0.5−
1999 10 19	292	1.1−	0.2−	1999 11 12	704	0.3+	0.2+	1999 12 08	704	0.2−	0.5−
1999 10 19	292	0.8−	0.3+	1999 11 12	704	0.3+	0.2+	1999 12 08	704	0.1−	0.5−
1999 10 19	292	1.0−	0.2−	1999 11 12	704	0.3+	0.1+	1999 12 08	704	0.0	0.4−
1999 10 22	292	0.2−	0.1−	1999 11 12	704	0.4+	0.0	1999 12 08	704	0.0	0.4−
1999 10 22	292	0.7−	0.8−	1999 12 02	691	0.2−	0.7−	1999 12 08	704	0.0	0.2−
1999 10 22	292	0.8−	0.7−	1999 12 02	691	0.0	0.4−				

1999 VR₉ = 1962 XX = 1994 NX₃ = 1996 AB₁₅

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24080237	<i>ω</i>	307.52346	+0.65401496	−0.74762757		
<i>a</i>	2.5587560	<i>Ω</i>	101.22106	+0.72587446	+0.57725475		
<i>e</i>	0.2764626	<i>i</i>	6.75651	+0.21300400	+0.32837474		
<i>P</i>	4.09	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1962 12 03	760	1.6−	0.8−	1996 01 18	691	0.1−	0.8+	1999 11 29	120	0.3+	0.1+
1962 12 03	760	1.5+	1.3+	1996 01 18	691	0.1+	0.3+	1999 12 07	704	0.7+	0.3−
1994 07 11	809	0.3−	0.7+	1999 11 09	120	0.9−	0.2+	1999 12 07	704	0.3+	0.2+
1994 07 11	809	0.5+	0.6−	1999 11 09	120	0.9−	0.1+	1999 12 07	704	0.3+	0.2−
1994 07 11	809	1.8−	0.4+	1999 11 09	120	0.4−	0.2+	1999 12 07	704	0.4+	0.2−
1994 07 12	809	0.5+	1.1+	1999 11 10	120	1.1−	0.3+	1999 12 07	704	0.3+	0.2−
1994 07 12	809	1.1+	2.0+	1999 11 10	120	(2.5+	0.9−)	1999 12 08	704	0.8+	0.4−
1994 07 12	809	0.1−	1.7+	1999 11 13	120	0.5−	0.2+	1999 12 08	704	0.4+	0.1+
1996 01 12	691	0.3−	0.6+	1999 11 13	120	0.9−	0.4+	1999 12 08	704	0.4+	0.3+
1996 01 12	691	0.0	0.6+	1999 11 13	120	0.2−	0.1−	1999 12 08	704	0.4+	0.0
1996 01 12	691	0.2−	0.5+	1999 11 29	120	0.2+	0.1+	1999 12 08	704	0.6−	0.0
1996 01 18	691	0.1+	0.9+	1999 11 29	120	0.8+	0.1+				

1999 VU₉ = 1998 OU₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17071267	<i>ω</i>	305.23655	+0.15197946	−0.96661626		
<i>a</i>	3.2182928	<i>Ω</i>	134.57360	+0.97456119	+0.11177036		
<i>e</i>	0.0992091	<i>i</i>	16.83341	+0.16472017	+0.23056539		
<i>P</i>	5.77	<i>H</i>	12.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 07 29	120	1.0−	0.2+	1999 11 09	678	1.5−	0.2+	1999 11 15	678	0.2−	0.1+
1998 07 29	120	0.2+	0.9+	1999 11 10	678	0.1−	0.3−	1999 11 15	678	0.2−	0.1−
1998 07 29	120	0.5−	0.6+	1999 11 10	678	0.0	0.1−	1999 11 27	678	0.6+	0.8−
1998 07 29	120	0.6+	0.6−	1999 11 10	704	0.5+	0.1+	1999 11 27	678	0.0	0.3−
1998 07 30	120	0.7+	0.9−	1999 11 10	704	0.0	0.5+	1999 12 01	704	0.0	0.1+
1998 07 30	120	0.1−	0.7+	1999 11 10	704	0.1−	0.1−	1999 12 01	704	0.0	0.5+
1998 07 30	120	0.1−	0.9−	1999 11 10	704	0.2+	0.3+	1999 12 01	704	0.3−	0.1+
1999 11 09	678	1.3+	0.2−	1999 11 10	704	0.2−	0.1−	1999 12 01	704	0.1−	0.1+

1999 VX₉ = 1994 ND₂ = 1998 MX₂₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.24087461	ω	16.44012	-0.75211372	-0.62605112				
<i>a</i>	2.5582444	Ω	122.96890	+0.57365920	-0.77569064				
<i>e</i>	0.1063793	<i>i</i>	14.20504	+0.32440726	-0.07977492				
<i>P</i>	4.09	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	4		
Residuals in seconds of arc									
1994 07 08	010	1.5-	0.2-	1998 06 26	704	0.6+	0.5+	1999 11 13	678 1.1- 0.0
1994 07 08	010	0.6+	0.3-	1998 06 26	704	0.3+	0.0	1999 11 13	678 0.2- 0.7-
1994 07 08	010	0.9+	0.3-	1998 06 26	704	0.4+	0.4+	1999 11 27	678 0.3+ 0.9-
1998 06 24	704	0.7-	0.4+	1998 06 26	704	1.9-	0.9-	1999 11 27	678 0.1+ 0.1+
1998 06 24	704	0.3-	0.3+	1999 11 09	678	0.6+	0.1+	1999 12 01	704 0.1+ 0.1-
1998 06 24	704	1.4+	0.7+	1999 11 09	678	0.8+	0.9-	1999 12 01	704 1.3+ 0.7+
1998 06 24	704	0.4+	0.6-	1999 11 10	678	0.1-	0.2-	1999 12 01	704 0.3+ 0.6+
1998 06 24	704	0.2-	0.1+	1999 11 10	678	2.5-	1.4+	1999 12 01	704 0.5+ 0.1+

1999 VZ₉ = 1980 BR₂ = 1997 CM₂₇

Id. A. Doppler, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.28743436	ω	196.74111	-0.53160152	-0.83813299				
<i>a</i>	2.2739292	Ω	285.52435	+0.79091089	-0.43958137				
<i>e</i>	0.0990247	<i>i</i>	7.28630	+0.30308380	-0.32295714				
<i>P</i>	3.43	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4		
Residuals in seconds of arc									
1980 01 24	095	0.3+	0.5+	1999 11 25	739	0.4+	0.4+	1999 12 07	703 0.0 0.1+
1997 02 02	399	0.8-	0.1+	1999 11 27	678	0.0	0.0	1999 12 07	699 1.0+ 1.0+
1997 02 02	399	0.4-	0.4-	1999 11 27	678	0.4+	0.4+	1999 12 07	699 1.1+ 0.8+
1997 02 10	399	0.1+	1.0-	1999 12 05	699	0.2-	0.2+	1999 12 07	699 0.9+ 1.2+
1997 02 10	399	0.8+	0.3+	1999 12 05	703	0.1+	0.1-	1999 12 10	704 0.5+ 0.0
1999 11 09	678	1.0-	0.3-	1999 12 05	703	0.6-	0.2+	1999 12 10	704 0.1- 0.6-
1999 11 09	678	1.6-	0.9-	1999 12 05	699	0.5-	0.6+	1999 12 10	704 0.2- 0.2-
1999 11 10	678	1.2-	0.8-	1999 12 05	703	0.1-	0.1+	1999 12 10	704 0.1+ 0.4+
1999 11 10	678	0.6-	0.8-	1999 12 05	703	0.2-	0.2+	1999 12 10	704 0.3- 0.0
1999 11 14	678	0.6+	0.7-	1999 12 05	699	0.2-	0.2+	1999 12 13	703 0.5- 1.9-
1999 11 14	678	0.8+	1.3-	1999 12 07	703	0.3-	0.2+	1999 12 13	703 0.1- 0.4+
1999 11 25	739	1.4+	0.0	1999 12 07	703	0.1-	0.6+	1999 12 13	703 0.2- 0.4+
1999 11 25	739	0.4+	0.3+	1999 12 07	703	0.1-	0.2+	1999 12 13	703 0.2+ 0.3+

1999 VH₁₀ = 1979 QJ₅ = 1989 TV₈ = 1996 DW₃

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.21023606	ω	68.89111	-0.97339207	+0.22709528				
<i>a</i>	2.8011170	Ω	124.22302	-0.22156688	-0.89872644				
<i>e</i>	0.0885379	<i>i</i>	2.12002	-0.05844653	-0.37512467				
<i>P</i>	4.69	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	5		
Residuals in seconds of arc									
1979 08 26	809 (5.4- 2.3+)			1999 11 10	411	0.2+	0.4-	1999 12 07	704 0.6- 0.5-
1989 10 08	809 0.2+	0.3+		1999 11 10	411	0.0	0.1+	1999 12 08	649 0.9+ 0.4-
1989 10 08	809 0.0	0.3+		1999 11 18	411	0.1+	0.1+	1999 12 08	649 0.7+ 0.1+
1989 10 08	809 0.2-	0.5-		1999 11 18	411	0.2+	0.2-	1999 12 08	649 0.3+ 0.4+
1996 02 16	010 1.3-	0.8-		1999 11 29	120	0.8+	0.1-	1999 12 08	649 0.4- 0.1+
1996 02 16	010 1.4-	1.2-		1999 11 29	120	0.7+	0.1+	1999 12 08	704 0.1- 0.1+
1996 02 16	010 1.1-	0.7-		1999 12 04	411	1.8-	0.2+	1999 12 08	704 0.4+ 0.1+
1996 02 17	010 1.4+	0.8+		1999 12 04	411	1.9-	0.6-	1999 12 08	704 0.0 0.0
1996 02 17	010 1.4+	0.9+		1999 12 07	704	0.1+	0.2+	1999 12 08	704 0.1- 0.4+
1996 02 17	010 1.1+	1.0+		1999 12 07	704	0.1-	0.2-	1999 12 08	704 0.1- 0.3+
1999 11 09	411 0.2+	0.2+		1999 12 07	704	0.2+	0.1+		
1999 11 09	411 0.1+	0.5-		1999 12 07	704	0.1-	0.2+		

1999 VJ₁₀ = 1982 VD₉ = 1982 XS = 1998 RN₁₄

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.17519097	ω	5.61260	-0.04363661	-0.99903937				
<i>a</i>	3.1632116	Ω	86.88843	+0.91645136	-0.04163145				
<i>e</i>	0.1543244	<i>i</i>	0.23078	+0.39775966	-0.01368035				
<i>P</i>	5.63	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4		
Residuals in seconds of arc									
1982 11 09	095	1.3+	0.8-	1999 11 09	411	0.2-	0.1+	1999 12 02	691 0.2- 0.6+
1982 12 13	381	0.9-	0.4+	1999 11 10	411	0.3-	0.1+	1999 12 04	411 0.7- 0.1+
1982 12 13	381	0.1+	0.9-	1999 11 10	411	0.5-	0.0	1999 12 04	411 0.7- 0.4+
1982 12 14	381	0.8-	0.0	1999 11 12	704	0.5+	0.2+	1999 12 07	704 0.1- 0.6+
1982 12 14	381	0.6+	0.5-	1999 11 12	704	0.4+	0.3+	1999 12 07	704 0.0 0.0
1998 09 14	691	0.5+	0.1+	1999 11 12	704	0.4+	0.3+	1999 12 07	704 0.1- 0.0
1998 09 14	691	0.5+	0.2+	1999 11 12	704	0.4+	0.2+	1999 12 07	704 0.3+ 0.4-
1998 09 14	691	0.5+	0.3+	1999 11 12	704	0.5+	0.5+	1999 12 07	704 0.1- 0.6-
1998 09 20	691	0.5-	0.2+	1999 11 18	411	1.3-	0.1+	1999 12 08	704 0.3+ 0.1+
1998 09 20	691	0.6-	0.0	1999 11 18	411	0.1+	0.5-	1999 12 08	704 0.1+ 0.1+
1998 09 20	691	0.7-	0.1-	1999 12 02	691	0.2-	0.4+	1999 12 08	704 0.2- 0.5+
1999 11 09	411	0.7+	1.4-	1999 12 02	691	0.6+	0.4+	1999 12 08	704 0.2+ 0.3-

1999 VM₁₀ = 1982 YS₄ = 1996 CV₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.23048281	ω	9.02864	-0.07631375	-0.98638125				
<i>a</i>	2.6345738	Ω	85.44461	+0.90544076	-0.12974977				
<i>e</i>	0.2860016	<i>i</i>	8.40451	+0.41755628	+0.10107927				
<i>P</i>	4.28	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4		
Residuals in seconds of arc									
1982 12 23	095 (3.8+ 2.9-)			1999 11 10	411	0.5-	0.6+	1999 12 07	704 0.4- 0.7+
1996 02 12	399 0.1+	1.4+		1999 11 25	739	0.6-	1.1-	1999 12 07	704 0.0 0.1+
1996 02 12	399 (1.1+ 2.6+)			1999 11 25	739	1.1+	0.7-	1999 12 07	704 0.2+ 0.1-
1996 02 16	399 1.3-	0.1-		1999 11 25	739	0.6+	0.1-	1999 12 08	704 0.1- 0.2+
1996 02 16	399 0.0	0.7-		1999 12 01	428	0.1-	0.1+	1999 12 08	704 0.1- 0.1+
1996 02 22	399 1.5+	0.5+		1999 12 01	428	0.5+	0.0	1999 12 08	704 0.2- 0.0
1996 02 22	399 0.7-	0.5-		1999 12 01	428	0.5+	0.1-	1999 12 08	704 0.1- 0.0
1996 02 24	399 0.7+	0.6-		1999 12 01	428	0.5+	0.2+	1999 12 08	704 0.2- 0.0
1996 02 24	399 0.3-	0.1-		1999 12 05	120	0.1+	0.3+	1999 12 13	120 0.5- 0.2+
1999 11 09	411 0.6+	1.1-		1999 12 05	120	0.4+	0.0	1999 12 13	120 1.0- 0.5-
1999 11 09	411 0.5-	0.5+		1999 12 07	704	0.0	0.1+	1999 12 13	120 0.5- 0.2+
1999 11 10	411 0.2+	0.1+		1999 12 07	704	0.2+	0.2+		

1999 VR₁₀ = 1997 LP₁₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	12.07031		(2000.0)			P		Q		
n	0.18995267	ω	308.47446			+0.84916237		-0.49063685		
a	2.9971314	Ω	81.70862			+0.52482535		+0.74259096		
e	0.1200946	i	11.39136			+0.05900523		+0.45588831		
P	5.19	H	12.0		G	0.15		U	4	
Residuals in seconds of arc										
1997 06 08	809 0.3-	1.0+	1999 11 18	411	1.8-	0.2-	1999 12 07	704 0.2-	0.2-	
1997 06 08	809 0.3-	0.2+	1999 11 22	849	0.0	0.1-	1999 12 07	704 0.0	0.3-	
1997 06 08	809 0.1-	0.1-	1999 11 22	849	0.7+	1.1+	1999 12 07	704 0.1+	0.3-	
1997 06 09	809 0.1-	0.4-	1999 11 22	849	0.8+	0.3+	1999 12 07	704 0.1-	0.3-	
1997 06 09	809 0.5+	0.2-	1999 11 29	120	0.1+	0.1+	1999 12 08	704 0.0	0.1-	
1997 06 09	809 0.2+	0.5-	1999 11 29	120	0.1+	0.0	1999 12 08	704 0.3-	0.0	
1999 11 09	411 0.0	0.7-	1999 12 04	411	0.2+	0.3+	1999 12 08	704 0.2-	0.1-	
1999 11 09	411 0.1+	0.4-	1999 12 04	411	0.1+	0.2-	1999 12 08	704 0.1-	0.1-	
1999 11 10	411 0.2+	0.4-	1999 12 06	120	0.1+	0.2+	1999 12 08	704 0.3-	0.1-	

1999 DEC. 22

M.P.C. 37205

1999 11 10 411 0.8+ 0.4+ 1999 12 06 120 0.3+ 0.2+
1999 11 18 411 1.0- 0.3+ 1999 12 07 704 0.2+ 0.1+

1999 VW₁₀ = 1998 QG₁₁

Id. G. V. Williams, S. Nakano, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	230.96323		(2000.0)		P		Q	
<i>n</i>	0.29419779	ω	68.96764	-0.98995807			+0.04221867	
<i>a</i>	2.2389434	Ω	113.24709	-0.08630712			-0.93634968	
<i>e</i>	0.1287349	<i>i</i>	8.44330	+0.11195578			-0.34852096	
<i>P</i>	3.35	<i>H</i>	13.9	<i>G</i>	0.15		<i>U</i>	5

Residuals in seconds of arc

1998 08 17 704 0.1- 0.4- 1999 11 09 411 0.2- 0.4- 1999 12 06 649 0.2+ 0.2+
1998 08 17 704 0.2- 0.1+ 1999 11 09 411 0.3+ 0.2+ 1999 12 06 649 0.7+ 0.5-
1998 08 17 704 0.4- 0.2+ 1999 11 10 411 0.0 0.9- 1999 12 06 704 0.2- 0.0
1998 08 17 704 0.0 1.4+ 1999 11 10 411 0.7- 0.1+ 1999 12 06 704 0.0 0.2-
1998 08 23 704 1.0+ 0.1+ 1999 11 18 411 0.0 0.7+ 1999 12 06 704 0.0 0.0
1998 08 23 704 0.0 0.5- 1999 11 18 411 1.2+ 0.4+ 1999 12 06 704 0.2- 0.3+
1998 08 23 704 0.1- 1.0- 1999 12 04 411 1.1- 0.7- 1999 12 06 704 0.1+ 0.4+
1998 08 23 704 0.3- 0.0 1999 12 04 411 0.6- 0.3+
1998 08 23 704 0.1- 0.1+ 1999 12 06 649 0.5+ 0.3+

1999 VG₁₁ = 1998 MZ₂₇

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	158.70094		(2000.0)		P		Q	
<i>n</i>	0.26924462	ω	156.97485	-0.66526055			+0.73729723	
<i>a</i>	2.3752247	Ω	71.10236	-0.70288265			-0.56538586	
<i>e</i>	0.0691211	<i>i</i>	7.13811	-0.25176255			-0.36977240	
<i>P</i>	3.66	<i>H</i>	14.3	<i>G</i>	0.15		<i>U</i>	4

Residuals in seconds of arc

1998 06 24 704 0.5+ 0.6+ 1999 11 08 120 1.2- 0.2+ 1999 12 04 703 0.5- 0.4+
1998 06 24 704 1.3- 0.1- 1999 11 08 120 0.5- 0.2+ 1999 12 06 704 (2.8- 0.1-)
1998 06 24 704 1.2+ 0.7+ 1999 11 10 120 0.4- 0.2- 1999 12 06 704 0.0 0.4-
1998 06 24 704 0.1- 0.9+ 1999 11 10 120 0.1- 0.1- 1999 12 06 704 0.4+ 0.1-
1998 06 26 704 0.6- 0.2- 1999 11 12 120 0.0 0.0 1999 12 07 704 0.0 0.3-
1998 06 26 704 0.0 0.6- 1999 11 12 120 0.3+ 0.2- 1999 12 07 704 0.1+ 0.0
1998 06 26 704 0.3- 0.7- 1999 11 13 120 0.4+ 0.0 1999 12 07 704 0.3+ 0.5-
1998 06 26 704 0.6+ 0.5- 1999 11 13 120 0.0 0.6+ 1999 12 07 704 0.1+ 0.7-
1998 06 26 704 (5.1- 0.1-) 1999 11 28 120 1.4+ 0.4- 1999 12 12 703 0.2- 0.4+
1999 11 04 704 0.1- 0.1+ 1999 11 28 120 1.1+ 1.4- 1999 12 12 703 0.4- 0.3+
1999 11 04 704 0.4+ 0.0 1999 12 04 703 0.1- 0.6+ 1999 12 12 703 0.3- 0.2+
1999 11 04 704 0.2+ 0.1+ 1999 12 04 703 0.3- 0.6+ 1999 12 12 703 0.7- 0.3+
1999 11 04 704 0.0 0.3- 1999 12 04 703 0.0 0.9+

1999 VK₁₁ = 1995 SD₅₄

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	21.74335		(2000.0)		P		Q	
<i>n</i>	0.26828621	ω	102.69287	+0.97560537			+0.21881440	
<i>a</i>	2.3808781	Ω	244.66997	-0.20826232			+0.89695415	
<i>e</i>	0.2279761	<i>i</i>	1.12409	-0.06943313			+0.38417902	
<i>P</i>	3.67	<i>H</i>	15.5	<i>G</i>	0.15		<i>U</i>	5

Residuals in seconds of arc

1995 09 26 010 0.2- 0.4+ 1999 11 10 120 0.5- 0.0 1999 12 07 704 0.2+ 0.5+
1995 09 26 010 0.3- 0.2+ 1999 11 10 120 0.8- 0.8+ 1999 12 07 704 0.1+ 0.1-
1995 09 26 010 0.2+ 1.3+ 1999 11 10 120 0.9+ 0.5- 1999 12 07 120 0.6- 0.3-
1995 09 27 010 0.6+ 1.6- 1999 11 10 120 0.2+ 0.2- 1999 12 07 120 0.1- 0.4+
1995 09 27 010 0.2+ 0.4- 1999 11 12 704 0.1- 0.3- 1999 12 07 120 0.0 0.9+
1995 09 27 010 1.1- 0.3- 1999 11 12 704 0.1- 0.3- 1999 12 07 120 1.4+ 0.5+
1999 11 03 704 0.3- 0.9+ 1999 11 12 704 0.4- 0.2- 1999 12 07 120 (2.7- 0.0)

1999 11 03 704 0.8+ 0.8- 1999 11 12 704 0.3+ 0.6- 1999 12 08 704 0.3- 0.0
1999 11 03 704 0.2+ 0.2+ 1999 11 12 704 0.3- 0.2- 1999 12 08 704 1.0+ 0.3-
1999 11 03 704 0.0 0.0 1999 12 07 704 0.1+ 0.4+ 1999 12 08 704 1.1- 0.8-
1999 11 03 704 0.1+ 1.1+ 1999 12 07 704 0.1+ 0.7+ 1999 12 08 704 0.3- 1.4-

1999 VZ₁₁ = 1982 RO₂ = 1989 EX₅ = 1997 CH₂₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	50.75842		(2000.0)		P		Q	
<i>n</i>	0.23546948	ω	352.87883	+0.56039040			+0.81782252	
<i>a</i>	2.5972453	Ω	311.10580	-0.75106291			+0.43518904	
<i>e</i>	0.1480097	<i>i</i>	10.00264	-0.34909469			+0.37653263	
<i>P</i>	4.19	<i>H</i>	13.2	<i>G</i>	0.15		<i>U</i>	2

Residuals in seconds of arc

1982 09 12 095 1.5+ 2.3- 1999 11 10 678 0.8+ 0.0 1999 12 07 699 0.1- 0.5+
1989 03 02 413 0.1- 0.2- 1999 11 10 703 0.5- 0.3+ 1999 12 07 699 0.3- 0.5+
1989 03 02 413 0.1+ 0.4- 1999 11 10 703 0.2- 0.3+ 1999 12 08 704 0.2- 0.4+
1989 03 04 413 0.5- 0.8+ 1999 11 10 703 0.5- 0.3- 1999 12 08 704 0.3+ 0.5-
1997 02 12 327 0.3+ 0.1- 1999 11 10 703 0.3- 0.1+ 1999 12 08 703 0.3- 0.1-
1997 02 12 327 1.4- 0.1- 1999 11 11 678 1.1+ 1.4+ 1999 12 08 704 1.0+ 0.4+
1997 02 12 327 0.3- 0.5- 1999 11 11 678 0.3- 0.0 1999 12 08 703 0.4- 0.2+
1997 02 12 327 0.3- 0.4- 1999 11 17 678 0.1+ 0.4- 1999 12 08 704 0.2+ 0.1+
1997 02 17 327 0.2- 0.2- 1999 11 17 678 0.1- 0.2- 1999 12 08 703 0.9- 0.3+
1997 02 17 327 0.9+ 0.3- 1999 11 27 678 1.0- 0.8- 1999 12 08 704 0.5+ 1.2-
1997 02 17 327 0.4+ 0.5- 1999 11 27 678 1.1- 0.9- 1999 12 08 703 0.2- 0.0
1999 11 10 678 1.4+ 0.3+ 1999 12 07 699 0.5- 1.0+

1999 VA₁₂ = 1992 WW₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	6.20168		(2000.0)		P		Q	
<i>n</i>	0.27893695	ω	91.22584	+0.98651034			+0.12151060	
<i>a</i>	2.3198791	Ω	261.80239	-0.15463211			+0.91162415	
<i>e</i>	0.2153640	<i>i</i>	6.36289	+0.05372399			+0.39265327	
<i>P</i>	3.53	<i>H</i>	14.5	<i>G</i>	0.15		<i>U</i>	5

Residuals in seconds of arc

1992 11 18 399 0.3+ 0.2+ 1999 11 11 703 0.2+ 0.0 1999 12 08 704 1.0- 0.4+
1992 11 18 399 1.3+ 0.7- 1999 11 11 703 0.1- 0.5+ 1999 12 08 704 0.1- 0.3-
1992 11 21 399 0.2+ 0.5+ 1999 11 11 703 0.2+ 0.5+ 1999 12 08 704 0.7+ 0.0
1992 11 21 399 1.9- 0.3+ 1999 11 17 678 0.5- 0.2- 1999 12 08 704 1.4+ 0.1+
1999 11 10 678 0.3- 0.3- 1999 11 17 678 0.7+ 0.4+ 1999 12 08 704 0.2+ 1.6-
1999 11 10 678 0.3- 0.3- 1999 12 04 703 0.2+ 0.0 1999 12 12 703 0.3- 0.4-
1999 11 11 678 0.0 0.7- 1999 12 04 703 0.2- 0.2+ 1999 12 12 703 0.0 0.2+
1999 11 11 678 0.0 0.4- 1999 12 04 703 0.2- 0.3+ 1999 12 12 703 0.2- 0.2+
1999 11 11 703 0.1+ 0.6+ 1999 12 04 703 0.4- 0.4+ 1999 12 12 703 0.0 0.0

1999 VF₁₂ = 1998 HC₇

Id. A. Doppler, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	211.56469		(2000.0)		P		Q	
<i>n</i>	0.36800597	ω	125.41200	-0.92591649			-0.27477239	
<i>a</i>	1.9285585	Ω	40.49476	+0.04675380			-0.76426971	
<i>e</i>	0.0824578	<i>i</i>	23.52402	+0.37482360			-0.58343118	
<i>P</i>	2.68	<i>H</i>	17.6	<i>G</i>	0.15		<i>U</i>	4

Residuals in seconds of arc

1998 04 23 704 0.2+ 0.0 1998 04 27 691 0.5- 0.3+ 1999 11 10 695 0.3+ 0.3+
1998 04 23 704 0.4+ 2.0- 1998 04 27 691 0.1- 0.3+ 1999 11 10 695 0.3+ 0.0
1998 04 23 704 0.0 0.6+ 1998 04 27 691 0.4- 0.1+ 1999 11 11 695 0.9- 0.1+
1998 04 23 704 0.2+ 1.4- 1999 11 04 704 0.3+ 1.0- 1999 11 11 695 0.3- 0.1-
1998 04 24 704 0.5- 0.3+ 1999 11 04 704 0.8+ 0.2+ 1999 11 11 695 0.3- 0.2-
1998 04 24 704 0.5- 1.6+ 1999 11 04 704 0.3+ 1.0+ 1999 11 14 704 0.3- 0.6-
1998 04 24 704 1.0+ 0.7+ 1999 11 04 704 0.1+ 0.6+ 1999 11 14 704 0.6- 0.4-
1998 04 24 704 0.2+ 0.4- 1999 11 04 704 0.1+ 0.3+ 1999 11 14 704 0.2- 0.2-
1998 04 24 704 (2.8- 1.2-) 1999 11 10 695 0.4+ 0.1+ 1999 11 14 704 0.2+ 0.2-

1999 VM₁₂ = 1977 XJ₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	329.43937		(2000.0)	P		Q	
<i>n</i>	0.22268382	ω	355.70245	+0.40612075	-0.91201925		
<i>a</i>	2.6957334	Ω	70.32797	+0.84021731	+0.34800692		
<i>e</i>	0.1898891	<i>i</i>	3.49058	+0.35930600	+0.21705315		
<i>P</i>	4.43	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1977 12 07	675	0.3-	0.8-	1999 11 12	678	1.2-	0.2+
1977 12 08	675	0.5+	0.6-	1999 11 12	678	1.3-	0.7-
1999 11 04	704	0.5-	0.1-	1999 11 17	678	0.6-	0.9-
1999 11 04	704	1.0+	0.6-	1999 11 17	678	0.3-	0.6-
1999 11 04	704	1.1+	0.3+	1999 11 28	678	0.3-	0.4-
1999 11 04	704	1.2+	0.0	1999 11 28	678	0.9+	1.0+
1999 11 04	691	0.5+	0.0	1999 12 03	691	0.5+	0.2-
1999 11 04	691	0.5+	0.0	1999 12 03	691	0.4+	0.1-
1999 11 04	691	0.5+	0.0	1999 12 03	691	0.3+	0.2-
1999 11 11	678	0.0	0.1+	1999 12 04	703	0.2+	0.1-
1999 11 11	678	0.5-	0.1+	1999 12 04	703	0.0	0.2+

1999 VO₁₂ = 1960 VD = 4883 T-1 = 1990 SQ₂ = 1998 MM₂₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	4.01736		(2000.0)	P		Q					
<i>n</i>	0.22775316	ω	262.37374	+0.89477338		-0.44397325					
<i>a</i>	2.6555824	Ω	123.97231	+0.42897445		+0.82510262					
<i>e</i>	0.0969600	<i>i</i>	3.29231	+0.12394158		+0.34941870					
<i>P</i>	4.33	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	1				
Residuals in seconds of arc											
1960 11 12	760	0.5-	0.8+	1999 11 04	704	0.3-	0.3+	1999 12 04	703	0.1+	0.7+
1971 05 13	675	0.5-	0.7+	1999 11 04	704	0.2+	0.6+	1999 12 04	703	0.1-	0.8+
1971 05 14	675	0.1-	1.1-	1999 11 11	678	0.6+	0.9-	1999 12 04	703	0.5+	0.6+
1971 05 16	675	0.3+	1.4-	1999 11 11	678	0.4-	0.4-	1999 12 04	703	0.3+	0.4+
1990 09 18	675	0.9+	1.0-	1999 11 12	678	0.3+	0.4+	1999 12 05	703	0.3+	0.5+
1990 09 18	675	0.2+	0.2+	1999 11 12	678	0.2-	0.6+	1999 12 05	703	0.1-	0.5+
1990 09 20	675	0.4+	0.0	1999 11 12	678	0.1-	0.4-	1999 12 05	703	0.1+	0.4+
1990 09 20	675	0.1+	1.6-	1999 11 17	678	0.7-	0.0	1999 12 05	703	2.6-	0.7+
1998 06 24	704	0.8-	1.2+	1999 11 17	678	1.5-	0.1-	1999 12 06	704	0.6+	0.0
1998 06 24	704	0.5-	1.2+	1999 11 22	849	0.6-	2.5+	1999 12 06	704	0.0	0.3+
1998 06 24	704	0.4+	0.1-	1999 11 22	849	0.6+	1.1+	1999 12 06	704	0.0	0.3-
1998 06 24	704	0.8+	0.2-	1999 11 22	849	1.7+	0.1-	1999 12 06	704	0.1-	0.3-
1998 06 24	704	1.0+	0.3-	1999 11 24	849	0.1-	0.4-	1999 12 06	704	0.3-	0.5-
1998 06 26	704	0.4+	0.3+	1999 11 24	849	0.6-	0.4-	1999 12 07	704	0.6+	0.1+
1998 06 26	704	0.6+	0.3+	1999 11 24	849	0.2-	0.7-	1999 12 07	704	0.4+	0.3+
1998 06 26	704	0.0	1.0+	1999 11 25	739	0.7-	1.6-	1999 12 07	704	0.3+	0.1+
1998 06 26	704	2.5-	1.5-	1999 11 25	739	0.6+	0.9-	1999 12 07	704	0.3+	0.0
1999 11 04	704	0.2+	0.0	1999 11 25	739	0.0	0.9-	1999 12 07	704	0.2+	0.2+
1999 11 04	704	0.1+	0.2+	1999 11 27	678	0.1+	1.3-				
1999 11 04	704	0.3+	0.2+	1999 11 27	678	0.4-	1.3-				

1999 VP₁₂ = 1991 VA₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	325.99788		(2000.0)	P		Q					
<i>n</i>	0.24648525	<i>ω</i>	266.53052	+0.32523801		-0.94548889					
<i>a</i>	2.5192741	<i>Ω</i>	164.45887	+0.89016885		+0.30024155					
<i>e</i>	0.1415928	<i>i</i>	3.52249	+0.31909192		+0.12611805					
<i>P</i>	4.00	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1991 11 09	399	(2.0-	4.3-)	1999 11 12	678	0.4+	0.7+	1999 12 06	704	0.1-	0.1+
1991 11 09	399	1.2+	0.7-	1999 11 17	678	0.1-	0.4-	1999 12 06	704	(0.6-	3.6-
1991 11 11	399	1.8-	0.6-	1999 11 17	678	0.0	0.8-	1999 12 06	704	0.1-	0.3+
1991 11 11	399	0.9-	0.3-	1999 11 27	678	0.4-	0.3-	1999 12 06	704	(0.2+	2.2-
1991 11 13	399	0.8+	0.5+	1999 11 27	678	0.3+	0.5-	1999 12 06	704	0.2-	0.2+

1991 11 13	399	0.7+	1.0+	1999 12 03	699	0.2-	0.5+	1999 12 06	704	0.9+	1.1-
1999 11 11	678	0.9-	0.9+	1999 12 03	699	0.1+	0.4+	1999 12 06	704	0.6-	0.4+
1999 11 11	678	0.6+	0.3-	1999 12 03	699	0.2+	0.3+	1999 12 06	704	0.2+	0.0
1999 11 12	678	0.2+	0.0	1999 12 06	704	0.2-	0.4-				

1999 VQ₁₂ = 1988 GR₁ = 1990 UD₁₁ = 1991 CG₄ = 1997 JL₁₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	229.43995		(2000.0)	P		Q					
<i>n</i>	0.22586574	ω	320.94968	-0.99149945	-0.02581610						
<i>a</i>	2.6703559	Ω	218.16304	+0.05614312	-0.96906520						
<i>e</i>	0.1077901	<i>i</i>	11.91044	-0.11737455	-0.24545095						
<i>P</i>	4.36	<i>H</i>	12.2	<i>G</i>	0.15	<i>U</i>	2				
Residuals in seconds of arc											
1988 04 12	413	0.9-	0.8+	1997 05 04	809	(3.8-	0.5+)	1999 12 03	699	0.1+	0.0
1988 04 12	413	0.8+	1.3-	1997 05 04	809	(3.5-	1.0+)	1999 12 03	699	0.3+	0.3+
1990 10 27	399	0.9-	0.4-	1997 05 04	809	(3.1-	0.4+)	1999 12 06	704	0.1+	0.3-
1990 10 27	399	1.0+	0.3-	1999 11 11	678	0.3+	0.5+	1999 12 06	704	0.3+	0.2-
1991 02 15	493	(2.7-	2.4-)	1999 11 11	678	0.0	0.6+	1999 12 06	704	0.3+	0.3-
1991 02 15	493	(4.9-	4.3-)	1999 11 12	678	0.6-	0.7+	1999 12 06	704	0.5+	0.1+
1997 05 03	809	0.2-	0.6-	1999 11 12	678	0.4-	0.1+	1999 12 06	704	0.1+	0.3-
1997 05 03	809	0.2-	0.1+	1999 11 17	678	0.1-	0.4+	1999 12 11	888	0.2+	0.3-
1997 05 03	809	0.6-	0.2+	1999 11 17	678	0.1+	0.1-	1999 12 11	888	0.1+	0.1-
1997 05 04	809	1.1+	1.7+	1999 11 27	678	0.8-	0.6+	1999 12 11	888	0.1-	0.1-
1997 05 04	809	(0.7+	2.2+)	1999 11 27	678	0.7-	0.2+	1999 12 11	888	0.2+	0.2-
1997 05 04	809	(0.4+	2.4+)	1999 12 03	699	0.3+	0.1+	1999 12 11	888	0.0	0.0

1999 VR₁₂ = 1978 WS₁₄ = 1978 WB₁₆Id. G. V. Williams (unpublished; d, *MPC* 18998)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	46.59753		(2000.0)	P			Q				
<i>n</i>	0.18758321	ω	265.24336	+0.93614239			+0.29991461				
<i>a</i>	3.0223175	Ω	77.21735	-0.19826951			+0.88133771				
<i>e</i>	0.1070201	<i>i</i>	10.84829	-0.29039047			+0.36509597				
<i>P</i>	5.25	<i>H</i>	11.7	<i>G</i>	0.15		<i>U</i>	5			
Residuals in seconds of arc											
1978 11 28	330	0.1+	1.1-	1999 11 25	739	0.4+	0.3+	1999 12 06	704	0.3-	0.0
1978 11 30	675	0.8+	0.7-	1999 11 25	739	0.7+	0.3+	1999 12 06	704	0.5-	0.1+
1978 12 01	675	0.5-	0.7+	1999 11 27	678	0.2-	0.1+	1999 12 07	704	0.1+	0.3-
1999 11 11	678	0.2+	0.3+	1999 11 27	678	0.2-	0.3-	1999 12 07	704	0.2+	0.1-
1999 11 11	678	0.6+	0.1-	1999 11 28	691	0.1-	0.4-	1999 12 07	704	0.1+	0.2-
1999 11 12	678	0.3-	0.2-	1999 11 28	691	0.0	0.4-	1999 12 07	704	0.3+	0.0
1999 11 12	678	0.1+	0.5-	1999 11 28	691	0.1-	0.4-	1999 12 07	704	0.1+	0.0
1999 11 17	678	0.9-	0.4+	1999 12 06	704	0.2-	0.2-	1999 12 09	691	0.5+	0.7+
1999 11 17	678	1.6-	0.5+	1999 12 06	704	0.4-	0.0	1999 12 09	691	0.4+	0.5+
1999 11 25	739	0.5+	0.3+	1999 12 06	704	0.4-	0.0	1999 12 09	691	0.5+	0.7+

1999 VS₁₂ = 1998 HB₉₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	10.06015		(2000.0)	P		Q					
n	0.26525899	ω	291.43750	+0.98743582		+0.06248396					
a	2.3989580	Ω	65.22505	+0.01037705		+0.89087891					
e	0.2821846	i	9.19849	-0.15767948		+0.44992281					
P	3.72	H	14.5	G	0.15	U	4				
Residuals in seconds of arc											
1998 04 21	704	0.6-	0.5+	1999 11 22	849	1.1+	1.9-	1999 12 05	703	0.1-	0.5+
1998 04 21	704	0.2-	0.2-	1999 11 22	849	0.3-	1.2+	1999 12 05	703	0.1-	0.2+
1998 04 21	704	0.2-	1.5-	1999 11 22	849	0.0	0.2+	1999 12 05	703	0.2-	0.1+
1998 04 21	704	0.0	0.5-	1999 11 22	849	0.1+	0.4+	1999 12 05	703	0.2-	0.2+
1998 04 22	704	1.5+	1.3+	1999 11 25	739	0.3+	0.3+	1999 12 05	703	0.0	0.4+
1998 04 22	704	0.3-	1.3-	1999 11 25	739	0.1-	0.1+	1999 12 07	704	0.3+	0.3-
1998 04 22	704	0.4+	0.1+	1999 11 25	739	0.3+	0.0	1999 12 07	704	0.1+	0.3-
1998 04 22	704	0.6-	1.6+	1999 11 27	678	0.3-	0.7+	1999 12 07	704	0.4+	0.6-

1999 DEC. 22

M.P.C. 37207

1999 11 11	678	0.7−	0.1+	1999 11 27	678	0.2−	0.4+	1999 12 07	704	0.3+	0.7−
1999 11 11	678	0.8−	0.5+	1999 12 03	699	0.4+	0.1+	1999 12 07	704	0.2+	0.9−
1999 11 12	678	0.8+	0.7−	1999 12 03	699	0.2+	0.6+	1999 12 08	704	0.1+	0.1−
1999 11 12	678	0.1+	0.1+	1999 12 03	699	0.3+	0.1−	1999 12 08	704	0.2+	0.5−
1999 11 17	678	0.7−	0.4+	1999 12 04	703	0.1−	0.3+	1999 12 08	704	0.0	0.6−
1999 11 17	678	0.2−	0.3+	1999 12 04	703	0.1−	0.1+	1999 12 08	704	0.1+	0.7−
1999 11 17	704	0.2−	0.8−	1999 12 04	703	0.1−	0.1+	1999 12 08	704	0.1−	0.8−
1999 11 17	704	0.2+	0.0	1999 12 04	703	0.1−	0.4+	1999 12 13	703	0.4−	0.4+
1999 11 17	704	0.3+	0.0	1999 12 05	703	0.1−	0.5+	1999 12 13	703	0.0	0.1+
1999 11 17	704	0.2+	0.5−	1999 12 05	703	0.4−	0.7+	1999 12 13	703	0.1−	0.2+
1999 11 17	704	0.0	0.5−	1999 12 05	703	0.1−	0.5+	1999 12 13	703	0.3−	0.2+

1999 VV₁₂ = 1988 XY

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	227.19957		(2000.0)	P	Q
n	0.17603738	ω	113.54146	-0.93051390	$+0.10081875$
a	3.1530639	Ω	73.78568	-0.26709293	-0.84460317
e	0.0957526	i	21.51180	$+0.25060975$	-0.52581467
P	5.60	H	11.1	G 0.15	U 5

Residuals in seconds of arc

1988 12 06	675	(4.1+	0.3+)	1999 11 11	678	0.1−	0.0	1999 12 03	699	0.4+	0.1−
1988 12 06	675	(3.4+	0.5−)	1999 11 11	678	0.2−	0.2−	1999 12 03	699	0.3+	0.4+
1988 12 07	675	(4.9+	0.1−)	1999 11 12	678	0.9−	0.4−	1999 12 03	699	0.8+	0.0
1988 12 07	399	0.4−	2.4−	1999 11 12	678	0.4−	0.3−	1999 12 06	704	0.1+	0.2−
1988 12 07	399	0.6+	0.2+	1999 11 17	678	0.3+	0.4+	1999 12 06	704	(7.8−	0.7−)
1988 12 07	399	0.3−	1.5+	1999 11 17	678	0.4+	0.2+	1999 12 06	704	0.3+	0.1−
1988 12 07	399	1.0−	0.3+	1999 11 25	739	0.1−	0.1+	1999 12 06	704	0.3+	0.1−
1988 12 11	399	0.4+	0.1−	1999 11 25	739	0.3+	0.0	1999 12 06	704	0.3+	0.1−
1988 12 11	399	0.9−	0.1−	1999 11 25	739	0.5+	0.2+	1999 12 12	691	0.5−	0.1+
1988 12 11	399	1.3+	0.2+	1999 11 27	678	0.1−	0.2+	1999 12 12	691	0.5−	0.0
1988 12 11	399	0.3+	0.4+	1999 11 27	678	0.8−	0.2−	1999 12 12	691	0.6−	0.0

1999 VK₁₄ = 1998 KS₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	279.38024		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.38654562	ω	67.23969	-0.39862229	-0.85976041
a	1.8663892	Ω	50.31292	+0.61258116	-0.50865739
e	0.0975000	i	24.50921	+0.68252808	-0.04560359
P	2.55	H	16.1	G 0.15	U 3

Residuals in seconds of arc

1998 05 23	704	0.2+	0.6−	1999 11 02	704	0.1+	0.3+	1999 12 13	704	0.1+	0.1+
1998 05 23	704	1.5+	0.9−	1999 11 02	704	1.0+	0.2−	1999 12 13	704	0.4+	0.0
1998 05 23	704	0.6−	0.4+	1999 11 02	704	0.7−	0.4−	1999 12 13	704	0.2+	0.1−
1998 05 23	704	0.0	0.1+	1999 11 02	704	0.2+	0.4+	1999 12 14	704	0.0	0.2−
1998 05 23	704	0.4−	0.1−	1999 11 03	704	0.0	0.0	1999 12 14	704	0.5+	0.1−
1998 05 24	704	0.4+	0.7−	1999 11 03	704	0.3−	0.1−	1999 12 14	704	0.3−	0.0
1998 05 24	704	(0.9+	2.5−)	1999 11 03	704	0.2−	0.0	1999 12 14	704	0.0	0.6−
1998 05 24	704	1.6−	1.4+	1999 12 13	704	0.4−	0.4+	1999 12 14	704	0.2−	0.4+
1998 05 24	704	0.4+	0.4+	1999 12 13	704	0.3−	0.0				

1999 VL₁₈ = 1998 LB₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	23.81712		(2000.0)	P	Q
n	0.21345892	ω	110.75052	+0.92438954	+0.36950751
a	2.7728509	Ω	227.69717	−0.37991306	+0.86957859
e	0.1610517	i	7.35653	−0.03420602	+0.32756264
P	4.62	H	14.6	G 0.15	U 3

Residuals in seconds of arc

1998 06 01	809	0.5−	0.3+	1999 11 03	691	0.1+	0.1−	1999 12 04	699	0.6−	0.1−
1998 06 01	809	0.9−	0.4−	1999 11 04	704	0.8−	0.2−	1999 12 04	699	0.5−	0.0
1998 06 01	809	0.3−	0.5−	1999 11 04	704	0.6−	0.2+	1999 12 06	704	0.0	0.0
1998 06 02	809	0.6+	0.2−	1999 11 04	704	0.5−	0.1−	1999 12 06	704	0.4+	0.4−

1998 06 02	809	0.2−	1.2+	1999 11 04	703	0.0	0.1+	1999 12 06	704	0.1−	0.1−
1998 06 02	809	1.2+	0.5−	1999 11 04	704	0.1−	0.1+	1999 12 06	704	0.6−	0.7−
1999 11 02	691	0.2+	0.1−	1999 11 04	703	1.0+	0.6−	1999 12 07	704	0.1+	1.4+
1999 11 02	691	0.1+	0.1−	1999 11 04	704	0.3−	0.3+	1999 12 07	704	0.8+	0.5+
1999 11 02	691	0.3+	0.1−	1999 11 04	703	0.1−	0.8+	1999 12 07	704	0.6+	0.3−
1999 11 03	691	0.2+	0.6−	1999 11 04	703	0.3+	0.4+				
1999 11 03	691	0.2+	0.0	1999 12 04	699	0.3−	0.4−				

1999 VA₁₉ = 1997 LZ₁₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	18.49279		(2000.0)	P	Q
n	0.17616371	ω	137.41189	+0.91045175	−0.18881456
a	3.1515565	Ω	237.14372	+0.14669978	+0.97929310
e	0.1010816	i	25.98155	+0.38672572	+0.07303486
P	5.59	H	14.1	G 0.15	U 4

Residuals in seconds of arc

1997 06 08	809	0.3+	0.4+	1999 11 12	704	0.0	0.2+	1999 12 05	703	0.1+	0.1+
1997 06 08	809	0.4−	0.9+	1999 11 12	704	0.1+	0.2+	1999 12 05	703	0.7−	0.1+
1997 06 08	809	0.1+	0.9+	1999 11 12	704	0.2+	0.2−	1999 12 05	703	0.1+	0.5−
1997 06 09	809	0.5−	0.9−	1999 11 12	704	0.3+	0.2+	1999 12 05	703	1.2−	0.1+
1997 06 09	809	0.2+	0.1−	1999 11 27	734	0.1−	0.3−	1999 12 06	704	0.2+	0.3+
1997 06 09	809	0.3+	1.0−	1999 11 27	734	0.3−	0.6−	1999 12 06	704	0.5+	0.7+
1999 11 10	734	1.4+	1.5−	1999 11 27	734	0.3+	0.2+	1999 12 06	704	0.9+	0.0
1999 11 10	734	0.1+	0.7+	1999 11 27	734	0.3+	1.1−	1999 12 06	704	0.2+	0.4−
1999 11 10	734	1.0+	0.5+	1999 12 02	699	0.3+	0.2−	1999 12 07	704	0.2+	0.1+
1999 11 10	734	1.5−	0.5+	1999 12 02	699	0.8+	0.4+	1999 12 07	704	0.2+	0.5+
1999 11 11	734	0.7−	0.1−	1999 12 02	699	0.6+	0.7+	1999 12 07	704	1.1−	0.8−
1999 11 11	734	0.9−	0.0	1999 12 04	703	0.4−	0.7+	1999 12 07	704	0.1+	0.2−
1999 11 11	734	0.2+	0.0	1999 12 04	703	0.5−	0.1+	1999 12 07	704	0.4−	0.6+
1999 11 11	734	0.3−	0.0	1999 12 04	703	0.3−	0.5−				
1999 11 12	704	0.1+	0.1+	1999 12 04	703	0.2+	0.3−				

1999 VB₁₉ = 1997 ET₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	29.40897		(2000.0)	P	Q
n	0.25852797	ω	92.90142	+0.97802059	+0.17733174
a	2.4404188	Ω	256.90246	−0.20582537	+0.90519316
e	0.2324800	i	6.46562	+0.03334127	+0.38623671
P	3.81	H	16.0	G 0.15	U 4

Residuals in seconds of arc

1997 03 03	691	0.0	0.2−	1999 11 12	734	0.3+	0.5−	1999 11 13	734	0.8+	0.6−
1997 03 03	691	0.3+	0.1+	1999 11 12	734	0.1−	0.4+	1999 12 01	734	0.6+	0.0
1997 03 03	691	0.3+	0.0	1999 11 12	734	0.1+	0.2+	1999 12 01	734	0.4−	0.4+
1997 03 08	691	0.6−	0.7−	1999 11 12	734	0.2+	0.1+	1999 12 07	704	0.6−	0.1−
1997 03 08	691	0.3+	0.0	1999 11 12	734	0.2−	0.1−	1999 12 07	704	0.3−	0.1−
1997 03 08	691	1.2+	0.8+	1999 11 12	704	0.2−	0.1+	1999 12 07	704	0.2−	0.1+
1997 03 10	691	0.6−	0.1−	1999 11 12	704	0.1+	0.5−	1999 12 07	704	0.3−	0.1+
1997 03 10	691	0.8−	0.1+	1999 11 12	704	0.3−	0.1−	1999 12 07	704	0.2−	0.3+
1999 11 11	734	0.7−	0.2+	1999 11 12	704	0.4+	0.1+	1999 12 08	704	0.2−	0.2−
1999 11 11	734	0.0	0.1+	1999 11 13	734	0.2+	0.1+	1999 12 08	704	1.2+	0.5+
1999 11 11	734	0.4−	0.9+	1999 11 13	734	0.6+	0.5−	1999 12 08	704	0.1+	0.1−
1999 11 11	734	0.2−	0.5−	1999 11 13	734	0.4−	0.3−	1999 12 08	704	0.0	0.8−
1999 11 11	734	0.2+	0.2+	1999 11 13	734	0.0	0.3+				

1999 VE₁₉ = 1986 XZ₃

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	267.43819	(2000.0)	P	Q
<i>n</i>	0.30099424	ω	66.64426	-0.55382929
<i>a</i>	2.2051117	Ω	57.34213	+0.71555672
<i>e</i>	0.0469084	<i>i</i>	6.62854	+0.42573665
<i>P</i>	3.27	<i>H</i>	14.3	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1986 12 04	046	(2.7+ 0.5+)	1999 11 12	704	0.4- 0.6-	1999 12 04	703	0.1+ 0.6+
1986 12 04	046	(4.1+ 0.5+)	1999 11 12	704	0.5- 0.8-	1999 12 04	703	0.0 0.4+
1986 12 04	010	(9.4- 5.7-)	1999 11 12	704	0.4- 0.8-	1999 12 04	703	0.3- 0.3+
1986 12 05	010	(10.3- 7.2-)	1999 11 12	120	0.0 0.2+	1999 12 07	704	0.3+ 0.0
1986 12 07	046	(6.2+ 0.4-)	1999 11 12	120	0.2- 0.1+	1999 12 07	704	0.3+ 0.2-
1986 12 07	046	(5.6+ 1.2-)	1999 11 13	120	0.3- 0.2-	1999 12 07	704	0.3+ 0.4-
1986 12 09	046	0.9- 1.1-	1999 11 13	120	0.3+ 0.0	1999 12 07	704	0.2+ 0.0
1986 12 09	046	0.9+ 1.0+	1999 11 19	327	0.2- 0.3-	1999 12 07	704	0.1+ 0.1-
1999 11 04	704	0.2+ 0.6+	1999 11 19	327	0.0 0.1+	1999 12 08	704	0.1+ 0.1-
1999 11 04	704	0.1- 0.6+	1999 11 19	327	0.1+ 0.2+	1999 12 08	704	0.1+ 0.4-
1999 11 04	704	0.1+ 0.4+	1999 11 20	327	0.3+ 0.0	1999 12 08	704	0.2+ 0.1-
1999 11 04	704	0.2+ 0.5+	1999 11 20	327	0.7+ 0.5-	1999 12 08	704	0.1- 0.2-
1999 11 04	704	0.3+ 0.9+	1999 11 20	327	0.4- 0.4+	1999 12 08	704	0.3- 0.0
1999 11 08	120	0.6+ 0.5-	1999 12 02	691	0.3+ 0.0	1999 12 12	703	0.0 0.1+
1999 11 08	120	0.2- 0.1-	1999 12 02	691	0.5+ 0.1-	1999 12 12	703	0.5- 0.4+
1999 11 12	704	0.4- 0.6-	1999 12 02	691	0.5+ 0.2+	1999 12 12	703	0.6- 0.3+
1999 11 12	704	0.5- 0.7-	1999 12 04	703	0.0 0.4+	1999 12 12	703	0.3- 0.0

1999 VF₁₉ = 3069 T-1

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	318.10977	(2000.0)	P	Q
<i>n</i>	0.23054404	ω	210.46697	+0.10254255
<i>a</i>	2.6341072	Ω	233.68761	+0.92402274
<i>e</i>	0.1439031	<i>i</i>	3.34885	+0.36833003
<i>P</i>	4.28	<i>H</i>	15.4	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1971 03 25	675	1.7+ 0.4-	1999 11 13	120	0.6+ 0.6+	1999 12 07	691	0.4+ 0.4+
1971 03 26	675	0.4+ 0.0	1999 12 04	703	0.8- 1.0+	1999 12 07	704	0.6- 0.0
1971 03 26	675	1.9- 0.2-	1999 12 04	703	0.4- 0.0	1999 12 07	704	0.3+ 0.1-
1971 03 27	675	0.2- 0.7+	1999 12 04	703	0.1- 0.3+	1999 12 07	691	0.5+ 0.4+
1999 11 08	120	0.4+ 0.1+	1999 12 04	703	0.7+ 0.4+	1999 12 07	704	0.2- 1.2-
1999 11 09	120	0.5+ 0.9+	1999 12 05	703	0.4- 0.5+	1999 12 08	704	0.1+ 0.3-
1999 11 12	704	0.9- 0.4-	1999 12 05	703	0.8- 1.1+	1999 12 08	704	0.5+ 0.1-
1999 11 12	704	0.2+ 0.0	1999 12 05	703	0.9- 0.8+	1999 12 08	704	0.2+ 0.5-
1999 11 12	704	0.9+ 1.3-	1999 12 05	703	0.7- 0.4+	1999 12 08	704	0.3- 0.7-
1999 11 12	704	0.3- 0.2+	1999 12 07	691	0.3+ 0.4+	1999 12 08	704	0.9+ 0.9-
1999 11 12	704	0.1+ 0.2-	1999 12 07	704	0.0 0.8-			
1999 11 12	120	1.0- 0.3-	1999 12 07	704	0.5+ 0.8-			

1999 VJ₁₉ = 1998 KG₁₉

Id. G. V. Williams, S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	26.73439	(2000.0)	P	Q
<i>n</i>	0.29571345	ω	272.90606	+0.98790268
<i>a</i>	2.2312864	Ω	79.52689	-0.08727130
<i>e</i>	0.1716602	<i>i</i>	4.76113	-0.12818739
<i>P</i>	3.33	<i>H</i>	15.1	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1998 05 22	704	0.1+ 1.3+	1999 11 12	704	0.2- 0.2+	1999 12 03	691	0.2- 0.0
1998 05 22	704	0.5- 0.3+	1999 11 12	704	0.3- 0.1+	1999 12 03	691	0.3+ 0.1-
1998 05 22	704	0.9+ 0.7+	1999 11 12	704	0.7- 0.2-	1999 12 07	704	0.1+ 0.2-
1998 05 22	704	1.1- 0.3-	1999 11 13	120	0.3- 0.4-	1999 12 07	704	0.2- 0.1+
1998 05 24	704	0.5- 0.4-	1999 11 13	120	0.5+ 0.3-	1999 12 07	704	0.1- 0.2+
1998 05 24	704	1.1+ 1.7-	1999 11 26	120	0.1+ 0.8+	1999 12 07	704	0.3- 0.2+

1999 11 08	120	0.6+ 0.0	1999 11 26	120	0.4+ 0.6+	1999 12 07	704	0.2- 0.1+
1999 11 08	120	0.2+ 0.5+	1999 11 27	120	0.6+ 0.1+	1999 12 08	704	0.1+ 0.2-
1999 11 08	120	0.4- 0.2+	1999 11 27	120	0.8+ 0.6-	1999 12 08	704	0.2+ 0.3-
1999 11 10	120	0.1- 0.9-	1999 11 28	691	0.4- 0.0	1999 12 08	704	0.2- 0.0
1999 11 10	120	0.3+ 0.1-	1999 11 28	691	0.3- 0.0	1999 12 08	704	0.1+ 0.0
1999 11 12	704	0.5- 0.3+	1999 11 28	691	0.1- 0.1-	1999 12 08	704	0.2- 0.1+
1999 11 12	704	0.3- 0.2+	1999 12 03	691	0.5+ 0.3-			

1999 VM₁₉ = 1976 UN₁₃ = 1991 RJ₁₂ = 1998 KL₁₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	14.30950	(2000.0)	P	Q
<i>n</i>	0.25826212	ω	212.35984	+0.98816079
<i>a</i>	2.4420933	Ω	139.01354	-0.12652204
<i>e</i>	0.2042034	<i>i</i>	3.13697	-0.08677801
<i>P</i>	3.82	<i>H</i>	14.8	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1976 10 22	381	0.3+ 0.3-	1998 05 22	704	1.2+ 1.5+	1999 11 28	120	0.9+ 0.2-
1976 10 22	381	0.1- 0.2-	1998 05 22	704	0.7- 1.7+	1999 11 28	120	0.3- 0.4+
1991 09 04	809	0.4+ 0.1+	1998 05 22	704	0.8+ 1.8-	1999 11 28	120	0.3- 0.2+
1991 09 04	809	0.0 0.1+	1998 05 24	704	0.3- 0.3+	1999 11 30	120	0.1- 0.1+
1991 09 04	809	0.9- 0.8+	1998 05 24	704	(0.5+ 2.2+)	1999 11 30	120	0.5+ 0.1+
1991 09 06	809	0.6+ 0.7-	1998 05 24	704	(0.9+ 3.1+)	1999 11 30	120	1.1+ 0.3-
1991 09 06	809	0.1- 0.9-	1999 11 10	120	0.7- 0.5+	1999 12 05	704	0.8+ 0.6+
1991 09 06	809	0.0 0.7-	1999 11 10	120	1.7- 0.1+	1999 12 05	704	0.2+ 0.4-
1991 09 07	809	(2.4+ 2.0+)	1999 11 10	120	0.5- 0.3+	1999 12 05	704	0.4+ 0.0
1991 09 07	809	0.5- 0.6+	1999 11 12	120	0.5- 0.6+	1999 12 05	704	0.6+ 0.0
1991 09 07	809	0.4+ 0.6+	1999 11 12	120	0.2+ 0.7+	1999 12 05	704	0.1- 0.4-
1998 05 22	704	0.9+ 0.2+	1999 11 13	120	0.5- 0.3+			
1998 05 22	704	1.2- 0.8+	1999 11 13	120	0.3- 0.4+			

1999 VN₁₉ = 1998 MV₄₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	308.98259	(2000.0)	P	Q
<i>n</i>	0.25219346	ω	312.86751	-0.07722424
<i>a</i>	2.4811147	Ω	141.52768	+0.92891507
<i>e</i>	0.2625407	<i>i</i>	2.91200	+0.36215080
<i>P</i>	3.91	<i>H</i>	15.4	<i>G</i> 0.15 <i>U</i> 6

Residuals in seconds of arc

1998 06 26	809	0.7- 0.7+	1998 06 27	809	1.2+ 0.0	1999 11 12	120	0.2- 0.7+
1998 06 26	809	0.7- 0.3-	1999 11 10	120	1.0+ 0.2-	1999 11 13	120	0.3+ 0.1-
1998 06 26	809	0.5- 0.5+	1999 11 10	120	0.6- 0.2-	1999 11 13	120	0.8+ 1.1-
1998 06 27	809	0.6+ 0.3-	1999 11 10	120	0.3+ 0.9+			
1998 06 27	809	0.0 0.6-	1999 11 12	120	1.7- 0.0			

1999 VJ₂₀ = 1990 SH₁₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	359.63682	(2000.0)	P	Q
<i>n</i>	0.22665688	ω	31.88127	+0.99173674
<i>a</i>	2.6641384	Ω	332.16997	+0.00963785
<i>e</i>	0.1717315	<i>i</i>	12.41359	+0.12792715
<i>P</i>	4.35	<i>H</i>	13.9	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1990 09 14	675	0.9+ 0.4-	1999 11 10	703	0.1+ 0.3-	1999 11 27	678	0.1+ 0.3+
1990 09 14	675	0.3+ 0.2-	1999 11 11	678	0.4- 0.5+	1999 12 07	699	0.4- 1.3+
1990 09 17	675	0.1- 0.3-	1999 11 11	678	0.5- 0.3-	1999 12 07	699	0.5- 1.5+
1990 09 17	675	0.4- 0.5+	1999 11 13	678	0.7+ 0.3-	1999 12 07	699	0.4+ 1.6+
1990 09 20	675	0.3+ 0.4+	1999 11 13	678	0.9+ 0.0	1999 12 08	703	0.2- 0.0
1990 09 20	675	1.3- 0.5+	1999 11 13	678	0.7+ 0.6-	1999 12 08	703	0.1- 0.3-
1999 11 10	703	0.3+ 0.3-	1999 11 17	678	0.6- 1.0-	1999 12 08	703	0.2- 0.3-
1999 11 10	703	0.4+ 0.4-	1999 11 17	678	0.6- 0.2-	1999 12 08	703	0.3- 0.0
1999 11 10	703	0.2- 0.2-	1999 11 27	678	0.4+ 0.7-			

1999 DEC. 22

M.P.C. 37209

1999 VR₂₀ = 1978 XQ₁ = 1998 OL

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23533238	ω	14.86520	−0.53651469	+0.82701044		
<i>a</i>	2.5982539	Ω	223.05282	−0.79719151	−0.56197231		
<i>e</i>	0.0696879	<i>i</i>	14.24165	−0.27683511	+0.01551937		
<i>P</i>	4.19	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1978 12 05	033	0.7+	0.7+	1999 11 12	143	0.3+	0.3−	1999 12 02	699	0.4−	0.1−
1978 12 05	033	0.8−	0.1−	1999 11 12	143	0.4+	0.6−	1999 12 02	699	0.6−	0.2−
1998 07 17	699	0.2−	0.3+	1999 11 12	143	0.5+	0.4−	1999 12 04	703	0.2+	0.5+
1998 07 17	699	0.5−	0.3+	1999 11 13	143	0.8−	0.3−	1999 12 04	703	0.1−	0.0
1998 07 17	699	0.4−	0.2+	1999 11 13	143	0.3−	0.4−	1999 12 04	703	0.0	0.3+
1998 07 18	699	0.0	0.1+	1999 11 13	143	0.6−	0.4−	1999 12 04	703	0.0	0.1+
1998 07 18	699	0.7+	0.5−	1999 11 13	143	0.8−	0.6−	1999 12 05	703	0.1−	0.1−
1998 07 18	699	0.4+	0.4−	1999 11 25	143	0.6+	1.2+	1999 12 05	703	0.3−	0.3+
1999 11 04	704	0.6+	0.1−	1999 11 25	143	0.6+	0.8+	1999 12 05	703	0.6−	0.3+
1999 11 04	704	0.2+	0.3−	1999 11 25	143	0.3+	0.9+	1999 12 05	703	0.3−	0.0
1999 11 04	704	0.4−	0.1−	1999 11 25	143	0.3+	0.8+	1999 12 06	704	0.8−	0.3−
1999 11 04	704	0.1+	0.1−	1999 11 26	143	0.2+	0.2+	1999 12 06	704	0.3−	0.4−
1999 11 04	704	0.4−	0.3−	1999 11 26	143	0.7+	0.2+	1999 12 06	704	0.8+	1.6−
1999 11 08	143	0.8+	1.2+	1999 11 26	143	0.1+	0.1+	1999 12 06	704	1.0−	0.5−
1999 11 09	143	0.6+	0.9+	1999 11 26	143	0.1+	0.1−	1999 12 06	704	0.3−	1.2−
1999 11 12	143	0.4+	0.4−	1999 12 02	699	0.3+	0.4+				

1999 VX₂₀ = 1998 LZ₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21658456	ω	82.82498	+0.87297476	+0.47135385		
<i>a</i>	2.7461087	Ω	248.98406	−0.48351066	+0.80234393		
<i>e</i>	0.1552329	<i>i</i>	7.72404	−0.06428465	+0.36615537		
<i>P</i>	4.55	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 06 01	809	0.4−	0.9+	1999 11 10	159	1.1−	0.6+	1999 11 28	159	0.3+	1.3−
1998 06 01	809	0.8−	2.0+	1999 11 10	159	0.8+	1.1−	1999 11 28	159	0.2−	1.1−
1998 06 01	809	0.6−	1.2+	1999 11 11	703	0.0	0.2+	1999 11 28	159	(3.1−	1.0−)
1998 06 02	809	1.7+	1.7−	1999 11 11	703	0.2−	0.3+	1999 12 03	699	0.1−	0.6+
1998 06 02	809	0.4+	1.5−	1999 11 11	703	0.2−	0.4+	1999 12 03	699	0.4−	0.9+
1998 06 02	809	0.4−	0.9−	1999 11 11	703	0.2+	0.6+	1999 12 03	699	0.4−	1.0+
1999 11 09	159	0.0	0.6+	1999 11 25	159	0.7−	0.9+	1999 12 04	703	0.4−	0.6+
1999 11 09	159	0.9−	1.0+	1999 11 25	159	0.2−	0.4+	1999 12 04	703	0.4−	0.3−
1999 11 09	159	0.1−	0.7−	1999 11 27	159	0.3−	0.0	1999 12 04	703	0.2+	1.0+
1999 11 09	159	0.5−	0.4+	1999 11 27	159	0.5+	0.1+	1999 12 04	703	0.3−	0.8−
1999 11 09	159	0.7+	1.5−	1999 11 27	159	0.2+	0.0	1999 12 06	704	0.9+	0.1+
1999 11 10	159	0.5+	0.7−	1999 11 27	159	0.5+	0.8−	1999 12 06	704	0.4+	1.0−
1999 11 10	159	0.2+	0.1+	1999 11 27	159	0.1−	0.0	1999 12 06	704	0.3−	0.2+
1999 11 10	159	0.9+	0.0	1999 11 28	159	0.6+	0.3−	1999 12 06	704	0.3−	0.3−

1999 VK₂₁ = 1998 SQ₇₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24479068	ω	150.24637	−0.46115207	−0.88577629		
<i>a</i>	2.5308873	Ω	327.13408	+0.79387786	−0.38552328		
<i>e</i>	0.1768921	<i>i</i>	5.53433	+0.39635428	−0.25840311		
<i>P</i>	4.03	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 09 26	704	0.1−	1.1+	1999 11 11	327	0.2−	0.2+	1999 11 17	327	0.6+	0.2+
1998 09 26	704	0.4−	1.0−	1999 11 11	327	0.3+	0.1+	1999 11 17	327	1.0+	0.1−
1998 09 26	704	1.6−	0.4−	1999 11 11	327	0.1−	0.1−	1999 12 05	704	0.5+	0.9−
1998 09 26	704	0.7−	0.9−	1999 11 14	327	1.1−	0.3−	1999 12 05	704	0.7+	0.2−
1998 09 26	704	0.2−	0.1+	1999 11 14	327	1.4−	0.0	1999 12 05	704	0.1+	0.3+

1998 09 27	699	1.0+	0.8+	1999 11 14	327	0.8−	0.8−	1999 12 05	704	1.1+	0.1−
1998 09 27	699	0.3+	0.1−	1999 11 14	327	0.4−	0.7−	1999 12 05	699	1.3−	1.5+
1998 09 27	704	0.8+	0.9+	1999 11 15	327	0.1−	0.1−	1999 12 05	704	0.5−	1.2−
1998 09 27	699	1.5+	0.2+	1999 11 15	327	0.2−	0.0	1999 12 05	699	0.5−	0.8+
1998 09 27	704	0.0	0.1+	1999 11 15	327	0.3+	0.5+	1999 12 05	699	0.1−	1.0+
1998 09 27	704	0.6−	0.2+	1999 11 17	327	1.0+	0.1−				
1998 09 27	704	0.1−	1.0−	1999 11 17	327	1.0+	0.1+				

1999 VQ₂₁ = 1998 HL₁₄₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25928459	ω	243.12575	+0.33483747	+0.94143023		
<i>a</i>	2.4356689	Ω	46.49652	−0.84382335	+0.31843345		
<i>e</i>	0.1624830	<i>i</i>	3.15435	−0.41933998	+0.11094705		
<i>P</i>	3.80	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 04 25	809	0.7+	0.6+	1999 11 10	120	0.1−	1.3−	1999 11 12	120	0.6−	0.1−
1998 04 25	809	0.9−	0.2−	1999 11 10	120	0.6+	0.4+	1999 11 13	120	0.4−	0.5+
1998 04 25	809	0.2+	0.3+	1999 11 12	704	0.2−	0.2−	1999 11 13	120	0.3+	0.7+
1998 04 28	809	0.1+	0.2−	1999 11 12	704	0.3−	0.1+	1999 11 25	120	(3.7+	0.5+)
1998 04 28	809	0.5+	0.7−	1999 11 12	704	0.2−	0.4−	1999 11 25	120	(2.7+	0.5+)
1998 04 28	809	0.3−	1.1+	1999 11 12	704	0.4−	0.1+	1999 12 07	704	0.2−	0.6+
1999 11 04	704	0.7+	0.0	1999 11 12	704	0.6−	0.5+	1999 12 07	704	0.2+	0.4−
1999 11 04	704	0.3−	0.2−	1999 11 12	120	0.1−	0.4+	1999 12 07	704	0.6+	0.0
1999 11 04	704	0.4+	0.1+	1999 11 12	120	1.0+	0.5+				
1999 11 04	704	0.2+	0.1+	1999 11 12	120	1.0−	0.3−				

1999 VS₂₁ = 1998 MA₂

Id. G. V. Williams, M. E. Sansaturio, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18053119	ω	226.54586	+0.80656610	+0.58335592		
<i>a</i>	3.1005201	Ω	97.54254	−0.51068667	+0.76909700		
<i>e</i>	0.1930502	<i>i</i>	5.53620	−0.29774194	+0.26112386		
<i>P</i>	5.46	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 06 18	696	0.6−	0.1+	1999 11 14	849	0.1−	0.3−	1999 11 29	120	0.2−	0.6+
1998 06 18	696	0.9−	0.3+	1999 11 14	849	0.8+	1.2+	1999 11 29	120	1.4−	0.2+
1998 06 19	696	0.1−	0.2+	1999 11 14	849	(0.5−	3.4+)	1999 11 30	120	0.3−	0.5+
1998 06 19	696	0.0	0.2+	1999 11 15	849	0.4+	0.2−	1999 11 30	120	0.2+	0.8−
1998 06 19	696	0.7−	0.1+	1999 11 15	732	0.0	0.1+	1999 11 30	120	1.3+	0.1+
1998 06 24	704	0.5+	0.5−	1999 11 15	732	0.2+	0.1−	1999 12 06	704	0.7−	0.2−
1998 06 24	704	0.3+	0.1−	1999 11 15	732	0.4+	0.0	1999 12 06	704	0.2−	0.2+
1998 06 24	704	1.4+	0.9+	1999 11 15	849	0.5−	0.4−	1999 12 06	704	0.1+	0.1+
1998 06 24	704	1.0−	1.4−	1999 11 15	849	0.2−	0.0	1999 12 06	704	0.6−	0.9+
1998 06 26	704	0.1+	0.3−	1999 11 15	849	0.0	0.1+	1999 12 06	704	0.4−	0.2+
1998 06 26	704	0.1+	0.0	1999 11 16	732	0.3−	0.1−	1999 12 07	704	0.7+	0.6−
1998 06 26	704	0.7+	0.7+	1999 11 16	732	1.0−	1.4−	1999 12 07	704	0.4+	0.4−
1998 06 26	704	(0.7+	2.5+)	1999 11 16	732	0.8−	1.0−	1999 12 07	704	0.5−	0.6+
1999 11 12	120	0.5+	0.1+	1999 11 25	120	0.6+	0.5+	1999 12 07	704	0.2−	0.4−
1999 11 12	120	0.1−	0.2−	1999 11 25	120	2.0+	0.1−	1999 12 07	704	0.8−	0.7−
1999 11 13	120	0.0	0.2−	1999 11 26	120	0.1+	0.3+	1999 12 07	120	0.3+	1.1+
1999 11 13	120	0.2+	0.3−	1999 11 26	120	0.1+	0.1−	1999 12 07	120	0.2−	0.7+

1999 VB₂₂ = 1994 LY₉

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

||
||
||

Residuals in seconds of arc

1994 06 08	809	0.5+	0.1-	1999 11 11	703	0.5-	0.2-	1999 11 26	120	1.3+	0.4-
1994 06 08	809	0.7+	0.6+	1999 11 11	703	0.6-	0.2+	1999 11 26	120	0.3+	1.6-
1994 06 08	809	0.9+	0.6-	1999 11 11	703	0.3-	0.2-	1999 11 28	691	0.6+	0.4+
1994 06 09	809	0.1-	0.2-	1999 11 12	704	0.2+	0.5-	1999 11 28	691	0.4+	0.3+
1994 06 09	809	1.0-	0.3+	1999 11 12	704	0.4-	0.3-	1999 11 28	691	0.6+	0.3+
1994 06 09	809	1.0-	0.2-	1999 11 12	704	0.1-	0.4-	1999 12 07	704	0.6-	1.2+
1999 11 04	704	0.0	0.6+	1999 11 12	704	0.1-	0.3-	1999 12 07	704	0.4-	1.0+
1999 11 04	704	0.5-	1.3+	1999 11 12	704	0.5-	0.2-	1999 12 07	704	0.0	0.4+
1999 11 04	704	0.1-	0.8+	1999 11 12	120	0.2-	1.6-	1999 12 07	704	0.3-	1.3-
1999 11 04	704	0.2+	0.8+	1999 11 12	120	1.2+	0.5-	1999 12 07	704	0.6-	0.6-
1999 11 04	704	0.5-	0.6+	1999 11 13	120	1.0+	0.3-				
1999 11 11	703	0.7-	0.5+	1999 11 13	120	0.7+	0.2-				

1999 VG₂₂ = 1998 FZ₁₄₄

Id. B. G. Marsden

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	264.04998		(2000.0)		P		Q
n	0.46635769	ω	222.43301		-0.69324585		-0.71898228
a	1.6468598	Ω	271.52106		+0.67386855		-0.62217514
e	0.3297588	i	2.85243		+0.25556089		-0.30977828
P	2.11	H	18.8	G	0.15	U	3

Residuals in seconds of arc

1998 03 31	704	0.9+	0.7-	1999 11 12	651	0.3+	0.3-	1999 11 18	402	0.4+	0.3+
1998 03 31	704	0.7-	1.5+	1999 11 12	651	0.6+	0.0	1999 11 18	402	0.8-	0.5+
1998 03 31	704	(2.6+	2.6-)	1999 11 12	595	0.1+	0.3-	1999 11 26	046	0.4-	0.8+
1998 03 31	704	0.2+	0.1-	1999 11 12	595	0.3-	0.3-	1999 11 26	046	0.2-	0.2+
1998 04 01	704	0.5-	1.8-	1999 11 12	595	0.9+	0.2+	1999 11 26	046	0.4-	0.6+
1998 04 01	704	0.9-	1.0+	1999 11 12	595	0.5+	0.1+	1999 11 28	587	0.4+	0.4+
1998 04 01	704	0.7-	0.6-	1999 11 13	474	0.2-	0.2-	1999 11 28	587	0.6+	0.5-
1998 04 01	704	1.3+	0.4+	1999 11 13	474	0.8-	0.3-	1999 11 28	587	0.1+	0.5+
1998 04 01	704	0.2+	0.2+	1999 11 13	474	0.6-	0.2-	1999 11 29	046	0.0	0.4-
1999 11 04	704	0.1-	0.3-	1999 11 13	474	0.5-	0.1-	1999 11 29	046	0.4+	0.4-
1999 11 04	704	0.2-	0.4-	1999 11 13	474	0.7-	0.3-	1999 11 29	046	0.0	0.3-
1999 11 04	704	0.8-	0.4-	1999 11 13	402	0.0	0.1-	1999 12 03	658	0.7+	0.3-
1999 11 04	704	0.0	0.5-	1999 11 13	402	0.0	0.2+	1999 12 03	658	0.4+	0.2-
1999 11 04	704	0.1-	0.7+	1999 11 13	402	0.4+	0.3-	1999 12 03	658	0.6+	0.0
1999 11 11	703	0.1-	0.1-	1999 11 13	402	0.1+	0.8-	1999 12 03	402	1.0-	0.4-
1999 11 11	703	0.0	0.8-	1999 11 13	595	0.4-	0.2-	1999 12 03	402	1.0-	0.5+
1999 11 11	703	0.1+	0.6+	1999 11 13	595	0.5+	0.0	1999 12 03	402	0.6-	0.4-
1999 11 11	703	(2.2-	1.7+)	1999 11 13	595	0.6-	0.3-	1999 12 07	658	0.3+	0.2-
1999 11 11	118	0.0	0.7+	1999 11 13	595	0.4+	0.0	1999 12 07	658	0.4+	0.8+
1999 11 11	118	0.1+	0.4+	1999 11 14	853	0.1+	0.4-	1999 12 07	658	0.0	0.3+
1999 11 11	118	0.2+	1.1+	1999 11 14	853	0.1-	0.6-	1999 12 12	360	0.4-	0.6-
1999 11 12	853	0.5+	0.5+	1999 11 14	853	0.0	0.2-	1999 12 12	360	0.3+	0.0
1999 11 12	853	0.6+	0.4+	1999 11 14	706	0.3-	0.6+	1999 12 12	360	0.0	0.1-
1999 11 12	853	0.6+	0.5+	1999 11 14	706	(2.2+	0.2-)				
1999 11 12	651	0.2+	0.3-	1999 11 18	402	0.3-	0.7+				

1999 VJ₂₂ = 1991 NB₆ = 1998 HO₁₀₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	50.60439		(2000.0)	P	Q
n	0.26382702	ω	189.42855	+0.60912655	+0.78043204
a	2.4076307	Ω	118.23241	-0.71680127	+0.61786414
e	0.2118711	i	9.21141	-0.33935347	+0.09575879
P	3.74	H	15.3	G 0.15	U 2

Residuals in seconds of arc

1991 07 10	809	1.0-	0.3-	1998 04 23	704	0.1+	0.3+	1999 11 14	849	1.7+	0.2+
1991 07 10	809	0.5-	0.3-	1998 04 23	704	0.3-	0.9-	1999 11 14	849	(1.9+	2.2-)
1991 07 10	809	0.5-	0.5-	1998 04 24	704	0.0	0.6-	1999 11 15	849	0.2-	0.2+
1991 07 11	809	1.2-	0.9+	1998 04 24	704	0.6-	0.8+	1999 11 15	849	0.4+	0.1+
1991 07 11	809	0.8-	0.8+	1998 04 24	704	0.2-	0.1-	1999 11 15	849	0.4+	0.8-
1991 07 11	809	0.2+	0.6+	1998 04 24	704	0.8+	0.3+	1999 11 25	849	(2.3+	0.3-)
1991 07 12	809	0.8+	0.3-	1998 04 24	704	0.5+	0.8+	1999 11 25	849	0.5-	0.6-

1991 07 12	809	1.2+	0.4-	1999 11 13	849	0.2+	0.0	1999 11 25	849	0.2+	0.3-
1991 07 12	809	1.8+	0.4-	1999 11 13	849	0.4-	0.4+	1999 11 25	849	0.4-	1.4+
1998 04 23	704	0.5-	0.2-	1999 11 13	849	0.3-	0.5-	1999 11 25	849	1.0-	1.2+
1998 04 23	704	0.4+	1.0-	1999 11 13	849	0.2-	1.2-				
1998 04 23	704	0.4-	0.7+	1999 11 14	849	(2.5+	0.6+)				

1999 VP₂₂ = 1994 JX₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	327.72225		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.28102598	ω	82.94943	+0.64462028	-0.76384131
a	2.3083681	Ω	326.84451	+0.67646448	+0.58927170
e	0.2500727	i	3.33314	+0.35617482	+0.26325902
P	3.51	H	15.3	G 0.15	U 4

Residuals in seconds of arc

1994 05 03	691	0.4+	0.1-	1999 11 11	703	0.4+	0.2+	1999 12 04	703	0.3-	0.4-
1994 05 03	691	0.0	0.5+	1999 11 13	678	0.3+	0.5-	1999 12 04	703	0.0	0.5-
1994 05 03	691	0.2+	0.1-	1999 11 13	678	0.1-	0.5-	1999 12 04	703	0.0	0.7+
1994 05 04	691	0.7-	0.3-	1999 11 14	678	0.9+	0.8-	1999 12 06	704	0.7-	0.4-
1994 05 04	691	0.1+	0.5-	1999 11 14	678	1.0-	0.4-	1999 12 06	704	0.0	0.5-
1994 05 04	691	0.3-	0.0	1999 11 17	678	0.3+	0.8-	1999 12 06	704	0.1+	0.5+
1999 11 04	703	0.2-	0.1+	1999 11 17	678	0.3-	0.5-	1999 12 06	704	0.6+	0.4-
1999 11 04	703	0.2-	0.0	1999 11 28	678	0.0	0.3+	1999 12 12	703	0.5-	0.1+
1999 11 04	703	0.0	0.1+	1999 11 28	678	0.2-	0.3-	1999 12 12	703	0.1+	0.0
1999 11 04	703	0.2-	0.2-	1999 12 03	699	0.2-	0.9+	1999 12 12	703	0.9+	0.6+
1999 11 11	703	0.2+	0.7+	1999 12 03	699	0.1-	0.3+	1999 12 12	703	0.4+	0.5-
1999 11 11	703	0.3+	0.3+	1999 12 03	699	0.1-	0.8+				
1999 11 11	703	0.2+	0.5+	1999 12 04	703	0.3-	0.0				

1999 VT₂₂ = 1992 DB₁₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	309.17890		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.22777475	ω	115.84440	+0.08260435	-0.99367938
a	2.6554146	Ω	329.12436	+0.85310365	+0.10993316
e	0.1415631	i	8.51802	+0.51516083	-0.02271551
P	4.33	H	13.5	G 0.15	U 5

Residuals in seconds of arc

1992 02 29	033	0.0	0.1+	1999 11 14	678	0.5-	0.4+	1999 12 10	704	0.8+	0.4-
1992 02 29	033	0.1+	0.2-	1999 11 14	678	0.2-	0.1-	1999 12 10	704	0.3+	0.8-
1992 03 01	033	0.0	0.1+	1999 11 28	678	0.7-	0.4+	1999 12 10	704	0.5-	0.9-
1999 11 10	703	0.1-	0.2-	1999 11 28	678	0.2-	0.2-	1999 12 13	703	0.6-	0.4-
1999 11 10	703	0.0	0.0	1999 12 05	699	0.1-	0.7+	1999 12 13	703	0.4-	0.1+
1999 11 10	703	0.1-	0.2-	1999 12 05	699	0.5+	0.6+	1999 12 13	703	0.4-	0.1+
1999 11 10	703	0.1+	0.0	1999 12 05	699	0.2-	0.8+	1999 12 13	703	0.1-	0.4+
1999 11 13	678	0.6+	0.2-	1999 12 10	704	0.7+	0.3-				
1999 11 13	678	0.5+	0.7+	1999 12 10	704	0.7+	0.4-				

1999 VB₂₃ = 1995 VT₁₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	165.38335		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.23314325	ω	331.65325	-0.85554890	+0.50147626		
a	2.6144930	Ω	239.01217	-0.44212983	-0.83701849		
e	0.0625752	i	8.63267	-0.26936460	-0.21891007		
P	4.23	H	14.7	G	0.15	U	4

Residuals in seconds of arc

1995 11 15	691	0.1+	0.2+	1999 11 04	704	0.7-	0.9-	1999 11 13	143	0.4+	0.3-
1995 11 15	691	0.0	0.0	1999 11 04	704	0.6+	0.2-	1999 11 25	143	1.0+	0.4-
1995 11 15	691	0.1+	0.1+	1999 11 04	704	0.5+	0.3+	1999 11 25	143	0.4-	0.4-
1995 11 20	691	0.1-	0.0	1999 11 04	704	0.5-	1.4+	1999 11 26	143	0.2-	0.8+
1995 11 20	691	0.1+	0.3-	1999 11 12	143	0.7-	1.2-	1999 11 26	143	0.9+	1.0+
1995 11 20	691	0.1-	0.1-	1999 11 12	143	0.0	0.3-	1999 11 26	143	0.1-	0.8+
1999 11 04	704	0.4+	0.3+	1999 11 13	143	0.3-	0.1+	1999 11 28	143	1.0-	1.0-

1999 VE₂₃ = 1978 SG₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	342.87283		(2000.0)	P		Q	
<i>n</i>	0.23671336	ω	330.13155	+0.81298061		-0.56141428	
<i>a</i>	2.5881387	Ω	64.82381	+0.56233766		+0.68810201	
<i>e</i>	0.2020042	<i>i</i>	9.83085	+0.15112537		+0.45970602	
<i>P</i>	4.16	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1978 09 27	095	0.5+	1.1+	1999 11 17	143	0.1-	0.7+	1999 12 05	704	1.4+	0.4+
1978 10 03	095	0.9-	0.5-	1999 11 17	143	0.2-	0.2+	1999 12 05	704	0.1-	0.3+
1978 10 07	095	0.5+	0.8-	1999 11 17	143	0.4+	0.3+	1999 12 05	704	0.2+	0.7+
1999 11 12	143	(0.2-	5.9+)	1999 11 19	143	0.3-	0.2-	1999 12 05	704	1.2-	0.8+
1999 11 12	143	(0.0	6.0+)	1999 11 19	143	0.1+	0.2-	1999 12 07	704	0.0	0.5-
1999 11 12	143	(0.3-	5.8+)	1999 11 19	143	0.4-	0.2-	1999 12 07	704	0.0	0.3-
1999 11 12	143	(0.2-	5.7+)	1999 11 19	143	0.4-	0.2-	1999 12 07	704	0.1+	0.4-
1999 11 14	143	0.0	0.0	1999 12 04	699	0.4-	0.0	1999 12 07	704	0.6+	0.0
1999 11 14	143	0.2+	0.1-	1999 12 04	699	0.4-	0.3-	1999 12 07	704	0.1-	0.2+
1999 11 14	143	0.2+	0.3-	1999 12 04	699	0.3-	0.1+				
1999 11 17	143	0.2-	0.4+	1999 12 05	704	1.0+	1.1-				

1999 VJ₂₃ = 1991 TR₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	326.56822		(2000.0)	P		Q	
<i>n</i>	0.25166327	ω	61.59565	+0.52611788		-0.85040333	
<i>a</i>	2.4845982	Ω	356.65363	+0.75594643		+0.46969800	
<i>e</i>	0.1290194	<i>i</i>	3.69599	+0.38954457		+0.23706111	
<i>P</i>	3.92	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 10 03	033	0.1-	0.0	1999 11 08	620	0.2+	0.3-	1999 11 13	620	0.1+	0.8-
1991 10 04	033	0.3+	0.3+	1999 11 11	703	0.3-	0.1+	1999 11 13	620	0.1-	0.0
1991 10 04	033	0.2-	0.2-	1999 11 11	703	0.6+	0.7+	1999 11 13	620	0.1+	0.4-
1999 11 08	620	0.3-	0.3-	1999 11 11	703	0.2-	0.7+				
1999 11 08	620	0.0	0.4-	1999 11 11	703	0.1+	0.7+				

1999 VO₂₃ = 1986 TW

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	353.35489		(2000.0)	P		Q	
<i>n</i>	0.23214394	ω	172.98628	+0.94175718		-0.31556471	
<i>a</i>	2.6219907	Ω	206.33995	+0.29441914		+0.94070980	
<i>e</i>	0.1996121	<i>i</i>	15.18798	+0.16251394		+0.12443464	
<i>P</i>	4.25	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1986 10 04	675	(0.2-	5.2-)	1999 11 15	678	0.2-	0.3-	1999 12 03	704	(3.5+	0.1+)
1986 10 04	675	0.2-	1.7+	1999 11 15	678	0.9+	0.3+	1999 12 03	704	(2.9+	2.2-)
1986 10 05	675	0.2+	1.7-	1999 11 16	678	0.4-	0.1-	1999 12 03	704	1.6+	1.8-
1986 10 05	675	(0.2-	2.7+)	1999 11 16	678	0.4-	0.4-	1999 12 03	704	(0.2+	2.6-)
1999 11 14	678	0.1-	0.5+	1999 11 17	678	0.4+	0.9+	1999 12 08	699	0.7-	0.1+
1999 11 14	678	0.0	0.1-	1999 11 17	678	0.1+	0.3+	1999 12 08	699	0.1-	0.6+
1999 11 15	678	0.3-	0.5+	1999 11 27	678	1.2-	0.6-	1999 12 08	699	0.0	1.3+
1999 11 15	678	0.6+	0.3-	1999 11 27	678	0.6-	0.8-				

1999 VP₂₃ = 1977 VB₁ = 1998 KY₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	15.62393		(2000.0)	P		Q	
<i>n</i>	0.22491905	ω	272.38011	+0.95300605		+0.19933690	
<i>a</i>	2.6778437	Ω	76.18769	-0.08236021		+0.89514379	
<i>e</i>	0.2077636	<i>i</i>	13.58723	-0.29154117		+0.39872598	
<i>P</i>	4.38	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1977 11 11	805	0.3+	0.6-	1998 05 24	699	0.2+	0.0	1999 11 17	678	0.1-	0.1+
1977 11 12	805	0.1+	0.2-	1998 05 24	704	0.1+	0.6+	1999 11 27	678	0.7+	0.7+
1998 05 22	704	0.1-	0.1-	1998 05 24	699	0.8+	0.0	1999 11 27	678	0.7-	0.3-
1998 05 22	704	0.1-	0.3+	1998 05 24	699	0.2+	0.2+	1999 12 03	704	0.1-	0.1-
1998 05 22	704	0.0	0.5-	1998 05 24	704	0.3-	0.6+	1999 12 03	704	0.1+	0.2-
1998 05 22	704	0.1-	0.2+	1998 05 24	704	0.7-	0.4-	1999 12 03	704	0.3+	0.3+
1998 05 23	699	0.7+	0.7-	1999 11 14	678	0.0	0.4+	1999 12 03	704	0.3+	0.4+
1998 05 23	699	0.0	0.1-	1999 11 14	678	0.5+	0.2-	1999 12 03	704	0.2-	0.8+
1998 05 23	699	0.1+	0.1-	1999 11 15	678	0.5+	0.2-	1999 12 08	699	0.3-	0.2+
1998 05 24	704	0.3-	0.4+	1999 11 15	678	0.5+	0.1-	1999 12 08	699	0.1-	0.1-
1998 05 24	704	0.1+	0.8+	1999 11 17	678	1.9-	0.0	1999 12 08	699	0.5-	0.3+

1999 VQ₂₃ = 1985 PH₁ = 1989 YQ₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	258.08740		(2000.0)	P		Q	
<i>n</i>	0.28530043	ω	1.96407	-0.58958835		-0.80341849	
<i>a</i>	2.2852537	Ω	124.17391	+0.73967790		-0.57839065	
<i>e</i>	0.0674192	<i>i</i>	5.76412	+0.32444132		-0.14136117	
<i>P</i>	3.45	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1985 08 14	691	0.5+	1.3-	1989 12 30	511	0.4+	0.6-	1999 12 03	704	0.5+	0.4+
1985 08 14	691	0.6+	0.5-	1999 11 14	678	1.2+	0.7-	1999 12 03	704	0.3-	0.4+
1985 08 14	691	0.6+	0.6-	1999 11 14	678	0.1+	0.7+	1999 12 03	704	0.1+	0.2+
1985 08 15	691	0.0	0.5-	1999 11 15	678	0.9-	0.5-	1999 12 03	704	0.6-	0.4+
1985 08 15	691	0.1-	0.4-	1999 11 15	678	0.5+	0.3-	1999 12 03	704	0.3+	0.9+
1985 08 15	691	0.4-	0.3+	1999 11 17	678	1.6-	0.1-	1999 12 08	699	0.8+	0.4+
1989 12 29	511	(5.4-	0.8+)	1999 11 17	678	0.3-	0.9+	1999 12 08	699	0.6+	1.5+
1989 12 29	511	(2.8+	2.4-)	1999 11 27	678	0.3-	0.7-				
1989 12 30	511	0.3-	2.0-	1999 11 27	678	1.1-	0.2+				

1999 VR₂₃ = 1998 KU₅₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	15.82260		(2000.0)	P		Q	
<i>n</i>	0.25747247	ω	276.05031	+0.96982976		+0.21737206	
<i>a</i>	2.44470838	Ω	71.43484	-0.15078528		+0.89059216	
<i>e</i>	0.2081522	<i>i</i>	6.68551	-0.19155687		+0.39949341	
<i>P</i>	3.83	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 05 23	704	0.6-	0.7-	1999 11 15	678	0.6-	0.3+	1999 12 06	704	0.6+	0.0
1998 05 23	704	1.6-	1.0+	1999 11 15	678	1.0-	0.2+	1999 12 06	704	0.1+	0.4+
1998 05 23	704	0.3-	0.7+	1999 11 17	678	0.1+	0.4-	1999 12 06	704	0.7-	0.0
1998 05 23	704	0.9+	0.2-	1999 11 17	678	0.2+	0.1+	1999 12 07	704	0.2+	0.0
1998 05 23	704	0.1-	1.5-	1999 11 27	678	0.9-	0.0	1999 12 07	704	0.1+	0.0
1998 05 24	704	0.8+	0.0	1999 11 27	678	(2.3-	1.0+)	1999 12 07	704	0.4+	0.3+
1998 05 24	704	0.7+	0.1+	1999 12 04	703	0.0	0.3-	1999 12 07	704	0.0	0.1+
1998 05 24	704	0.0	1.3+	1999 12 04	703	0.1+	0.4-	1999 12 07	704	0.1+	0.0
1998 05 24	704	1.2+	0.2+	1999 12 04	703	0.0	0.6-	1999 12 12	703	0.2-	0.1+
1998 05 24	704	0.9-	0.8-	1999 12 04	703	0.1-	0.0	1999 12 12	703	0.1-	0.0
1999 11 14	678	1.1+	0.2+	1999 12 06	704	0.5+	0.1-	1999 12 12	703	0.1+	0.5+
1999 11 14	678	0.4+	0.1-	1999 12 06	704	0.3-	0.2-	1999 12 12	703	0.2-	0.0

1999 VT₂₃ = 1998 HE₁₃₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	39.98914		(2000.0)	P		Q	
<i>n</i>	0.28867506	ω	163.81651	+0.68403596		+0.72713408	
<i>a</i>	2.2674090	Ω	149.27093	-0.68122163		+0.66524507	
<i>e</i>	0.1924255	<i>i</i>	6.52419	-0.26082923		+0.16948458	
<i>P</i>	3.41	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 04 19	704	0.0	0.1+	1999 11 14	678	0.2+	0.5+	1999 12 03	704	1.2+	1.4-
1998 04 19	704	0.1+	0.4+	1999 11 14	678	0.2+	0.3+	1999 12 03	704	0.2+	0.8-

1998 04 19	704	0.6−	1.1−	1999 11 15	678	0.3+	0.3+	1999 12 03	704	0.2+	0.6−
1998 04 19	704	0.3+	0.1−	1999 11 15	678	0.3−	0.7+	1999 12 03	704	0.4+	0.4−
1998 04 20	704	0.4+	0.0	1999 11 15	678	0.7−	0.2+	1999 12 03	704	0.8−	0.3+
1998 04 20	704	0.6+	0.5+	1999 11 17	678	(2.7−	1.3−)	1999 12 08	699	0.1+	0.9+
1998 04 20	704	0.0	0.5+	1999 11 17	678	0.7−	0.1−	1999 12 08	699	1.2+	0.5−
1998 04 20	704	0.1−	0.1+	1999 11 27	678	1.2−	0.5−	1999 12 08	699	0.2−	1.4+
1998 04 20	704	0.7−	0.1−	1999 11 27	678	0.1−	0.2−				

1999 VV₂₃ = 1978 GJ₅ = 1980 WS = 1989 AM₉ = 1991 RO₁₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>				(2000.0)				<i>P</i>				<i>Q</i>			
284.55037															
<i>n</i>	0.25960941	<i>ω</i>		304.20269		−0.51129721		−0.85934548				−0.85934548			
<i>a</i>	2.4336368	<i>Ω</i>		176.50186		+0.83262365		−0.49822028				−0.49822028			
<i>e</i>	0.1764907	<i>i</i>		9.45731		+0.21286857		−0.11533388				−0.11533388			
<i>P</i>	3.80	<i>H</i>		13.1		<i>G</i>	0.15	<i>U</i>				3			

Residuals in seconds of arc

1978 04 07	095	0.2−	1.4+	1991 09 15	675	0.8+	0.8−	1999 11 27	678	0.8−	0.6+
1980 11 30	095	(11.1−	2.6+)	1999 11 14	678	0.1+	0.5+	1999 11 27	678	0.3+	0.3+
1989 01 12	413	0.6−	1.4−	1999 11 14	678	0.0	0.8+	1999 12 03	704	0.6+	0.7+
1989 01 12	413	0.9+	1.9−	1999 11 15	678	0.6+	0.7+	1999 12 03	704	0.3−	0.0
1991 09 11	675	1.5+	0.1+	1999 11 15	678	0.7+	0.6+	1999 12 03	704	0.1−	0.6−
1991 09 11	675	1.1−	1.2−	1999 11 17	678	1.3−	0.3+	1999 12 03	704	0.2+	0.8−
1991 09 15	675	0.2−	1.1−	1999 11 17	678	1.2−	0.6+				

1999 VW₂₃ = 1971 UW₂ = 1996 AM₁₂ = 1998 MJ₄₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>				(2000.0)				<i>P</i>				<i>Q</i>			
0.11821															
<i>n</i>	0.21246578	<i>ω</i>		218.92473		+0.87332886		−0.48629782				−0.48629782			
<i>a</i>	2.7814850	<i>Ω</i>		170.05229		+0.47791633		+0.84402498				+0.84402498			
<i>e</i>	0.1712380	<i>i</i>		9.48941		+0.09430101		+0.22613328				+0.22613328			
<i>P</i>	4.64	<i>H</i>		13.0		<i>G</i>	0.15	<i>U</i>				1			

Residuals in seconds of arc

1971 10 21	095	0.5+	2.2−	1998 06 25	704	0.1−	0.1+	1999 11 27	678	0.2−	0.0
1996 01 15	691	0.4+	0.1+	1998 06 25	704	(0.2−	2.9+)	1999 11 27	678	0.6−	0.1−
1996 01 15	691	0.0	0.1−	1998 06 25	704	0.0	0.1−	1999 12 03	704	0.6+	0.1+
1996 01 15	691	0.1+	0.0	1998 06 25	704	1.3+	0.8+	1999 12 03	704	0.5+	0.1+
1996 01 21	691	0.1−	0.1−	1999 11 14	678	0.4+	0.2−	1999 12 03	704	0.3+	0.0
1996 01 21	691	0.1−	0.0	1999 11 14	678	0.6−	0.2+	1999 12 03	704	0.1+	0.2+
1996 01 21	691	0.1−	0.1−	1999 11 15	678	0.4−	0.0	1999 12 03	704	0.2−	0.0
1998 06 19	704	(2.5−	0.1−)	1999 11 15	678	0.2−	0.4−	1999 12 08	699	0.5+	1.7+
1998 06 19	704	0.1−	0.5+	1999 11 17	678	0.4−	0.0	1999 12 08	699	0.2+	0.7+
1998 06 19	704	1.2−	0.9+	1999 11 17	678	0.6−	0.3+	1999 12 08	699	0.0	1.0+

1999 VZ₂₃ = 1998 KZ₄₃

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>				(2000.0)				<i>P</i>				<i>Q</i>			
333.80900															
<i>n</i>	0.30861122	<i>ω</i>		6.18509		+0.58063896		−0.81138295				−0.81138295			
<i>a</i>	2.1686772	<i>Ω</i>		48.34237		+0.74307051		+0.49439842				+0.49439842			
<i>e</i>	0.1208851	<i>i</i>		5.16055		+0.33272302		+0.31181391				+0.31181391			
<i>P</i>	3.19	<i>H</i>		14.6		<i>G</i>	0.15	<i>U</i>				4			

Residuals in seconds of arc

1998 05 22	704	0.8+	1.7−	1998 05 24	704	(0.3−	2.5−)	1999 12 05	703	0.1−	0.0
1998 05 22	704	0.4+	1.0−	1998 05 24	704	1.1−	1.6+	1999 12 05	703	0.2−	0.2+
1998 05 22	704	0.7+	0.2−	1999 11 13	365	0.1−	0.5−	1999 12 05	703	0.1−	0.2+
1998 05 22	704	(2.8+	0.5+)	1999 11 13	365	0.2−	0.0	1999 12 05	703	0.1−	0.2+
1998 05 22	704	1.1−	0.2+	1999 11 14	365	0.2+	0.1+	1999 12 07	704	0.2+	0.2−
1998 05 24	704	0.2+	0.1−	1999 11 14	365	0.0	0.4+	1999 12 07	704	0.1−	0.3−
1998 05 24	704	(3.1−	0.6+)	1999 12 03	365	0.1+	0.3−	1999 12 07	704	0.2+	0.4+
1998 05 24	704	0.0	1.0+	1999 12 03	365	0.3+	0.3−	1999 12 07	704	0.0	0.1−

1999 VC₂₄ = 1988 VK₁

Id. G. V. Williams, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>				(2000.0)				<i>P</i>				<i>Q</i>			
341.98317															
<i>n</i>	0.17708445	<i>ω</i>		137.22781		+0.68170367		−0.72740643				−0.72740643			
<i>a</i>	3.1406226	<i>Ω</i>		269.63100		+0.64827097		+0.65027717				+0.65027717			
<i>e</i>	0.1513228	<i>i</i>		4.50162		+0.33915315		+0.21913351				+0.21913351			
<i>P</i>	5.57	<i>H</i>		14.0		<i>G</i>	0.15	<i>U</i>				4			

Residuals in seconds of arc

1988 11 03	054	0.7−	0.2−	1999 11 13	620	0.4+	0.1−	1999 12 08	704	0.5+	0.2−
1988 11 03	054	0.4−	0.0	1999 11 13	620	0.2+	0.1−	1999 12 08	704	0.4+	0.0
1988 11 04	054	1.0+	0.5+	1999 11 13	620	0.1+	0.1+	1999 12 08	704	1.1+	1.3−
1999 11 08	620	1.5−	0.3−	1999 12 04	703	0.1+	0.6+	1999 12 08	704	0.3−	1.0−
1999 11 08	620	0.3+	0.5−	1999 12 04	703	0.2−	0.6+	1999 12 08	704	0.2−	1.0−
1999 11 08	620	0.7+	0.3−	1999 12 04	703	0.1−	0.8+	1999 12 12	703	0.5−	0.1+
1999 11 11	703	1.7−	1.7+	1999 12 04	703	0.2−	0.0	1999 12 12	703	0.7−	0.1−
1999 11 11	703	0.5+	0.8−	1999 12 07	699	(0.3+	2.5+)	1999 12 12	703	0.8−	0.0
1999 11 11	703	0.0	0.0	1999 12 07	699	1.5+	0.9+	1999 12 12	703	0.8−	0.8+
1999 11 11	703	0.3+	0.1+	1999 12 07	699	0.9+	0.2−				

1999 VD₂₄ = 1989 EU₄ = 1998 KJ₁₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>				(2000.0)				<i>P</i>				<i>Q</i>			
35.08158															
<i>n</i>	0.24565012	<i>ω</i>		67.57152		+0.83444627		+0.54419954				+0.54419954			
<i>a</i>	2.5249807	<i>Ω</i>		259.35821		−0.53252662		+0.75569047				+0.75569047			
<i>e</i>	0.1857584	<i>i</i>		5.07097		−0.14182670		+0.36438823				+0.36438823			
<i>P</i>	4.01	<i>H</i>		14.1		<i>G</i>	0.15	<i>U</i>				3			

Residuals in seconds of arc

1989 03 02	809	0.5−	1.5−	1998 05 24	704	0.3−	0.8+	1999 12 07	699	0.0	1.2+
1989 03 02	809	(3.1−	0.0)	1998 05 24	704	0.0	0.7+	1999 12 07	699	0.9−	0.0
1989 03 02	809	1.8−	0.7−	1998 05 24	704	0.9−	1.1+	1999 12 08	704	0.0	0.4+
1989 03 03	809	0.5+	0.1+	1999 11 08	620	0.1+	0.4−	1999 12 08	704	0.3+	0.0
1989 03 03	809	0.2+	0.8+	1999 11 08	620	0.1−	0.2−	1999 12 08	704	0.1−	0.7−
1989 03 03	809	1.6+	1.1+	1999 11 11	703	0.5+	0.4+	1999 12 08	704	0.5−	0.5−
1998 05 22	704	0.2+	0.1−	1999 11 11	703	0.0	0.4+	1999 12 08	704	0.5−	0.4−
1998 05 22	704	0.4−	0.2+	1999 11 11	703	0.2+	0.6+	1999 12 12	703	0.1+	0.7+
1998 05 22	704	1.0+	1.1−	1999 11 11	703	0.3+	0.5+	1999 12 12	703	0.2−	0.8+
1998 05 22	704	0.3+	0.9+	1999 11 13	620	0.0	0.9−	1999 12 12	703	0.3+	0.4+
1998 05 22	704	0.9+	0.3−	1999 11 13	620	0.0	0.5−	1999 12 12	703	0.2−	0.6+
1998 05 24	704	0.2−	0.6+	1999 11 14	620	0.0	0.1−				
1998 05 24	704	0.0	0.4−	1999 12 07	699	0.1−	0.3+				

**1999 VG₂₄ = 1999 VC₁₀ = 1977 TM = 1978 WU₈ = 1981 JY₃
= 1988 RR₉ = 1996 JO₂ = 1997 JQ₁₁**

Id. S. Nakano; 1999 RM₁₃ = 1997 JQ₁₁ (*MPC* 36823) is invalid
Epoch 1999 Aug. 10.0 TT = JDT 2451400.5 Nakano

<i>M</i>	336.49218		(2000.0)	P		Q	
<i>n</i>	0.18472470	ω	338.17773	+0.73908360		-0.67353483	
<i>a</i>	3.0534166	Ω	64.16699	+0.61970971		+0.67386230	
<i>e</i>	0.1536561	<i>i</i>	0.65625	+0.26403656		+0.30374403	
<i>P</i>	5.34	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 10 09	809	0.6+	0.2-	1988 09 12	809	0.4-	0.2-	1997 05 04	809	(0.4-	2.8+)
1978 11 29	675	0.9-	0.9-	1988 09 18	809	(16.5-	13.4-)	1999 11 09	757	0.9-	0.7+
1978 11 30	675	0.8+	0.2+	1988 09 18	809	(16.3-	13.4-)	1999 11 09	757	0.3+	0.4+
1981 05 08	675	0.2+	0.2-	1988 09 18	809	(16.2-	13.8-)	1999 11 12	704	1.1+	0.0
1981 05 09	675	2.1+	0.1-	1996 05 14	327	0.3+	0.5+	1999 11 12	704	1.0+	0.1+
1988 09 06	809	0.9+	0.3+	1996 05 14	327	1.5-	0.0	1999 11 12	704	1.1+	0.1+
1988 09 06	809	1.0+	0.4+	1996 05 14	327	0.4+	0.1-	1999 11 12	704	0.9+	0.2+
1988 09 06	809	0.9+	0.4+	1996 05 14	327	0.3-	0.6+	1999 11 12	704	0.5+	0.2-
1988 09 08	809	0.8-	0.2+	1996 05 15	327	0.4-	0.0	1999 11 15	678	0.0	0.4+
1988 09 08	809	0.8-	0.2+	1996 05 15	327	0.5+	0.2-	1999 11 15	678	1.0+	0.0
1988 09 08	809	0.7-	0.2+	1996 05 15	327	0.1-	0.2+	1999 11 16	678	1.8-	0.3-
1988 09 10	809	0.2-	0.6-	1997 05 03	809	0.9+	0.7-	1999 11 16	678	1.7-	0.0
1988 09 10	809	0.0	0.6-	1997 05 03	809	0.2-	1.8-	1999 11 27	678	0.2+	0.2+
1988 09 10	809	0.2-	0.5-	1997 05 03	809	1.6-	1.5-	1999 11 27	678	0.4-	0.5-
1988 09 12	809	0.8-	0.3-	1997 05 04	809	0.9+	1.9+	1999 11 27	678	0.1-	0.2+
1988 09 12	809	0.6-	0.2-	1997 05 04	809	1.1-	1.8+				

1999 VK₂₄ = 1988 SC₃ = 1998 HH₉₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	358.61624		(2000.0)	P		Q	
<i>n</i>	0.27175095	ω	224.70361	+0.99834764		-0.04505315	
<i>a</i>	2.3605978	Ω	137.83996	+0.05491032		+0.93091903	
<i>e</i>	0.2262603	<i>i</i>	3.04614	-0.01693638		+0.36243616	
<i>P</i>	3.63	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1988 09 16	807	0.2-	0.3+	1998 04 22	704	(2.6-	1.8-)	1999 11 16	678	0.1+	0.6-
1988 09 18	807	0.2+	0.3-	1998 04 22	704	0.2+	0.4+	1999 11 16	678	1.2+	0.6+
1998 04 21	704	0.0	0.7+	1998 04 22	704	0.6-	0.1-	1999 11 27	678	0.4-	0.3+
1998 04 21	704	0.6+	1.1-	1998 04 22	704	1.7-	1.4-	1999 11 27	678	0.2-	0.0
1998 04 21	704	1.3+	1.3+	1999 11 15	678	0.2-	0.4-				
1998 04 21	704	(4.7-	1.1-)	1999 11 15	678	0.5-	0.1-				

1999 VL₂₄ = 1990 RX₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	330.19012		(2000.0)	P		Q	
<i>n</i>	0.22742000	ω	76.99364	+0.48849317		-0.87047014	
<i>a</i>	2.6581753	Ω	343.35106	+0.69622145		+0.43060304	
<i>e</i>	0.1661056	<i>i</i>	12.18368	+0.52597540		+0.23845914	
<i>P</i>	4.33	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 09 15	675	0.0	0.7+	1999 11 16	678	0.3-	0.1+	1999 12 12	704	0.5+	1.0+
1990 09 15	675	0.4+	0.1+	1999 11 27	678	0.1-	0.6+	1999 12 12	704	0.1+	0.3-
1990 09 20	675	0.1-	0.5-	1999 11 27	678	0.6-	0.7+	1999 12 12	704	0.6-	0.4-
1990 09 20	675	0.2-	0.4-	1999 12 11	704	0.0	0.5+	1999 12 12	704	(1.2+	2.4-)
1999 11 15	678	0.6+	0.1-	1999 12 11	704	0.6+	0.5-	1999 12 12	704	(0.6-	4.0-)
1999 11 15	678	0.5+	0.2+	1999 12 11	704	0.4+	0.5-				
1999 11 16	678	0.6-	0.0	1999 12 11	704	0.5-	1.3-				

1999 VM₂₄ = 1998 KK₆₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	0.66908		(2000.0)	P		Q	
<i>n</i>	0.28286211	ω	115.54401	+0.90882677		-0.26688713	
<i>a</i>	2.2983678	Ω	261.30991	+0.15635978		+0.93047641	
<i>e</i>	0.0412473	<i>i</i>	18.92656	+0.38676286		+0.25096794	
<i>P</i>	3.48	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 05 22	704	0.1+	1.4-	1999 11 16	678	0.7-	0.2-	1999 12 10	704	0.1+	0.1+
1998 05 22	704	0.5-	0.6+	1999 11 27	678	0.2+	0.4-	1999 12 10	704	0.2+	0.3-
1998 05 22	704	0.5-	1.0-	1999 11 27	678	0.8+	0.5+	1999 12 10	704	0.2+	0.8-
1998 05 22	704	(2.5+	0.9+)	1999 12 06	703	0.0	0.6+	1999 12 10	704	0.2+	0.6-
1998 05 24	704	0.2+	1.8+	1999 12 06	703	0.7-	0.1+	1999 12 10	704	0.4+	0.6-
1998 05 24	704	1.0+	0.1+	1999 12 06	703	0.1-	0.2-	1999 12 13	703	0.0	0.3+
1998 05 24	704	0.3-	0.3-	1999 12 06	703	0.5-	0.4+	1999 12 13	703	0.1-	0.5+
1998 05 24	704	(0.7+	2.5+)	1999 12 07	703	0.2-	0.2-	1999 12 13	703	0.1+	0.4+
1999 11 15	678	0.3+	0.0	1999 12 07	703	0.1-	0.1+	1999 12 13	703	0.1+	0.1+
1999 11 15	678	0.1+	0.2+	1999 12 07	703	0.0	0.2+				
1999 11 16	678	0.3-	0.1-	1999 12 07	703	0.1+	0.0				

1999 VO₂₄ = 1964 TK₂

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	343.40279		(2000.0)	P		Q	
<i>n</i>	0.22539583	ω	167.32301	+0.80384781		-0.57623308	
<i>a</i>	2.6740661	Ω	228.86805	+0.52721648		+0.80508790	
<i>e</i>	0.1881183	<i>i</i>	11.30066	+0.27544779		+0.14067307	
<i>P</i>	4.37	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1964 10 09	330	0.0	0.8-	1999 11 15	174	0.3-	0.0	1999 12 06	704	1.9+	1.7-
1964 10 30	330	0.2-	1.8+	1999 11 15	174	0.1+	0.2+	1999 12 06	704	(1.3-	2.3-)
1999 11 11	703	0.2+	0.1-	1999 11 30	174	0.0	0.9-	1999 12 07	704	0.0	0.5+
1999 11 11	703	0.4+	0.0	1999 12 04	703	0.1-	0.7+	1999 12 07	704	0.0	0.4-
1999 11 11	703	0.2+	0.2-	1999 12 04	699	0.1+	0.6+	1999 12 07	704	0.2+	0.3-
1999 11 11	703	0.1-	0.2-	1999 12 04	703	0.2-	0.4+	1999 12 07	704	0.3+	0.9-
1999 11 14	174	0.6-	0.1-	1999 12 04	703	0.3-	0.4+	1999 12 07	704	0.2-	1.2-
1999 11 14	174	0.3-	0.0	1999 12 04	703	0.3-	0.4+	1999 12 12	703	0.6-	0.8+
1999 11 14	174	0.3-	0.1-	1999 12 04	699	0.2-	0.5+	1999 12 12	703	0.4-	0.4+
1999 11 14	174	0.1+	0.2+	1999 12 04	699	0.0	0.6+	1999 12 12	703	0.6-	0.4+
1999 11 14	174	0.1-	0.7-	1999 12 06	704	0.6+	0.4-	1999 12 12	703	0.3-	0.7+
1999 11 15	174	0.0	0.3+	1999 12 06	704	1.1+	1.0-				

1999 VS₂₄ = 1995 VP₂

Id. G. V. Williams, S. Nakano, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	310.82997		(2000.0)	P		Q	
<i>n</i>	0.26447322	ω	58.97603	-0.17706390		-0.98363484	
<i>a</i>	2.4037073	Ω	41.26480	+0.88488457		-0.17392998	
<i>e</i>	0.1426509	<i>i</i>	2.89667	+0.43084531		-0.04701983	
<i>P</i>	3.73	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 11 14	691	0.1-	0.1+	1999 11 16	411	1.3-	0.2-	1999 12 07	704	0.0	0.0
1995 11 14	691	0.2-	0.0	1999 11 18	411	0.5-	0.8+	1999 12 07	704	0.6+	0.2+
1995 11 14	691	0.3+	0.0	1999 11 18	411	0.5-	0.4+	1999 12 07	704	0.4+	0.0
1995 11 19	691	0.3+	0.1-	1999 12 05	703	1.5+	1.2+	1999 12 07	704	0.4+	0.0
1995 11 19	691	0.1-	0.0	1999 12 05	703	0.3-	1.0+	1999 12 07	704	0.3+	0.0
1995 11 19	691	0.2-	0.0	1999 12 05	703	0.2-	0.5+	1999 12 10	704	0.0	0.6-
1999 11 13	411	1.8+	0.6+	1999 12 05	703	0.9-	0.5+	1999 12 10	704	0.4-	0.0
1999 11 13	411	0.8+	0.3-	1999 12 06	411	0.8+	0.2-	1999 12 10	704	1.2-	1.2-
1999 11 16	411	1.2-	1.8-	1999 12 06	411	0.1-	0.8-				

1999 VT₂₄ = 1995 TR₂

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26218144	ω	268.07816	+0.82359208	−0.56584198		
<i>a</i>	2.4176945	Ω	126.38043	+0.53772818	+0.75712084		
<i>e</i>	0.1874265	<i>i</i>	2.77469	+0.18040093	+0.32648260		
<i>P</i>	3.76	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 10 15	113	0.1+	0.0	1999 11 16	411	0.0	0.0	1999 12 07	704	0.0	0.1+
1995 10 15	113	0.3−	0.6−	1999 11 16	411	0.3+	0.3−	1999 12 07	704	0.1+	0.0
1995 10 17	113	0.3−	0.4+	1999 11 18	411	0.1+	0.6+	1999 12 07	704	0.3−	0.0
1995 10 17	113	0.4+	0.3+	1999 11 18	411	0.6+	0.3+	1999 12 08	704	0.1+	0.1+
1995 10 17	113	0.3−	0.2−	1999 12 06	411	0.1−	0.7−	1999 12 08	704	0.2−	0.2−
1995 10 17	113	0.4+	0.1−	1999 12 06	411	0.3+	0.3+	1999 12 08	704	0.1−	0.3−
1999 11 13	411	0.8−	0.2+	1999 12 07	704	0.3+	0.3+	1999 12 08	704	0.1−	0.1−
1999 11 13	411	0.2−	0.1+	1999 12 07	704	0.0	0.1−	1999 12 08	704	0.1−	0.0

1999 VW₂₄ = 1998 SJ₆₉

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17573901	ω	257.92844	−0.86161576	−0.38621797		
<i>a</i>	3.1566318	Ω	258.61006	+0.48565653	−0.81588776		
<i>e</i>	0.0675356	<i>i</i>	19.62968	−0.14749922	−0.43030553		
<i>P</i>	5.61	<i>H</i>	11.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 09 19	704	0.4+	0.7+	1999 11 13	411	0.2−	0.4+	1999 12 07	704	0.6+	0.7+
1998 09 19	704	1.5+	0.8−	1999 11 16	411	0.2−	0.8−	1999 12 07	704	0.0	0.2−
1998 09 19	704	0.0	0.3+	1999 11 16	411	0.1+	0.3−	1999 12 07	704	0.2−	0.1−
1998 09 23	704	0.7−	0.1−	1999 11 18	411	0.6+	0.1+	1999 12 07	704	0.1−	0.1−
1998 09 23	704	0.3−	0.1+	1999 11 18	411	0.5+	0.1+	1999 12 07	704	0.1−	0.0
1998 09 23	704	0.8−	0.1−	1999 12 06	411	0.1+	0.1−				
1999 11 13	411	0.9−	0.5+	1999 12 06	411	0.3−	0.2−				

1999 VX₂₄ = 1978 VG₁₆ = 1978 XT₁ = 1985 VB₂ = 1992 WM₄Id. S. Nakano; 1993 FW₄₀ = 1978 VG₁₆ (MPC 33684) is invalid

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28292904	ω	193.12758	+0.71072887	−0.70263372		
<i>a</i>	2.2980053	Ω	211.59885	+0.65117257	+0.67551643		
<i>e</i>	0.2098410	<i>i</i>	3.74351	+0.26615550	+0.22356970		
<i>P</i>	3.48	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1978 11 01	095	1.4+	0.5+	1992 11 27	372	0.5−	1.6−	1999 11 18	411	0.1+	0.0
1978 12 05	033	0.4−	0.2−	1992 11 27	372	1.9+	0.8+	1999 12 06	411	0.0	0.5−
1978 12 05	033	0.7−	0.8−	1999 11 13	411	0.4+	0.9+	1999 12 06	411	0.8−	0.9+
1985 11 07	675	1.0−	1.3+	1999 11 13	411	0.8−	1.0+	1999 12 08	704	0.1−	0.4+
1985 11 07	675	0.5−	0.5−	1999 11 16	411	0.4−	0.6−	1999 12 08	704	0.4+	0.5+
1992 11 25	372	0.6+	1.7−	1999 11 16	411	0.2−	0.6−	1999 12 08	704	0.1+	0.3+
1992 11 25	372	(2.7+	0.2+)	1999 11 18	411	0.5+	0.2+	1999 12 08	704	0.1+	0.0

1999 VA₂₅ = 1975 TY₃ = 1992 SF₂₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28968269	ω	325.18921	+0.84720203	−0.52383005		
<i>a</i>	2.2621480	Ω	66.63731	+0.50672009	+0.74662090		
<i>e</i>	0.2071518	<i>i</i>	5.53869	+0.15963542	+0.41007233		
<i>P</i>	3.40	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1975 10 03	095	0.7+	1.7+	1999 11 18	411	0.7−	1.0+	1999 12 07	704	0.3+	0.2+
1975 10 11	033	1.4−	0.2−	1999 11 18	411	0.7−	0.4+	1999 12 07	704	0.4+	0.8−
1992 09 29	675	1.1+	0.3−	1999 12 05	703	1.5−	0.7+	1999 12 07	704	0.6+	0.3+
1992 09 29	675	0.4−	0.7−	1999 12 05	703	0.4+	1.0+	1999 12 10	704	0.0	0.4+
1992 10 04	675	0.4+	0.3−	1999 12 05	703	0.0	0.6+	1999 12 10	704	0.0	0.5−
1992 10 04	675	0.4−	0.3−	1999 12 05	703	0.3−	0.6+	1999 12 10	704	0.2+	0.7−
1999 11 13	411	(4.3+	0.2−)	1999 12 06	411	0.8−	0.4−	1999 12 10	704	0.4+	0.5−
1999 11 13	411	(4.4+	1.9−)	1999 12 06	411	0.7−	0.5−	1999 12 10	704	0.9+	0.5−
1999 11 16	411	0.8+	0.5−	1999 12 07	704	0.3+	0.1−				
1999 11 16	411	0.1+	0.4−	1999 12 07	704	0.3+	0.3−				

1999 VC₂₅ = 1993 FW₅₆

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25375522	ω	316.83100	+0.50417090	−0.85711841		
<i>a</i>	2.4709240	Ω	102.63200	+0.81888361	+0.43561995		
<i>e</i>	0.1770862	<i>i</i>	6.21503	+0.27430156	+0.27492415		
<i>P</i>	3.88	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 03 17	809	0.7+	0.0	1999 11 16	411	0.0	0.0	1999 12 08	704	0.1−	0.4−
1993 03 18	809	0.7−	0.0	1999 11 18	411	0.1−	0.2−	1999 12 08	704	0.2+	0.3−
1999 11 13	411	0.0	0.5−	1999 11 18	411	0.4+	0.1−	1999 12 08	704	0.2+	0.1+
1999 11 13	411	0.0	0.4+	1999 12 06	411	0.7−	0.5−				
1999 11 16	411	0.3−	0.2+	1999 12 06	411	0.4+	1.1+				

1999 VC₂₆ = 1993 SK₇

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17549119	ω	71.12182	+0.91124872	−0.41171640		
<i>a</i>	3.1596029	Ω	313.18927	+0.37210935	+0.83420484		
<i>e</i>	0.2040045	<i>i</i>	0.84415	+0.17652312	+0.36686766		
<i>P</i>	5.62	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 09 17	809	0.5−	0.8+	1999 11 03	704	0.3+	0.2+	1999 12 07	704	0.1−	0.3+
1993 09 17	809	0.3−	0.8+	1999 11 03	704	0.1−	0.9+	1999 12 07	704	0.2+	0.7+
1993 09 17	809	0.4−	1.0+	1999 11 03	704	1.0−	0.4−	1999 12 07	704	0.8+	0.1+
1993 09 18	809	0.9−	0.5−	1999 11 10	704	0.0	1.0−	1999 12 08	704	0.0	0.3+
1993 09 18	809	(2.2−	0.5−)	1999 11 10	704	0.1+	0.5−	1999 12 08	704	0.2+	0.2+
1993 09 18	809	(2.7−	1.2−)	1999 11 10	704	0.0	0.1−	1999 12 08	704	0.3+	0.2−
1993 09 22	809	0.9+	0.5−	1999 11 10	704	0.4+	0.3−	1999 12 08	704	0.2+	0.1−
1993 09 22	809	0.5+	0.4−	1999 11 10	704	0.6+	0.2−	1999 12 08	704	0.4+	0.5−
1993 09 22	809	1.0−	1.0−	1999 12 05	703	0.2−	0.0	1999 12 13	703	0.6−	0.4+
1993 09 24	809	(2.7+	0.6−)	1999 12 05	703	0.4−	0.2−	1999 12 13	703	0.1+	0.1+
1993 09 24	809	1.4+	0.0	1999 12 05	703	0.8−	0.3−	1999 12 13	703	0.4−	0.2+
1993 09 24	809	0.1+	0.0	1999 12 05	703	0.1−	0.5−	1999 12 13	703	0.3−	0.1+
1999 11 03	704	0.0	0.0	1999 12 07	704	0.1+	0.4+				
1999 11 03	704	0.1+	0.1−	1999 12 07	704	0.3+	0.6+				

1999 VF₂₆ = 1995 UM₃₇

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26082215	ω	136.90535	+0.99575007	−0.08975723		
<i>a</i>	2.4260872	Ω	228.25627	+0.07518849	+0.92162085		
<i>e</i>	0.2198717	<i>i</i>	1.58410	+0.05318357	+0.37756941		
<i>P</i>	3.78	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 10 22	691	0.3−	0.2+	1999 11 10	704	0.5−	0.3−	1999 12 07	704	0.0	0.1−
1995 10 22	691	0.2−	0.1+	1999 11 10	704	0.4+	0.0	1999 12 07	704	0.1−	0.1−
1995 10 22	691	0.4−	0.2+	1999 11 10	704	0.0	0.0	1999 12 07	691	0.2+	0.3+
1995 10 27	691	0.4+	0.2−	1999 11 10	704	0.2+	0.4+	1999 12 07	691	0.1+	0.4+
1995 10 27	691	0.2+	0.0	1999 11 10	704	1.4+	0.6−	1999 12 07	691	0.2+	0.4+
1995 10 27	691	0.1+	0.3+	1999 12 03	699	0.1−	1.4+	1999 12 08	704	0.2+	0.0
1999 11 03	704	0.0	0.7−	1999 12 03	699	0.1+	0.7+	1999 12 08	704	0.0	0.1−
1999 11 03	704	0.4−	0.5−	1999 12 03	699	0.6−	0.6+	1999 12 08	704	0.2−	0.3−
1999 11 03	704	0.0	0.2−	1999 12 07	704	0.1−	0.0	1999 12 08	704	0.0	0.2−
1999 11 03	704	0.2−	0.7−	1999 12 07	704	0.3−	0.1+	1999 12 08	704	0.4+	0.1+
1999 11 03	704	0.4−	0.6−	1999 12 07	704	0.4−	0.7−				

1999 VN₂₆ = 1997 GB₁₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		340.16361		(2000.0)		P		Q	
<i>n</i>		0.24474943	ω	184.20114		+0.59228622		−0.80531377	
<i>a</i>		2.5311716	Ω	229.48173		+0.74022695		+0.55651450	
<i>e</i>		0.1429710	<i>i</i>	1.94655		+0.31821549		+0.20435591	
<i>P</i>		4.03	<i>H</i>	15.5		<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 04 03	704	0.2−	1.0+	1999 11 10	704	0.3+	0.1+	1999 12 07	704	0.5+	0.1+
1997 04 03	704	0.4+	0.2−	1999 11 10	704	0.1−	0.1−	1999 12 07	704	0.7−	0.2−
1997 04 07	704	0.8+	0.2−	1999 11 10	704	0.5+	0.8−	1999 12 07	704	0.2−	0.1+
1997 04 07	704	1.0−	0.6−	1999 11 10	704	0.2−	0.3+	1999 12 07	704	0.1−	0.2−
1999 11 03	704	0.6+	0.6+	1999 12 04	703	0.3+	1.1+	1999 12 08	704	0.1+	0.1−
1999 11 03	704	0.6−	0.0	1999 12 04	703	0.7−	0.6+	1999 12 08	704	0.2−	0.2+
1999 11 03	704	(2.6−	1.4+)	1999 12 04	703	0.4+	0.6+	1999 12 08	704	1.7+	0.5−
1999 11 10	704	0.0	0.1+	1999 12 04	703	1.6−	0.0	1999 12 08	704	0.2−	0.8−
1999 11 10	704	0.2−	0.2−	1999 12 07	704	0.1+	0.2−	1999 12 08	704	0.1+	0.7−

1999 VP₂₆ = 1994 JV₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		318.20164		(2000.0)		P		Q	
<i>n</i>		0.27971865	ω	24.09901		+0.21917976		−0.97379169	
<i>a</i>		2.3155550	Ω	53.29538		+0.88241683		+0.17127942	
<i>e</i>		0.1162024	<i>i</i>	4.34534		+0.41629408		+0.14964323	
<i>P</i>		3.52	<i>H</i>	15.7		<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 05 04	691	0.1−	0.1+	1999 11 03	704	0.1+	0.1−	1999 12 07	704	0.2−	0.3+
1994 05 04	691	0.4−	0.4−	1999 11 03	704	0.2+	0.0	1999 12 07	704	1.0+	0.2+
1994 05 11	691	0.1−	0.6−	1999 11 10	704	0.3+	0.2−	1999 12 07	704	0.5−	0.1−
1994 05 11	691	0.5+	0.4−	1999 11 10	704	0.1−	0.1−	1999 12 07	704	0.1−	0.4+
1994 05 11	691	1.1−	0.7+	1999 11 10	704	0.3+	0.3−	1999 12 08	704	0.7−	0.9+
1994 05 17	691	0.1+	0.4−	1999 11 10	704	0.3+	0.1−	1999 12 08	704	0.2+	0.5+
1994 05 17	691	1.0+	0.7+	1999 11 10	704	0.0	0.5−	1999 12 08	704	(2.9+	0.3−)
1994 05 17	691	0.2+	0.8+	1999 12 04	691	0.3+	0.5−	1999 12 13	703	0.1−	0.1−
1999 11 03	704	0.3−	0.5+	1999 12 04	691	0.4+	0.5−	1999 12 13	703	0.1−	0.8−
1999 11 03	704	0.2+	0.3+	1999 12 04	691	0.2+	0.5−	1999 12 13	703	0.1−	0.1−
1999 11 03	704	1.2−	0.6+	1999 12 07	704	0.3+	0.7+	1999 12 13	703	0.4−	0.2−

1999 VV₂₆ = 1991 RG₃₁ = 1995 UF₇

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		29.96581		(2000.0)		P		Q	
<i>n</i>		0.25717065	ω	74.71764		+0.95376492		+0.29952425	
<i>a</i>		2.4489981	Ω	267.84843		−0.28441589		+0.87273100	
<i>e</i>		0.2096646	<i>i</i>	1.42515		−0.09716005		+0.38552019	
<i>P</i>		3.83	<i>H</i>	15.2		<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 09 15	691	0.4+	0.4−	1999 11 10	704	0.1−	0.2+	1999 12 07	704	0.1+	1.1−
1991 09 15	691	0.2+	0.2−	1999 11 10	704	0.6+	0.5−	1999 12 07	704	0.1+	1.1−
1991 09 15	691	0.3+	0.4−	1999 11 10	704	1.2+	0.1−	1999 12 07	704	0.2−	0.2−
1991 09 17	675	0.5−	0.5+	1999 12 03	699	0.3−	0.1+	1999 12 07	704	0.1−	0.6−
1991 09 17	675	0.1+	0.4−	1999 12 03	699	0.3+	1.4+	1999 12 08	704	0.0	0.9−
1991 10 27	399	(1.3+	2.7+)	1999 12 03	699	0.6−	0.4−	1999 12 08	704	0.6−	0.4−
1995 10 27	399	0.7−	1.3+	1999 12 04	703	0.8−	0.1+	1999 12 08	704	0.1+	0.6−
1995 10 28	399	0.2−	0.4+	1999 12 04	703	0.5−	0.1+	1999 12 08	704	0.1−	0.2−
1995 10 28	399	(1.1+	2.7+)	1999 12 04	703	1.3−	0.4−	1999 12 08	704	0.1+	1.1−
1999 11 03	704	0.4+	0.0	1999 12 04	703	0.4−	0.2+	1999 12 13	703	0.8+	0.4+
1999 11 03	704	0.1+	0.3+	1999 12 05	703	0.5−	0.6+	1999 12 13	703	0.6+	0.2+
1999 11 03	704	0.3+	0.0	1999 12 05	703	0.2−	0.4+	1999 12 13	703	0.3−	0.5+
1999 11 03	704	0.5+	0.3−	1999 12 05	703	0.3+	0.3+	1999 12 13	703	0.0	0.4+
1999 11 03	704	0.8+	0.1+	1999 12 05	703	0.0	0.9+				
1999 11 10	704	0.4+	0.8+	1999 12 07	704	0.0	0.8−				

1999 VX₂₆ = 1991 RD₂₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		25.89140		(2000.0)		P		Q	
<i>n</i>		0.25797219	ω	278.39257		+0.97310924		+0.22257436	
<i>a</i>		2.4439226	Ω	68.76336		−0.17824356		+0.89073210	
<i>e</i>		0.2112707	<i>i</i>	3.64897		−0.14590286		+0.39630416	
<i>P</i>		3.82	<i>H</i>	15.5		<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 09 14	675	0.2−	1.2+	1999 11 10	704	0.1−	0.9−	1999 12 05	703	0.6−	0.2+
1991 09 14	675	1.1+	0.3−	1999 11 10	704	0.8+	0.3−	1999 12 05	703	0.4+	0.2+
1991 09 15	675	0.1−	0.7+	1999 11 26	120	0.4+	0.7+	1999 12 07	704	0.0	0.1−
1991 09 15	675	0.2−	0.2+	1999 11 26	120	(2.5+	0.0)	1999 12 07	704	0.2+	0.1−
1991 09 16	675	0.2−	1.2−	1999 11 26	120	1.5+	0.2−	1999 12 07	704	0.0	0.2−
1991 09 16	675	0.6+	0.2−	1999 11 27	120	0.2+	0.9+	1999 12 07	704	0.0	0.1−
1991 09 17	675	0.2−	0.0	1999 11 27	120	(2.2+	0.6−)	1999 12 07	704	0.6−	0.5−
1991 09 17	675	1.0−	0.1−	1999 11 27	049	(2.4+	0.7+)	1999 12 08	704	0.1+	0.2−
1999 11 03	704	0.1+	0.7+	1999 11 27	049	(2.5+	0.8+)	1999 12 08	704	1.1−	0.1−
1999 11 03	704	0.1+	0.0	1999 11 27	049	(3.2+	0.1+)	1999 12 08	704	0.5−	0.5−
1999 11 03	704	0.7−	0.3+	1999 12 04	703	0.0	0.3+	1999 12 08	704	0.5−	0.5−
1999 11 03	704	0.3−	0.1−	1999 12 04	703	0.5−	0.2+	1999 12 08	704	0.2−	0.5−
1999 11 03	704	0.7−	0.5+	1999 12 04	703	0.3+	0.8+	1999 12 13	703	0.1−	0.1−
1999 11 10	704	0.8+	0.3−	1999 12 04	703	0.0	0.3+	1999 12 13	703	0.2−	0.1−
1999 11 10	704	0.8+	1.4−	1999 12 05	703	0.1−	0.6+	1999 12 13	703	0.5−	0.4+
1999 11 10	704	1.0+	1.1−	1999 12 05	703	0.1+	1.0+	1999 12 13	703	0.1−	0.1+

1999 VA₂₇ = 1997 EQ₅₂

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		252.31111		(2000.0)		P		Q	
<i>n</i>		0.25950876	ω	313.99152		−0.89554195		−0.44490519	
<i>a</i>		2.4342660	Ω	199.59545		+0.41478091		−0.82812580	
<i>e</i>		0.0999938	<i>i</i>	1.36679		+0.16112547		−0.34097952	
<i>P</i>		3.80	<i>H</i>	15.3		<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 03 08	809	1.3+	0.9−	1999 11 03	704	0.0	0.4−	1999 12 07	704	0.3+	0.2+
1997 03 08	809	1.1+	0.4−	1999 11 03	704	0.7+	0.0	1999 12 07	691	0.6−	0.9−
1997 03 08	809	0.4+	0.4−	1999 11 10	704	0.4−	1.0−	1999 12 07	704	0.6+	1.3+
1997 03 09	809	1.0−	0.3+	1999 11 10	704	0.1+	0.3−	1999 12 08	704	0.4+	0.3+
1997 03 09	809	0.9−	1.1+	1999 11 10	704	0.1+	0.9+	1999 12 08	704	0.6+	0.1+
1997 03 09	809	0.9−	0.3+	1999 12 07	691	0.0	0.4+	1999 12 08	704	0.4−	0.1−
1999 11 03	704	0.3+	0.6+	1999 12 07	691	0.1+	0.1+	1999 12 08	704	0.5−	0.2−
1999 11 03	704	0.6−	0.4−	1999 12 07	704	(0.2−	2.2−)	1999 12 08	704	0.7−	0.4−

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	21.19073		(2000.0)	P	Q
<i>n</i>	0.28055728	ω	91.84348	+0.87228037	+0.48397950
<i>a</i>	2.3109383	Ω	239.21689	-0.47476435	+0.80390765
<i>e</i>	0.2142233	<i>i</i>	4.66922	-0.11715703	+0.34568242
<i>P</i>	3.51	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 04 20	704	0.0	0.7-	1998 04 22	704	1.3-	0.5-	1999 11 11	703	0.0	0.2-
1998 04 20	704	0.7+	0.4-	1999 11 03	703	0.3+	0.3-	1999 12 04	699	0.4-	0.5+
1998 04 20	704	0.6+	0.2-	1999 11 03	703	0.2-	0.1+	1999 12 04	699	1.0-	0.3-
1998 04 20	704	0.0	0.1-	1999 11 03	703	0.1+	0.3-	1999 12 04	699	0.5-	0.6+
1998 04 22	704	1.1+	0.7+	1999 11 03	703	0.2-	0.1-	1999 12 07	704	0.3+	1.2+
1998 04 22	704	0.6+	1.7+	1999 11 11	703	0.3+	0.1-	1999 12 07	704	0.3+	0.8-
1998 04 22	704	0.1-	0.3+	1999 11 11	703	0.2-	0.2-	1999 12 07	704	0.3+	0.1+
1998 04 22	704	1.7-	1.0-	1999 11 11	703	0.1+	0.5+	1999 12 07	704	1.0+	0.9-

1999 VD₂₈ = 1997 EJ₄₈

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	56.19310		(2000.0)	P	Q
<i>n</i>	0.21939239	ω	89.88288	+0.85614345	+0.51313387
<i>a</i>	2.7226282	Ω	239.24402	-0.49781606	+0.78742507
<i>e</i>	0.0520783	<i>i</i>	4.06557	-0.13855529	+0.34154851
<i>P</i>	4.49	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 03 11	809	0.4-	0.8-	1999 11 03	704	0.4+	1.1+	1999 12 08	704	0.1-	1.4+
1997 03 11	809	1.0-	0.3-	1999 11 12	704	0.2-	0.3-	1999 12 08	704	0.6+	0.2+
1997 03 11	809	0.8-	1.2-	1999 11 12	704	0.5+	0.5-	1999 12 08	704	0.5-	0.1-
1997 03 12	809	1.1+	0.4+	1999 11 12	704	0.3+	0.4-	1999 12 08	704	0.2+	0.3+
1997 03 12	809	0.4+	1.1+	1999 11 12	704	0.7+	0.5-	1999 12 12	703	0.2-	0.7-
1997 03 12	809	0.7+	0.9+	1999 11 12	704	0.4+	0.4-	1999 12 12	703	0.3+	0.6-
1999 11 03	704	0.4-	0.0	1999 12 07	704	0.0	0.6+	1999 12 12	703	0.7-	0.4-
1999 11 03	704	0.6-	0.1-	1999 12 07	704	0.1+	0.0	1999 12 12	703	0.6+	0.6-
1999 11 03	704	0.3-	0.6+	1999 12 07	704	0.3-	0.3-				
1999 11 03	704	0.5-	0.1-	1999 12 07	704	0.3-	0.8+				

1999 VK₂₈ = 1992 ER₂₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	335.68369		(2000.0)	P	Q
<i>n</i>	0.22083647	ω	173.88641	+0.55418963	-0.83200212
<i>a</i>	2.7107461	Ω	242.45600	+0.76248349	+0.51966175
<i>e</i>	0.0563065	<i>i</i>	1.64306	+0.33390535	+0.19422701
<i>P</i>	4.46	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 03 02	809	0.7-	0.0	1999 11 12	704	0.0	0.1-	1999 12 07	704	0.0	0.2-
1992 03 04	809	0.7+	0.0	1999 12 04	703	0.0	0.3+	1999 12 07	704	0.8-	0.6-
1999 11 03	704	0.7+	0.4+	1999 12 04	703	0.2-	0.6+	1999 12 08	704	0.3-	0.0
1999 11 03	704	0.3+	0.1-	1999 12 04	703	0.3-	0.4-	1999 12 08	704	0.1-	0.1-
1999 11 03	704	0.0	0.1-	1999 12 04	703	1.0-	0.7+	1999 12 08	704	0.3-	0.1+
1999 11 03	704	0.2+	0.2+	1999 12 05	691	0.4+	0.2-	1999 12 08	704	0.1+	0.2-
1999 11 03	704	0.3+	0.2-	1999 12 05	691	0.4+	0.2-	1999 12 12	703	0.1+	0.1+
1999 11 12	704	0.2+	0.1+	1999 12 05	691	0.5+	0.1-	1999 12 12	703	0.1+	0.6+
1999 11 12	704	0.9-	0.1-	1999 12 07	704	0.1-	0.1-	1999 12 12	703	0.4+	0.2-
1999 11 12	704	0.1-	0.1-	1999 12 07	704	0.1-	0.1+	1999 12 12	703	0.7+	0.1+
1999 11 12	704	0.1-	0.3-	1999 12 07	704	0.2-	0.2+				

1999 VL₂₈ = 1992 SN₁₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	345.49263		(2000.0)	P	Q
<i>n</i>	0.28929850	ω	136.13801	+0.84374246	-0.53667567
<i>a</i>	2.2641504	Ω	256.32157	+0.48991935	+0.77674275
<i>e</i>	0.1999410	<i>i</i>	0.52045	+0.21926627	+0.32962089
<i>P</i>	3.41	<i>H</i>	16.4	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 09 21	033	0.8+	0.8-	1999 11 12	704	0.3+	0.1-	1999 12 07	704	0.2-	0.1-
1992 09 21	033	0.6+	0.3-	1999 11 12	704	0.3+	0.4+	1999 12 07	704	0.4+	0.0
1992 09 22	033	0.1-	0.3-	1999 11 12	704	0.3+	0.2+	1999 12 07	704	0.1+	0.7-
1992 09 24	033	0.1+	0.6+	1999 11 12	327	0.5-	0.2+	1999 12 07	704	0.5-	0.5+
1992 09 24	033	0.5-	0.6+	1999 11 12	327	0.7-	0.0	1999 12 08	704	0.8-	1.0+
1992 09 26	033	0.2+	0.2+	1999 11 12	327	0.3-	0.1-	1999 12 08	704	0.2+	0.0
1992 09 27	033	1.2-	0.1+	1999 11 19	327	0.4-	0.2-	1999 12 08	704	0.3-	0.2-
1999 11 03	704	0.3+	0.4+	1999 11 19	327	0.5-	0.3-	1999 12 08	704	1.1+	0.2-
1999 11 03	704	0.2-	0.2-	1999 11 19	327	0.4-	0.3+	1999 12 12	703	0.1+	0.4+
1999 11 03	704	0.5+	0.7-	1999 12 04	703	1.0+	0.3+	1999 12 12	703	0.0	0.7-
1999 11 03	704	0.2-	0.5-	1999 12 04	703	0.5-	0.3+	1999 12 12	703	0.0	0.1+
1999 11 03	704	0.6+	0.4-	1999 12 04	703	0.3-	0.2-	1999 12 12	703	0.2+	0.0
1999 11 12	704	0.1-	0.0	1999 12 04	703	0.1+	0.3-				
1999 11 12	704	0.3+	0.4+	1999 12 07	704	0.0	0.1+				

1999 VP₂₈ = 1993 BG₁₃ = 1997 EE₅₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	306.29773		(2000.0)	P	Q
<i>n</i>	0.26709627	ω	202.44969	-0.02509965	-0.99935258
<i>a</i>	2.3879442	Ω	248.99635	+0.92133609	-0.01311843
<i>e</i>	0.1576050	<i>i</i>	1.58219	+0.38795596	-0.03350103
<i>P</i>	3.69	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1993 01 22	809	0.6+	0.4-	1999 11 03	704	0.1-	0.5-	1999 12 07	704	0.3-	0.4+
1993 01 22	809	0.3-	0.3-	1999 11 03	704	0.6+	0.5-	1999 12 07	704	0.1+	0.5+
1993 01 22	809	1.0-	0.8-	1999 11 03	704	0.4+	0.2-	1999 12 07	704	0.3-	0.1+
1993 01 28	809	1.1+	1.4-	1999 11 03	704	0.7+	0.1-	1999 12 08	704	0.2-	0.2-
1993 01 28	809	1.2-	1.1-	1999 11 03	704	0.5+	0.6-	1999 12 08	704	0.0	0.2-
1993 01 28	809	0.8-	1.0-	1999 11 12	704	0.1-	0.3+	1999 12 08	704	0.1-	0.4-
1997 03 05	809	0.0	0.0	1999 11 12	704	0.0	0.3+	1999 12 08	704	0.1-	0.2+
1997 03 05	809	0.0	0.0	1999 11 12	704	0.4-	0.3+	1999 12 08	704	0.1-	0.8+
1997 03 05	809	0.5-	0.2+	1999 11 12	704	0.4-	0.7+	1999 12 12	703	0.0	0.8+
1997 03 06	809	1.6+	1.8+	1999 11 12	704	0.2-	0.6+	1999 12 12	703	0.2+	0.4+
1997 03 06	809	0.3+	2.0+	1999 12 07	704	0.3-	0.1-	1999 12 12	703	0.4-	0.5+
1997 03 06	809	0.8+	1.5+	1999 12 07	704	0.2-	0.3+	1999 12 12	703	0.2-	1.0+

1999 VC₂₉ = 1996 GC₁₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	237.19978		(2000.0)	P	Q
<i>n</i>	0.17525988	ω	122.85093	-0.99092740	-0.13254906
<i>a</i>	3.1623824	Ω	49.54232	+0.11147905	-0.90296985
<i>e</i>	0.1075425	<i>i</i>	1.67327	+0.07506866	-0.40874955
<i>P</i>	5.62	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 04 13	691	0.2-	0.1+	1999 11 12	704	0.1+	1.0-	1999 12 04	703	0.4-	0.1+
1996 04 13	691	0.5-	0.1+	1999 11 12	704	0.3+	0.1-	1999 12 04	703	0.4+	1.5+
1996 04 13	691	0.6-	0.1-	1999 11 12	704	0.3+	0.3-	1999 12 04	703	0.4-	0.5-
1996 04 20	691	0.3-	0.1+	1999 11 12	704	0.3+	0.2-	1999 12 07	704	0.3+	0.2+
1996 04 20	691	0.2+	0.3-	1999 11 12	704	0.3+	0.6-	1999 12 07	704	0.1+	0.5-
1996 04 20	691	1.3+	0.1+	1999 11 29	691	0.4+	0.3-	1999 12 07	704	0.4+	0.8-
1999 11 03	704	0.3-	0.3+	1999 11 29	691	0.4+	0.3-	1999 12 07	704	0.7-	0.3+

1999 DEC. 22

M.P.C. 37217

1999 11 03 704 0.4− 1.2+ 1999 11 29 691 0.2+ 0.1−
 1999 11 03 704 0.2− 0.5+ 1999 12 04 703 1.1− 0.5+

1999 VD₂₉ = 1998 MY₄₆

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	17.71639		(2000.0)		P		Q
n	0.18151380	ω	325.37104		+0.99460367		−0.10274670
a	3.0893204	Ω	40.53386		+0.09948526		+0.90523345
e	0.1757057	i	1.26748		+0.02943174		+0.41230514
P	5.43	H	14.6	G	0.15	U	4

Residuals in seconds of arc

1998 06 28 809 1.0− 1.2− 1999 11 03 704 0.5− 0.4− 1999 12 08 704 1.3+ 0.6+
 1998 06 28 809 1.2− 0.9− 1999 11 12 704 0.2+ 0.0 1999 12 08 704 0.4− 0.1+
 1998 06 28 809 0.9− 0.0 1999 11 12 704 0.4+ 0.3− 1999 12 08 704 0.8+ 0.1+
 1998 07 01 809 1.0+ 0.8+ 1999 11 12 704 0.4+ 0.1− 1999 12 08 704 0.6− 0.1+
 1998 07 01 809 0.8+ 0.9+ 1999 11 12 704 0.6+ 0.2+ 1999 12 12 703 0.3− 0.3+
 1998 07 01 809 1.2+ 0.6+ 1999 11 12 704 0.5+ 0.3− 1999 12 12 703 0.1− 0.4−
 1999 11 03 704 0.3− 0.4− 1999 12 07 704 0.6+ 0.1− 1999 12 12 703 1.7− 0.6+
 1999 11 03 704 0.9+ 0.4+ 1999 12 07 704 0.0 0.0 1999 12 12 703 0.7− 0.7+
 1999 11 03 704 0.7− 0.0 1999 12 07 704 0.3+ 0.1+
 1999 11 03 704 0.8− 0.2− 1999 12 07 704 0.0 1.0−

1999 VT₂₉ = 1998 QW₇₄

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	171.99077		(2000.0)		P		Q
n	0.16912398	ω	348.57018		−0.63761212		+0.72990338
a	3.2384156	Ω	241.29344		−0.68280113		−0.68354022
e	0.0724246	i	16.31272		−0.35669790		+0.00371965
P	5.83	H	13.3	G	0.15	U	4

Residuals in seconds of arc

1998 08 24 704 (1.5+ 2.2+) 1999 11 03 704 0.2− 0.5+ 1999 12 07 704 0.8− 0.5−
 1998 08 24 704 (2.1− 0.3−) 1999 11 03 704 1.2+ 0.8+ 1999 12 07 704 0.3+ 0.1+
 1998 08 24 704 1.8+ 1.4+ 1999 11 12 704 0.3− 0.5+ 1999 12 07 704 0.6+ 0.4−
 1998 08 24 704 0.6− 1.0+ 1999 11 12 704 0.4+ 0.2+ 1999 12 07 704 0.3+ 0.4+
 1998 08 24 704 0.2+ 0.6+ 1999 11 12 704 0.7− 0.5+ 1999 12 07 704 0.5+ 0.4+
 1998 08 27 704 0.2− 0.1− 1999 12 04 703 0.1− 0.3− 1999 12 08 691 0.0 0.6−
 1998 08 27 704 0.9− 0.7− 1999 12 04 703 0.1+ 0.1+ 1999 12 08 691 0.1+ 0.4−
 1998 08 27 704 0.1− 1.5− 1999 12 04 703 0.6− 0.5+ 1999 12 08 691 0.0 0.4−
 1998 08 27 704 0.7+ 0.5+ 1999 12 04 703 0.2− 0.6− 1999 12 08 704 0.3− 0.0
 1998 08 27 704 0.8− 1.2− 1999 12 05 703 0.2− 0.4− 1999 12 08 704 0.0 0.3−
 1999 11 03 704 0.8− 0.8− 1999 12 05 703 0.2− 0.1+ 1999 12 08 704 0.2− 0.3+
 1999 11 03 704 0.3− 0.7+ 1999 12 05 703 0.1+ 0.1− 1999 12 08 704 0.5+ 0.5+
 1999 11 03 704 0.3+ 1.8− 1999 12 05 703 0.2+ 0.5− 1999 12 08 704 0.3+ 1.3+

1999 VY₂₉ = 1995 MM₄

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	47.16154		(2000.0)		P		Q
n	0.28517009	ω	91.18591		+0.82032236		+0.56576388
a	2.2859500	Ω	234.36494		−0.55705241		+0.75736961
e	0.1420060	i	5.90121		−0.12947526		+0.32604065
P	3.46	H	15.7	G	0.15	U	5

Residuals in seconds of arc

1995 06 29 691 0.2− 0.6+ 1999 11 12 704 0.3− 0.2+ 1999 11 30 595 0.7+ 0.4+
 1995 06 29 691 0.2− 0.4+ 1999 11 12 704 0.0 0.1− 1999 11 30 595 0.7+ 0.8+
 1995 06 29 691 0.2− 0.2+ 1999 11 12 704 0.9− 0.1− 1999 12 05 703 0.4+ 0.3+
 1995 07 04 691 0.2+ 0.7− 1999 11 12 704 0.4− 0.0 1999 12 05 703 0.3− 0.7+
 1995 07 04 691 0.1+ 0.3− 1999 11 12 704 0.5− 0.2+ 1999 12 05 703 0.1− 0.5+
 1995 07 04 691 0.3+ 0.1− 1999 11 26 595 0.2+ 1.3− 1999 12 05 703 0.3− 0.3+

1999 11 03 704 0.1− 0.2+ 1999 11 26 595 0.0 0.2+ 1999 12 07 704 0.1− 0.5−
 1999 11 03 704 0.7+ 0.4+ 1999 11 29 595 0.1− 0.3− 1999 12 07 704 0.1− 0.4−
 1999 11 03 704 0.3+ 0.2− 1999 11 29 595 0.5+ 0.5− 1999 12 07 704 0.1− 0.5+
 1999 11 03 704 0.4− 0.3+ 1999 11 29 595 0.2− 0.5+ 1999 12 07 704 0.3+ 0.5−
 1999 11 03 704 0.3+ 1.0− 1999 11 30 595 0.1− 0.5−

1999 VC₃₀ = 1996 HV₁₃

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	278.76269		(2000.0)		P		Q
n	0.18300530	ω	69.46435		−0.77050143		−0.63640720
a	3.0725121	Ω	70.99311		+0.56963188		−0.71294383
e	0.1724975	i	2.19674		+0.28608928		−0.29444350
P	5.39	H	14.3	G	0.15	U	4

Residuals in seconds of arc

1996 04 17 809 (2.7+ 0.3+) 1999 10 22 385 (1.5− 3.6+) 1999 12 05 703 0.8− 0.8+
 1996 04 17 809 0.3+ 0.1+ 1999 10 22 385 1.4− 0.1+ 1999 12 05 703 0.2− 0.1+
 1996 04 17 809 0.7+ 0.7− 1999 11 03 704 0.5+ 0.8− 1999 12 07 704 0.4+ 0.2−
 1996 04 18 809 0.6+ 0.4+ 1999 11 03 704 0.5+ 0.4− 1999 12 07 704 0.5+ 0.0
 1996 04 18 809 0.1− 0.4+ 1999 11 03 704 0.8− 0.6− 1999 12 07 704 0.5− 0.3+
 1996 04 18 809 0.3+ 1.3+ 1999 11 12 704 0.0 0.3− 1999 12 07 704 0.2+ 0.8−
 1996 05 19 809 1.3− 1.5− 1999 11 12 704 0.0 0.3+ 1999 12 07 704 1.0+ 0.4−
 1996 05 19 809 0.9− 1.2− 1999 11 12 704 0.2− 0.2− 1999 12 07 691 0.4+ 0.1−
 1996 05 19 809 (2.2− 1.9−) 1999 11 12 704 0.5− 0.2+ 1999 12 07 691 0.3+ 0.0
 1996 05 22 809 (1.7+ 2.2+) 1999 11 12 704 0.4− 0.0 1999 12 07 691 0.4+ 0.0
 1996 05 22 809 (0.6+ 2.5+) 1999 12 04 703 0.2+ 0.1+ 1999 12 08 704 0.3− 0.3−
 1996 05 22 809 (0.4+ 4.1+) 1999 12 04 703 0.9− 0.5− 1999 12 08 704 0.5− 0.0
 1999 10 17 385 0.7+ 0.2+ 1999 12 04 703 0.3− 1.1+ 1999 12 08 704 0.4+ 0.4+
 1999 10 17 385 0.6+ 0.4− 1999 12 04 703 0.1− 0.1+ 1999 12 08 704 0.1+ 0.6−
 1999 10 17 385 (1.9+ 2.9+) 1999 12 05 703 0.1+ 0.7+ 1999 12 08 704 1.5+ 0.3+
 1999 10 17 385 (2.6+ 4.2+) 1999 12 05 703 0.6− 0.1−

1999 VN₃₀ = 1998 MU₂₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	123.38549		(2000.0)		P		Q
n	0.28298106	ω	24.54944		-0.16996313		+0.98428493
a	2.2977237	Ω	235.69848		-0.91344840		-0.17560212
e	0.1806907	i	3.32508		-0.36976284		-0.01862996
P	3.48	H	14.6	G	0.15	U	4

Residuals in seconds of arc

1998 06 24 704 (0.4− 3.0−) 1999 11 12 704 0.2+ 0.2+ 1999 12 05 703 0.8+ 0.6−
 1998 06 24 704 (2.6+ 0.3−) 1999 11 12 704 0.1− 1.0+ 1999 12 05 703 0.0 0.2+
 1998 06 24 704 0.1− 0.1− 1999 11 12 704 0.1− 0.2+ 1999 12 07 704 0.1+ 1.1−
 1998 06 24 704 0.1− 2.0− 1999 11 12 704 0.1− 0.1+ 1999 12 07 704 0.0 0.3−
 1998 06 26 704 0.6+ 0.2− 1999 11 12 704 0.1− 0.0 1999 12 07 704 0.1+ 0.9−
 1998 06 26 704 (2.1− 0.6+) 1999 12 03 699 0.4− 0.1+ 1999 12 07 704 0.2+ 0.2−
 1998 06 26 704 0.6− 0.3+ 1999 12 03 699 0.2+ 1.0+ 1999 12 07 691 0.2+ 0.1+
 1998 06 26 704 0.9+ 1.0+ 1999 12 03 699 0.7+ 0.8+ 1999 12 07 691 0.1+ 0.1+
 1998 06 26 704 0.7− 0.8+ 1999 12 04 703 0.1+ 0.4+ 1999 12 07 691 0.2+ 0.3+
 1999 11 03 704 1.0+ 0.0 1999 12 04 703 0.9− 1.0+ 1999 12 08 704 0.7+ 0.2−
 1999 11 03 704 0.2− 0.3+ 1999 12 04 703 0.1+ 0.1− 1999 12 08 704 0.8− 0.5−
 1999 11 03 704 0.5+ 0.4− 1999 12 04 703 0.7− 0.0 1999 12 08 704 0.2− 0.1+
 1999 11 03 704 1.1− 0.1+ 1999 12 05 703 0.6− 0.5+ 1999 12 08 704 0.0 0.5−
 1999 11 03 704 0.2+ 1.3− 1999 12 05 703 0.6− 0.1− 1999 12 08 704 0.6+ 0.2−

1999 VO₃₀ = 1992 OZ₆ = 1998 KM₁₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	85.12815		(2000.0)		P		Q
n	0.30539191	ω	72.16219		+0.37378428		+0.92737296
a	2.1838914	Ω	219.79916		−0.86031400		+0.34009362
e	0.1141689	i	1.45650		−0.34661957		+0.15593502
P	3.23	H	15.3	G	0.15	U	4

Residuals in seconds of arc

1992 07 30	809	0.5+	0.1-	1999 11 03	704	0.6+	1.5-	1999 12 05	703	0.1+	0.0
1992 07 30	809	0.1+	0.0	1999 11 03	704	1.3+	1.1-	1999 12 05	703	0.4-	0.6+
1992 07 30	809	0.7-	0.4+	1999 11 03	704	0.1-	0.1-	1999 12 07	691	0.1+	0.3-
1992 07 31	809	0.2+	0.5+	1999 11 03	704	0.5+	0.4+	1999 12 07	691	0.1+	0.3-
1992 07 31	809	0.0	0.1-	1999 11 03	704	0.8+	0.3+	1999 12 07	704	0.4+	1.3-
1992 07 31	809	0.0	0.8-	1999 11 12	704	0.4+	0.6-	1999 12 07	691	0.1+	0.2-
1998 05 22	704	0.8+	1.1-	1999 11 12	704	0.1-	0.6-	1999 12 07	704	1.0-	0.5-
1998 05 22	704	0.3+	1.2-	1999 11 12	704	0.4+	0.8-	1999 12 07	704	1.6-	1.9+
1998 05 22	704	0.9+	0.1+	1999 11 12	704	0.3+	0.7-	1999 12 08	704	0.3-	0.6+
1998 05 22	704	1.1-	0.2-	1999 11 12	704	0.3+	1.2-	1999 12 08	704	0.9-	0.1+
1998 05 24	704	0.1-	0.6-	1999 12 02	699	0.3+	1.4-	1999 12 08	704	0.3-	0.5+
1998 05 24	704	1.1-	1.2-	1999 12 02	699	0.4+	0.3+	1999 12 08	704	0.5+	0.7+
1998 05 24	704	0.2-	1.5+	1999 12 02	699	0.4-	0.2-	1999 12 08	704	0.2-	0.6+
1998 05 24	704	0.2+	2.0-	1999 12 05	703	0.1+	0.3-				
1998 05 24	704	0.9-	0.7+	1999 12 05	703	0.6-	0.4+				

1999 VR₃₀ = 1993 RC₁₁

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	346.77167			<i>P</i>		<i>Q</i>	
<i>n</i>	0.18526843	ω	199.46469	+0.56282635	-0.82652971		
<i>a</i>	3.0474395	Ω	216.28529	+0.76029620	+0.52178234		
<i>e</i>	0.0818398	<i>i</i>	0.83928	+0.32430879	+0.21116779		
<i>P</i>	5.32	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 09 14	809	(2.7+	1.1+)	1999 11 12	704	0.1+	0.2-	1999 12 07	704	0.4-	0.1-
1993 09 14	809	1.5+	1.5+	1999 11 12	704	0.2+	0.2-	1999 12 07	704	0.1-	0.2-
1993 09 14	809	0.3+	0.8+	1999 11 12	704	0.2-	0.2-	1999 12 07	704	0.6+	0.1-
1993 09 19	809	0.6-	0.9-	1999 11 12	704	0.9+	0.7-	1999 12 08	704	0.0	0.1-
1993 09 19	809	1.2-	1.2-	1999 12 05	703	1.0-	0.9+	1999 12 08	704	1.3+	0.9-
1993 09 19	809	(3.3-	0.4-)	1999 12 05	703	0.1+	0.1+	1999 12 08	704	0.1+	0.7+
1999 11 03	704	0.0	1.0-	1999 12 05	703	0.6-	1.3+	1999 12 08	704	0.3+	0.1-
1999 11 03	704	0.1-	0.8+	1999 12 05	703	0.6-	1.1+	1999 12 08	704	0.8-	0.0
1999 11 03	704	0.5-	0.2+	1999 12 07	704	0.1+	0.6-				
1999 11 12	704	0.0	0.6-	1999 12 07	704	0.4+	0.1-				

1999 VB₃₁ = 1998 QO₂₅

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	24.69017			<i>P</i>		<i>Q</i>	
<i>n</i>	0.19731774	ω	328.60511	+0.95219423	-0.30317602		
<i>a</i>	2.9220791	Ω	49.09128	+0.28957373	+0.85656082		
<i>e</i>	0.0187553	<i>i</i>	2.84839	+0.09733039	+0.41759772		
<i>P</i>	5.00	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 17	704	0.4-	1.3-	1999 11 03	704	0.1-	0.7+	1999 12 07	704	0.3+	0.3+
1998 08 17	704	0.9+	0.3-	1999 11 03	704	0.9-	0.2+	1999 12 07	704	0.3-	0.2-
1998 08 17	704	1.9+	1.0+	1999 11 03	704	0.3+	0.7+	1999 12 07	704	0.2-	0.1-
1998 08 17	704	0.8-	0.6+	1999 11 12	704	0.4+	0.1-	1999 12 08	704	0.2-	0.1-
1998 08 17	704	0.1-	0.9-	1999 11 12	704	0.4+	0.1-	1999 12 08	704	0.3+	0.0
1998 08 23	704	0.2-	1.1-	1999 11 12	704	0.7+	0.5-	1999 12 08	704	0.4+	0.3-
1998 08 23	704	0.5-	1.1+	1999 11 12	704	0.1-	0.1-	1999 12 08	704	0.1-	0.2-
1998 08 23	704	0.4-	0.1+	1999 11 12	704	0.2+	0.2-	1999 12 08	704	0.4-	0.1+
1998 08 23	704	0.4-	0.8+	1999 12 07	704	0.3+	0.3+				
1999 11 03	704	0.9-	0.3-	1999 12 07	704	0.2-	0.1+				

1999 VC₃₁ = 1977 VL

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	325.16116			<i>P</i>		<i>Q</i>	
<i>n</i>	0.27048973	ω	195.07626	+0.32958811	-0.94250350		
<i>a</i>	2.3679300	Ω	235.70921	+0.87299634	+0.32654084		
<i>e</i>	0.1248121	<i>i</i>	3.83837	+0.35951228	+0.07112131		
<i>P</i>	3.64	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1977 11 11	805	0.2-	0.7-	1999 11 25	120	0.2+	0.3-	1999 12 07	704	0.2-	0.1-
1977 11 12	805	0.5+	0.2-	1999 11 26	120	0.2+	0.1-	1999 12 07	704	0.4+	0.6-
1999 11 03	704	0.1-	0.4+	1999 11 26	120	0.0	0.1+	1999 12 07	704	0.3-	0.1+
1999 11 03	704	0.4-	0.3+	1999 11 27	120	0.1-	0.1+	1999 12 07	704	0.1-	0.1-
1999 11 03	704	0.3+	0.3+	1999 11 27	120	0.2+	0.0	1999 12 07	704	0.1-	0.4+
1999 11 03	704	0.2+	0.6+	1999 11 27	120	0.2+	0.0	1999 12 08	704	0.0	0.0
1999 11 03	704	0.1-	0.6+	1999 11 29	120	0.1+	0.5-	1999 12 08	704	0.1-	0.3-
1999 11 12	704	0.5+	0.2-	1999 11 29	120	0.1+	0.2-	1999 12 08	704	0.1+	0.5-
1999 11 12	704	0.3+	0.0	1999 12 04	703	0.3-	0.6+	1999 12 08	704	0.1-	0.7-
1999 11 12	704	0.3+	0.2+	1999 12 04	703	0.2-	0.5+	1999 12 08	704	0.1-	0.9-
1999 11 12	704	0.3+	0.1+	1999 12 04	703	0.5-	0.5+				
1999 11 25	120	0.1-	0.3-	1999 12 04	703	0.4-	0.5+				

1999 VE₃₁ = 1997 CQ₂₂ = 1998 MB₂₄

Id. A. Doppler, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	195.07600			<i>P</i>		<i>Q</i>	
<i>n</i>	0.28414262	ω	95.40956	-0.89533859	+0.44532948		
<i>a</i>	2.2914574	Ω	111.03503	-0.41158851	-0.82119728		
<i>e</i>	0.1181626	<i>i</i>	0.43606	-0.17018726	-0.35681462		
<i>P</i>	3.47	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 02 03	691	0.0	0.2+	1998 07 01	691	0.5+	0.4+	1999 12 07	704	0.3+	0.5+
1997 02 03	691	0.1+	0.2-	1999 11 03	704	0.3+	1.1+	1999 12 07	704	0.1+	0.1+
1997 02 03	691	0.3+	0.1-	1999 11 03	704	0.4+	0.2+	1999 12 07	704	0.6-	0.2+
1997 02 14	691	0.1-	0.4+	1999 11 03	704	0.6-	1.0+	1999 12 07	704	0.0	0.3-
1997 02 14	691	0.1-	0.2+	1999 11 03	704	0.9+	0.9-	1999 12 07	704	0.9-	0.3-
1997 02 14	691	0.0	0.3+	1999 11 03	704	0.4+	0.5-	1999 12 08	704	0.4-	0.0
1998 06 25	691	0.5-	0.5+	1999 11 12	704	0.1-	1.1-	1999 12 08	704	0.1+	0.5+
1998 06 25	691	0.6-	0.0	1999 11 12	704	0.2-	0.3+	1999 12 08	704	0.1+	0.2+
1998 06 25	691	0.8-	0.2-	1999 11 12	704	0.2+	0.3-	1999 12 08	704	0.2+	0.0
1998 07 01	691	0.4+	0.3+	1999 11 12	704	0.0	0.3-	1999 12 08	704	0.5-	0.1-
1998 07 01	691	0.6+	0.1+	1999 11 12	704	0.0	0.2-				

1999 VF₃₁ = 1993 UZ₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	0.43555			<i>P</i>		<i>Q</i>	
<i>n</i>	0.17142655	ω	336.76083	+0.79261750	-0.59317584		
<i>a</i>	3.2093519	Ω	60.37906	+0.58178244	+0.66654891		
<i>e</i>	0.1777025	<i>i</i>	9.33891	+0.18244640	+0.45150302		
<i>P</i>	5.75	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 10 20	809	(2.1-	1.3-)	1999 11 12	704	0.7+	0.3+	1999 12 05	703	0.3+	0.4+
1993 10 20	809	1.4-	1.5-	1999 11 12	704	0.8+	0.7+	1999 12 07	704	0.3+	1.2-
1993 10 20	809	1.7-	1.6-	1999 11 12	704	0.5+	0.3+	1999 12 07	704	0.5+	0.7-
1993 10 21	809	1.6+	1.8+	1999 11 12	704	0.9+	0.0	1999 12 07	704	0.2+	0.9-
1993 10 21	809	(2.2+	1.4+)	1999 12 04	703	0.4-	0.5+	1999 12 07	704	0.4+	0.4-
1993 10 21	809	1.5+	1.2+	1999 12 04	703	0.1-	0.5+	1999 12 07	704	0.1+	0.9-
1999 11 03	704	1.7-	0.0	1999 12 04	703	0.1-	0.7+	1999 12 08	704	0.5+	0.5-
1999 11 03	704	0.2+	0.8-	1999 12 04	703	0.3-	0.7-	1999 12 08	704	0.5-	0.7-
1999 11 03	704	0.3-	0.6-	1999 12 05	703	1.3-	1.8+	1999 12 08	704	0.3-	0.1+
1999 11 03	704	0.2-	0.3+	1999 12 05	703	0.6-	1.0+	1999 12 08	704	0.1+	0.4-
1999 11 12	704	0.0	0.1+	1999 12 05	703	0.3+	1.8+	1999 12 08	704	0.0	0.7-

1999 DEC. 22

M.P.C. 37219

1999 VJ₃₁ = 1998 KM₃₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	28.02429		(2000.0)		P		Q				
<i>n</i>	0.26605909	ω	286.70680		+0.97268057		+0.16376038				
<i>a</i>	2.3941461	Ω	64.12123		−0.07009958		+0.88289693				
<i>e</i>	0.1532477	<i>i</i>	10.53783		−0.22131099		+0.44008585				
<i>P</i>	3.70 <th><i>H</i></th> <td>14.4</td> <th><i>G</i></th> <td>0.15</td> <th><i>U</i></th> <td>4</td> <td colspan="3"></td>	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1998 05 22	704	0.5+	1.2−	1999 11 12	704	0.3+	0.2−	1999 12 07	704	0.1+	0.2−
1998 05 22	704	1.3−	0.9+	1999 11 12	704	0.4+	0.1−	1999 12 07	704	0.1+	0.1+
1998 05 22	704	0.5−	1.1+	1999 11 12	704	0.2+	0.0	1999 12 07	704	0.8+	0.7−
1998 05 22	704	0.8+	1.2+	1999 11 12	704	0.3+	0.2+	1999 12 07	704	0.1−	0.0
1998 05 24	704	0.4+	0.7−	1999 11 26	120	0.1−	0.2−	1999 12 08	704	0.3+	0.0
1998 05 24	704	0.4+	0.2+	1999 11 26	120	(0.8−	5.2−)	1999 12 08	704	0.0	0.6−
1998 05 24	704	0.0	0.9−	1999 11 26	120	0.5−	0.1−	1999 12 08	704	0.2+	0.4+
1998 05 24	704	0.0	0.6−	1999 11 27	120	0.2−	1.5−	1999 12 08	704	0.1+	0.4+
1998 05 24	704	0.6−	1.2−	1999 11 27	120	0.2+	0.7−	1999 12 08	704	0.4+	0.1+
1999 11 03	704	0.2+	0.1−	1999 12 04	703	0.3−	0.1+	1999 12 13	703	0.5−	0.2+
1999 11 03	704	0.6−	0.1+	1999 12 04	703	0.4−	0.1−	1999 12 13	703	0.4−	0.3+
1999 11 03	704	0.4−	0.5+	1999 12 04	703	0.1−	0.0	1999 12 13	703	0.2+	0.4+
1999 11 03	704	0.3−	0.2+	1999 12 04	703	0.1+	0.2+	1999 12 13	703	0.2−	0.3+
1999 11 12	704	0.3+	0.2−	1999 12 07	704	0.1+	0.1+				

1999 VW₃₁ = 1998 HX₇₆

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	46.29196		(2000.0) <th></th> <th>P</th> <th></th> <th>Q</th> <th></th> <th></th>		P		Q				
<i>n</i>	0.28938340	ω	276.11307		+0.77462646		+0.63123835				
<i>a</i>	2.2637075	Ω	44.75372		−0.55637168		+0.70924477				
<i>e</i>	0.1589676	<i>i</i>	3.14496		−0.30067325		+0.31386304				
<i>P</i>	3.41	<i>H</i>	15.6		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1998 04 21	704	0.0	0.4−	1998 04 22	704	1.3−	0.6+	1999 11 12	704	0.2−	1.2+
1998 04 21	704	0.0	0.6−	1999 11 03	704	0.1−	0.8−	1999 12 07	704	0.3+	0.1−
1998 04 21	704	1.2+	0.9−	1999 11 03	704	0.0	0.3−	1999 12 07	704	0.1−	0.6−
1998 04 21	704	0.4+	1.2−	1999 11 03	704	0.3+	1.0−	1999 12 07	704	1.2+	0.0
1998 04 21	704	(3.1−	0.6+)	1999 11 03	704	0.8+	0.7−	1999 12 07	704	0.4−	0.5−
1998 04 22	704	0.1−	0.6+	1999 11 12	704	0.5−	0.5+	1999 12 08	704	1.6+	0.9+
1998 04 22	704	0.2−	0.7+	1999 11 12	704	0.2−	0.5+	1999 12 08	704	0.4−	0.5−
1998 04 22	704	0.7+	0.7+	1999 11 12	704	0.1+	0.7+	1999 12 08	704	1.7−	0.5−
1998 04 22	704	0.5−	0.6+	1999 11 12	704	0.5−	1.1+				

1999 VM₃₂ = 1997 ET₅₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	241.12535		(2000.0)		P		Q		
<i>n</i>	0.25732032	ω	302.76857		−0.95976383		−0.28011113		
<i>a</i>	2.4480484	Ω	220.97423		+0.26667198		−0.88711924		
<i>e</i>	0.1235490	<i>i</i>	1.72837		+0.08797408		−0.36682042		
<i>P</i>	3.83	<i>H</i>	15.2		<i>G</i>	0.15	<i>U</i>	4	
Residuals in seconds of arc									
1997 03 08	809	0.9−	0.1−	1999 11 12	704	0.4+	0.0	1999 12 07	704 0.1+ 0.4+
1997 03 08	809	1.1+	0.6−	1999 11 12	704	0.2+	0.3−	1999 12 07	704 0.1− 0.9−
1997 03 08	809	0.5+	0.1−	1999 11 12	704	0.7−	0.2+	1999 12 07	704 0.0 0.4−
1997 03 09	809	0.1−	0.5+	1999 11 12	704	0.5+	0.1−	1999 12 07	704 0.2+ 0.5−
1997 03 09	809	0.3−	0.2+	1999 11 28	691	0.3+	0.2−	1999 12 07	704 0.3+ 0.7−
1997 03 09	809	0.3−	0.2+	1999 11 28	691	0.4+	0.1−	1999 12 08	704 0.0 0.7+
1999 11 03	704	0.2−	0.3+	1999 11 28	691	0.3+	0.2−	1999 12 08	704 0.6− 0.1−
1999 11 03	704	0.6−	0.5+	1999 12 04	703	1.0+	1.2+	1999 12 08	704 0.4− 0.3−
1999 11 03	704	0.3−	0.9−	1999 12 04	703	0.3+	0.7+	1999 12 08	704 0.0 0.4−
1999 11 03	704	0.2+	0.1+	1999 12 04	703	0.2+	0.5+	1999 12 08	704 0.8− 0.3+
1999 11 12	704	0.1+	0.2+	1999 12 04	703	0.7−	0.2−		

1999 VR₃₂ = 1991 JD₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	173.16887		(2000.0)			P		Q			
<i>n</i>	0.29090667	ω	343.47509			−0.76874326		+0.63260189			
<i>a</i>	2.2557983	Ω	236.14735			−0.57322217		−0.74674458			
<i>e</i>	0.1092944	<i>i</i>	6.50382			−0.28363734		−0.20539570			
<i>P</i>	3.39	<i>H</i>	14.8			<i>G</i>	0.15	<i>U</i>	5		
Residuals in seconds of arc											
1991 05 12	809	0.3+	1.3−	1999 11 12	704	0.1−	0.3−	1999 12 04	703	1.2+	0.3+
1991 05 12	809	0.9−	0.3−	1999 11 12	704	0.5−	0.7−	1999 12 07	704	0.6+	0.2−
1991 05 12	809	1.2−	1.2−	1999 11 12	704	0.1−	0.4−	1999 12 07	704	0.3+	0.2−
1991 05 17	809	0.6+	0.2+	1999 11 29	691	0.0	0.5−	1999 12 07	704	0.1+	1.2−
1991 05 17	809	0.7+	0.3−	1999 11 29	691	0.1−	0.5−	1999 12 07	704	0.3+	0.5+
1991 05 17	809	0.3+	0.8−	1999 11 29	691	0.2−	0.1−	1999 12 07	704	0.2+	0.5+
1999 11 03	704	0.7+	0.2−	1999 12 02	699	1.2−	0.1+	1999 12 08	704	0.3+	0.4−
1999 11 03	704	0.9+	0.2−	1999 12 02	699	0.3+	0.4+	1999 12 08	704	0.2−	0.5−
1999 11 03	704	0.7+	0.4−	1999 12 02	699	0.2−	0.3−	1999 12 08	704	0.3−	0.2−
1999 11 03	704	1.1−	1.7+	1999 12 04	703	0.0	0.4−	1999 12 08	704	0.3+	0.6+
1999 11 12	704	0.6−	0.4−	1999 12 04	703	0.1−	0.8−	1999 12 08	704	0.3+	0.2+
1999 11 12	704	0.4−	0.4−	1999 12 04	703	0.4−	0.3−				

1999 VO₃₃ = 1998 OC₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	277.81523		(2000.0)		P		Q				
n	0.22778114	ω	270.18189		−0.52758393		−0.84916141				
a	2.6553649	Ω	211.69773		+0.79650153		−0.48461079				
e	0.0295070	i	2.62726		+0.29536506		−0.20994589				
P	4.33	H	15.2		G	0.15	U	4			
Residuals in seconds of arc											
1998 07 24	910	0.1−	0.0	1999 11 19	049	1.7+	0.5+	1999 12 07	704	0.6−	0.4−
1998 07 24	910	0.1+	0.0	1999 11 19	049	0.8+	0.2+	1999 12 07	704	0.0	0.0
1998 07 24	910	0.9−	0.1−	1999 11 19	049	0.7+	0.2+	1999 12 07	704	0.3−	0.8−
1998 07 27	910	0.2+	0.1+	1999 11 28	049	(2.6+	0.6+)	1999 12 07	704	0.1−	0.7−
1998 07 27	910	0.3+	0.1+	1999 11 28	049	1.9+	0.4+	1999 12 07	704	0.1+	0.0
1998 07 27	910	0.4+	0.1+	1999 11 28	049	0.3+	1.5+	1999 12 08	704	0.5−	0.5−
1999 11 03	704	0.5−	0.6−	1999 12 04	703	0.8−	0.5+	1999 12 08	704	0.3+	0.4+
1999 11 03	704	0.8−	0.8−	1999 12 04	703	0.8−	0.1+	1999 12 08	704	0.0	0.3+
1999 11 03	704	0.3+	1.1+	1999 12 04	703	0.5−	0.3−	1999 12 08	704	0.8+	0.1+
1999 11 12	704	0.3−	0.6−	1999 12 04	703	0.6−	0.1−	1999 12 08	704	0.4+	0.3−
1999 11 12	704	0.0	0.4−	1999 12 05	703	1.5−	0.7+	1999 12 12	691	0.7+	0.0
1999 11 12	704	0.4−	0.3−	1999 12 05	703	0.1−	0.1+	1999 12 12	691	0.6+	0.0
1999 11 12	704	0.1+	0.2−	1999 12 05	703	1.6−	0.3+	1999 12 12	691	0.9+	0.1+
1999 11 12	704	0.0	0.3−	1999 12 05	703	0.5−	0.1−				

1999 VU₃₃ = 1978 WL₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	340.69387		(2000.0)		P		Q				
<i>n</i>	0.18726440	<i>ω</i>	195.09448		+0.44574102		−0.89295548				
<i>a</i>	3.0257467	<i>Ω</i>	228.47875		+0.82974071		+0.43847864				
<i>e</i>	0.1295057	<i>i</i>	4.81247		+0.33592454		+0.10181842				
<i>P</i>	5.26	<i>H</i>	14.5		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1978 11 29	675	1.0−	0.2−	1999 11 12	704	0.6−	0.8−	1999 12 07	704	0.3−	0.5−
1978 11 30	675	1.0+	0.6+	1999 12 03	699	0.3−	0.6+	1999 12 07	704	0.4+	0.4−
1999 11 03	704	0.1−	0.0	1999 12 03	699	0.2+	0.1+	1999 12 07	704	0.2−	0.0
1999 11 03	704	0.0	0.0	1999 12 03	699	0.7+	0.2−	1999 12 08	704	0.2+	0.6+
1999 11 03	704	0.5−	0.8+	1999 12 04	703	0.2+	0.6−	1999 12 08	704	0.6+	0.2+
1999 11 03	704	0.6+	0.0	1999 12 04	703	0.1+	0.2+	1999 12 08	704	0.2−	0.0
1999 11 12	704	0.0	0.0	1999 12 04	703	0.2−	0.3+	1999 12 08	704	0.5−	0.4−
1999 11 12	704	0.1−	0.1−	1999 12 04	703	0.4−	0.6+	1999 12 08	704	0.3−	0.0
1999 11 12	704	0.3+	0.3−	1999 12 07	704	0.2+	0.3−				
1999 11 12	704	0.0	0.2−	1999 12 07	704	0.1+	0.1+				

1999 VV₃₃ = 1998 QB₂₁

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	101.03264		(2000.0)	P		Q	
<i>n</i>	0.20291508	ω	103.04197	+0.51943903	+0.85446601		
<i>a</i>	2.8680926	Ω	198.26005	-0.79404355	+0.47901901		
<i>e</i>	0.0044322	<i>i</i>	1.54030	-0.31571813	+0.20106872		
<i>P</i>	4.86	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 17	704	0.6+	1.3-	1998 08 23	704	0.6-	0.6+	1999 12 03	699	1.1+	0.1-
1998 08 17	704	0.9+	0.5-	1999 11 03	704	0.3-	0.2+	1999 12 03	699	0.5-	0.8+
1998 08 17	704	1.1-	0.3+	1999 11 03	704	0.2+	0.2-	1999 12 07	704	0.4+	0.1-
1998 08 17	704	0.0	0.3+	1999 11 03	704	0.1+	0.1+	1999 12 07	704	0.2+	0.6-
1998 08 23	699	0.1+	0.0	1999 11 03	704	0.7+	1.7+	1999 12 07	704	0.1-	0.3-
1998 08 23	704	0.2+	0.3-	1999 11 12	704	0.1-	0.5-	1999 12 07	704	0.2+	0.2+
1998 08 23	704	0.2-	1.2-	1999 11 12	704	0.4-	0.4-	1999 12 08	704	0.1-	0.1+
1998 08 23	699	0.1-	0.2+	1999 11 12	704	0.1-	0.5-	1999 12 08	704	0.6-	0.6-
1998 08 23	704	0.2-	0.4-	1999 11 12	704	0.3-	0.9-	1999 12 08	704	0.1-	0.1-
1998 08 23	704	0.0	1.6+	1999 11 12	704	0.2-	0.1+	1999 12 08	704	0.5-	0.3-
1998 08 23	699	0.3+	0.6+	1999 12 03	699	0.3+	0.8+	1999 12 08	704	0.3+	0.4+

1999 VJ₃₄ = 1995 YC

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	327.04139		(2000.0)	P		Q	
<i>n</i>	0.23959991	ω	197.37779	+0.25970243	-0.96277374		
<i>a</i>	2.5673098	Ω	237.62889	+0.89621444	+0.26920715		
<i>e</i>	0.1415761	<i>i</i>	5.09291	+0.35965862	+0.02437685		
<i>P</i>	4.11	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 12 17	411	0.5-	0.6-	1999 11 03	704	0.2-	0.6-	1999 12 03	699	0.0	0.2+
1995 12 17	411	0.5-	0.3-	1999 11 03	704	0.6-	0.8-	1999 12 03	699	0.5+	0.7+
1995 12 19	411	0.0	0.5-	1999 11 03	704	0.2-	0.1+	1999 12 03	699	0.4+	0.3+
1995 12 19	411	0.5-	0.7-	1999 11 03	704	0.5-	0.1-	1999 12 07	704	0.0	0.1-
1995 12 24	411	1.9+	0.7-	1999 11 12	704	0.2+	0.5+	1999 12 07	704	0.3-	0.0
1995 12 24	411	1.4+	0.8-	1999 11 12	704	0.2+	0.2-	1999 12 07	704	0.2+	0.1-
1995 12 26	411	0.1+	0.9+	1999 11 12	704	0.2+	0.6+	1999 12 07	704	0.0	0.0
1995 12 26	411	0.8-	0.4-	1999 11 12	704	0.1+	0.4+	1999 12 07	704	0.3+	0.1+
1995 12 30	411	0.6-	0.2-	1999 11 12	704	0.3+	0.6+	1999 12 08	704	0.3-	0.0
1995 12 30	411	0.4+	0.8+	1999 11 27	120	0.0	0.5-	1999 12 08	704	0.2-	0.2+
1996 01 09	411	0.1+	1.4+	1999 11 27	120	0.4-	0.7-	1999 12 08	704	0.2-	0.1-
1996 01 09	411	1.1-	0.4+	1999 11 28	120	0.5+	0.3-	1999 12 08	704	0.0	0.3+
1999 11 03	704	0.2-	0.4+	1999 11 28	120	0.2+	0.3-	1999 12 08	704	0.0	0.3+

1999 VM₃₄ = 1998 QY₇₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	296.28185		(2000.0)	P		Q	
<i>n</i>	0.23666403	ω	228.17083	-0.42930852	-0.88030077		
<i>a</i>	2.5884982	Ω	248.30700	+0.87961172	-0.35682095		
<i>e</i>	0.1279695	<i>i</i>	12.55002	+0.20488390	-0.31264896		
<i>P</i>	4.16	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 24	704	1.1+	0.1+	1999 11 03	704	0.1-	0.0	1999 12 07	704	0.1+	0.2+
1998 08 24	704	1.1+	0.1+	1999 11 12	704	0.1-	0.2+	1999 12 07	704	0.4+	0.1+
1998 08 24	704	1.9-	0.0	1999 11 12	704	0.1+	0.0	1999 12 08	704	0.1-	0.0
1998 08 24	704	1.0-	0.0	1999 11 12	704	0.2+	0.1-	1999 12 08	704	0.1+	0.0
1998 08 27	704	1.0+	0.8+	1999 11 12	704	0.2+	0.3-	1999 12 08	704	0.1+	0.1+
1998 08 27	704	0.1-	0.8-	1999 11 12	704	0.1+	0.2-	1999 12 08	704	0.2+	0.3+
1998 08 27	704	0.3+	0.4-	1999 11 28	120	0.8-	1.4+	1999 12 08	704	0.2+	0.1+
1998 08 27	704	0.5-	0.5+	1999 11 28	120	0.8-	0.5+	1999 12 10	704	0.1-	0.2-
1998 08 27	704	0.1+	0.4-	1999 11 29	120	0.4-	0.6+	1999 12 10	704	0.1-	0.6-
1999 11 03	704	0.0	0.3-	1999 11 29	120	0.8-	1.0+	1999 12 10	704	0.1+	0.5-
1999 11 03	704	0.2+	0.1-	1999 12 07	704	0.1+	0.3+	1999 12 10	704	0.5+	1.2-

1999 11 03	704	0.1+	0.3-	1999 12 07	704	0.3+	0.5+	1999 12 10	704	0.2-	1.5-
1999 11 03	704	0.1+	0.3-	1999 12 07	704	0.3+	0.1+				

1999 VS₃₄ = 1998 QX₆₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	40.70991		(2000.0)	P		Q	
<i>n</i>	0.17010868	ω	106.08083	+0.98980683	+0.05152820		
<i>a</i>	3.2259062	Ω	251.11428	-0.09570666	+0.93102988		
<i>e</i>	0.1160190	<i>i</i>	8.06647	+0.10546412	+0.36128687		
<i>P</i>	5.79	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 24	704	0.6+	1.4-	1999 11 03	704	0.7+	0.4+	1999 12 06	120	0.7+	0.6-
1998 08 24	704	0.4-	0.1+	1999 11 03	704	0.1-	0.0	1999 12 07	704	0.0	0.1-
1998 08 24	704	0.1-	1.4+	1999 11 12	704	0.1+	0.1+	1999 12 07	704	0.0	0.1-
1998 08 24	704	0.9+	0.5+	1999 11 12	704	0.1-	0.1+	1999 12 07	704	0.0	0.4-
1998 08 24	704	0.3-	0.4+	1999 11 12	704	0.0	0.1-	1999 12 07	704	0.2-	0.1+
1998 08 27	704	1.0+	0.7-	1999 11 12	704	0.4-	0.1+	1999 12 07	704	0.1-	0.0
1998 08 27	704	0.4-	1.3+	1999 11 12	704	0.1+	0.2+	1999 12 08	704	0.1+	0.1+
1998 08 27	704	1.7-	0.1+	1999 11 28	120	0.1+	0.1+	1999 12 08	704	0.4+	0.4-
1998 08 27	704	0.8+	1.1-	1999 11 28	120	0.6-	0.0	1999 12 08	704	0.1+	0.1+
1998 08 27	704	0.4-	0.6-	1999 11 29	120	0.8-	0.1+	1999 12 08	704	0.2+	0.2+
1999 11 03	704	0.2+	0.6-	1999 11 29	120	0.9-	0.0	1999 12 08	704	0.3+	0.2+
1999 11 03	704	0.1-	0.4+	1999 12 06	120	0.4+	0.4+				
1999 11 03	704	0.1+	0.3-	1999 12 06	120	(2.2-	1.4-)				

1999 VZ₃₄ = 1998 MW₂₁

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	134.54659		(2000.0)	P		Q	
<i>n</i>	0.31466874	ω	190.89024	-0.23313628	+0.97013808		
<i>a</i>	2.1407551	Ω	65.65537	-0.88658838	-0.18377302		
<i>e</i>	0.0728043	<i>i</i>	4.21284	-0.39951036	-0.15830217		
<i>P</i>	3.13	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 06 24	704	1.3-	0.5+	1999 11 03	704	0.3-	0.3+	1999 12 07	704	0.1-	0.3-
1998 06 24	704	1.1+	0.3+	1999 11 03	704	0.5-	0.3-	1999 12 07	704	0.0	0.8+
1998 06 24	704	(1.8-	3.8+)	1999 11 03	704	0.0	0.3-	1999 12 07	704	0.0	0.1-
1998 06 24	704	0.0	0.4+	1999 11 03	704	0.3-	0.7-	1999 12 07	704	0.0	0.5-
1998 06 26	704	0.5+	0.4-	1999 11 12	704	0.3+	0.2+	1999 12 08	704	0.1-	0.2-
1998 06 26	704	0.3-	0.0	1999 11 12	704	0.2+	0.3+	1999 12 08	704	0.3-	0.2-
1998 06 26	704	0.5-	0.0	1999 11 12	704	0.3+	0.3+	1999 12 08	704	0.1+	0.2+
1998 06 26	704	0.0	1.0-	1999 11 12	704	0.1-	0.2+	1999 12 08	704	0.0	0.0
1998 06 26	704	0.6+	0.1+	1999 11 12	704	0.0	0.7+	1999 12 08	704	0.1+	0.1-
1999 11 03	704	0.4+	0.1-	1999 12 07	704	0.3+	0.1-				

1999 VB₃₅ = 1997 JM₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	260.69411		(2000.0)	P		Q	
<i>n</i>	0.23913774	ω	93.12071	-0.88349474	-0.46705846		
<i>a</i>	2.5706166	Ω	59.03843	+0.41140722	-0.81035098		
<i>e</i>	0.0957021	<i>i</i>	2.40371	+0.22401147	-0.35381871		
<i>P</i>	4.12	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 05 03	809	0.3+	1.1-	1999 11 03	704	0.5+	0.2+	1999 11 29	120	1.0+	0.0
1997 05 03	809	(1.0-	2.4-)	1999 11 03	704	0.4+	0.5-	1999 11 29	120	0.1-	0.7-
1997 05 03	809	(0.4-	2.8-)	1999 11 03	704	1.5-	0.3+	1999 12 07	704	0.2-	0.4-
1997 05 04	809	0.1-	0.2-	1999 11 03	704	0.7-	0.1-	1999 12 07	704	0.1-	0.3-
1997 05 04	809	0.7-	0.4-	1999 11 12	704	0.5+	0.3+	1999 12 07	704	0.3-	0.4-
1997 05 04	809	0.0	0.2-	1999 11 12	704	0.3+	1.1+	1999 12 07	704	0.2+	0.3+
1997 05 07	704	0.1-	0.2+	1999 11 12	704	0.5+	0.0	1999 12 08	704	0.1-	0.2+
1997 05 07	704	0.4+	0.1+	1999 11 12	704	0.1+	0.0	1999 12 08	704	0.1+	0.1-
1997 05 07	704	0.1+	0.7+	1999 11 12	704	0.1-	0.0	1999 12 08	704	0.4+	0.0

1999 DEC. 22

M.P.C. 37221

1997 05 07 704 0.2+ 0.8+ 1999 11 28 120 0.4- 0.1+ 1999 12 08 704 0.4- 0.1+
 1997 05 07 704 0.1+ 0.6+ 1999 11 28 120 0.7- 0.1+ 1999 12 08 704 0.3+ 0.2+

1999 VC₃₅ = 1992 GS₄ = 1993 QT₂ = 1997 EU₅₇

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	40.39509		(2000.0)	P		Q	
<i>n</i>	0.18238873	ω	0.31786	+0.89768414		+0.44062227	
<i>a</i>	3.0794326	Ω	333.53746	-0.40429817		+0.82009681	
<i>e</i>	0.2872804	<i>i</i>	0.50140	-0.17523179		+0.36509346	
<i>P</i>	5.40	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1992 04 04	809(18.0+ 6.6-)	1997 03 10	809 0.3- 1.4-	1999 11 12	704 0.6+ 0.1-
1992 04 04	809(17.6+ 5.3-)	1997 03 11	809 0.4- 0.9-	1999 12 07	704 0.4+ 0.1-
1992 04 04	809(15.3+ 5.1-)	1997 03 11	809 1.2- 1.6-	1999 12 07	704 0.1+ 0.2+
1992 04 06	809 (9.6+ 4.3-)	1997 03 11	809 0.4- 1.8-	1999 12 07	704 0.1+ 0.1+
1992 04 06	809 (9.0+ 3.3-)	1999 11 03	704 0.2+ 0.2-	1999 12 07	704 0.1- 0.5+
1992 04 06	809 (7.2+ 3.3-)	1999 11 03	704 0.7+ 0.4-	1999 12 07	704 1.0+ 0.1+
1993 08 16	010 1.4+ 1.0-	1999 11 03	704 0.8+ 0.4-	1999 12 08	704 0.2- 0.1-
1993 08 16	010 1.1+ 1.2-	1999 11 03	704 0.5+ 0.1-	1999 12 08	704 0.2+ 0.6-
1993 08 16	010 0.2+ 1.6-	1999 11 12	704 0.4- 0.1-	1999 12 08	704 0.4- 0.7-
1993 08 17	010 0.6- 1.1-	1999 11 12	704 0.7- 0.1-	1999 12 08	704 0.5- 0.7-
1997 03 10	809 0.1- 1.2-	1999 11 12	704 0.3- 0.2-	1999 12 08	704 0.8- 1.0-
1997 03 10	809 0.9- 0.9-	1999 11 12	704 0.3- 0.2-		

1999 VE₃₅ = 1995 WQ₄₂

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	86.75263		(2000.0)	P		Q	
<i>n</i>	0.24544615	ω	237.18681	+0.51753010		+0.85288017	
<i>a</i>	2.5263794	Ω	64.12904	-0.75720000		+0.49402963	
<i>e</i>	0.1201090	<i>i</i>	4.39669	-0.39851067		+0.16890870	
<i>P</i>	4.02	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 11 30	327 0.8+ 0.1+	1999 11 12	704 0.1- 0.1+	1999 12 05	703 0.7+ 0.6-
1995 11 30	327 0.1- 0.1+	1999 11 12	704 0.2- 0.0	1999 12 07	704 0.2+ 0.3+
1995 11 30	327 0.2+ 0.0	1999 11 12	704 0.4- 0.0	1999 12 07	704 0.3+ 0.3+
1995 12 03	327 0.3+ 0.6-	1999 11 12	704 0.5- 0.1-	1999 12 07	704 0.5+ 0.7-
1995 12 03	327 0.0- 0.5-	1999 12 04	703 0.7- 0.6+	1999 12 07	704 0.4+ 0.1+
1995 12 03	327 0.7- 0.7-	1999 12 04	703 0.9- 0.5+	1999 12 07	704 0.1+ 0.2+
1999 11 03	704 0.1+ 0.4+	1999 12 04	703 0.5- 0.4+	1999 12 08	704 0.1+ 0.4+
1999 11 03	704 0.2+ 0.4-	1999 12 04	703 0.4- 0.5-	1999 12 08	704 0.3+ 0.5+
1999 11 03	704 0.9+ 0.2-	1999 12 05	703 0.8- 0.6+	1999 12 08	704 0.3+ 0.2-
1999 11 03	704 0.3- 0.1+	1999 12 05	703 0.2- 0.9+	1999 12 08	704 0.0 0.4-
1999 11 12	704 0.1- 0.0	1999 12 05	703 0.3- 0.5+	1999 12 08	704 0.8+ 0.8-

1999 VM₃₅ = 1986 WD₉ = 1996 HO₁₆ = 1998 RL₃₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	11.94273		(2000.0)	P		Q	
<i>n</i>	0.15361852	ω	260.28973	+0.82392949		-0.56638544	
<i>a</i>	3.4528178	Ω	134.20598	+0.52959687		+0.75786867	
<i>e</i>	0.0633421	<i>i</i>	1.49063	+0.20166148		+0.32379408	
<i>P</i>	6.42	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1986 11 30	381 1.5- 0.8+	1998 09 18	704 0.8- 0.5-	1999 11 28	120 0.6+ 0.2-
1986 11 30	381 0.6- 1.2+	1998 09 18	704 (2.6+ 1.1-)	1999 11 28	120 0.4+ 0.3-
1986 12 01	381 2.3+ 2.0+	1998 09 18	704 (0.3- 2.3+)	1999 12 03	699 0.4+ 0.2+
1986 12 01	381 1.3- 0.2-	1998 09 18	704 0.0 1.5+	1999 12 03	699 0.7+ 0.9+
1996 04 18	809 1.8+ 1.9+	1999 11 03	704 1.0- 0.3-	1999 12 03	699 0.8+ 0.7+
1996 04 18	809 (1.5+ 2.4+)	1999 11 03	704 0.7- 0.1-	1999 12 07	704 0.3+ 0.2+
1996 04 18	809 (1.1+ 2.4+)	1999 11 03	704 1.0- 0.0	1999 12 07	704 0.2- 0.3+
1996 04 20	809 0.5- 0.8+	1999 11 03	704 0.7- 0.6-	1999 12 07	704 0.6+ 0.2-

1996 04 20	809 0.2- 0.6+	1999 11 12	704 0.0 0.1+	1999 12 07	704 0.3+ 0.2+
1996 04 20	809 0.0 0.2+	1999 11 12	704 0.3- 0.1-	1999 12 07	704 0.4+ 0.2-
1998 09 14	704 0.7+ 0.6-	1999 11 12	704 0.3- 0.3-	1999 12 08	704 0.2- 0.2-
1998 09 14	704 0.2- 1.1+	1999 11 12	704 0.2- 0.3-	1999 12 08	704 0.4- 0.2+
1998 09 14	704 0.2+ 1.4-	1999 11 12	704 0.6- 0.7-	1999 12 08	704 0.0 0.1+
1998 09 14	704 0.6- 0.4+	1999 11 27	120 0.2+ 0.2+	1999 12 08	704 0.4+ 0.3-
1998 09 18	704 0.4+ 0.3+	1999 11 27	120 0.5+ 0.2-	1999 12 08	704 0.0 0.2+

1999 VN₃₅ = 1993 RR₉ = 1998 MD₃₅

Id. G. V. Williams, A. Doppler, S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	52.14004		(2000.0)	P		Q	
<i>n</i>	0.18413351	ω	117.91276	+0.85560962		+0.51737883	
<i>a</i>	3.0599488	Ω	210.93830	-0.48508883		+0.79077140	
<i>e</i>	0.2270480	<i>i</i>	1.76703	-0.18061286		+0.32710814	
<i>P</i>	5.35	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 09 14	809 0.8+ 1.3+	1998 06 26	704 0.2+ 1.3-	1999 11 12	704 0.5- 0.1+
1993 09 14	809 0.1+ 0.4+	1998 06 26	704 0.7- 0.0	1999 12 03	699 0.2+ 0.1-
1993 09 14	809 0.1+ 0.4+	1998 06 26	704 0.0 0.2-	1999 12 03	699 0.9+ 1.0+
1993 09 15	691 (1.2- 3.8-)	1998 06 26	704 0.8+ 0.7-	1999 12 03	699 0.8- 0.4-
1993 09 15	691 (1.6- 3.6-)	1998 06 27	809 1.1+ 0.6+	1999 12 07	704 0.1+ 0.1+
1993 09 15	691 (1.5- 3.6-)	1998 06 27	809 0.1+ 0.0	1999 12 07	704 0.7+ 0.5-
1993 09 19	809 0.1+ 1.2+	1998 06 27	809 0.2- 0.5+	1999 12 07	704 0.3- 0.2-
1993 09 19	809 1.6- 0.2+	1998 07 20	566 1.4+ 0.5-	1999 12 07	704 0.0 0.1+
1993 09 19	809 0.9- 0.2-	1998 07 20	566 (2.5+ 0.5-)	1999 12 07	704 0.1+ 0.1-
1998 06 24	704 0.3+ 0.6-	1998 07 20	566 1.2+ 1.1-	1999 12 08	704 0.0 0.7-
1998 06 24	704 0.7+ 0.8-	1999 11 03	704 0.3+ 1.4-	1999 12 08	704 0.6- 0.0
1998 06 24	704 0.8- 1.2-	1999 11 03	704 0.4+ 0.7-	1999 12 08	704 0.3+ 0.6+
1998 06 24	704 1.1+ 1.5-	1999 11 03	704 0.3+ 0.2-	1999 12 11	557 0.1+ 0.1+
1998 06 24	704 1.2- 0.7+	1999 11 03	704 0.8+ 0.8-	1999 12 11	557 0.0 0.5+
1998 06 26	809 0.4- 0.7+	1999 11 12	704 0.3- 1.3-	1999 12 11	557 1.0- 0.3+
1998 06 26	809 1.2- 0.3+	1999 11 12	704 0.0 0.5-		
1998 06 26	809 1.5- 0.7+	1999 11 12	704 0.2- 0.6-		

1999 VO₃₅ = 1994 XF₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	284.92121		(2000.0)	P		Q	
<i>n</i>	0.19559649	ω	64.00502	-0.66361635		-0.72895535	
<i>a</i>	2.9391968	Ω	68.63237	+0.60550360		-0.65532611	
<i>e</i>	0.1128673	<i>i</i>	10.39559	+0.43929345		-0.19791865	
<i>P</i>	5.04	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 12 04	098 1.2- 0.5-	1999 11 28	120 0.7- 0.4-	1999 12 07	704 0.4- 0.2+
1994 12 04	098 1.6+ 0.6-	1999 11 28	120 0.1+ 0.2-	1999 12 07	704 0.4- 0.5+
1999 11 03	704 0.6+ 0.6-	1999 11 29	120 1.1- 0.7-	1999 12 07	704 0.4- 0.4+
1999 11 03	704 1.0+ 0.3+	1999 11 29	120 0.5- 0.2-	1999 12 07	704 0.1- 0.4+
1999 11 03	704 0.3- 0.4+	1999 12 01	735 0.6- 0.1+	1999 12 08	704 0.5+ 0.1-
1999 11 03	704 0.1- 0.7+	1999 12 01	735 0.6- 0.1+	1999 12 08	704 0.9+ 0.7+
1999 11 12	704 0.1+ 0.0	1999 12 01	735 0.1- 0.3-	1999 12 08	704 1.0+ 0.1+
1999 11 12	704 0.1+ 0.3-	1999 12 02	735 0.2- 0.3+	1999 12 08	704 1.0+ 0.2-
1999 11 12	704 0.1+ 0.4-	1999 12 02	735 0.6- 0.1+	1999 12 08	704 0.9+ 0.1+
1999 11 12	704 0.2+ 0.2-	1999 12 02	735 0.4- 0.1+		
1999 11 12	704 0.1- 0.2-	1999 12 07	704 0.0 0.2+		

1999 VS₃₅ = 1978 WW₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	89.36706		(2000.0)	P		Q	
<i>n</i>	0.23486265	ω	234.98667	+0.51030019		+0.82381936	
<i>a</i>	2.6017172	Ω	67.54672	-0.67608256		+0.56166620	
<i>e</i>	0.1011839	<i>i</i>	15.48913	-0.53151301		+0.07650321	
<i>P</i>	4.20	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1978 11 29	675	0.7−	0.2−	1999 11 12	704	1.0−	0.5−	1999 12 07	704	0.1+	0.2+
1978 11 30	675	0.5+	0.7+	1999 11 12	704	0.8−	0.3−	1999 12 07	704	0.2+	0.5+
1999 11 03	704	0.2−	0.4−	1999 11 26	120	1.2−	0.3−	1999 12 07	704	0.0	0.2+
1999 11 03	704	0.9+	0.3+	1999 11 26	120	0.4−	0.1+	1999 12 08	704	0.6+	0.3+
1999 11 03	704	0.5+	0.3+	1999 11 28	120	0.3−	0.8−	1999 12 08	704	0.2+	0.3+
1999 11 03	704	0.8+	0.4+	1999 11 28	120	0.4+	0.2−	1999 12 08	704	0.3+	0.0
1999 11 03	704	0.5+	0.9+	1999 11 29	120	0.4+	0.6−	1999 12 08	704	0.1+	0.2−
1999 11 12	704	0.4−	0.4−	1999 11 29	120	0.2+	0.0	1999 12 08	704	0.1−	0.1+
1999 11 12	704	0.4−	0.7−	1999 12 07	704	0.3+	0.2+				
1999 11 12	704	0.9−	0.3−	1999 12 07	704	0.5+	0.4+				

1999 VT₃₅ = 2124 T-1 = 1992 SL₂₁

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams			
<i>M</i>	291.34668	(2000.0)	
<i>n</i>	0.30022273	<i>ω</i> 30.92532	<i>P</i> −0.37172621
<i>a</i>	2.2088878	<i>Ω</i> 80.92878	<i>Q</i> −0.92726980
<i>e</i>	0.1137147	<i>i</i> 2.58941	−0.35707040
<i>P</i>	3.28	<i>H</i> 14.9	<i>U</i> −0.11256757
		<i>G</i> 0.15	4

Residuals in seconds of arc

1971 03 24	675	0.1+	0.3−	1992 09 23	809	0.4−	1.0−	1999 12 08	704	0.3+	0.7−
1971 03 25	675	0.3−	0.3+	1999 11 03	704	0.1+	0.1−	1999 12 08	704	0.6+	0.0
1971 03 25	675	0.5+	0.7−	1999 11 03	704	0.2+	0.0	1999 12 08	704	0.7−	0.2−
1971 03 26	675	1.1+	0.1−	1999 11 03	704	1.0−	0.7+	1999 12 08	704	0.0	0.4−
1971 03 27	675	1.6−	0.3+	1999 11 03	704	0.6−	0.2−	1999 12 08	704	0.4+	0.2−
1992 09 22	809	0.5+	0.8+	1999 11 12	704	0.2−	0.0	1999 12 10	704	0.7+	0.5+
1992 09 22	809	0.0	0.1−	1999 11 12	704	0.4−	0.1+	1999 12 10	704	0.6+	0.2+
1992 09 22	809	1.4−	0.3−	1999 11 12	704	0.6−	0.2+	1999 12 10	704	1.3+	0.5+
1992 09 23	809	1.4+	0.2+	1999 11 12	704	0.7−	0.1+				
1992 09 23	809	0.3+	0.4−	1999 11 12	704	0.5−	0.1−				

1999 VU₃₅ = 1984 BV₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams			
<i>M</i>	342.42730	(2000.0)	
<i>n</i>	0.24076250	<i>ω</i> 337.94039	<i>P</i> +0.55164534
<i>a</i>	2.5590385	<i>Ω</i> 78.56414	<i>Q</i> −0.83337229
<i>e</i>	0.1398699	<i>i</i> 2.00678	+0.77038861
<i>P</i>	4.09	<i>H</i> 13.9	+0.49331891
		<i>G</i> 0.15	+0.24925303
		<i>U</i> 4	

Residuals in seconds of arc

1984 01 25	675	0.8+	0.5+	1999 11 26	120	0.6−	1.1+	1999 12 08	704	0.1+	0.0
1984 01 26	675	0.8−	0.5−	1999 11 27	120	0.8−	0.6+	1999 12 08	704	0.1+	0.1−
1999 11 03	704	0.3−	0.3−	1999 11 27	120	0.6−	0.9+	1999 12 08	704	0.4+	0.1−
1999 11 03	704	0.2−	0.1+	1999 11 28	120	0.5+	0.8+	1999 12 08	704	0.4+	0.0
1999 11 03	704	0.3+	0.1−	1999 11 28	120	0.1+	0.2+	1999 12 10	704	0.5+	0.2−
1999 11 03	704	0.5+	0.2+	1999 11 29	120	0.3−	0.6+	1999 12 10	704	0.0	0.1−
1999 11 03	704	0.0	0.7−	1999 11 29	120	0.4+	0.5+	1999 12 10	704	0.2+	0.6−
1999 11 12	704	0.1+	0.0	1999 12 07	704	0.3+	0.2−	1999 12 10	704	0.3+	0.3−
1999 11 12	704	0.6+	1.0−	1999 12 07	704	0.1+	0.2−	1999 12 10	704	0.0	0.6−
1999 11 12	704	0.8−	0.2−	1999 12 07	704	0.4+	0.1−	1999 12 10	620	0.5−	0.2−
1999 11 12	704	0.2−	0.2−	1999 12 07	704	0.3+	0.1−	1999 12 10	620	0.5−	0.0
1999 11 12	704	0.1−	0.2−	1999 12 07	704	0.2+	0.0	1999 12 10	620	0.9−	0.1+
1999 11 26	120	0.0	1.1+	1999 12 08	704	0.1+	0.3−	1999 12 11	620	0.4−	0.4−

1999 VV₃₅ = 1994 UA

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams			
<i>M</i>	23.68627	(2000.0)	
<i>n</i>	0.20967236	<i>ω</i> 121.86764	<i>P</i> +0.99345909
<i>a</i>	2.8061352	<i>Ω</i> 234.75183	<i>Q</i> +0.06195166
<i>e</i>	0.2468911	<i>i</i> 6.74533	−0.09066777
<i>P</i>	4.70	<i>H</i> 14.8	+0.06941460
		<i>G</i> 0.15	+0.33935101
		<i>U</i> 4	

Residuals in seconds of arc

1994 10 25	589	0.3−	0.2−	1999 11 03	704	0.8+	0.1−	1999 12 07	704	0.1−	0.5+
1994 10 25	589	0.5−	0.9−	1999 11 12	704	0.3+	0.1+	1999 12 07	704	0.5−	0.3+
1994 10 25	589	0.2−	0.5−	1999 11 12	704	0.0	0.1−	1999 12 07	704	0.5+	0.1−
1994 10 27	589	0.9+	1.0+	1999 11 12	704	0.1−	0.0	1999 12 08	704	0.2−	0.2−
1994 10 27	589	0.0	0.6+	1999 11 12	704	0.1−	0.2−	1999 12 08	704	0.1−	0.1+
1999 11 03	704	0.4−	0.0	1999 11 12	704	1.1−	0.2−	1999 12 08	704	0.2+	0.4−
1999 11 03	704	0.0	0.2−	1999 12 07	704	0.9+	0.3+	1999 12 08	704	0.2−	0.5−
1999 11 03	704	0.3+	0.6+	1999 12 07	704	0.4+	0.1−	1999 12 08	704	0.6−	0.1+

1999 VA₃₆ = 1997 JU₁₃ = 1998 QR₂₅

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams			
<i>M</i>	83.55216	(2000.0)	
<i>n</i>	0.20300914	<i>ω</i> 258.70632	<i>P</i> +0.74009190
<i>a</i>	2.8672066	<i>Ω</i> 59.12061	<i>Q</i> +0.67116689
<i>e</i>	0.0555888	<i>i</i> 2.83269	−0.59613040
<i>P</i>	4.85	<i>H</i> 13.7	+0.31127563
		<i>G</i> 0.15	+0.28596995
		<i>U</i> 4	

Residuals in seconds of arc

1997 05 03	809	(0.2+	2.3+)	1998 08 23	704	0.0	0.0	1999 12 07	704	0.0	0.1+
1997 05 03	809	0.9−	0.4−	1998 08 23	704	0.1−	1.0−	1999 12 08	704	0.0	0.6−
1997 05 03	809	0.5+	0.4+	1998 08 23	704	0.1−	0.8−	1999 12 08	704	0.8−	0.4+
1997 05 04	809	1.0+	1.7+	1998 08 23	704	0.0	0.2−	1999 12 08	704	0.2−	0.9−
1997 05 04	809	(0.9+	2.1+)	1998 08 23	704	0.3−	0.7−	1999 12 08	704	0.1−	0.1+
1997 05 04	809	(1.2+	3.1+)	1999 11 03	704	0.8+	0.5−	1999 12 08	704	0.6+	0.3+
1997 05 07	704	(4.0+	1.6−)	1999 11 03	704	0.1−	0.8+	1999 12 12	704	0.6+	0.3−
1997 05 07	704	(4.2+	1.4−)	1999 11 03	704	0.5+	0.4+	1999 12 12	704	0.4+	0.4+
1997 05 07	704	(3.8+	1.5−)	1999 11 12	704	1.3−	0.2−	1999 12 12	704	0.2+	0.4−
1997 05 07	704	(4.1+	0.8−)	1999 11 12	704	0.3−	0.1+	1999 12 12	704	0.1+	0.0
1998 08 17	704	1.2−	1.0−	1999 11 12	704	0.3−	0.2+	1999 12 12	704	0.2+	0.9+
1998 08 17	704	0.1−	0.3+	1999 12 07	704	0.3−	0.6+	1999 12 13	704	0.4+	0.1−
1998 08 17	704	1.3+	1.4+	1999 12 07	704	0.2−	0.5−	1999 12 13	704	0.3+	0.7+
1998 08 17	704	0.6−	1.3+	1999 12 07	704	0.1+	0.1+	1999 12 13	704	0.8−	0.1+
1998 08 17	704	0.7+	1.3+	1999 12 07	704	0.1+	0.2+				

1999 VG₃₆ = 1979 ML₄

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams			
<i>M</i>	333.86489	(2000.0)	
<i>n</i>	0.25740606	<i>ω</i> 178.87587	<i>P</i> +0.38974369
<i>a</i>	2.4475047	<i>Ω</i> 248.17923	<i>Q</i> −0.91567777
<i>e</i>	0.1637572	<i>i</i> 6.06915	+0.84410345
<i>P</i>	3.83	<i>H</i> 14.7	+0.39781373
		<i>G</i> 0.15	+0.36822443
		<i>U</i> 4	+0.05725772

Residuals in seconds of arc

1979 06 24	413	1.0+	0.3−	1999 11 12	704	0.1−	0.2+	1999 12 07	704	0.0	0.1+
1979 06 25	413	1.8−	0.6+	1999 11 12	704	0.1−	0.0	1999 12 08	704	0.1+	0.2−
1979 06 29	413	0.8+	0.3−	1999 11 12	704	0.3−	0.1+	1999 12 08	704	0.1−	0.2−
1999 11 03	704	0.1−	0.4+	1999 11 12	704	0.2−	0.1−	1999 12 08	704	0.2−	0.2−
1999 11 03	704	0.1−	0.0	1999 12 07	704	0.4+	0.2+	1999 12 08	704	0.1+	0.1+
1999 11 03	704	0.3+	0.7−	1999 12 07	704	0.4−	0.1−	1999 12 08	704	0.1−	0.2−
1999 11 03	704	0.2+	0.1−	1999 12 07	704	0.2+	0.5+				
1999 11 12	704	0.1+	0.2+	1999 12 07	704	0.1+	0.1+				

1999 VH₃₆ = 1993 ST₁₂

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams			
<i>M</i>	331.61991	(2000.0)	
<i>n</i>	0.18343045	<i>ω</i> 177.19676	<i>P</i> +0.12679294
<i>a</i>	3.0677627	<i>Ω</i> 265.51835	<i>Q</i> −0.99172385
<i>e</i>	0.1496147	<i>i</i> 1.16002	+0.90968296
<i>P</i>	5.37	<i>H</i> 14.0	+0.39547498
		<i>G</i> 0.15	+0.03188087
		<i>U</i> 5	

Residuals in seconds of arc

1993 09 16	809	1.2+	0.6-	1999 11 03	704	1.2-	1.3-	1999 12 07	704	0.3-	0.4+
1993 09 16	809	0.2-	0.4-	1999 11 12	704	0.2+	0.4-	1999 12 07	704	0.3-	0.1-
1993 09 16	809	0.8-	0.8+	1999 11 12	704	0.1-	0.0	1999 12 07	704	0.0	0.2+
1993 09 23	809	0.9+	0.4-	1999 11 12	704	0.1-	0.2-	1999 12 08	704	1.0+	0.4+
1993 09 23	809	1.1-	0.4-	1999 11 12	704	0.0	0.3+	1999 12 08	704	0.5-	0.5-
1993 09 23	809	0.1-	1.4+	1999 11 12	704	0.5-	0.5+	1999 12 08	704	0.5+	0.3+
1999 11 03	704	1.3+	0.2+	1999 12 07	704	0.7-	0.4+	1999 12 08	704	0.0	0.2+
1999 11 03	704	0.1-	1.3-	1999 12 07	704	0.8+	0.6+	1999 12 08	704	0.0	0.0

**1999 VM₃₆ = 1952 QO = 1986 RY₁₇ = 1986 TO₁₂ = 1993 FC₇₅
= 1995 YA₄ = 1998 LS**

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	16.08523		(2000.0)	P	Q
n	0.23297513	ω	135.45759	+0.99779477	-0.06439079
a	2.6157506	Ω	228.24140	+0.05326654	+0.92159070
e	0.2491814	i	1.23723	+0.03960147	+0.38278507
P	4.23	H	14.3	G 0.15	U 1

Residuals in seconds of arc

1952 08 28	024	0.2-	0.7+	1998 06 02	809	0.1-	1.3+	1999 11 28	120	0.0	0.0
1986 09 11	095	(0.9-	4.3-)	1998 06 02	809	0.1+	1.8+	1999 11 28	120	0.2+	0.1-
1986 10 05	095	0.3+	0.9-	1999 11 03	704	0.3-	0.1-	1999 12 07	704	0.5+	0.3+
1993 03 21	809	0.1-	0.5-	1999 11 03	704	0.1-	0.4+	1999 12 07	704	0.4+	0.4+
1993 03 22	809	0.4+	0.2-	1999 11 03	704	0.7-	0.3+	1999 12 07	704	0.0	0.5+
1995 12 27	608	0.5-	0.0	1999 11 03	704	1.1-	0.2+	1999 12 07	704	0.4+	0.6+
1995 12 27	608	0.5-	0.0	1999 11 12	704	0.3-	0.2+	1999 12 07	704	0.4+	0.5+
1995 12 28	608	0.3+	0.0	1999 11 12	704	0.2-	0.1-	1999 12 08	704	0.3+	0.6+
1995 12 28	608	0.0	0.7+	1999 11 12	704	0.1+	1.0-	1999 12 08	704	0.6+	0.4+
1998 06 01	809	0.2+	0.3+	1999 11 12	704	0.7-	0.2+	1999 12 08	704	0.2+	0.6+
1998 06 01	809	0.6-	0.9+	1999 11 12	704	0.5-	0.1+	1999 12 08	704	0.2-	0.8+
1998 06 01	809	0.3+	1.1+	1999 11 27	120	(2.1-	0.5-)	1999 12 08	704	0.0	1.0+
1998 06 02	809	0.6+	1.7+	1999 11 27	120	0.4+	0.8+				

1999 VP₃₆ = 1996 JH₁ = 1998 RN₅₇

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	284.32462		(2000.0)	P	Q		
n	0.17411269	ω	55.57346	-0.75192383	-0.65821475		
a	3.1762579	Ω	83.23311	+0.59199256	-0.69880219		
e	0.1088444	i	2.13132	+0.29009544	-0.28005148		
P	5.66	H	13.2	G	0.15	U	4

Residuals in seconds of arc

1996 05 13	566	0.4+	0.2-	1998 09 18	704	0.6+	0.2-	1999 11 12	704	0.7-	1.0-
1996 05 13	566	0.2-	0.2-	1998 09 18	704	0.8-	1.2-	1999 12 07	704	0.3+	0.1+
1996 05 13	566	0.2+	0.4-	1998 09 18	704	1.0+	1.0-	1999 12 07	704	0.1+	0.1+
1996 05 16	566	0.3+	1.4+	1998 09 18	704	1.6-	2.0+	1999 12 07	704	0.3+	0.4+
1996 05 16	566	0.3+	1.4+	1998 09 18	704	(2.5-	0.3-)	1999 12 07	704	0.3+	0.3+
1996 05 16	566	0.1+	1.4+	1998 09 18	704	0.4-	1.1+	1999 12 07	704	0.0	0.5+
1998 09 14	704	0.8+	0.4+	1999 11 03	704	0.9+	0.2+	1999 12 08	704	0.1+	0.5+
1998 09 14	704	(0.2+	2.3+)	1999 11 03	704	0.2+	0.1+	1999 12 08	704	0.2+	1.2+
1998 09 14	704	0.5-	0.4-	1999 11 03	704	0.3-	0.2+	1999 12 08	704	0.4+	0.4+
1998 09 18	704	1.3+	1.6+	1999 11 12	704	0.3-	0.1-	1999 12 08	704	0.7-	0.3+
1998 09 18	704	0.4-	0.3-	1999 11 12	704	0.0	0.3-	1999 12 08	704	0.2+	0.4+
1998 09 18	704	0.2+	0.5+	1999 11 12	704	0.6-	0.3-				
1998 09 18	704	1.0-	1.1-	1999 11 12	704	0.7-	0.1-				

1999 VS₃₆ = 1989 TD₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	350.09657		(2000.0)	P	Q
n	0.20623103	ω	329.99898	+0.57863855	-0.81377133
a	2.8372660	Ω	84.59401	+0.75872232	+0.51265452
e	0.0848849	i	3.12935	+0.29919537	+0.27379109
P	4.78	H	14.3	G 0.15	U 5

Residuals in seconds of arc

1989 10 07	809	0.3+	0.7+	1999 11 12	704	1.3-	0.1+	1999 12 07	704	0.4-	0.2-
1989 10 07	809	1.2-	1.6+	1999 11 12	704	0.6+	0.2+	1999 12 07	704	0.3+	0.6-
1989 10 07	809	0.9-	0.9+	1999 11 12	704	0.3+	0.4-	1999 12 07	704	0.1-	0.1-
1989 10 08	809	0.1-	0.9-	1999 11 12	704	0.1+	0.0	1999 12 07	704	0.2-	0.5+
1989 10 08	809	0.6+	0.8-	1999 11 27	120	0.6-	0.6-	1999 12 08	704	0.1+	0.4+
1989 10 08	809	1.4+	1.5-	1999 11 27	120	0.4+	0.3-	1999 12 08	704	0.4+	0.2-
1999 11 03	704	0.0	0.1+	1999 11 28	120	0.3-	0.1+	1999 12 08	704	0.2+	0.4+
1999 11 03	704	0.0	0.5-	1999 11 28	120	0.3-	0.2-	1999 12 08	704	0.2+	0.2+
1999 11 03	704	0.4+	0.8+	1999 12 07	704	0.2+	0.0	1999 12 08	704	0.2+	0.6+

1999 VX₃₆ = 1992 WQ₂

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	27.41737		(2000.0)	P	Q
n	0.28407725	ω	107.57556	+0.97349308	+0.21081560
a	2.2918090	Ω	240.33462	-0.22861074	+0.90867785
e	0.2098872	i	5.85905	+0.00695407	+0.36036280
P	3.47	H	14.6	G 0.15	U 5

Residuals in seconds of arc

1992 11 18	399	0.5+	0.1-	1999 11 03	704	1.5+	0.9+	1999 12 07	704	0.3+	0.3+
1992 11 18	399	0.4+	1.0-	1999 11 12	704	0.7-	0.1+	1999 12 07	704	0.3+	0.3+
1992 11 21	399	0.4+	1.4+	1999 11 12	704	0.5-	0.3+	1999 12 08	704	0.2+	0.2-
1992 11 21	399	1.3-	0.8-	1999 11 12	704	0.4-	0.3+	1999 12 08	704	1.8+	1.8+
1999 11 03	704	0.3+	0.7-	1999 11 12	704	0.8-	0.4+	1999 12 08	704	1.1-	0.1-
1999 11 03	704	0.4+	0.4-	1999 11 12	704	0.6-	0.3+	1999 12 08	704	0.4-	1.0-
1999 11 03	704	0.1-	0.2-	1999 12 07	704	0.2+	1.2-	1999 12 08	704	0.3-	0.4-

1999 VA₃₇ = 1997 LX₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

$\dot{M}$	233.15248		(2000.0)	P	Q
n	0.23756020	ω	115.26057	-0.95862201	+0.03955185
a	2.5819843	Ω	68.08020	-0.17743636	-0.85742660
e	0.1056333	i	17.69140	+0.22262118	-0.51308408
P	4.15	H	13.4	G 0.15	U 4

Residuals in seconds of arc

1997 06 07	809	1.9-	0.8-	1999 11 12	704	0.7-	1.2-	1999 12 07	704	0.1+	0.2-
1997 06 07	809	1.5-	0.5-	1999 11 12	704	0.1+	0.2-	1999 12 07	704	0.1-	0.3-
1997 06 07	809	1.4-	0.5-	1999 11 16	327	0.0	0.9+	1999 12 10	704	0.3+	0.2+
1997 06 08	809	1.5+	0.8+	1999 11 16	327	0.3+	0.5+	1999 12 10	704	0.4+	0.1-
1997 06 08	809	1.6+	0.5+	1999 11 16	327	0.2-	0.5+	1999 12 10	704	0.3+	0.2-
1997 06 08	809	1.8+	0.5+	1999 11 19	327	0.2+	0.3-	1999 12 10	704	0.1+	0.1-
1999 11 03	704	0.1-	0.1+	1999 11 19	327	0.2+	0.2-	1999 12 10	704	0.2-	0.3+
1999 11 03	704	0.0	0.3+	1999 11 19	327	0.1-	0.0	1999 12 13	704	0.0	0.3-
1999 11 03	704	0.0	0.3+	1999 11 20	327	0.0	0.1+	1999 12 13	704	0.2-	0.4-
1999 11 03	704	0.3-	0.6-	1999 11 20	327	0.0	0.1+	1999 12 13	704	0.4-	0.1-
1999 11 03	704	0.1-	1.3+	1999 11 20	327	0.1-	0.1-	1999 12 13	704	0.4-	0.0
1999 11 12	704	0.1+	0.4-	1999 12 07	704	0.5+	0.9+	1999 12 13	704	0.6-	0.2+
1999 11 12	704	0.1+	0.4-	1999 12 07	704	0.1-	0.5+				
1999 11 12	704	0.7+	0.5-	1999 12 07	704	0.1+	0.3-				

1999 VB₃₇ = 1978 NS₄ = 1990 HE₆ = 1995 WT₄₂

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	35.58457		(2000.0)	P		Q			
<i>n</i>	0.24281943	ω	275.18488		+0.97640608		+0.21203606		
<i>a</i>	2.5445662	Ω	72.57807		-0.17723848		+0.89507268		
<i>e</i>	0.1855573	<i>i</i>	2.45613		-0.12335999		+0.39228256		
<i>P</i>	4.06 <th><i>H</i></th> <td>13.4<th><i>G</i></th><td>0.15<th><i>U</i></th><td>1<td></td><td></td></td></td></td>	<i>H</i>	13.4 <th><i>G</i></th> <td>0.15<th><i>U</i></th><td>1<td></td><td></td></td></td>	<i>G</i>	0.15 <th><i>U</i></th> <td>1<td></td><td></td></td>	<i>U</i>	1 <td></td> <td></td>		
Residuals in seconds of arc									
1978 07 10	675	(2.0- 3.0-)Y	1995 12 03	327	0.5+ 0.7-	1999 12 07	704	0.1+ 0.3+	
1978 07 11	675	(5.7+ 1.1+)Y	1999 11 03	704	0.7+ 0.2-	1999 12 07	704	0.3- 0.3-	
1978 07 13	675	0.1- 0.3+ Y	1999 11 03	704	0.6+ 0.1+	1999 12 07	704	0.1+ 0.4-	
1990 04 29	413	0.7+ 0.7-	1999 11 03	704	0.1+ 0.1+	1999 12 07	704	0.2- 0.4-	
1990 05 01	413	0.5- 0.9-	1999 11 03	704	0.0 0.1-	1999 12 08	704	0.7- 0.1+	
1990 05 02	413	0.0 0.9-	1999 11 03	704	0.4+ 0.0	1999 12 08	704	0.1- 0.7-	
1995 11 30	327	0.3+ 0.1+	1999 11 12	704	0.6+ 0.1-	1999 12 08	704	0.9- 0.1-	
1995 11 30	327	0.1- 0.0	1999 11 12	704	0.4+ 0.0	1999 12 08	704	1.0- 0.3-	
1995 11 30	327	0.4- 0.4-	1999 11 12	704	0.4+ 0.0	1999 12 08	704	0.5- 0.1+	
1995 12 03	327	0.2- 0.3-	1999 11 12	704	0.4+ 0.1+				
1995 12 03	327	0.0 0.8+	1999 11 12	704	0.2+ 0.2+				

1999 VD₃₇ = 1997 HG₁₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	332.28441		(2000.0)	P		Q					
<i>n</i>	0.24310076	ω	14.54155	+0.30040216	-0.94986914						
<i>a</i>	2.5426027	Ω	58.04357	+0.86459051	+0.23281468						
<i>e</i>	0.2235130	<i>i</i>	5.86127	+0.40279248	+0.20867665						
<i>P</i>	4.05	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1997 04 30	704	0.4+	0.4-	1999 11 03	704	0.3+	0.1-	1999 11 12	704	0.1-	0.2-
1997 04 30	704	0.6-	0.7-	1999 11 03	704	0.1+	0.3+	1999 11 12	704	0.1+	0.4-
1997 04 30	704	0.3+	0.5+	1999 11 03	704	0.7-	0.3-	1999 12 10	704	0.1-	0.1+
1997 04 30	704	0.6-	0.4-	1999 11 03	704	0.1-	0.5+	1999 12 10	704	0.1+	0.5-
1997 05 01	704	0.4-	0.9+	1999 11 03	704	0.3-	0.0	1999 12 10	704	0.1+	0.1+
1997 05 01	704	0.6+	1.0+	1999 11 12	704	0.3-	0.3+	1999 12 10	704	0.1+	0.2-
1997 05 01	704	0.7+	0.6-	1999 11 12	704	0.2+	0.6+	1999 12 10	704	0.2+	0.0
1997 05 01	704	0.1-	0.1+	1999 11 12	704	0.1+	0.2+				

1999 VF₃₇ = 1991 RE₂₉ = 1995 WL₂₆

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	45.19607		(2000.0)	P			Q				
<i>n</i>	0.25621719	ω	81.06611	+0.83235126			+0.51809290				
<i>a</i>	2.4550699	Ω	247.50841	-0.55414350			+0.77099244				
<i>e</i>	0.2542121	<i>i</i>	12.30492	-0.01078696			+0.37033823				
<i>P</i>	3.85	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	3				
Residuals in seconds of arc											
1991 09 13	675	0.5+	0.2-	1999 11 03	704	0.1+	0.2-	1999 12 05	120	0.4+	0.7-
1991 09 13	675	0.0	0.5-	1999 11 03	704	0.3+	0.2-	1999 12 06	120	0.2+	0.1-
1991 09 14	675	0.1+	0.2+	1999 11 03	704	1.2+	0.3-	1999 12 06	120	1.0+	0.2-
1991 09 15	675	0.7-	0.0	1999 11 03	704	0.4+	0.1-	1999 12 07	120	0.3-	0.2+
1991 09 16	675	0.1+	0.8-	1999 11 03	704	0.2-	0.0	1999 12 07	120	1.0-	0.4+
1995 11 18	691	0.4+	0.2+	1999 11 12	704	0.2+	0.2+	1999 12 08	704	0.8-	0.1-
1995 11 18	691	0.2+	0.8+	1999 11 12	704	0.3+	0.4+	1999 12 08	704	0.8-	0.2-
1995 11 18	691	0.4+	1.0+	1999 11 12	704	0.1+	0.4+	1999 12 08	704	0.9-	0.7-
1995 11 24	691	0.6-	0.4+	1999 11 12	704	0.2+	0.3+	1999 12 08	704	0.7-	0.7-
1995 11 24	691	0.0	0.3+	1999 11 12	704	0.4+	0.5+	1999 12 08	704	0.9-	1.0-
1995 11 24	691	0.1-	0.3+	1999 12 05	120	0.6+	0.2-				

1999 VK₃₇ = 1998 QF₆₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	303.15150		(2000.0)	P		Q					
n	0.21321612	ω	233.15303	-0.40289019		-0.91325413					
a	2.7749555	Ω	240.71084	+0.86022300		-0.35531152					
e	0.1136610	i	3.97013	+0.31256340		-0.19930033					
P	4.62 <th>H</th> <td>14.6<th>G</th><td>0.15<th>U</th><td>4</td><td></td><td></td></td></td>	H	14.6 <th>G</th> <td>0.15<th>U</th><td>4</td><td></td><td></td></td>	G	0.15 <th>U</th> <td>4</td> <td></td> <td></td>	U	4				
Residuals in seconds of arc											
1998 08 23	327	0.5+	0.2+	1999 11 12	704	0.1-	0.1+	1999 12 07	704	0.6+	0.0
1998 08 23	327	0.2+	0.6+	1999 11 12	704	0.1+	0.2+	1999 12 07	704	0.1+	0.5+
1998 08 23	327	0.4+	0.1-	1999 11 12	704	0.4-	0.4-	1999 12 07	704	0.3+	0.4+
1998 08 31	327	1.1-	0.1+	1999 11 12	704	0.1-	1.0-	1999 12 07	704	0.1-	1.3+
1998 08 31	327	0.1-	0.1-	1999 11 28	691	0.4+	0.3+	1999 12 08	704	1.0-	0.6+
1998 08 31	327	0.1+	0.6-	1999 11 28	691	0.4+	0.3+	1999 12 08	704	0.3+	0.2-
1999 11 03	704	0.7+	0.6-	1999 11 28	691	0.4+	0.3+	1999 12 08	704	0.6+	0.7-
1999 11 03	704	0.3+	0.4+	1999 12 03	691	0.2-	0.2-	1999 12 08	704	0.3-	0.5-
1999 11 03	704	0.2-	0.4+	1999 12 03	691	0.0	0.1-	1999 12 08	704	0.4-	0.6-
1999 11 03	704	1.0-	0.1-	1999 12 03	691	0.0	0.3-				
1999 11 12	704	0.2-	0.1-	1999 12 07	704	0.2-	0.0				

1999 VL₃₇ = 1977 XB₃ = 1987 BW₂ = 1998 MN₂

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	359.12462		(2000.0)	P				Q			
n	0.22400616	ω	158.25037			+0.76305213		-0.63705338			
a	2.6851141	Ω	241.79219			+0.57324841		+0.74505455			
e	0.1511684	i	7.11512			+0.29855938		+0.19762771			
P	4.40 <th>H</th> <td>15.0<th>G</th><td>0.15<th></th><th>U</th><td>2<th></th><th></th></td></td></td>	H	15.0 <th>G</th> <td>0.15<th></th><th>U</th><td>2<th></th><th></th></td></td>	G	0.15 <th></th> <th>U</th> <td>2<th></th><th></th></td>		U	2 <th></th> <th></th>			
Residuals in seconds of arc											
1977 12 07	675	0.5+	1.5+	1998 06 21	910	0.0	0.4+	1999 12 07	704	0.5+	0.1+
1977 12 08	675	0.6-	1.0+	1998 06 21	910	0.0	0.0	1999 12 07	704	0.4+	0.5+
1987 01 30	010	0.1-	1.2+	1999 11 03	704	0.6+	0.5+	1999 12 07	704	0.7-	0.1+
1987 01 30	010	0.3+	0.2+	1999 11 03	704	0.3-	0.2+	1999 12 07	704	0.2+	0.0
1987 01 30	010	0.3+	0.3-	1999 11 03	704	0.5-	0.2-	1999 12 08	704	0.2+	0.0
1998 06 19	910	0.1+	0.3+	1999 11 03	704	0.2-	0.1-	1999 12 08	704	0.2+	0.1+
1998 06 19	910	0.1-	0.1+	1999 11 12	704	0.6+	0.3-	1999 12 08	704	0.1+	0.1+
1998 06 19	910	0.3-	0.2+	1999 11 12	704	0.2-	0.6-	1999 12 08	704	0.4-	0.1+
1998 06 20	910	0.1-	0.2+	1999 11 12	704	0.3-	0.7-	1999 12 08	704	0.4-	0.0
1998 06 20	910	0.0	0.0	1999 11 12	704	0.8-	1.2-	1999 12 13	120	0.1+	0.4-
1998 06 20	910	0.3-	0.2+	1999 11 12	704	0.2-	0.7-	1999 12 13	120	0.7+	0.3+
1998 06 21	910	0.1+	0.4+	1999 12 07	704	0.2+	0.2+				

1999 VY<

1999 DEC. 22

M.P.C. 37225

1999 VR₃₈ = 1998 HX₅₆

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	51.10683	(2000.0)	P	Q		
<i>n</i>	0.29406170	ω 170.11975	+0.74510311	+0.66688221		
<i>a</i>	2.2396341	Ω 148.04696	−0.61312746	+0.69048700		
<i>e</i>	0.1935438	<i>i</i> 1.02411	−0.26248061	+0.28017104		
<i>P</i>	3.35	<i>H</i> 15.2	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1998 04 21	704	1.6+	0.8+	1999 11 10	704	0.0	0.1+	1999 12 07	704	0.3+	0.3−
1998 04 21	704	0.6+	1.4−	1999 11 10	704	0.2−	0.3+	1999 12 07	704	0.0	0.2+
1998 04 21	704	0.8−	0.1+	1999 11 10	704	0.3+	0.0	1999 12 07	704	0.1+	0.2+
1998 04 21	704	0.1+	0.4−	1999 11 10	704	0.0	0.1+	1999 12 07	704	0.0	0.1−
1998 04 21	704	0.1+	0.1−	1999 11 10	704	0.3+	0.8−	1999 12 08	704	0.0	0.1−
1998 04 22	704	0.1+	0.5−	1999 11 12	704	0.0	0.0	1999 12 08	704	0.1−	0.0
1998 04 22	704	0.1−	0.1−	1999 11 12	704	0.1+	0.1−	1999 12 08	704	0.3+	0.3+
1998 04 22	704	0.7−	0.9+	1999 11 12	704	0.1−	0.2+	1999 12 08	704	0.2−	0.2+
1998 04 22	704	0.1−	0.0	1999 11 12	704	0.1+	0.2−	1999 12 08	704	0.2−	0.3−
1998 04 22	704	0.8−	0.6+	1999 11 12	704	0.4−	0.3+				

1999 VE₃₉ = 1981 FU

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	140.96892	(2000.0)	P	Q		
<i>n</i>	0.29540921	ω 199.61727	−0.37532908	+0.92687023		
<i>a</i>	2.2328182	Ω 48.33863	−0.84927686	−0.34117103		
<i>e</i>	0.1729234	<i>i</i> 0.48293	−0.37129086	−0.15656914		
<i>P</i>	3.34	<i>H</i> 14.6	<i>G</i> 0.15	<i>U</i> 6		

Residuals in seconds of arc

1981 03 27	046	(5.1− 1.5+)	1999 11 12	704	0.2− 0.2+	1999 12 08	704	0.4− 0.1−
1981 03 27	046	(10.6− 0.6+)	1999 11 12	704	0.1− 0.5+	1999 12 08	704	0.4+ 0.4−
1981 03 29	046	1.4+ 0.3+	1999 11 12	704	0.6− 0.2+	1999 12 08	704	1.3− 0.4−
1981 03 29	046	1.3− 0.2−	1999 11 12	704	0.2− 0.1+	1999 12 13	703	0.6+ 0.1+
1999 11 10	704	0.5+ 0.2−	1999 11 12	704	0.1− 0.4+	1999 12 13	703	0.1− 0.1−
1999 11 10	704	0.4+ 0.2+	1999 12 07	704	0.1− 0.4−	1999 12 13	703	0.1− 0.3+
1999 11 10	704	0.7+ 0.4+	1999 12 07	704	0.6+ 0.9−	1999 12 13	703	0.2− 0.2+
1999 11 10	704	0.1+ 0.3+	1999 12 07	704	0.2+ 0.4−			

1999 VH₃₉ = 1998 KD₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	278.11263	(2000.0)	P	Q		
<i>n</i>	0.22659869	ω 226.69298	−0.54162935	−0.83945374		
<i>a</i>	2.6645944	Ω 256.15162	+0.78383374	−0.48533900		
<i>e</i>	0.0188696	<i>i</i> 2.61014	+0.30371419	−0.24446570		
<i>P</i>	4.35	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 5		

Residuals in seconds of arc

1998 05 24	691	0.4+	0.1+	1999 11 10	704	0.3+	0.4−	1999 12 07	704	0.1−	0.3−
1998 05 24	691	0.0	0.4−	1999 11 12	704	0.3+	0.1+	1999 12 07	704	0.1+	0.4−
1998 05 24	691	0.0	0.5−	1999 11 12	704	0.3+	0.1−	1999 12 07	704	0.0	0.1+
1998 05 26	691	0.0	0.3−	1999 11 12	704	0.3+	0.3−	1999 12 08	704	0.3−	0.3+
1998 05 26	691	0.3−	0.2−	1999 11 12	704	0.1−	0.2−	1999 12 08	704	0.1−	0.3−
1998 05 26	691	0.0	1.2+	1999 11 12	704	0.2+	0.3−	1999 12 08	704	0.2−	0.2+
1999 11 10	704	0.7−	1.1+	1999 12 03	699	0.1−	0.4+	1999 12 08	704	0.1+	0.1+
1999 11 10	704	0.4−	1.0+	1999 12 03	699	0.1+	0.2−	1999 12 08	704	0.3−	0.1−
1999 11 10	704	0.7+	1.1−	1999 12 03	699	0.3+	0.3+				
1999 11 10	704	0.9−	0.0	1999 12 07	704	0.3+	0.3+				

1999 VK₃₉ = 1978 WJ₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	332.87051	(2000.0)	P	Q		
<i>n</i>	0.23400396	ω 359.31286	+0.40005635	−0.91223431		
<i>a</i>	2.6080780	Ω 67.10227	+0.84131984	+0.32735768		
<i>e</i>	0.1895788	<i>i</i> 5.49568	+0.36350495	+0.24630370		
<i>P</i>	4.21	<i>H</i> 16.5	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1978 11 29	675	1.0+	0.0	1999 11 12	704	0.9−	0.3−	1999 12 07	704	1.2−	0.1+
1978 11 30	675	1.4−	1.7+	1999 11 12	704	0.4−	0.1+	1999 12 07	704	0.1−	0.3−
1999 11 10	704	0.5+	0.0	1999 11 27	049	0.6+	0.0	1999 12 07	704	0.4+	1.8−
1999 11 10	704	0.4+	0.2+	1999 11 27	049	0.3+	0.6+	1999 12 07	704	0.1−	0.2−
1999 11 10	704	0.4+	0.7−	1999 11 27	049	0.1−	0.6+	1999 12 13	703	0.1−	0.3+
1999 11 12	704	0.2−	0.1−	1999 12 02	049	0.7+	0.3−	1999 12 13	703	1.2−	0.9−
1999 11 12	704	0.5−	0.1+	1999 12 02	049	0.4+	0.9−	1999 12 13	703	0.7+	0.2−
1999 11 12	704	1.0−	0.6+	1999 12 02	049	0.3+	0.0	1999 12 13	703	1.6+	1.1+

1999 VP₃₉ = 1998 KY₁₃

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	76.19670	(2000.0)	P	Q		
<i>n</i>	0.29139984	ω 229.26156	+0.45550642	+0.88558294		
<i>a</i>	2.2532524	Ω 68.05375	−0.78440178	+0.44752817		
<i>e</i>	0.1690354	<i>i</i> 5.62205	−0.42098426	+0.12434389		
<i>P</i>	3.38	<i>H</i> 15.6	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1998 05 22	704	0.7−	0.8+	1999 11 10	704	0.5−	0.0	1999 12 08	691	0.2−	0.0
1998 05 22	704	1.3−	0.2+	1999 11 12	704	0.2+	0.1−	1999 12 08	691	0.1−	0.4+
1998 05 22	704	0.2−	0.1+	1999 11 12	704	0.0	0.3+	1999 12 08	691	0.4−	0.1+
1998 05 24	704	0.8−	0.2−	1999 11 12	704	0.6+	0.2+	1999 12 08	704	1.2+	0.7+
1998 05 24	704	0.1−	1.5−	1999 11 12	704	0.4−	0.0	1999 12 08	704	0.9−	0.4−
1998 05 24	704	1.0+	0.7−	1999 11 12	704	0.7−	0.7+	1999 12 08	704	0.5−	0.3−
1998 05 24	704	2.0+	0.1+	1999 12 07	704	0.3+	0.2−	1999 12 08	704	0.4+	0.6+
1998 05 24	704	0.1+	1.0+	1999 12 07	704	0.5−	0.7−	1999 12 08	704	0.4+	0.1−
1999 11 10	704	0.2+	0.6−	1999 12 07	704	0.2+	0.4−				
1999 11 10	704	0.4+	0.7−	1999 12 07	704	0.3+	0.5+				

1999 VH₄₀ = 1990 QG₁₃ = 1997 EU₅₆

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	265.11448	(2000.0)	P	Q		
<i>n</i>	0.23299223	ω 106.53330	−0.55367342	−0.83262092		
<i>a</i>	2.6156226	Ω 17.10720	+0.74513541	−0.50271710		
<i>e</i>	0.0279477	<i>i</i> 2.67266	+0.37177811	−0.23241757		
<i>P</i>	4.23	<i>H</i> 14.6	<i>G</i> 0.15	<i>U</i> 3		

Residuals in seconds of arc

1990 08 16	809	0.1+	0.5+	1999 11 13	376	0.2−	0.1+	1999 12 07	704	0.0	0.4−
1990 08 16	809	0.5+	0.1+	1999 11 13	376	0.5+	0.3−	1999 12 07	704	0.9+	0.7−
1990 08 16	809	1.0−	0.2+	1999 11 16	376	0.4−	0.7+	1999 12 08	704	1.2+	0.3−
1997 03 10	809	0.5+	0.6−	1999 11 16	376	0.1+	0.3+	1999 12 08	704	0.0	0.1+
1997 03 10	809	0.7+	0.1−	1999 11 18	376	0.0	0.5+	1999 12 08	704	0.7−	0.1+
1997 03 10	809	0.2+	0.0	1999 11 18	376	0.2−	0.0	1999 12 08	704	0.3+	0.6−
1997 03 11	809	0.0	0.5+	1999 12 04	703	1.2−	0.4+	1999 12 08	704	0.3+	0.6−
1997 03 11	809	0.4−	0.8+	1999 12 04	703	0.2+	0.6−	1999 12 12	703	0.1+	0.3−
1997 03 11	809	0.6−	0.3+	1999 12 04	703	0.5+	0.5+	1999 12 12	703	0.3−	0.6+
1999 11 05	376	0.1+	0.0	1999 12 04	703	0.3−	1.0+	1999 12 12	703	0.5−	0.4+
1999 11 05	376	0.6+	0.2−	1999 12 07	704	0.5+	1.0+	1999 12 12	703	0.4−	0.1+
1999 11 05	376	0.1−	0.9−	1999 12 07	704	0.4−	0.5+				
1999 11 05	376	1.1−	0.4−	1999 12 07	704	0.5+	0.3−				

1999 VJ₄₀ = 1998 KC₁₅

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27189955	ω	41.18309	+0.31449691	+0.94743602		
<i>a</i>	2.3597377	Ω	247.22195	-0.88677720	+0.27113309		
<i>e</i>	0.1549982	<i>i</i>	3.65604	-0.33870030	+0.16985829		
<i>P</i>	3.62	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 05 22	704	0.1+	0.1-	1999 11 05	376	0.1-	0.4+	1999 12 04	703	1.0-	1.4+
1998 05 22	704	0.1+	1.0+	1999 11 05	376	0.1+	0.3+	1999 12 04	703	0.4+	0.3-
1998 05 22	704	0.2-	0.4+	1999 11 05	376	0.2+	0.1-	1999 12 04	703	0.3-	0.6-
1998 05 22	704	0.3-	0.5-	1999 11 05	376	0.1+	0.8-	1999 12 04	703	0.5-	0.0
1998 05 22	704	0.2-	0.4+	1999 11 13	376	0.2-	0.6-	1999 12 07	704	0.4+	0.8-
1998 05 24	704	0.3+	0.8-	1999 11 13	376	1.0-	0.1+	1999 12 07	704	0.3-	1.5-
1998 05 24	704	0.2+	0.1-	1999 11 16	376	0.2+	0.1-	1999 12 07	704	0.6+	0.9+
1998 05 24	704	0.0	0.3+	1999 11 16	376	0.2+	0.0	1999 12 07	704	0.7+	0.7+
1998 05 24	704	0.2+	0.4-	1999 11 18	376	0.8+	1.0+	1999 12 07	704	0.3-	0.4-
1998 05 24	704	0.4-	0.5-	1999 11 18	376	(2.5+	1.8+)				

1999 VX₄₂ = 1994 YG₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17811553	ω	0.70795	-0.23647682	-0.97037115		
<i>a</i>	3.1284906	Ω	102.97166	+0.89120937	-0.23694901		
<i>e</i>	0.1327485	<i>i</i>	2.91659	+0.38707178	-0.04727576		
<i>P</i>	5.53	<i>H</i>	17.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 12 31	691	0.4-	0.3-	1995 01 07	691	0.1+	0.1+	1999 11 11	691	0.4-	0.0
1994 12 31	691	0.7-	0.0	1999 11 04	691	0.0	0.1-	1999 11 11	691	0.4-	0.0
1994 12 31	691	0.4-	0.3-	1999 11 04	691	0.5+	0.5-	1999 11 28	691	0.2+	0.2+
1995 01 07	691	1.8+	0.6+	1999 11 04	691	0.2+	0.4-	1999 11 28	691	0.2+	0.4+
1995 01 07	691	0.4-	0.3-	1999 11 11	691	0.3-	0.0	1999 11 28	691	0.0	0.4+

1999 VR₄₃ = 1997 GS₄₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22898046	ω	66.43392	+0.21052887	-0.97752374		
<i>a</i>	2.6460848	Ω	11.42967	+0.87509986	+0.18334907		
<i>e</i>	0.1291855	<i>i</i>	3.23330	+0.43574972	+0.10406944		
<i>P</i>	4.30	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1997 04 03	704	0.4-	0.2-	1999 11 01	703	0.2+	0.8+	1999 11 04	703	0.4+	0.1-
1997 04 03	704	0.4+	0.9-	1999 11 01	703	0.3+	0.4-	1999 11 04	703	1.6-	0.4+
1997 04 03	704	0.9-	1.1+	1999 11 01	703	0.1+	0.1+	1999 11 26	557	0.3+	0.1-
1997 04 03	704	0.1-	1.2-	1999 11 01	703	0.9+	0.1+	1999 11 26	557	0.4+	0.3-
1997 04 05	704	1.0+	0.3+	1999 11 04	703	0.8-	0.6-	1999 11 28	557	0.4+	0.8-
1997 04 05	704	0.4+	1.5+	1999 11 04	703	0.3-	1.4+	1999 11 28	557	0.4-	0.1+

1999 VV₄₄ = 1998 FO₁₃₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26716693	ω	322.76569	+0.62412479	+0.78068460		
<i>a</i>	2.3875231	Ω	345.76179	-0.68234758	+0.52490072		
<i>e</i>	0.2280914	<i>i</i>	7.38632	-0.38061794	+0.33913240		
<i>P</i>	3.69	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1998 03 28	704	0.0	0.0	1998 03 29	704	0.2+	0.4-	1999 11 04	703	0.2+	0.7-
1998 03 28	704	1.5-	1.7+	1998 03 29	704	1.0-	0.1+	1999 11 11	703	0.1-	0.3+
1998 03 28	704	0.1+	0.2+	1998 03 29	704	0.5+	0.0	1999 11 11	703	0.3-	0.9+

1998 03 28	704	1.6+	1.5-	1999 11 04	703	0.2+	0.1+	1999 11 11	703	0.1+	0.7-
1998 03 29	704	0.5-	0.2+	1999 11 04	703	0.6-	0.5+	1999 11 11	703	0.4+	0.4-
1998 03 29	704	0.5+	0.3-	1999 11 04	703	0.2+	0.1+				

1999 VX₄₅ = 1998 QR₆₅

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17815291	ω	22.03192	-0.35968315	+0.90250503		
<i>a</i>	3.1280530	Ω	227.78088	-0.89669940	-0.40453044		
<i>e</i>	0.0788588	<i>i</i>	18.65439	-0.25798878	+0.14778296		
<i>P</i>	5.53	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 24	704	0.7+	1.8-	1999 11 04	703	0.6+	0.1-	1999 12 04	703	0.2+	1.5-
1998 08 24	704	0.0	0.2-	1999 11 04	703	0.6+	0.1-	1999 12 04	703	0.3+	0.2-
1998 08 24	704	1.3+	1.2-	1999 11 04	703	0.2+	0.5-	1999 12 04	703	0.4-	0.7+
1998 08 27	704	0.2+	0.6+	1999 11 04	703	0.0	0.0	1999 12 04	703	0.3+	0.2+
1998 08 27	704	0.2-	0.8-	1999 11 11	703	0.6-	0.3+	1999 12 12	703	0.3+	0.1+
1998 08 27	704	0.5-	1.3+	1999 11 11	703	0.2-	0.0	1999 12 12	703	0.1+	0.4-
1998 08 27	704	1.2-	0.8+	1999 11 11	703	0.8-	0.1+	1999 12 12	703	0.0	0.3+
1998 08 27	704	0.5-	1.4+	1999 11 11	703	0.2-	0.4+	1999 12 12	703	0.5-	0.7+

1999 VF₄₇ = 1991 VS₃ = 1995 VX₆

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30997	ω	319.43242	+0.94418175	-0.25126527		
<i>a</i>	2.5290793	Ω	56.36993	+0.32703886	+0.79264463		
<i>e</i>	0.2045601	<i>i</i>	14.82486	-0.03957789	+0.55550000		
<i>P</i>	4.02	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 11 11	399	1.9-	0.9+	1999 11 04	704	0.1-	0.4-	1999 12 07	704	0.1+	0.1-
1991 11 11	399	1.7+	0.2-	1999 11 04	704	0.1+	0.0	1999 12 08	704	0.2+	0.3-
1991 11 13	399	1.3+	0.0	1999 11 04	704	0.0	0.2-	1999 12 08	704	0.0	0.3-
1991 11 13	399	1.2-	0.9+	1999 11 12	704	0.2+	0.6+	1999 12 08	704	0.1+	0.1+
1995 11 14	691	0.2-	0.1-	1999 11 12	704	0.6+	0.3+	1999 12 08	704	0.1-	0.2-
1995 11 14	691	0.2+	0.0	1999 11 12	704	0.4-	0.3+	1999 12 08	704	0.2+	0.1+
1995 11 14	691	0.2+	0.3-	1999 11 12	704	0.1-	0.1-	1999 12 12	703	0.3-	0.0
1995 11 20	691	0.1-	0.4-	1999 11 12	704	0.1-	0.1-	1999 12 12	703	0.0	0.1-
1995 11 20	691	0.1-	0.4-	1999 12 07	704	0.1+	0.1-	1999 12 12	703	0.0	0.4+
1995 11 20	691	0.2-	0.3-	1999 12 07	704	0.2+	0.1-	1999 12 12	703	0.0	0.1+
1999 11 04	704	0.2-	0.1+	1999 12 07	704	0.2+	0.1+				
1999 11 04	704	0.1-	0.2-	1999 12 07	704	0.0	0.1+				

1999 VH₄₈ = 1993 FT₂₉

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24031882	ω	129.09962	+0.83908422	-0.53825012		
<i>a</i>	2.5621872	Ω	263.59956	+0.47139297	+0.79179084		
<i>e</i>	0.1822874	<i>i</i>	4.55352	+0.27152595	+0.28871106		
<i>P</i>	4.10	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 03 21	809	0.2-	0.2-	1999 11 03	704	1.2-	0.2-	1999 11 04	704	0.9+	0.3-
1993 03 22	809	0.6+	0.7-	1999 11 03	704	0.4-	0.1-	1999 12 03	699	0.3+	0.6+
1993 03 26	809	0.5-	0.8+	1999 11 04	704	0.2+	0.1+	1999 12 03	699	0.2-	0.3+
1999 11 03	704	0.3-	0.1+	1999 11 04	704	0.4+	0.1+	1999 12 03	699	0.0	0.4-
1999 11 03	704	0.4-	0.2+	1999 11 04	704	0.7+	0.3-				

1999 VX₄₈ = 1978 LE = 1998 QF₆₆

Id. A. Doppler

1999 DEC. 22

M.P.C. 37227

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Williams						
<i>M</i>	237.49657	(2000.0)		P		Q					
<i>n</i>	0.20839451	ω	251.49931	−0.92387841		−0.33893980					
<i>a</i>	2.8175948	Ω	268.38050	+0.38226309		−0.83918666					
<i>e</i>	0.1352277	<i>i</i>	10.23851	−0.01798919		−0.42530642					
<i>P</i>	4.73 <th><i>H</i></th> <td>13.1</td> <th><i>G</i></th> <td>0.15<th><i>U</i></th><td colspan="2">3</td></td>	<i>H</i>	13.1	<i>G</i>	0.15 <th><i>U</i></th> <td colspan="2">3</td>	<i>U</i>	3				
Residuals in seconds of arc											
1978 06 01	809	0.6−	0.4+	1999 11 03	704	0.7+	0.1−	1999 12 05	703	0.0	0.1+
1978 06 02	809	0.7+	0.2−	1999 11 03	704	0.5+	0.3−	1999 12 05	703	0.1+	0.3−
1998 08 24	704	0.0	0.3+	1999 11 03	704	0.3+	1.0+	1999 12 05	703	0.6−	0.6−
1998 08 24	704	0.8+	1.2+	1999 11 03	704	0.2−	0.6+	1999 12 08	704	0.5−	0.6+
1998 08 24	704	0.0	1.8+	1999 11 04	704	0.5+	0.5−	1999 12 08	704	0.8−	0.2−
1998 08 24	704	0.1−	0.7−	1999 11 04	704	0.3+	0.4−	1999 12 08	704	0.0	0.4+
1998 08 24	704	1.1+	0.2+	1999 11 04	704	0.7+	0.4−	1999 12 08	704	0.4−	0.5+
1998 08 27	704	1.1−	0.3−	1999 11 04	704	0.3+	0.3−	1999 12 08	704	0.9−	0.1+
1998 08 27	704	0.1−	0.6+	1999 11 04	704	0.5+	0.4−	1999 12 13	703	0.3−	0.3+
1998 08 27	704	0.9−	0.9−	1999 12 03	699	0.1+	0.2+	1999 12 13	703	0.0	0.4−
1998 08 27	704	1.2+	0.9−	1999 12 03	699	0.8−	0.0	1999 12 13	703	0.2−	0.3+
1998 08 27	704	1.2−	1.1−	1999 12 03	699	0.3−	1.0+	1999 12 13	703	0.5+	0.5−
1999 11 03	704	0.1+	0.8−	1999 12 05	703	0.2−	0.1+				

1999 VY₄₈ = 1998 KY₂₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5					Williams						
M	44.74934		(2000.0)		P		Q				
n	0.24214544		ω	63.52858	+0.69177641		+0.69229815				
a	2.5492857		Ω	251.85908	−0.71525602		+0.61782585				
e	0.1766927		i	12.47955	−0.09926839		+0.37284648				
P	4.07		H	14.1	G	0.15	U	4			
Residuals in seconds of arc											
1998 05 22	704	0.2+	1.3+	1999 11 03	704	0.1−	0.2−	1999 12 08	704	0.1+	0.7−
1998 05 22	704	0.4−	0.5+	1999 11 03	704	0.4−	0.0	1999 12 08	704	0.2+	0.0
1998 05 22	704	0.3+	0.8−	1999 11 03	704	0.1+	0.3+	1999 12 08	704	0.1−	0.9−
1998 05 22	704	0.4−	0.1+	1999 11 03	704	1.1−	1.3+	1999 12 08	704	(0.7−	2.2−)
1998 05 24	704	0.4+	0.6+	1999 11 04	704	0.1+	0.2−	1999 12 12	703	(0.1−	2.1+)
1998 05 24	704	0.1+	0.1+	1999 11 04	704	0.4+	0.1−	1999 12 12	703	0.8−	0.5+
1998 05 24	704	1.2+	0.6−	1999 11 04	704	0.1+	0.2+	1999 12 12	703	0.5−	1.0+
1998 05 24	704	0.1+	0.4−	1999 11 04	704	0.4+	0.3−	1999 12 12	703	0.5+	0.4+
1998 05 24	704	1.5−	0.8−	1999 11 04	704	0.5+	0.2−				
1999 11 03	704	0.1+	0.3−	1999 12 08	704	0.5+	0.5−				

1999 VB₄₉ = 1998 HY₈₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	29.22593		(2000.0)		P		Q				
n	0.28934232	ω	323.11877		+0.92147536		+0.38731381				
a	2.2639218	Ω	14.18244		−0.32139734		+0.80290865				
e	0.1280055	i	6.91902		−0.21814423		+0.45312879				
P	3.41	H	16.5	G	0.15	U	6				
Residuals in seconds of arc											
1998 04 21	704	0.6+	1.3−	1998 04 22	704	1.0−	0.8−	1999 11 03	704	0.5−	0.0
1998 04 21	704	1.1−	0.2−	1998 04 22	704	1.8−	0.3+	1999 11 04	704	0.3−	0.3−
1998 04 21	704	0.5−	0.5−	1999 11 03	704	0.1−	0.4+	1999 11 04	704	0.1−	0.0
1998 04 21	704	0.9+	2.0+	1999 11 03	704	0.3−	0.5−	1999 11 04	704	0.2+	0.4+
1998 04 22	704	1.4+	1.2+	1999 11 03	704	0.1+	0.1+	1999 11 04	704	0.1+	0.1−
1998 04 22	704	1.5+	0.7−	1999 11 03	704	0.5+	0.6−	1999 11 04	704	0.3+	0.6+

1999 VE₄₉ = 1998 FD₁₂₆

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
<i>M</i> 84.10334		(2000.0)		P		Q					
<i>n</i>	0.28337355	<i>ω</i>	19.76328	+0.15677409		+0.98418762					
<i>a</i>	2.2956015	<i>Ω</i>	259.32438	−0.91704696		+0.11407069					
<i>e</i>	0.1664310	<i>i</i>	4.81241	−0.36666982		+0.13550868					
<i>P</i>	3.48	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1998 03 31	704	0.4−	0.1−	1999 11 03	704	0.3+	0.3−	1999 12 08	681	0.4−	0.6−
1998 03 31	704	0.8+	0.2+	1999 11 03	704	0.2+	0.2+	1999 12 08	681	0.2+	0.8−
1998 03 31	704	0.0	0.6+	1999 11 03	704	0.4+	0.3+	1999 12 11	681	0.5+	0.8+
1998 03 31	704	0.2−	0.4−	1999 11 03	704	0.4+	0.7+	1999 12 11	681	0.7+	0.2−
1998 03 31	704	0.1+	1.7+	1999 11 04	704	0.1−	0.7−	1999 12 12	703	0.2−	0.1+
1998 04 01	704	0.7+	0.6+	1999 11 04	704	0.3−	0.4−	1999 12 12	703	0.3+	0.4+
1998 04 01	704	(4.2−	0.3−)	1999 11 04	704	0.2−	0.0	1999 12 12	703	0.3−	0.5+
1998 04 01	704	0.4+	1.0−	1999 11 04	704	0.0	0.3+	1999 12 12	681	0.6+	0.0
1998 04 01	704	0.5−	0.2−	1999 11 04	704	0.8−	0.5+	1999 12 12	681	0.3−	0.5+
1998 04 01	704	1.0−	1.5−	1999 12 08	681	0.3−	0.5−	1999 12 12	703	0.1−	0.3+
1999 11 03	704	0.2+	0.7−	1999 12 08	681	0.6−	0.5−				

1999 VK₄₉ = 1998 KU₆₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
M	115.45671		(2000.0)			P			Q		
n	0.29218477		ω 230.78174			−0.24578074			+0.96786216		
a	2.2492151		Ω 25.14359			−0.84625057			−0.18746438		
e	0.1370999		i 7.19850			−0.47270690			−0.16763038		
P	3.37		H 14.2			G 0.15			U 3		
Residuals in seconds of arc											
1998 05 22	704	0.4+	0.2−	1999 11 03	704	1.1−	0.9+	1999 12 04	703	0.3+	0.1+
1998 05 22	704	0.6−	0.5+	1999 11 03	704	0.3+	0.2−	1999 12 08	704	1.0+	0.1+
1998 05 22	704	0.9−	0.4+	1999 11 03	704	0.2−	0.2−	1999 12 08	704	0.1−	0.3+
1998 05 22	704	(1.3−	2.3+)	1999 11 04	704	0.3+	0.2+	1999 12 08	704	0.5−	0.5+
1998 05 22	704	(1.0−	2.5+)	1999 11 04	704	0.0	0.3+	1999 12 08	704	0.3−	0.2−
1998 05 24	704	1.1+	0.2−	1999 11 04	704	0.6+	0.4−	1999 12 08	704	0.9−	0.3−
1998 05 24	704	0.6+	0.5−	1999 11 04	704	0.2−	0.8−	1999 12 12	703	0.0	0.1+
1998 05 24	704	0.3+	0.1−	1999 11 04	704	0.3−	0.4−	1999 12 12	703	1.0−	0.2+
1998 05 24	704	0.8−	0.1+	1999 12 04	703	0.2+	0.3−	1999 12 12	703	0.7+	0.2−
1999 11 03	704	0.3+	0.2+	1999 12 04	703	0.4+	0.1−	1999 12 12	703	0.2+	0.3+
1999 11 03	704	0.3+	0.3+	1999 12 04	703	0.0	0.3−				

1999 VS₄₉ = 1995 YE₂₄

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
<i>M</i>	352.53539			(2000.0)		P			Q		
<i>n</i>	0.21650104			<i>ω</i>	113.38080	+0.81674246			−0.57118948		
<i>a</i>	2.7468149			<i>Ω</i>	281.54698	+0.49426653			+0.76563634		
<i>e</i>	0.1061625			<i>i</i>	4.78312	+0.29771187			+0.29587763		
<i>P</i>	4.55			<i>H</i>	14.9	<i>G</i>	0.15		<i>U</i>	4	
Residuals in seconds of arc											
1995 12 20	566	0.1−	0.0	1999 11 04	704	0.5+	0.1−	1999 12 08	704	0.4+	0.4+
1995 12 20	566	0.0	0.4−	1999 11 04	704	0.4+	0.8+	1999 12 08	704	0.6−	1.0−
1995 12 20	566	0.8+	0.4−	1999 11 04	704	0.2−	0.5−	1999 12 08	704	0.4−	0.2−
1995 12 24	566	0.7−	0.3+	1999 11 04	704	0.0	0.2−	1999 12 08	704	0.2−	1.0−
1995 12 24	566	0.1+	0.3+	1999 11 04	704	0.4−	0.2−	1999 12 08	704	0.1+	0.1+
1995 12 24	566	0.1−	0.1+	1999 12 05	703	1.3−	0.2−	1999 12 08	704	0.2−	1.3−
1999 11 03	704	0.6−	0.1+	1999 12 05	703	(2.0+	2.7+)	1999 12 08	704	0.8+	0.2+
1999 11 03	704	0.6+	0.0	1999 12 05	703	1.7−	0.2+	1999 12 13	703	0.5+	0.5+
1999 11 03	704	0.8+	0.3+	1999 12 05	703	0.3−	0.9+	1999 12 13	703	0.1+	0.5+
1999 11 03	704	0.2−	0.2+	1999 12 08	704	0.4−	0.2+	1999 12 13	703	0.3+	0.4+
1999 11 03	704	1.2+	0.1−	1999 12 08	704	0.4+	0.4−	1999 12 13	703	0.7+	0.3+

1999 VW₄₉ = 1993 OJ₅ = 1994 WE₁₀ = 1996 DM₅Id. A. Doppler, G. V. Williams; 1999 RN₁₉ = 1993 OJ₅ (*MPC* 36392) is invalid

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	346.04624		(2000.0)		P		Q	
<i>n</i>	0.20087720	ω	38.52253		+0.70557936		−0.70862259	
<i>a</i>	2.8874576	Ω	6.60368		+0.64253275		+0.63771423	
<i>e</i>	0.0728873	<i>i</i>	1.71150		+0.29884683		+0.30195130	
<i>P</i>	4.91	<i>H</i>	13.8		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1993 07 20	809	0.5+	0.8+	1999 11 03	704	0.3−	0.2+	1999 12 04	703	0.0	0.2+
1993 07 20	809	0.1−	0.6+	1999 11 03	704	0.0	0.7+	1999 12 04	703	0.2−	0.6+
1993 07 20	809	0.3−	0.4+	1999 11 03	704	0.1−	0.3−	1999 12 07	704	0.2−	0.4−
1993 07 24	809	0.6−	0.2+	1999 11 03	704	0.4+	0.6−	1999 12 07	704	0.2+	0.3−
1994 11 30	691	0.0	0.1−	1999 11 04	704	0.1−	0.7+	1999 12 07	704	0.6−	0.6−
1994 11 30	691	0.3−	0.2−	1999 11 04	704	0.3+	0.3−	1999 12 07	704	0.2−	0.4−
1994 11 30	691	0.0	0.0	1999 11 04	704	0.2+	0.4−	1999 12 07	704	0.5−	0.2−
1994 12 01	691	0.1+	0.0	1999 11 04	704	0.1−	0.4−	1999 12 08	704	0.3−	0.1−
1994 12 01	691	0.4+	0.1+	1999 11 04	704	0.4+	0.4+	1999 12 08	704	0.5+	0.6−
1996 02 16	010	0.8+	0.5−	1999 11 04	704	0.8+	0.4+	1999 12 08	704	0.2+	0.1+
1996 02 16	010	0.6+	0.4−	1999 11 04	704	(2.9−	2.8+)	1999 12 08	704	0.4−	0.5−
1996 02 16	010	0.3+	0.5+	1999 11 04	704	0.1+	0.2+	1999 12 08	704	0.3−	0.7−
1996 02 17	010	0.1+	0.5+	1999 11 04	704	0.3−	0.2+	1999 12 12	703	0.2−	0.5+
1996 02 17	010	0.6−	0.4+	1999 11 04	704	0.2−	0.0	1999 12 12	703	0.7−	0.7+
1996 02 17	010	0.6−	1.2+	1999 12 04	703	0.8+	0.9+	1999 12 12	703	0.3+	0.1−
1999 11 03	704	0.9+	0.2+	1999 12 04	703	0.3−	0.6+	1999 12 12	703	0.4−	0.3+

1999 VX₄₉ = 1978 UJ₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	331.21584		(2000.0)		P		Q	
<i>n</i>	0.23652241	ω	140.88936		+0.50734120		−0.86153436	
<i>a</i>	2.5895314	Ω	278.61604		+0.78571864		+0.47155408	
<i>e</i>	0.1461463	<i>i</i>	1.10486		+0.35390835		+0.18813639	
<i>P</i>	4.17	<i>H</i>	15.5		<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1978 10 27	675	0.7−	0.3−	1999 11 04	704	0.0	0.3−	1999 12 07	704	0.5−	0.0
1978 10 28	675	0.7+	0.1−	1999 11 04	704	0.7−	0.2+	1999 12 07	704	0.2+	0.2+
1978 10 29	675	0.1+	0.3+	1999 11 04	704	0.1−	0.4−	1999 12 07	704	1.0−	0.2+
1999 11 03	704	0.5+	0.6+	1999 11 04	704	0.6+	0.8−	1999 12 07	704	0.3−	0.2−
1999 11 03	704	0.0	0.3+	1999 11 04	704	0.0	0.4−	1999 12 07	704	0.4−	0.1−
1999 11 03	704	0.2−	0.4+	1999 11 04	704	0.3+	0.4−	1999 12 08	704	0.6+	0.4−
1999 11 03	704	0.0	0.1+	1999 11 04	704	0.2+	0.1+	1999 12 08	704	0.1+	0.2−
1999 11 03	704	0.0	0.8+	1999 12 04	703	1.0+	0.5−	1999 12 08	704	0.5−	0.0
1999 11 04	704	0.6−	0.2−	1999 12 04	703	0.3+	0.3−	1999 12 08	704	0.4+	0.4−
1999 11 04	704	0.1+	0.3+	1999 12 04	703	0.2+	0.7+	1999 12 08	704	0.1−	0.3+
1999 11 04	704	0.4−	0.2−	1999 12 04	703	0.2+	0.5+				

1999 VD₅₀ = 1998 HE₉₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	80.02754		(2000.0)		P		Q	
<i>n</i>	0.30392253	ω	301.62060		+0.37959533		+0.92512516	
<i>a</i>	2.1909247	Ω	350.67974		−0.83320424		+0.33850925	
<i>e</i>	0.1085870	<i>i</i>	2.52284		−0.40209213		+0.17191545	
<i>P</i>	3.24	<i>H</i>	15.0		<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 04 21	704	0.2−	0.3+	1999 11 03	704	0.5+	0.8+	1999 12 08	704	1.4−	1.1−
1998 04 21	704	0.6+	1.4+	1999 11 03	704	0.1+	0.4−	1999 12 08	704	0.1+	0.1−
1998 04 21	704	0.4−	0.4−	1999 11 03	704	0.3+	0.0	1999 12 08	704	0.5−	0.2+
1998 04 21	704	0.2+	0.2−	1999 11 03	704	1.0−	0.9−	1999 12 08	704	0.3−	0.4−
1998 04 21	704	0.5+	0.2+	1999 11 03	704	0.8+	0.5−	1999 12 13	703	0.2+	0.5+
1998 04 22	704	0.8−	0.1−	1999 11 04	704	0.4−	0.4+	1999 12 13	703	0.4+	0.5+
1998 04 22	704	0.1+	0.6+	1999 11 04	704	0.0	0.1+	1999 12 13	703	0.8+	0.2−

1998 04 22	704	0.1−	0.5−	1999 11 04	704	0.4−	0.1+	1999 12 13	703	0.5+	0.3+
1998 04 22	704	0.2−	1.5−	1999 11 04	704	0.3+	0.2−				
1998 04 22	704	0.0	0.1−	1999 12 08	704	0.1+	0.6+				

1999 VE₅₀ = 1992 ON₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	273.22211		(2000.0)		P		Q	
<i>n</i>	0.30996366	ω	173.29693		−0.49649373		−0.86746161	
<i>a</i>	2.1623643	Ω	306.46656		+0.79457056		−0.43946853	
<i>e</i>	0.1004452	<i>i</i>	2.25843		+0.34950192		−0.23319041	
<i>P</i>	3.18	<i>H</i>	15.0		<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1992 07 26	809	1.0+	0.5+	1999 11 03	704	0.1−	0.1−	1999 12 08	704	0.2+	0.0
1992 07 26	809	0.1−	0.3−	1999 11 03	704	0.4−	0.1−	1999 12 08	704	0.4−	0.1−
1992 07 26	809	1.0+	1.0−	1999 11 04	704	0.3−	0.2+	1999 12 08	704	0.6−	0.1−
1992 07 30	809	0.8−	0.2−	1999 11 04	704	0.1+	0.1+	1999 12 13	703	0.4−	0.1+
1992 07 30	809	0.6−	0.2+	1999 11 04	704	0.1−	0.2−	1999 12 13	703	0.1+	0.1+
1992 07 30	809	0.5−	0.9+	1999 11 04	704	0.1−	0.2−	1999 12 13	703	0.1+	0.3+
1999 11 03	704	0.5+	0.1−	1999 11 04	704	0.6+	0.4−	1999 12 13	703	0.1−	0.3+
1999 11 03	704	0.2+	0.1−	1999 12 08	704	0.6+	0.1+				
1999 11 03	704	0.3−	0.1−	1999 12 08	704	0.4+	0.4+				

1999 VO₅₀ = 1981 EU₄₈ = 1998 QS₁₆

Id. A. Doppler, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	318.61624		(2000.0)		P		Q	
<i>n</i>	0.19843924	ω	71.04871		+0.16970503		−0.98547970	
<i>a</i>	2.9110590	Ω	9.18578		+0.89078217		+0.15101662	
<i>e</i>	0.0360768	<i>i</i>	1.96528		+0.42155346		+0.07761282	
<i>P</i>	4.97	<i>H</i>	13.1		<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1981 03 08	095	0.9+	2.9+	1999 11 04	704	0.1+	0.9+	1999 12 07	704	0.2+	0.2−
1998 08 17	704	0.0	0.2−	1999 11 04	704	0.0	0.7+	1999 12 07	704	0.3−	0.7−
1998 08 17	704	0.8−	1.0+	1999 11 04	704	0.0	0.4+	1999 12 07	704	0.4+	0.7−
1998 08 17	704	0.2+	0.0	1999 11 04	704	0.2−	0.4+	1999 12 07	704	0.2+	0.5−
1998 08 17	704	1.1+	0.1−	1999 11 04	704	0.2−	0.5+	1999 12 07	704	0.1+	0.3−
1998 08 17	704	0.5+	0.5+	1999 12 02	699	0.4+	0.4+	1999 12 08	704	0.5+	0.4−
1998 08 23	704	0.6+	0.6+	1999 12 02	699	0.3−	0.3+	1999 12 08	704	0.4+	0.9−
1998 08 23	704	0.6+	0.7+	1999 12 02	699	0.4+	0.3+	1999 12 08	704	0.1−	0.6−
1998 08 23	704	1.7−	0.3−	1999 12 03	691	0.1−	0.2+	1999 12 08	704	0.2−	0.7−
1998 08 23	704	1.4−	0.1−	1999 12 03	691	0.1−	0.1+	1999 12 08	704	0.1+	0.9−
1999 11 03	704	0.2−	0.8+	1999 12 03	691	0.1+	0.4+	1999 12 13	703	0.3+	0.0
1999 11 03	704	0.3−	0.3+	1999 12 05	703	0.0	0.4+	1999 12 13	703	0.7+	0.2−
1999 11 03	704	0.2+	0.1+	1999 12 05	703	0.6−	0.3+	1999 12 13	703	0.2+	0.2+
1999 11 03	704	0.2−	0.5+	1999 12 05	703	0.2−	0.2−	1999 12 13	703	0.2+	0.2−
1999 11 03	704	0.4−	0.2−	1999 12 05	703	0.7−	0.4−				

1999 VR₅₀ = 1976 JB₉ = 1994 LD₄

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	264.29441		(2000.0)		P		Q	
<i>n</i>	0.27632649	ω	217.06370		−0.73747839		−0.67440475	
<i>a</i>	2.3344668	Ω	280.48728		+0.62811158		−0.66524391	
<i>e</i>	0.1104026	<i>i</i>	2.10451		+0.24819642		−0.32035726	
<i>P</i>	3.57	<i>H</i>	15.2		<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1976 05 02	809	0.1+	0.2+	1999 11 04	704	1.2+	0.9−	1999 12 07	704	0.2−	0.1−
1994 06 03	809	0.1−	1.2+	1999 11 04	704	0.8+	0.4−	1999 12 07	704	0.4−	0.0
1994 06 03	809	0.4+	1.1+	1999 11 04	704	1.6+	0.7−	1999 12 07	704	0.2+	0.0
1994 06 03	809	0.4+	0.6+	1999 11 04	704	0.2+	0.6+	1999 12 08	704	0.1−	0.8+

1999 DEC. 22

M.P.C. 37229

1994 06 04	809	0.3−	1.6+	1999 12 05	703	0.9−	1.2+	1999 12 08	704	0.5−	0.0
1994 06 04	809	0.1−	1.7+	1999 12 05	703	0.5−	0.4+	1999 12 08	704	0.1−	0.6+
1994 06 04	809	0.6+	0.5+	1999 12 05	703	1.0−	1.2+	1999 12 08	704	0.5−	0.4+
1999 11 03	704	0.6+	0.4−	1999 12 05	703	0.1−	1.3+	1999 12 08	704	0.5−	0.2+
1999 11 03	704	0.8+	0.4−	1999 12 06	385	1.4−	0.1−	1999 12 13	703	0.6−	0.5+
1999 11 03	704	0.1+	0.9−	1999 12 06	385	0.4+	0.6−	1999 12 13	703	1.6−	1.1+
1999 11 03	704	0.4+	0.2+	1999 12 06	385	0.6+	0.1−	1999 12 13	703	0.8−	1.5+
1999 11 03	704	0.0	0.1+	1999 12 07	704	0.7−	0.4+	1999 12 13	703	0.4−	1.1+
1999 11 04	704	1.1+	0.2−	1999 12 07	704	0.5+	0.2−				

1999 VS₅₀ = 1997 EW₅₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	298.80584		(2000.0)		P		Q
<i>n</i>	0.26319334	ω	84.89447		−0.21051117		−0.97748521
<i>a</i>	2.4114936	Ω	17.27826		+0.87660046		−0.19526949
<i>e</i>	0.1317122	<i>i</i>	2.78134		+0.43273165		−0.07995310
<i>P</i>	3.74	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 03 08	809	(4.0+ 0.9+)	1999 11 03	704	0.4−	0.4+	1999 12 08	704	0.6+	0.4−
1997 03 08	809	(3.4+ 0.6+)	1999 11 03	704	0.5−	0.3+	1999 12 08	704	0.3+	0.2−
1997 03 08	809	(3.5+ 1.1+)	1999 11 04	704	0.8−	0.1−	1999 12 08	704	0.5+	0.2+
1997 03 09	809	0.0	1999 11 04	704	0.8+	0.1−	1999 12 13	703	0.1−	0.6+
1997 03 09	809	0.2−	1999 11 04	704	0.3+	0.3+	1999 12 13	703	1.1−	0.2+
1997 03 09	809	0.1+	1999 11 04	704	0.4+	0.5−	1999 12 13	703	0.6−	0.5+
1999 11 03	704	0.0	1999 11 04	704	0.1+	0.2+	1999 12 13	703	0.2−	0.0
1999 11 03	704	0.2−	1999 12 08	704	0.5+	0.3−				
1999 11 03	704	0.2−	1999 12 08	704	0.5+	0.6−				

1999 VV₅₀ = 1998 HU₆₈

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	32.14719		(2000.0)		P		Q
<i>n</i>	0.29647559	ω	69.87653		+0.91871807		+0.39219673
<i>a</i>	2.2274609	Ω	267.00925		−0.37742016		+0.83751031
<i>e</i>	0.1719301	<i>i</i>	2.65435		−0.11623735		+0.38047103
<i>P</i>	3.32	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 04 21	704	0.5−	1.1−	1999 11 03	704	0.1−	0.4+	1999 12 07	704	0.3−	0.5−
1998 04 21	704	0.1−	0.4−	1999 11 03	704	0.0	0.3+	1999 12 07	704	0.7−	0.2−
1998 04 21	704	0.2−	0.4+	1999 11 03	704	0.1−	0.8+	1999 12 08	704	0.1−	0.2−
1998 04 21	704	0.7+	0.3−	1999 11 03	704	0.5−	0.2+	1999 12 08	704	0.0	0.6−
1998 04 21	704	0.0	0.8+	1999 11 04	704	0.0	0.2+	1999 12 08	704	0.3−	0.1−
1998 04 22	704	1.1−	0.5−	1999 11 04	704	0.2−	0.6−	1999 12 08	704	0.8−	0.3+
1998 04 22	704	0.4+	0.3−	1999 11 04	704	0.3+	0.2−	1999 12 08	704	0.7−	0.2−
1998 04 22	704	0.2+	0.7+	1999 11 04	704	1.5+	1.0−	1999 12 13	703	1.0+	0.9+
1998 04 22	704	0.2+	0.1+	1999 12 07	704	0.1+	0.7−	1999 12 13	703	0.4+	0.9+
1998 04 22	704	0.2+	0.4+	1999 12 07	704	0.1+	0.8−	1999 12 13	703	0.5+	0.7+
1999 11 03	704	0.2−	0.0	1999 12 07	704	0.6−	0.2−	1999 12 13	703	0.7+	0.6+

1999 VP₅₁ = 1997 CX₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	1.29168		(2000.0)		P		Q
<i>n</i>	0.26828095	ω	357.33242		+0.97316858		−0.22844955
<i>a</i>	2.3809092	Ω	15.95421		+0.21291247		+0.84882994
<i>e</i>	0.1716804	<i>i</i>	5.73228		+0.08724220		+0.47675836
<i>P</i>	3.67	<i>H</i>	16.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 02 03	691	0.2+	0.5+	1999 11 03	704	0.8+	0.2−	1999 12 05	703	0.1−	0.8+
1997 02 03	691	0.2−	0.1+	1999 11 04	704	0.1−	0.0	1999 12 07	703	0.5−	0.1−
1997 02 03	691	0.2−	0.2+	1999 11 04	704	0.0	0.3+	1999 12 07	703	0.7−	0.2+
1997 02 07	691	0.2+	0.3−	1999 11 04	704	0.1+	0.5+	1999 12 07	703	0.6−	0.5+

1997 02 07	691	0.3+	0.2−	1999 11 04	704	1.2−	0.3−	1999 12 07	703	0.9−	0.0
1997 02 07	691	0.3−	0.3−	1999 11 04	704	0.4−	0.6+	1999 12 13	703	0.8+	0.2−
1999 11 03	704	0.8+	0.1−	1999 12 05	703	0.6−	0.0	1999 12 13	703	0.2−	0.6−
1999 11 03	704	0.7+	0.7−	1999 12 05	703	1.7+	0.9+	1999 12 13	703	1.3+	0.3−
1999 11 03	704	0.1+	0.2−	1999 12 05	703	0.6−	1.0−	1999 12 13	703	0.3−	0.0

1999 VP₅₂ = 1991 NN₂ = 1997 EA₃₃ = 1998 KO₃₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	56.61552		(2000.0)		P		Q
<i>n</i>	0.26916297	ω	243.51261		+0.83099992		+0.54888498
<i>a</i>	2.3757050	Ω	83.07078		−0.47246114		+0.78216446
<i>e</i>	0.1774658	<i>i</i>	5.22240		−0.29363175		+0.29486274
<i>P</i>	3.66	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 07 14	675	0.5−	0.5−	1998 05 24	704	0.1+	0.6+	1999 11 28	691	0.4+	0.1+
1991 07 14	675	0.5+	0.1+	1998 05 24	704	0.3−	0.1+	1999 11 28	691	0.5+	0.2+
1991 07 19	675	0.1+	0.2+	1998 05 24	704	0.5−	0.1+	1999 12 03	691	0.3+	0.2+
1997 03 04	704	(3.6+ 0.7−)		1999 11 03	704	0.4−	0.0	1999 12 03	691	0.4+	0.3−
1997 03 04	704	0.8−	0.5−	1999 11 03	704	0.8−	0.2−	1999 12 03	691	0.4+	0.4+
1997 03 06	704	0.1+	0.2−	1999 11 03	704	0.3−	0.1−	1999 12 07	704	0.1+	0.2−
1997 03 06	704	0.7+	0.7+	1999 11 03	704	1.1−	0.2+	1999 12 07	704	0.4+	0.4−
1998 05 22	704	0.2+	0.1+	1999 11 03	704	0.4−	0.7+	1999 12 07	704	0.2+	0.2−
1998 05 22	704	0.2+	0.5+	1999 11 04	704	0.6−	0.3+	1999 12 07	704	0.0	0.4−
1998 05 22	704	0.3+	0.8−	1999 11 04	704	0.5−	0.3−	1999 12 07	704	0.2+	0.1+
1998 05 22	704	0.2+	0.1−	1999 11 04	704	0.3−	0.5+	1999 12 08	704	0.3+	0.1−
1998 05 22	704	0.5−	0.7+	1999 11 04	704	0.7−	0.4+	1999 12 08	704	0.3+	0.2−
1998 05 24	704	0.0	0.4+	1999 11 04	704	0.2+	0.4+	1999 12 08	704	0.3+	0.2−
1998 05 24	704	0.5+	0.8−	1999 11 28	691	0.4+	0.2+	1999 12 08	704	0.3+	0.1−

1999 VA₅₃ = 1991 PH₂₅ = 1997 FA₃

Id. B. G. Marsden

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	344.07409		(2000.0)		P		Q
<i>n</i>	0.27078846	ω	206.79058		+0.430396623		−0.90251482
<i>a</i>	2.3661882	Ω	217.72451		+0.83275048		+0.40376090
<i>e</i>	0.1838710	<i>i</i>	1.48641		+0.34829806		+0.14981369
<i>P</i>	3.64	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 08 03	809	0.2+	0.5+	1999 11 03	704	0.6+	0.7+	1999 12 07	684	0.1+	0.7+
1991 08 03	809	1.0−	2.0+	1999 11 03	704	0.1+	1.2+	1999 12 07	704	0.4−	0.1−
1991 08 03	809	(0.5−	2.7+)	1999 11 04	704	0.7−	0.9+	1999 12 07	684	0.0	0.7+
1997 03 31	704	1.3+	0.5+	1999 11 04	704	0.2−	0.2−	1999 12 07	704	0.1−	0.2−
1997 03 31	704	1.1+	0.3+	1999 11 04	704	0.7+	0.3+	1999 12 07	704	0.1−	0.5−
1997 04 03	704	0.4−	0.4+	1999 11 04	704	0.7+	0.0	1999 12 07	704	0.1−	0.6−
1997 04 03	704	1.1−	0.7+	1999 11 04	704	0.3+	0.8+	1999 12 08	704	0.4−	0.2−
1997 04 05	704	0.4+	0.2+	1999 12 05	684	0.2−	0.7+	1999 12 08	704	0.1+	0.0
1997 04 05	704	0.2−	0.4+	1999 12 05	684	0.2−	0.7+	1999 12 08	704	0.1−	0.5−
1999 11 03	704	0.2−	0.5−	1999 12 05	684	0.2−	0.8+	1999 12 08	704	0.2−	0.9−
1999 11 03	704	0.6+	0.0	1999 12 07	704	0.9+	0.2−	1999 12 08	704	0.4−	0.6−

1999 VB₅₃ = 1998 MP₁₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	262.99287		(2000.0)		P		Q
<i>n</i>	0.36545325	ω	253.13529		−0.76381481		−0.53397432
<i>a</i>	1.9375288	Ω	253.17695		+0.63415264		−0.72544029
<i>e</i>	0.0484898	<i>i</i>	22.25829		−0.12015561		−0.43429000
<i>P</i>	2.70	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1998 06 24	704	0.1+	0.2+	1999 11 04	704	0.2−	0.3+	1999 12 08	704	0.4−	0.3+
1998 06 24	704	0.9−	0.1+	1999 11 04	704	0.2−	0.2+	1999 12 08	704	0.4−	0.4+
1998 06 24	704	0.3+	0.4+	1999 11 04	704	0.1−	0.1+	1999 12 08	704	0.4−	0.5+
1998 06 24	704	0.4−	0.9+	1999 11 04	704	0.3+	0.9+	1999 12 14	704	0.4+	0.3+

1998 06 24	704	0.2−	0.1+	1999 12 06	704	0.2−	0.2−	1999 12 14	704	0.5+	0.2+
1998 06 26	704	0.7+	0.3−	1999 12 06	704	0.5+	1.9−	1999 12 14	704	0.2+	0.1−
1998 06 26	704	0.1−	0.3+	1999 12 06	704	0.3+	1.1−	1999 12 14	704	0.4+	0.1+
1998 06 26	704	0.4+	0.4−	1999 12 06	704	0.1+	1.0−	1999 12 14	704	0.3+	0.2−
1998 06 26	704	0.0	1.0−	1999 12 07	704	0.0	0.1+	1999 12 15	704	0.0	0.1+
1999 11 03	704	1.5+	0.5−	1999 12 07	704	0.2−	0.1+	1999 12 15	704	0.0	0.2+
1999 11 03	704	0.1−	0.2+	1999 12 07	704	0.1−	0.2+	1999 12 15	704	0.1+	0.2+
1999 11 03	704	0.2−	0.1−	1999 12 07	704	0.2−	0.4+	1999 12 15	704	(0.8+	2.8+)
1999 11 03	704	0.7−	0.0	1999 12 07	704	0.3−	0.2+	1999 12 15	704	0.1−	0.0
1999 11 03	704	0.1+	0.0	1999 12 08	704	0.3−	0.3+				
1999 11 04	704	0.1−	0.3−	1999 12 08	704	0.4−	0.4+				

1999 VF₅₃ = 1978 WS₁₆ = 1997 HC₁₀

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	351.15686		(2000.0)	P	Q		
<i>n</i>	0.23620648	ω	351.97406	+0.56179222	−0.82290568		
<i>a</i>	2.5918399	Ω	63.80713	+0.76417380	+0.47686225		
<i>e</i>	0.2654395	<i>i</i>	5.43213	+0.31690363	+0.30891525		
<i>P</i>	4.17	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1978 11 30	675	0.1−	0.9+	1997 05 05	704	1.1−	0.6−	1999 11 04	704	0.3+	0.0
1978 12 01	675	0.7−	1.5+	1997 05 05	704	0.2−	0.6+	1999 11 30	411	0.1+	1.6−
1997 04 30	704	1.4+	0.6+	1997 05 05	704	0.7+	0.2+	1999 11 30	411	0.7+	0.2−
1997 04 30	704	1.7+	0.5−	1999 11 03	704	0.6−	0.2−	1999 12 10	704	0.2−	0.2−
1997 04 30	704	0.4−	0.6+	1999 11 03	704	0.4+	1.1+	1999 12 10	704	0.0	0.3−
1997 04 30	704	0.2+	0.1+	1999 11 03	704	0.5+	0.1+	1999 12 10	704	0.1+	0.0
1997 05 01	704	0.2+	0.8+	1999 11 03	704	0.2−	0.3+	1999 12 10	704	0.1−	0.3+
1997 05 01	704	0.9−	0.2−	1999 11 03	704	0.6−	0.3+	1999 12 10	704	0.3+	0.4+
1997 05 01	704	0.7+	0.4+	1999 11 04	704	0.0	0.4−	1999 12 15	757	1.2−	0.3−
1997 05 01	704	(2.8−	1.2−)	1999 11 04	704	0.9−	0.3−	1999 12 15	757	0.7+	0.2−
1997 05 05	704	1.5−	0.2−	1999 11 04	704	0.4+	0.2−				

1999 VH₅₃ = 1982 JT₁

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	236.87787		(2000.0)	P	Q		
<i>n</i>	0.25836158	ω	98.03898	−0.99106457	−0.06135228		
<i>a</i>	2.4414664	Ω	78.50125	+0.00643702	−0.90889914		
<i>e</i>	0.0673538	<i>i</i>	6.94180	+0.13322757	−0.41247819		
<i>P</i>	3.81	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1982 05 15	675	0.6+	0.1−	1999 11 04	704	0.1−	0.2+	1999 12 07	704	0.6+	0.2−
1982 05 16	675	0.5−	0.3+	1999 11 04	704	0.1+	0.2+	1999 12 07	704	0.2+	0.3−
1982 05 17	675	0.4−	0.6−	1999 11 04	704	0.2+	0.5+	1999 12 08	704	0.1−	0.2−
1982 05 18	675	0.3+	0.4+	1999 11 04	704	0.8+	0.2+	1999 12 08	704	0.2+	0.0
1999 11 03	704	0.1+	0.6−	1999 11 04	704	0.2−	0.0	1999 12 08	704	0.2−	0.0
1999 11 03	704	0.1+	0.1−	1999 12 07	704	1.0−	0.3+	1999 12 08	704	0.8+	0.4+
1999 11 03	704	0.6−	0.1+	1999 12 07	704	1.0−	0.1+				
1999 11 03	704	0.3−	0.4−	1999 12 07	704	0.4+	0.2−				

1999 VN₅₄ = 1998 HG₆₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	89.90868		(2000.0)	P	Q		
<i>n</i>	0.29107028	ω	230.05398	−0.01089335	+0.99646185		
<i>a</i>	2.2549529	Ω	39.56239	−0.87289772	+0.03117902		
<i>e</i>	0.1326180	<i>i</i>	7.51841	−0.48778161	−0.07804907		
<i>P</i>	3.39	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 04 21	704	0.0	0.2+	1999 11 04	704	0.1+	0.1+	1999 12 04	703	0.3+	0.5−
1998 04 21	704	0.1+	0.2+	1999 11 04	704	0.3+	0.1−	1999 12 04	703	0.0	0.4+
1998 04 21	704	0.2−	0.2+	1999 11 04	704	0.0	0.1+	1999 12 04	699	1.0−	0.3−
1998 04 21	704	0.2−	0.1+	1999 11 04	704	0.6−	0.3−	1999 12 04	699	0.9−	1.5−
1998 04 21	704	(1.0+	3.0+)	1999 11 12	704	0.2+	0.2−	1999 12 04	699	1.3+	0.6+
1998 04 22	704	0.2+	0.2−	1999 11 12	704	0.6+	0.0	1999 12 07	704	0.6−	0.1−
1998 04 22	704	0.8+	0.0	1999 11 12	704	0.1+	0.0	1999 12 07	704	0.6+	1.1+
1998 04 22	704	0.3−	0.1+	1999 11 12	704	0.2+	0.6+	1999 12 07	704	0.5+	0.2+
1998 04 22	704	0.4−	0.8−	1999 11 12	704	0.3−	0.7−	1999 12 07	704	0.2+	0.9+
1998 04 22	704	0.1−	0.2+	1999 12 04	703	0.5−	0.8−	1999 12 07	704	0.6+	0.2+
1999 11 04	704	0.4−	0.7+	1999 12 04	703	0.9−	0.3−				

1999 VP₅₆ = 1978 WU₆ = 1992 AK₄

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	142.69024		(2000.0)	P	Q		
<i>n</i>	0.23130635	ω	177.53593	−0.55862548	+0.82749083		
<i>a</i>	2.6283166	Ω	58.49770	−0.76210751	−0.48519625		
<i>e</i>	0.0249770	<i>i</i>	3.80210	−0.32730676	−0.28256597		
<i>P</i>	4.26	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1978 11 29	675	0.2+	0.8+	1999 11 04	704	0.9−	0.5−	1999 12 06	704	1.0−	0.4+
1978 11 30	675	0.7−	1.2+	1999 11 04	704	0.6−	0.3−	1999 12 06	704	0.5−	0.7−
1992 01 02	033	0.2−	0.3−	1999 11 12	704	0.8+	0.4+	1999 12 06	704	0.6−	0.2−
1992 01 03	033	0.3+	0.6−	1999 11 12	704	0.7+	0.0	1999 12 06	704	1.2−	0.1+
1999 11 04	704	0.5−	0.0	1999 11 12	704	0.3+	0.3−	1999 12 07	704	2.0+	0.1−
1999 11 04	704	0.0	0.1+	1999 11 12	704	0.3+	0.3+	1999 12 07	704	1.6+	0.8−
1999 11 04	704	0.2−	0.1+	1999 11 12	704	0.5+	0.6+	1999 12 07	704	0.1−	0.6−

1999 VS₅₆ = 1998 MG₇

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	321.50325		(2000.0)	P	Q		
<i>n</i>	0.18035377	ω	266.23334	+0.24537911	−0.96941719		
<i>a</i>	3.1025532	Ω	169.55926	+0.89880013	+0.22579750		
<i>e</i>	0.2213581	<i>i</i>	1.39261	+0.36324567	+0.09615504		
<i>P</i>	5.46	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 06 21	691	0.3+	0.4+	1999 11 04	704	0.1−	0.1−	1999 12 06	704	0.7+	0.9−
1998 06 21	691	0.3−	0.2−	1999 11 04	704	0.6−	0.4+	1999 12 06	704	0.2−	1.0−
1998 06 21	691	0.4−	0.0	1999 11 12	704	0.3+	0.7+	1999 12 07	704	0.3+	0.5+
1998 06 25	691	0.1+	0.6−	1999 11 12	704	0.6+	0.3+	1999 12 07	704	0.6−	0.3+
1998 06 25	691	1.2+	0.1+	1999 11 12	704	0.1+	0.2+	1999 12 07	704	0.1−	0.2−
1998 06 25	691	0.7−	0.1+	1999 11 12	704	0.0	0.0	1999 12 07	704	0.6−	0.4−
1999 11 04	704	0.3−	0.0	1999 11 12	704	0.1−	0.3+	1999 12 07	704	1.0−	0.5−
1999 11 04	704	0.0	0.0	1999 12 06	704	1.1+	0.1−				
1999 11 04	704	0.3−	0.1+	1999 12 06	704	0.8+	0.2+				

**1999 VK₅₈ = 1991 PX₁₈ = 1991 RP₃₄ = 1995 US₄₆ = 1996 XF₃₅
= 1998 KZ₂₃**

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	72.65617		(2000.0)	P	Q		
<i>n</i>	0.26364651	ω	83.49497	+0.43556298	+0.89997221		
<i>a</i>	2.4087295	Ω	212.34596	−0.83880860	+0.39841658		
<i>e</i>	0.1809997	<i>i</i>	1.96018	−0.32662674	+0.17695835		
<i>P</i>	3.74	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 08 09	675	0.8−	0.2+	1998 05 22	704	0.6−	0.4−	1999 11 12	704	0.0	0.2+
1991 08 09	675	0.5+	1.4−	1998 05 22	704	0.4+	0.1+	1999 11 12	704	0.3−	0.4+

1999 DEC. 22

M.P.C. 37231

1991 09 12	675	0.0	0.9+	1998 05 22	704	0.5+	0.3+	1999 11 12	704	0.3-	0.3+
1991 09 12	675	0.2+	0.0	1998 05 22	704	0.5-	1.2+	1999 11 12	704	0.5+	0.1+
1995 10 20	010	(2.8+	0.6+)	1998 05 22	704	1.3-	0.1-	1999 12 06	704	0.0	0.6+
1995 10 20	010	(3.0+	1.3+)	1998 05 24	704	0.5+	0.5-	1999 12 06	704	0.2+	0.2-
1995 10 20	010	(2.2+	1.2+)	1998 05 24	704	1.4+	1.4-	1999 12 06	704	0.3-	0.1-
1995 10 23	010	1.6+	0.9-	1998 05 24	704	(2.2+	2.3-)	1999 12 07	704	0.1+	0.5+
1995 10 23	010	0.3-	1.4-	1998 05 24	704	0.9-	1.3+	1999 12 07	704	0.6-	1.3+
1995 10 23	010	(0.7-	2.1-)	1998 05 24	704	0.5+	1.0-	1999 12 07	704	0.6-	1.2-
1996 12 11	691	0.1-	0.7-	1999 11 04	704	0.3+	0.2-	1999 12 07	704	0.7+	0.7+
1996 12 11	691	0.2+	0.7-	1999 11 04	704	0.2-	0.5+	1999 12 07	704	0.7-	0.9+
1996 12 11	691	0.2+	0.3-	1999 11 04	704	0.1-	0.5+	1999 12 12	703	0.7-	0.1+
1996 12 15	691	0.1+	0.9-	1999 11 04	704	1.4+	0.8-	1999 12 12	703	0.6-	0.9+
1996 12 15	691	1.0-	0.2+	1999 11 04	704	0.4-	1.0-	1999 12 12	703	0.4-	0.3-
1996 12 15	691	0.0	0.6-	1999 11 12	704	0.2+	0.2+	1999 12 12	703	0.5+	0.5-

1999 VS₅₈ = 1998 KP₆₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26805409	ω	282.52954	+0.87996756	+0.46708001		
<i>a</i>	2.3822523	Ω	49.69480	-0.37973551	+0.80114140		
<i>e</i>	0.1183875	<i>i</i>	6.51772	-0.28540853	+0.37417738		
<i>P</i>	3.68	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1998 05 22	704	0.1-	0.4+	1999 11 04	704	0.0	0.5+	1999 12 04	703	0.4-	0.5+
1998 05 22	704	0.4+	0.0	1999 11 12	704	0.2+	0.1-	1999 12 04	703	0.5+	0.1+
1998 05 22	704	(1.1+	2.5-)	1999 11 12	704	0.1+	0.1+	1999 12 04	703	0.3-	1.0-
1998 05 22	704	0.2-	0.3-	1999 11 12	704	0.0	0.2+	1999 12 07	704	0.2+	0.3+
1998 05 22	704	1.6-	0.3-	1999 11 12	704	0.2+	0.0	1999 12 07	704	0.2-	0.8-
1998 05 24	704	0.0	0.0	1999 11 12	704	0.5+	0.1+	1999 12 07	704	0.4-	0.3-
1998 05 24	704	0.3+	0.1+	1999 11 16	327	0.2+	0.3-	1999 12 07	704	0.3-	0.1+
1998 05 24	704	1.4+	0.3-	1999 11 16	327	0.4-	0.2-	1999 12 07	704	0.3-	0.0
1998 05 24	704	0.2-	0.2+	1999 11 16	327	0.9-	0.5-	1999 12 12	703	0.0	0.5+
1999 11 04	704	0.1+	0.2+	1999 11 17	327	0.1+	0.1-	1999 12 12	703	1.0+	0.6+
1999 11 04	704	0.3-	0.2+	1999 11 17	327	0.4+	0.0	1999 12 12	703	0.0	0.7+
1999 11 04	704	0.2+	0.2+	1999 11 17	327	0.0	0.1+	1999 12 12	703	0.0	0.1-
1999 11 04	704	0.0	0.4-	1999 12 04	703	0.1-	0.6-				

1999 VU₅₈ = 1998 QE₆₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17422810	ω	69.77260	+0.46141360	+0.87494245		
<i>a</i>	3.1748552	Ω	228.58942	-0.86942067	+0.41297057		
<i>e</i>	0.1635086	<i>i</i>	11.29383	-0.17664992	+0.25284583		
<i>P</i>	5.66	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 24	704	0.6+	0.9+	1999 11 04	704	0.3-	0.2-	1999 12 04	703	0.7+	1.2+
1998 08 24	704	0.5-	0.1+	1999 11 04	704	0.2-	1.7-	1999 12 04	703	0.7-	0.3+
1998 08 24	704	1.4-	1.9-	1999 11 12	704	1.1+	0.4+	1999 12 04	703	0.1-	0.0
1998 08 24	704	0.4-	1.2+	1999 11 12	704	0.3+	0.4+	1999 12 04	703	0.9-	1.1-
1998 08 24	704	0.5+	0.3+	1999 11 12	704	0.3+	0.3+	1999 12 07	704	0.5+	0.1-
1998 08 27	704	0.2+	0.6+	1999 11 12	704	0.1+	0.6+	1999 12 07	704	0.9+	0.8-
1998 08 27	704	0.6+	0.4-	1999 11 12	704	0.1-	0.2+	1999 12 07	704	0.0	0.9-
1998 08 27	704	0.8+	0.4-	1999 12 02	699	0.8-	1.2+	1999 12 07	704	0.2+	0.2+
1998 08 27	704	0.3+	0.6+	1999 12 02	699	0.3-	0.2-	1999 12 07	704	0.8+	0.1+
1998 08 27	704	0.6-	1.1-	1999 12 02	699	0.4-	0.5-	1999 12 12	703	1.1-	0.0
1999 11 04	704	0.4-	0.1+	1999 12 03	691	0.2+	0.5+	1999 12 12	703	0.6+	0.9-
1999 11 04	704	0.0	0.1-	1999 12 03	691	0.0	0.5+	1999 12 12	703	0.1+	0.4-
1999 11 04	704	0.2-	0.3+	1999 12 03	691	0.1-	0.4+	1999 12 12	703	0.2-	0.3+

1999 VY₅₈ = 1995 WF₃₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25923109	ω	310.49424	-0.99880551	+0.00698019		
<i>a</i>	2.4360039	Ω	229.96258	+0.01089619	-0.93300366		
<i>e</i>	0.0333686	<i>i</i>	3.62156	-0.04763223	-0.35979918		
<i>P</i>	3.80	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 11 20	691	0.3-	0.3-	1999 11 12	704	0.8+	0.1+	1999 12 06	704	0.1+	1.0-
1995 11 20	691	0.4-	0.1+	1999 11 12	704	0.5+	0.0	1999 12 06	704	0.1-	0.8-
1995 11 20	691	0.3-	0.2-	1999 11 12	704	0.2+	0.5+	1999 12 06	704	0.1-	0.4-
1995 11 27	691	0.6+	0.2+	1999 11 12	704	0.3+	0.3+	1999 12 07	704	0.0	0.3-
1995 11 27	691	0.1+	0.3+	1999 12 03	691	0.6-	0.0	1999 12 07	704	0.1+	0.1-
1995 11 27	691	0.4+	0.1+	1999 12 03	691	0.1-	0.0	1999 12 07	704	0.6+	0.7+
1999 11 04	704	0.3-	0.3-	1999 12 03	691	0.2-	0.1-	1999 12 07	704	0.3-	0.2+
1999 11 04	704	0.3-	0.1+	1999 12 04	703	0.3-	0.5+	1999 12 07	704	0.4-	0.0
1999 11 04	704	0.4+	0.2+	1999 12 04	703	0.4-	0.3+	1999 12 12	703	0.4+	0.6-
1999 11 04	704	0.2+	0.5-	1999 12 04	703	0.5-	1.2+	1999 12 12	703	0.8-	0.9+
1999 11 04	704	0.4-	0.8-	1999 12 04	703	0.7+	1.4-	1999 12 12	703	0.3+	0.5-
1999 11 12	704	0.1-	0.7+	1999 12 06	704	0.3-	0.6+	1999 12 12	703	0.5+	0.4+

1999 VR₅₉ = 1993 FO₇₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23261808	ω	123.37794	+0.98815301	-0.15295522		
<i>a</i>	2.6184266	Ω	245.42306	+0.13581214	+0.90968721		
<i>e</i>	0.0998805	<i>i</i>	0.79279	+0.07147510	+0.38610086		
<i>P</i>	4.24	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 03 21	809	0.4-	0.1+	1999 11 04	704	0.2-	0.3+	1999 12 07	704	0.1-	0.9+
1993 03 22	809	0.4+	0.0	1999 11 12	704	0.2-	0.4-	1999 12 07	704	0.0	0.2+
1999 11 04	704	0.1-	0.0	1999 11 12	704	0.1+	0.4+	1999 12 07	704	0.2+	1.3-
1999 11 04	704	0.1+	0.3+	1999 11 12	704	0.0	0.2+	1999 12 07	704	0.0	0.2-
1999 11 04	704	0.0	0.3-	1999 11 12	704	0.3+	0.0				
1999 11 04	704	0.5-	0.2+	1999 11 12	704	0.5+	0.1-				

1999 VP₆₀ = 1998 HJ₉₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26421282	ω	132.52448	+0.42783124	+0.90383390		
<i>a</i>	2.4052864	Ω	162.80199	-0.83576361	+0.39840580		
<i>e</i>	0.1568384	<i>i</i>	1.29601	-0.34417963	+0.15606764		
<i>P</i>	3.73	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 04 21	704	0.5+	0.2+	1998 04 22	704	0.6+	1.5-	1999 11 12	704	0.3+	0.9+
1998 04 21	704	0.1-	0.6-	1999 11 04	704	0.6+	0.2-	1999 11 12	704	0.0	0.6-
1998 04 21	704	0.2+	0.3+	1999 11 04	704	0.3+	0.2-	1999 11 27	747	0.4+	0.2-
1998 04 21	704	0.5+	1.2+	1999 11 04	704	0.4-	0.7+	1999 11 27	747	0.1+	0.1-
1998 04 21	704	1.6-	0.1+	1999 11 04	704	0.1-	0.4-	1999 11 28	747	0.2+	0.7+
1998 04 22	704	0.5-	0.8+	1999 11 12	704	0.8-	0.1-	1999 11 28	747	0.3-	0.6-
1998 04 22	704	1.5+	0.1+	1999 11 12	704	0.0	0.3+	1999 11 28	747	0.2-	0.1+
1998 04 22	704	1.1-	0.7-	1999 11 12	704	0.0	0.3-				

1999 VN₆₁ = 1992 DC₁₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21279898	ω	304.19100	+0.99815397	+0.05203806		
<i>a</i>	2.7785807	Ω	52.84594	-0.03414464	+0.90723204		
<i>e</i>	0.0885622	<i>i</i>	2.25182	-0.05022742	+0.41739916		
<i>P</i>	4.63	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1992 02 29	691	0.7-	0.1+	1999 11 04	704	0.4+	0.6-
1992 02 29	691	0.3-	0.2-	1999 11 04	704	0.6-	0.2-
1992 02 29	691	0.2-	0.4-	1999 11 04	704	0.7-	0.2-
1992 03 08	809	1.1+	0.4+	1999 11 12	704	0.6+	0.1-
1999 11 04	704	0.3-	0.4-	1999 11 12	704	0.5+	0.3-
1999 11 04	704	0.3-	0.5-	1999 11 12	704	0.4+	0.7+

1999 VY₆₁ = 1999 TO₂₇ = 1996 CK₅

Id. A. Doppler, G. V. Williams (d)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20521396	ω	154.44177	+0.81213565	-0.58264182		
<i>a</i>	2.8466328	Ω	241.22979	+0.52905908	+0.75779985		
<i>e</i>	0.1625947	<i>i</i>	2.03010	+0.24603289	+0.29371398		
<i>P</i>	4.80	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1996 02 10	691	0.0	0.1-	1999 10 06	704	0.1-	0.4+
1996 02 10	691	0.2-	0.1+	1999 10 06	704	1.7-	0.8-
1996 02 10	691	0.2-	0.2-	1999 11 04	704	0.5+	0.9-
1996 02 16	691	0.2+	0.2+	1999 11 04	704	0.1+	0.2-
1996 02 16	691	0.2+	0.3+	1999 11 04	704	0.5+	0.6-
1996 02 16	691	0.3+	0.2+	1999 11 04	704	0.2+	0.5-
1999 10 03	704	1.9+	1.5+	1999 11 04	704	0.4+	0.8-
1999 10 03	704	0.6-	0.3+	1999 11 12	704	0.6-	0.9+
1999 10 03	704	0.1+	0.3-	1999 11 12	704	0.5-	0.7+
1999 10 06	704	0.0	0.1+	1999 11 12	704	0.2-	0.8+
1999 10 06	704	0.2+	0.4-	1999 11 12	704	0.5-	1.0+
1999 10 06	704	0.0	0.4+	1999 11 12	704	0.2-	1.1+

1999 VH₆₂ = 1997 HZ₇

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21663833	ω	233.12775	-0.10984651	-0.99277744		
<i>a</i>	2.7456543	Ω	223.25711	+0.93286407	-0.08622378		
<i>e</i>	0.0817757	<i>i</i>	4.03634	+0.34307196	-0.08341710		
<i>P</i>	4.55	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1997 04 08	704	0.2-	0.5+	1997 05 01	704	0.6+	1.5-
1997 04 08	704	0.2-	0.0	1999 11 04	704	0.1+	0.3+
1997 04 30	704	0.0	0.2+	1999 11 04	704	0.1+	0.0
1997 04 30	704	0.1-	0.3+	1999 11 04	704	0.1+	0.4+
1997 04 30	704	0.3-	0.4-	1999 11 04	704	0.5-	0.1+
1997 04 30	704	(3.7- 0.4+)		1999 11 04	704	0.3-	0.7-
1997 05 01	704	1.0+	0.6+	1999 11 12	704	0.1+	0.3+
1997 05 01	704	0.2-	0.2-	1999 11 12	704	0.3+	0.7+
1997 05 01	704	0.9-	0.1-	1999 11 12	704	0.3+	0.5-
1997 05 01	704	0.2+	0.7+	1999 11 12	704	0.3+	0.1-

1999 VJ₆₂ = 1985 TS₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28512913	ω	144.20625	+0.94659717	-0.32191358		
<i>a</i>	2.2861690	Ω	234.58224	+0.29042479	+0.87562964		
<i>e</i>	0.1547324	<i>i</i>	1.26842	+0.14002584	+0.36006164		
<i>P</i>	3.46	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1985 10 14	010	0.1+	0.3-	1999 11 12	704	0.6-	0.5+
1985 10 15	010	(10.5- 3.0-)		1999 11 26	120	0.5-	0.2-
1999 11 04	704	0.2+	0.0	1999 11 26	120	0.2-	0.2+
1999 11 04	704	0.5+	0.2-	1999 11 27	120	0.8-	0.1+
1999 11 04	704	0.8+	0.3-	1999 11 27	120	0.6-	0.3+
1999 11 04	704	0.4-	0.0	1999 12 04	703	1.0-	0.8+
1999 11 04	704	0.5+	1.0-	1999 12 04	703	0.6-	0.2+
1999 11 12	704	0.2-	0.7+	1999 12 04	703	0.7-	1.1+
1999 11 12	704	0.3-	1.1+	1999 12 04	703	0.6-	0.7+
1999 11 12	704	0.0	0.6+	1999 12 06	704	1.4+	0.3+
1999 11 12	704	0.5-	0.5+	1999 12 06	704	1.8+	0.7-

1999 VK₆₂ = 1995 UT₄₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26087439	ω	20.34817	-0.35018918	+0.93577425		
<i>a</i>	2.4257633	Ω	229.17676	-0.86673417	-0.34038788		
<i>e</i>	0.1077644	<i>i</i>	3.11792	-0.35516112	-0.09199264		
<i>P</i>	3.78	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1995 10 20	010	1.3-	0.8-	1999 11 12	704	0.9-	0.3+
1995 10 20	010	0.8-	0.0	1999 11 25	120	0.2-	0.2-
1995 10 20	010	0.7-	1.2+	1999 11 25	120	0.5+	0.3+
1995 10 23	010	1.1+	0.3-	1999 11 25	120	0.2+	0.8-
1995 10 23	010	0.7+	0.0	1999 11 26	120	0.1+	1.0-
1995 10 23	010	1.0+	0.2-	1999 11 26	120	0.5-	1.4-
1999 11 04	704	0.5+	0.1+	1999 11 27	120	0.3-	0.7+
1999 11 04	704	1.1+	0.4+	1999 11 27	120	0.1-	0.1-
1999 11 04	704	0.3+	0.0	1999 11 29	691	0.0	0.7-
1999 11 04	704	1.2+	0.7-	1999 11 29	691	0.0	0.7-
1999 11 04	704	0.6+	0.6-	1999 11 29	691	0.0	0.6-
1999 11 12	704	0.2-	1.3+	1999 12 04	703	1.0-	0.2+
1999 11 12	704	0.4-	0.4+	1999 12 04	703	1.4-	1.1+
1999 11 12	704	0.4-	0.5+	1999 12 04	703	0.7-	1.0+
1999 11 12	704	0.2-	0.9+	1999 12 04	703	1.0-	0.2-

1999 VR₆₂ = 1982 TF = 1993 TY₂₈ = 1997 JK₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17577505	ω	308.73193	+0.99655515	-0.03081285		
<i>a</i>	3.1562003	Ω	53.16694	+0.06224144	+0.89144021		
<i>e</i>	0.1954416	<i>i</i>	5.52032	-0.05480734	+0.45208950		
<i>P</i>	5.61	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1982 10 13	688	0.7+	1.4-	1999 11 04	704	0.4+	0.5+
1982 10 13	688	0.5+	1.0-	1999 11 04	704	0.4+	0.4+
1993 10 09	675	0.1-	0.9+	1999 11 04	704	0.1+	0.5+
1993 10 09	675	0.3-	0.6+	1999 11 04	704	0.3+	0.4+
1993 10 14	675	0.4-	0.1+	1999 11 12	704	0.1-	0.2-
1993 10 14	675	(2.0- 2.8-)		1999 11 12	704	0.2-	0.2-
1997 05 01	910	0.1+	0.3+	1999 11 12	704	0.1-	0.1-
1997 05 01	910	0.0	0.0	1999 11 12	704	0.1-	0.0
1997 05 01	910	0.2+	0.0	1999 11 12	704	0.1-	0.0
1997 05 02	910	0.1+	0.1+	1999 11 26	120	0.1-	0.1+
1997 05 02	910	0.1-	0.2+	1999 11 26	120	0.3-	0.0

1999 DEC. 22

M.P.C. 37233

1997 05 03	910	0.0	0.1+	1999 11 27	120	0.2-	0.2+	1999 12 07	704	0.2+	0.1-
1999 11 04	704	0.4+	0.3+	1999 11 27	120	0.0	0.1-	1999 12 07	704	0.7-	0.1-

1999 VX₆₂ = 1989 YS₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	1.94854		(2000.0)	P	Q
<i>n</i>	0.28111158	ω	304.52703	+0.98539429	-0.16654563
<i>a</i>	2.3078995	Ω	65.08291	+0.16623815	+0.89561256
<i>e</i>	0.1281869	<i>i</i>	2.24368	+0.03691838	+0.41248114
<i>P</i>	3.51	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1989 12 30	413	0.3+	0.4+	1999 11 12	704	0.2+	0.0	1999 12 06	704	0.1+	0.1-
1989 12 31	413	1.6-	0.0	1999 11 12	704	0.2+	0.4+	1999 12 06	704	0.2+	0.3+
1989 12 31	413	1.4+	0.0	1999 11 12	704	0.0	0.2+	1999 12 06	704	0.1+	0.2+
1999 11 04	704	0.4-	0.2-	1999 11 12	704	0.4+	0.4+	1999 12 07	704	0.8+	0.9-
1999 11 04	704	0.1+	0.1-	1999 12 04	703	1.3-	0.2-	1999 12 07	704	0.4+	1.0-
1999 11 04	704	0.6-	0.5+	1999 12 04	703	0.4-	0.2+	1999 12 07	704	0.7+	0.7-
1999 11 04	704	0.1-	0.2+	1999 12 04	703	0.1-	0.4+	1999 12 07	704	0.1-	0.3-
1999 11 04	704	0.2-	0.1+	1999 12 04	703	0.0	1.5+	1999 12 07	704	0.3+	0.3-
1999 11 12	704	0.1-	0.2-	1999 12 06	704	0.3+	0.9-				

1999 VX₆₃ = 1997 JY₁

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	258.76219		(2000.0)	P	Q
<i>n</i>	0.23802935	ω	91.14365	-0.77538676	-0.62183262
<i>a</i>	2.5785905	Ω	50.41778	+0.50763166	-0.71738836
<i>e</i>	0.1366100	<i>i</i>	8.20543	+0.37561346	-0.31413075
<i>P</i>	4.14	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 05 01	910	0.2-	0.0	1999 11 04	704	1.5+	0.5+	1999 12 04	703	1.0-	1.4+
1997 05 01	910	0.1-	0.0	1999 11 04	704	1.5-	0.5+	1999 12 04	703	(2.6+	2.0+)
1997 05 01	910	0.0	0.0	1999 11 04	704	0.4+	0.3-	1999 12 04	703	0.4+	0.3+
1997 05 02	910	0.0	0.1-	1999 11 12	704	0.0	0.5-	1999 12 04	703	0.1+	0.4-
1997 05 02	910	0.0	0.0	1999 11 12	704	0.2+	0.3-	1999 12 12	703	0.1+	0.5-
1997 05 03	910	0.1+	0.1+	1999 11 12	704	0.1+	0.1-	1999 12 12	703	1.2-	0.9+
1999 11 04	704	0.5-	0.1+	1999 11 12	704	0.3+	0.1+	1999 12 12	703	1.2+	1.4-
1999 11 04	704	0.7-	0.4-	1999 11 12	704	0.6+	0.0	1999 12 12	703	0.0	0.2+

1999 VD₆₄ = 1997 HN₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	302.68111		(2000.0)	P	Q
<i>n</i>	0.23344335	ω	44.75939	-0.06694547	-0.98229161
<i>a</i>	2.6122518	Ω	49.89982	+0.83933958	-0.15027018
<i>e</i>	0.1621385	<i>i</i>	13.22462	+0.53946953	+0.11190204
<i>P</i>	4.22	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 04 30	704	0.2+	0.3+	1999 11 04	704	0.1+	0.2-	1999 12 06	704	0.4-	0.4-
1997 04 30	704	0.0	0.5+	1999 11 04	704	0.5+	1.2+	1999 12 06	704	0.4-	0.6-
1997 04 30	704	0.1+	0.5-	1999 11 04	704	0.5-	0.6+	1999 12 06	704	0.3+	0.5-
1997 04 30	704	0.4+	0.4+	1999 11 04	704	0.3-	0.5+	1999 12 06	704	0.3-	0.1-
1997 05 01	704	0.5-	0.6-	1999 11 12	704	0.0	0.4-	1999 12 06	704	0.3-	0.1-
1997 05 01	704	0.2-	0.4+	1999 11 12	704	0.1+	0.6-	1999 12 07	704	0.1+	0.1-
1997 05 01	704	0.1+	1.1-	1999 11 12	704	0.2-	0.6-	1999 12 07	704	0.0	0.0
1997 05 01	704	0.8+	0.9+	1999 11 12	704	0.1+	0.7-	1999 12 07	704	0.1-	0.5+
1997 05 01	704	0.5+	0.3+	1999 11 12	704	0.1-	0.6-	1999 12 07	704	0.5+	0.3+
1997 05 05	704	0.6-	0.1-	1999 11 30	691	0.1+	0.2-	1999 12 07	704	0.1-	0.2+
1997 05 05	704	0.1-	0.3+	1999 11 30	691	0.1+	0.2-	1999 12 12	703	0.4-	0.7+
1997 05 05	704	0.5-	0.1-	1999 11 30	691	0.0	0.1+	1999 12 12	703	0.8-	0.2+
1997 05 05	704	0.6-	0.3-	1999 12 04	691	1.0+	0.1+	1999 12 12	703	0.0	0.2+

1997 05 05	704	0.4+	0.4-	1999 12 04	691	0.9+	0.1+	1999 12 12	703	0.3-	0.3+
1999 11 04	704	0.7-	0.0	1999 12 04	691	0.9+	0.1-				

1999 VX₆₄ = 1998 KG₄₇

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	141.56149		(2000.0)	P	Q
<i>n</i>	0.30073626	ω	19.56780	-0.57550863	+0.81703715
<i>a</i>	2.2063726	Ω	215.32212	-0.75819382	-0.54920788
<i>e</i>	0.2126491	<i>i</i>	3.49192	-0.30648320	-0.17555908
<i>P</i>	3.28	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 05 22	704	0.9+	1.4-	1998 05 24	704	0.5+	0.1-	1999 11 12	704	0.4-	0.1+
1998 05 22	704	0.8-	0.2+	1998 05 24	704	0.3-	0.8+	1999 11 12	704	0.2-	0.4+
1998 05 22	704	0.6+	1.0+	1999 11 04	704	0.2+	0.3+	1999 11 12	704	0.4-	0.8+
1998 05 22	704	0.8-	0.2+	1999 11 04	704	0.3+	0.3-	1999 11 28	691	0.1+	0.1-
1998 05 22	704	0.3-	0.8-	1999 11 04	704	0.4+	0.1-	1999 11 28	691	0.2+	0.3-
1998 05 24	704	0.3+	0.2-	1999 11 04	704	0.5+	0.2-	1999 11 28	691	0.4+	0.1-
1998 05 24	704	0.2-	0.0	1999 11 12	704	0.2-	0.4-				
1998 05 24	704	0.2+	0.2+	1999 11 12	704	0.7-	0.3-				

1999 VN₆₅ = 1997 EG₅₇

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	278.07714		(2000.0)	P	Q
<i>n</i>	0.26040804	ω	68.33907	-0.53292694	-0.84570176
<i>a</i>	2.4286585	Ω	53.89465	+0.76302180	-0.49454712
<i>e</i>	0.1443841	<i>i</i>	1.97769	+0.36576853	-0.20052851
<i>P</i>	3.78	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 03 10	809	0.3+	1.0+	1999 11 04	704	0.1-	0.3-	1999 12 07	704	0.4-	0.3-
1997 03 10	809	0.9-	0.6+	1999 11 12	704	0.2-	0.2-	1999 12 07	704	1.3+	0.1-
1997 03 10	809	0.4+	0.3+	1999 11 12	704	0.2-	0.2-	1999 12 07	704	0.4+	0.7+
1997 03 11	809	0.0	0.2+	1999 11 12	704	0.3-	0.3-	1999 12 07	704	1.1+	0.6+
1997 03 11	809	0.4-	1.2-	1999 11 12	704	0.2-	0.2-	1999 12 07	704	0.7+	1.3-
1997 03 11	809	0.4+	1.2-	1999 11 12	704	0.2+	0.0	1999 12 12	703	1.0-	0.5-
1999 11 04	704	0.2+	0.6-	1999 12 06	704	0.5+	0.5+	1999 12 12	703	1.9-	0.3+
1999 11 04	704	0.1+	0.3-	1999 12 06	704	0.7+	0.7+	1999 12 12	703	0.8-	0.6-
1999 11 04	704	0.2+	0.0	1999 12 06	704	0.4+	0.3+	1999 12 12	703	1.3-	0.5+
1999 11 04	704	0.0	0.3-	1999 12 06	704	0.7+	1.2+				

1999 VP₆₅ = 1996 KB₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	15.58883		(2000.0)	P	Q
<i>n</i>	0.20066613	ω	304.86952	+0.98650027	-0.15566759
<i>a</i>	2.8894820	Ω	64.13367	+0.16254067	+0.89296356
<i>e</i>	0.0762443	<i>i</i>	3.23903	+0.01994348	+0.42235493
<i>P</i>	4.91	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 05 19	704	0.8+	0.8-	1999 11 12	704	0.3-	0.0	1999 12 07	691	0.1-	0.1-
1996 05 19	704	0.4+	0.9+	1999 11 30	691	0.1+	0.1-	1999 12 07	691	0.1-	0.0
1996 05 19	704	0.3-	0.0	1999 11 30	691	0.0	0.1-	1999 12 07	704	0.5+	0.1-
1996 05 21	704	1.3-	0.4-	1999 11 30	691	0.2+	0.1-	1999 12 07	704	0.3+	0.2+
1996 05 21	704	0.3-	0.6+	1999 12 04	703	0.1+	0.0	1999 12 07	691	0.1-	0.0
1996 05 21	704	0.4+	0.7-	1999 12 04	703	0.1+	0.4+	1999 12 07	704	0.2+	0.6-
1996 05 21	704	0.3+	0.2+	1999 12 04	703	0.2-	0.2-	1999 12 07	704	0.6+	0.1+
1999 11 04	704	0.2-	0.2-	1999 12 04	703	0.1-	0.1-	1999 12 07	704	0.2-	0.2+
1999 11 04	704	0.1+	0.3-	1999 12 06	704	0.4+	0.9+	1999 12 12	703	0.5-	0.0
1999 11 04	704	0.3+	0.2+	1999 12 06	704	0.3+	0.3+	1999 12 12	703	0.2-	0.3-
1999 11 04	704	0.9+	0.2-	1999 12 06	704	0.1+	0.2-	1999 12 12	703	0.9-	0.1+
1999 11 12	704	0.6-	0.3+	1999 12 06	704	0.2-	0.0	1999 12 12	703	0.8-	0.4+
1999 11 12	704	0.3-	0.0	1999 12 06	704	0.6+	0.4-				

1999 VX₆₅ = 1993 FV₄₃ = 1994 NX₁₂

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	17.80767	(2000.0)	P		Q	
<i>n</i>	0.23382278	ω 221.40345	+0.99870363	+0.04891647		
<i>a</i>	2.6094251	Ω 135.78661	−0.03975479	+0.92230256		
<i>e</i>	0.1482477	<i>i</i> 1.15693	−0.03179022	+0.38336036		
<i>P</i>	4.22	<i>H</i> 15.1	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1993 03 19	809	0.4−	0.4−	1999 11 04	704	0.4+	0.6−	1999 12 06	691	0.0	0.1−
1993 03 20	809	1.2+	1.2−	1999 11 04	704	0.6+	1.3−	1999 12 07	704	0.1+	0.2+
1993 03 24	809	1.5−	0.1−	1999 11 12	704	0.2+	0.5+	1999 12 07	704	0.4+	0.4+
1994 07 08	809	(1.6+	4.0+)	1999 11 12	704	0.4+	0.0	1999 12 07	704	0.5−	0.7+
1994 07 08	809	(2.4+	4.2+)	1999 11 12	704	0.0	0.1+	1999 12 12	691	0.2+	0.5−
1994 07 08	809	(2.6+	3.9+)	1999 11 12	704	0.2+	0.2+	1999 12 12	691	0.1+	0.5−
1994 07 09	809	0.3−	0.1+	1999 11 12	704	0.2+	0.0	1999 12 12	691	0.4+	0.4−
1994 07 09	809	0.1+	0.5−	1999 11 29	691	0.3+	0.1−	1999 12 12	703	0.3+	0.4+
1994 07 09	809	0.3+	0.6−	1999 11 29	691	0.3+	0.0	1999 12 12	703	0.7−	0.6+
1999 11 04	704	1.4−	0.6−	1999 11 29	691	0.3+	0.1+	1999 12 12	703	0.1+	0.9+
1999 11 04	704	0.1+	0.7−	1999 12 06	691	0.4−	0.2−	1999 12 12	703	1.2−	0.1+
1999 11 04	704	0.2−	0.6−	1999 12 06	691	0.1+	0.0				

1999 VD₆₆ = 1997 JQ₁₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	54.62811	(2000.0)	P		Q	
<i>n</i>	0.17466223	ω 271.16227	+0.82354472	+0.53966379		
<i>a</i>	3.1695922	Ω 56.20263	−0.39974771	+0.77070378		
<i>e</i>	0.0965904	<i>i</i> 12.13903	−0.40246226	+0.33879002		
<i>P</i>	5.64	<i>H</i> 13.8	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1997 05 03	809	(2.8+	0.3−)	1999 11 04	704	0.5+	0.2−	1999 12 04	703	0.2−	0.0
1997 05 03	809	1.9+	0.0	1999 11 04	704	0.3−	0.7−	1999 12 04	703	0.3+	0.1−
1997 05 03	809	1.8+	1.1+	1999 11 04	704	1.1−	0.2−	1999 12 04	703	0.5+	0.8+
1997 05 04	809	0.6+	0.7−	1999 11 12	704	0.2+	0.3+	1999 12 07	704	0.2−	0.5+
1997 05 04	809	0.1−	0.0	1999 11 12	704	0.0	0.3+	1999 12 07	704	0.2−	0.1+
1997 05 04	809	0.4+	0.4+	1999 11 12	704	0.2−	0.6+	1999 12 07	704	0.3+	0.3−
1997 05 07	704	1.0−	0.6−	1999 11 12	704	0.2+	0.2+	1999 12 07	704	0.0	0.0
1997 05 07	704	1.3−	0.3−	1999 11 12	704	0.3+	0.1+	1999 12 07	704	0.1+	0.4−
1997 05 07	704	1.3−	0.4−	1999 12 04	691	0.1+	0.2−	1999 12 12	703	1.0+	0.1−
1997 05 07	704	1.4−	0.2−	1999 12 04	691	0.1−	0.1−	1999 12 12	703	0.0	0.1−
1999 11 04	704	0.3−	0.4−	1999 12 04	703	0.2−	0.4+	1999 12 12	703	0.1+	0.0
1999 11 04	704	0.4+	0.6−	1999 12 04	691	0.5−	0.2−	1999 12 12	703	0.4−	0.3−

1999 VG₆₆ = 1993 BQ₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	288.73337	(2000.0)	P		Q	
<i>n</i>	0.27207166	ω 43.24081	−0.33591838	−0.94043710		
<i>a</i>	2.3587424	Ω 66.44986	+0.84787200	−0.32611032		
<i>e</i>	0.1549919	<i>i</i> 3.27157	+0.41020960	−0.09607357		
<i>P</i>	3.62	<i>H</i> 15.4	<i>G</i> 0.15	<i>U</i> 5		

Residuals in seconds of arc

1993 01 16	010	0.8+	0.9−	1999 11 04	704	0.3−	0.3+	1999 12 07	704	0.0	0.2−
1993 01 16	010	0.2+	0.1−	1999 11 12	704	0.3+	0.6+	1999 12 07	704	0.3+	0.1−
1993 01 16	010	0.6−	0.1+	1999 11 12	704	0.2+	0.3+	1999 12 07	704	0.6−	0.6−
1993 01 17	010	0.5−	0.4−	1999 11 12	704	0.0	0.2+	1999 12 07	704	0.4+	0.4−
1993 01 17	010	0.5−	0.3+	1999 11 12	704	0.1+	0.1+	1999 12 07	704	0.4+	0.1+
1993 01 17	010	0.6+	0.9+	1999 11 12	704	0.0	0.1+	1999 12 12	703	1.7−	0.2+
1999 11 04	704	0.3−	1.2−	1999 12 06	704	2.0+	0.4+	1999 12 12	703	0.2−	0.1−
1999 11 04	704	0.2−	0.9−	1999 12 06	704	0.3+	0.3+	1999 12 12	703	0.5−	0.2+
1999 11 04	704	0.0	0.2−	1999 12 06	704	0.7+	0.5+	1999 12 12	703	0.8−	0.4+
1999 11 04	704	0.3−	0.5+	1999 12 06	704	0.0	0.4−				

1999 VY₆₆ = 1998 MG₃₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	15.07388	(2000.0)	P		Q	
<i>n</i>	0.19419905	ω 307.96382	+0.98591821	−0.16144769		
<i>a</i>	2.9532802	Ω 61.36580	+0.16473867	+0.89285974		
<i>e</i>	0.1172823	<i>i</i> 2.84659	+0.02874809	+0.42039995		
<i>P</i>	5.08	<i>H</i> 13.9	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1998 06 24	704	1.1+	0.4+	1999 11 12	704	0.1+	1.1−	1999 12 04	703	0.5+	0.3+
1998 06 24	704	1.0+	0.3−	1999 11 12	704	0.7−	0.3−	1999 12 06	704	0.4+	1.3−
1998 06 24	704	0.6+	1.4−	1999 11 16	327	0.1−	0.1+	1999 12 06	704	0.8+	0.6+
1998 06 24	704	(0.2+	2.5−)	1999 11 16	327	0.6−	0.1−	1999 12 06	704	0.3+	0.8−
1998 06 24	704	0.2−	0.3+	1999 11 16	327	0.5+	0.0	1999 12 06	704	0.4+	0.2+
1998 06 26	704	1.0+	1.2−	1999 11 17	327	0.3+	0.0	1999 12 06	704	0.4−	0.5+
1998 06 26	704	1.5−	1.7+	1999 11 17	327	0.1+	0.2+	1999 12 07	704	0.3+	0.3+
1998 06 26	704	1.1−	0.6+	1999 11 17	327	0.1+	0.3+	1999 12 07	704	0.3−	0.1−
1998 06 26	704	0.8−	0.1−	1999 11 19	327	0.6−	0.8+	1999 12 07	704	0.0	0.2−
1999 11 04	704	0.2−	0.0	1999 11 19	327	0.2+	0.4+	1999 12 07	704	0.4+	0.1+
1999 11 04	704	0.5+	0.0	1999 11 19	327	0.1−	0.4+	1999 12 07	704	0.2+	0.4+
1999 11 04	704	0.2−	0.1+	1999 12 04	691	0.2−	0.1−	1999 12 12	703	0.7+	0.1+
1999 11 04	704	0.1+	0.2−	1999 12 04	691	0.4−	0.3−	1999 12 12	703	0.3−	0.6−
1999 11 04	704	1.0+	0.1−	1999 12 04	703	0.3−	0.4−	1999 12 12	703	0.8−	0.5−
1999 11 12	704	0.4−	0.5+	1999 12 04	703	0.5−	1.2+	1999 12 12	703	0.1+	0.2+
1999 11 12	704	0.3−	0.2−	1999 12 04	691	0.5−	0.1−				
1999 11 12	704	0.1−	0.3−	1999 12 04	703	0.0	0.4−				

1999 VM₆₇ = 1992 EP₁₃

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	135.78842	(2000.0)	P		Q	
<i>n</i>	0.21207501	ω 36.40272	−0.30091912	+0.95258995		
<i>a</i>	2.7849007	Ω 216.14560	−0.89196003	−0.29781611		
<i>e</i>	0.0815741	<i>i</i> 4.37012	−0.33742404	−0.06227317		
<i>P</i>	4.65	<i>H</i> 14.7	<i>G</i> 0.15	<i>U</i> 5		

Residuals in seconds of arc

1992 03 02	809	1.0−	1.6+	1999 11 12	704	0.0	0.5+	1999 12 04	703	1.0−	1.4−
1992 03 05	809	0.8+	0.2−	1999 11 12	704	(2.5+	0.6+)	1999 12 12	703	0.3+	0.7+
1992 03 09	809	0.1+	1.5−	1999 11 12	704	0.5−	0.6−	1999 12 12	703	1.7−	0.6+
1999 11 04	704	0.7+	0.5+	1999 11 12	704	0.4+	0.4+	1999 12 12	703	1.3−	0.4+
1999 11 04	704	0.2+	0.0	1999 12 04	703	1.0+	0.3+	1999 12 12	703	1.9+	0.0
1999 11 04	704	0.3+	0.1+	1999 12 04	703	0.6+	0.7−				
1999 11 04	704	0.7−	0.8−	1999 12 04	703	0.4−	0.0				

1999 VN₆₇ = 1994 TR₇

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams			
<i>M</i>	298.59255	(2000.0)	P		Q	
<i>n</i>	0.21256518	ω 279.50277	−0.44130262	−0.89734309		
<i>a</i>	2.7806178	Ω 196.68725	+0.83029498	−0.40610314		
<i>e</i>	0.2438830	<i>i</i> 1.04427	+0.34038545	−0.17278780		
<i>P</i>	4.64	<i>H</i> 15.4	<i>G</i> 0.15	<i>U</i> 5		

Residuals in seconds of arc

1994 10 06	691	0.4−	0.4+	1999 11 04	704	1.1+	0.6+	1999 12 07	704	0.0	0.5+
1994 10 06	691	0.9+	0.3−	1999 11 04	704	0.4−	0.3+	1999 12 07	704	0.2−	0.7+
1994 10 06	691	0.0	0.3−	1999 11 04	704	0.6−	0.5+	1999 12 07	704	0.5−	1.2+
1994 10 11	691	0.1−	0.1−	1999 11 12	704	0.1+	0.6−	1999 12 07	704	0.5−	0.1−
1994 10 11	691	0.2−	0.1+	1999 11 12	704	0.3+	0.1−	1999 12 12	703	0.3+	0.8−
1994 10 11	691	0.2−	0.3+	1999 11 12	704	0.2−	0.2−	1999 12 12	703	0.3+	0.4+
1999 11 04	704	0.6−	0.5−	1999 11 12	704	0.3−	0.5−	1999 12 12	703	0.9−	0.4−
1999 11 04	704	1.0+	0.1+	1999 11 12	704	0.0	0.5−	1999 12 12	703	1.2+	0.8−

1999 DEC. 22

M.P.C. 37235

1999 VV₆₇ = 1977 RK₁₀

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18296952	ω	6.96626	−0.18909855	−0.98144865		
<i>a</i>	3.0729126	Ω	93.93747	+0.89939260	−0.18603620		
<i>e</i>	0.1805288	<i>i</i>	1.81671	+0.39412522	−0.04635819		
<i>P</i>	5.39	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1977 09 09	675	0.8+	0.3−	1999 11 12	704	0.2−	0.0	1999 12 07	704	1.2+	0.2−
1977 09 10	675	0.8−	0.3+	1999 11 12	704	0.2−	0.6+	1999 12 07	704	0.4−	0.3+
1999 11 04	704	0.2+	0.9−	1999 11 12	704	0.2−	0.7+	1999 12 07	704	0.4−	0.4−
1999 11 04	704	0.5+	0.4−	1999 12 06	704	0.8−	0.6+	1999 12 07	704	0.1−	0.6−
1999 11 04	704	0.5−	0.5−	1999 12 06	704	0.1−	0.5−	1999 12 12	703	0.7+	0.6+
1999 11 04	704	0.6+	0.5+	1999 12 06	704	0.1+	0.2+	1999 12 12	703	0.1+	0.8+
1999 11 04	704	0.1−	0.0	1999 12 06	704	0.5−	0.0	1999 12 12	703	0.3+	0.1+
1999 11 12	704	0.0	0.4+	1999 12 06	704	0.4+	0.1+	1999 12 12	703	1.2−	0.4−
1999 11 12	704	0.2−	0.2+	1999 12 07	704	0.8+	0.8−				

1999 VX₆₇ = 1991 JJ₃ = 1998 LR

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28204148	ω	191.57393	−0.14012552	+0.98817177		
<i>a</i>	2.3028239	Ω	70.39490	−0.90307036	−0.10175073		
<i>e</i>	0.1627874	<i>i</i>	3.79201	−0.40599108	−0.11473161		
<i>P</i>	3.49	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 05 12	809	1.4+	1.0+	1998 06 03	704	0.7−	1.0−	1999 12 06	704	0.3+	0.1−
1991 05 12	809	0.8−	0.2+	1998 06 03	704	1.0−	1.0−	1999 12 06	704	0.5+	1.0+
1991 05 12	809	0.1+	0.0	1998 06 03	704	0.9−	1.1−	1999 12 06	704	0.2−	0.3+
1991 05 17	809	0.5−	0.1+	1998 06 03	704	1.5−	1.7−	1999 12 07	704	0.4−	0.7+
1991 05 17	809	0.3−	0.5−	1999 11 04	704	0.7+	1.3−	1999 12 07	704	0.2+	0.5+
1991 05 17	809	0.4+	0.4+	1999 11 04	704	0.4+	0.1−	1999 12 07	704	1.2−	0.1+
1998 06 01	809	1.1+	0.9+	1999 11 04	704	1.0+	1.0+	1999 12 07	704	0.7−	1.0+
1998 06 01	809	0.2+	1.1+	1999 11 12	704	0.1−	0.0	1999 12 12	703	0.2−	0.5+
1998 06 01	809	0.4−	0.9+	1999 11 12	704	0.6+	0.3−	1999 12 12	703	1.2−	0.2+
1998 06 02	809	1.6+	1.3+	1999 11 12	704	0.1+	0.1−	1999 12 12	703	0.6−	0.7+
1998 06 02	809	1.0+	1.6+	1999 11 12	704	0.4+	0.7−	1999 12 12	703	1.4−	0.0
1998 06 02	809	1.7+	1.2+	1999 11 12	704	0.3+	0.2−				
1998 06 03	704	1.0−	1.0−	1999 12 06	704	0.2+	0.0				

1999 VD₆₈ = 1998 QR₆₄

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24160071	ω	5.96329	−0.59119492	+0.78801663		
<i>a</i>	2.5531162	Ω	227.94345	−0.74920947	−0.61544642		
<i>e</i>	0.1208005	<i>i</i>	13.37937	−0.29861972	−0.01598401		
<i>P</i>	4.08	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 24	704	0.2−	0.6+	1999 11 04	704	0.6+	0.1+	1999 12 04	703	0.5−	0.3+
1998 08 24	704	0.4+	0.3−	1999 11 04	704	0.0	0.3+	1999 12 04	703	1.2−	1.9−
1998 08 24	704	1.4−	0.1−	1999 11 04	704	0.3+	0.4+	1999 12 05	703	0.6−	0.7+
1998 08 24	704	0.9+	0.1+	1999 11 04	704	0.5+	0.7+	1999 12 05	703	0.1−	0.5+
1998 08 24	704	0.1−	0.3−	1999 11 12	704	0.2−	0.0	1999 12 05	703	0.2−	0.2+
1998 08 27	704	0.3+	0.2−	1999 11 12	704	0.1−	0.1−	1999 12 05	703	0.4+	0.5+
1998 08 27	704	1.7+	0.5−	1999 11 12	704	0.5−	0.5−	1999 12 06	704	0.2+	0.2+
1998 08 27	704	0.3−	0.0	1999 11 12	704	0.4−	0.4−	1999 12 06	704	0.1−	0.0
1998 08 27	704	0.7−	0.4−	1999 11 12	704	0.3−	0.7−	1999 12 06	704	0.9+	0.0

1998 08 27	704	0.6−	1.1+	1999 12 04	703	0.0	0.5+	1999 12 06	704	1.7+	1.5−
1999 11 04	704	0.0	0.2−	1999 12 04	703	0.7−	0.8+	1999 12 06	704	0.2+	0.0

1999 VT₆₈ = 1994 LZ₅ = 1995 VY₉ = 1997 AL₁₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26364404	ω	17.25380	−0.55913789	+0.82877762		
<i>a</i>	2.4087446	Ω	218.75807	−0.76478227	−0.52592853		
<i>e</i>	0.1305837	<i>i</i>	2.03147	−0.32011389	−0.19111995		
<i>P</i>	3.74	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1994 06 03	809	0.3−	0.6+	1995 11 19	691	0.2−	0.1−	1999 11 12	704	0.0	0.8+
1994 06 03	809	0.6+	0.7+	1997 01 11	566	0.0	0.3+	1999 11 12	704	0.1+	0.9+
1994 06 03	809	0.4+	0.2−	1997 01 11	566	0.4+	0.4+	1999 11 12	704	0.0	1.1+
1994 06 04	809	0.0	1.8+	1997 01 11	566	0.2+	0.3+	1999 12 03	691	0.1+	0.5+
1994 06 04	809	0.4−	1.6+	1997 01 14	566	0.3−	0.6+	1999 12 03	691	0.3+	0.6+
1994 06 04	809	0.4+	1.6+	1997 01 14	566	0.1+	0.2−	1999 12 03	691	0.3+	0.7+
1995 11 15	691	0.2+	0.0	1997 01 14	566	0.2+	0.5+	1999 12 07	704	1.0−	0.8+
1995 11 15	691	0.2+	0.0	1999 11 04	704	1.1+	1.1+	1999 12 07	704	(2.1−	0.9+)
1995 11 15	691	0.3+	0.2−	1999 11 04	704	0.0	0.2−	1999 12 07	704	0.9−	0.9+
1995 11 19	691	0.4−	0.2+	1999 11 04	704	1.6−	1.2−				
1995 11 19	691	0.0	0.1−	1999 11 12	704	0.0	0.5+				

1999 VB₆₉ = 1998 KC₃₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23126619	ω	89.68889	+0.63845453	+0.75942068		
<i>a</i>	2.6286209	Ω	220.89219	−0.76005645	+0.59650015		
<i>e</i>	0.1737596	<i>i</i>	11.01902	−0.12120235	+0.25974566		
<i>P</i>	4.26	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 05 22	704	0.6+	0.6+	1999 11 04	704	0.8+	0.2−	1999 11 12	704	0.7−	0.2−
1998 05 22	704	1.2−	0.5+	1999 11 04	704	0.5−	1.3+	1999 11 15	611	1.0−	0.5−
1998 05 22	704	0.9+	0.2+	1999 11 04	704	0.4−	1.0−	1999 11 15	611	0.9+	1.0−
1998 05 22	704	1.1−	0.1−	1999 11 12	704	0.2−	0.2−	1999 12 07	704	0.4−	0.3−
1998 05 24	704	0.8+	0.8−	1999 11 12	704	0.2−	0.3+	1999 12 07	704	0.2+	0.6+
1998 05 24	704	1.0+	1.2−	1999 11 12	704	0.8+	0.3+	1999 12 07	704	0.1+	0.9−
1998 05 24	704	0.9−	0.8+	1999 11 12	704	0.6+	0.9+	1999 12 07	704	0.0	0.8+

1999 VL₆₉ = 1997 HW₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18009355	ω	312.43973	+0.96172184	−0.27172555		
<i>a</i>	3.1055411	Ω	63.35549	+0.26161867	+0.87197548		
<i>e</i>	0.1809409	<i>i</i>	2.27272	+0.08152778	+0.40721492		
<i>P</i>	5.47	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 04 30	704	0.7−	0.6−	1997 05 01	704	0.2+	0.1+	1999 11 04	704	0.2+	0.1−
1997 04 30	704	0.3+	0.1−	1997 05 01	704	0.2+	0.1−	1999 11 12	704	0.0	0.0
1997 04 30	704	0.7+	0.2+	1997 05 01	704	0.5−	0.9+	1999 11 12	704	0.0	0.1+
1997 04 30	704	0.5−	0.7−	1999 11 04	704	0.2−	0.1+	1999 11 12	704	0.1−	0.1+
1997 05 01	704	0.3+	0.1−	1999 11 04	704	0.0	0.0	1999 11 12	704	0.2+	0.0
1997 05 01	704	0.1−	0.5+	1999 11 04	704	0.0	0.0	1999 11 12	704	0.0	0.1−

1999 VL₇₀ = 1997 JU₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	145.41170		(2000.0)		P		Q				
n	0.19562317	ω	183.22686		−0.43570053		+0.89904691				
a	2.9389297	Ω	60.94712		−0.82470352		−0.37944753				
e	0.0543375	i	2.84281		−0.36059556		−0.21848163				
P	5.04	H	14.2		G	0.15	U	4			
Residuals in seconds of arc											
1997 05 03	809	0.7+	1.7−	1999 11 04	704	1.0−	0.3−	1999 12 04	703	0.6−	0.5+
1997 05 03	809	1.1+	0.8−	1999 11 12	704	0.7+	0.0	1999 12 04	703	0.4−	0.1−
1997 05 03	809	0.1+	0.6−	1999 11 12	704	0.9+	0.4+	1999 12 04	703	0.6−	0.1−
1997 05 04	809	0.2−	0.7−	1999 11 12	704	1.0+	0.0	1999 12 07	704	0.6+	0.5+
1997 05 04	809	0.7−	1.6−	1999 11 12	704	0.2−	0.1+	1999 12 07	704	0.4+	0.1+
1997 05 04	809	0.4−	0.6+	1999 11 12	704	0.7+	0.1+	1999 12 07	704	0.1+	0.7−
1997 05 07	704	0.1+	1.1+	1999 12 03	691	0.4+	0.2−	1999 12 07	704	0.4+	0.4−
1997 05 07	704	0.0	1.2+	1999 12 03	691	0.5+	0.3−	1999 12 07	704	0.2+	0.3−
1997 05 07	704	0.2−	1.2+	1999 12 03	691	0.5+	0.3−	1999 12 12	703	0.7−	0.1−
1997 05 07	704	0.4−	1.1+	1999 12 04	691	0.4+	0.0	1999 12 12	703	0.7+	0.3+
1999 11 04	704	0.7−	0.2+	1999 12 04	691	0.3+	0.1+	1999 12 12	703	1.6−	0.7+
1999 11 04	704	0.1+	0.8−	1999 12 04	703	0.9−	0.7+	1999 12 12	703	0.5−	0.1+
1999 11 04	704	1.1−	0.1+	1999 12 04	691	0.5+	0.1−				

1999 VT₇₀ = 1998 QO₆₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	282.39672		(2000.0)		P		Q				
<i>n</i>	0.16849245		ω	249.61696	−0.43011573		−0.88143188				
<i>a</i>	3.2465026		Ω	227.43438	+0.89511026		−0.38827833				
<i>e</i>	0.0401217		<i>i</i>	15.36399	+0.11738003		−0.26891966				
<i>P</i>	5.85 <th><i>H</i></th> <td>13.5</td> <th><i>G</i></th> <td>0.15</td> <th><i>U</i></th> <td>4</td> <td colspan="2"></td>		<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1998 08 24	704	0.4+	1.4−	1999 11 04	704	0.3−	0.2−	1999 12 07	704	0.1−	0.1+
1998 08 24	704	0.1+	0.7+	1999 11 04	704	0.0	0.6+	1999 12 07	704	0.1+	0.1−
1998 08 24	704	(2.9−	1.2+)	1999 11 12	704	0.5+	0.3+	1999 12 07	704	0.1+	0.3−
1998 08 24	704	(3.5+ 2.6−)		1999 11 12	704	0.5+	0.2−	1999 12 07	704	0.1−	0.4−
1998 08 24	704	0.8−	0.8+	1999 11 12	704	0.4+	0.6−	1999 12 07	704	0.7−	0.3+
1998 08 27	704	0.3+	0.1−	1999 11 12	704	0.4+	0.1−	1999 12 12	703	0.6+	0.1+
1998 08 27	704	(1.3−	2.1+)	1999 11 12	704	0.9+	0.6−	1999 12 12	703	0.0	0.3−
1998 08 27	704	(2.9−	1.2−)	1999 12 06	704	0.1+	0.6+	1999 12 12	703	0.5−	0.2+
1999 11 04	704	1.5−	0.2+	1999 12 06	704	0.1+	0.0	1999 12 12	703	0.4−	0.1+
1999 11 04	704	0.4−	0.3+	1999 12 06	704	(2.7+ 1.8−)					

1999 VY₇₀ = 1993 TL₃₀ = 1996 HV₁₂

Id. G. V. Williams, A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	291.90658		(2000.0)		P		Q				
<i>n</i>	0.17321074	ω	28.62511		−0.48895901		−0.87115812				
<i>a</i>	3.1872747	Ω	90.67860		+0.79155547		−0.46466811				
<i>e</i>	0.1340435	<i>i</i>	2.56506		+0.36655018		−0.15864138				
<i>P</i>	5.69	<i>H</i>	13.8		<i>G</i>	0.15	<i>U</i>	3			
Residuals in seconds of arc											
1993 10 09	809	0.5+	0.2+	1996 04 18	809	1.1+	0.2+	1999 11 12	704	0.3−	0.2−
1993 10 09	809	0.3+	0.0	1996 04 18	809	0.6−	0.2−	1999 11 12	704	0.0	0.4−
1993 10 09	809	1.0−	1.1−	1996 04 18	809	1.3+	0.4−	1999 12 06	704	0.8+	0.1−
1993 10 11	809	1.3+	0.8+	1999 11 04	704	0.7−	1.8+	1999 12 06	704	0.2−	0.7−
1993 10 11	809	0.4+	0.5+	1999 11 04	704	1.3−	0.2−	1999 12 06	704	0.2+	0.2−
1993 10 11	809	1.4−	0.8−	1999 11 04	704	0.2−	0.0	1999 12 07	704	0.8+	0.2−
1996 04 17	809	0.4−	0.5−	1999 11 12	704	0.7+	0.3+	1999 12 07	704	0.6−	0.1−
1996 04 17	809	(2.8−	0.4−)	1999 11 12	704	0.1+	0.1+	1999 12 07	704	0.3+	0.2+
1996 04 17	809	1.4−	0.8+	1999 11 12	704	0.2+	0.1−				

1999 VC₇₂ = 1989 UH₄ = 1991 GD₁₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	27.36173		(2000.0)		P		Q		
n	0.30506314	ω	134.77491		+0.91239641		−0.40642459		
a	2.1854601	Ω	249.26111		+0.35936790		+0.85214712		
e	0.1510728	i	2.97246		+0.19592731		+0.32964275		
P	3.23	H	14.5		G	0.15	U	4	
Residuals in seconds of arc									
1989 10 23	033	0.0	0.0	1999 11 11	327	0.0	0.1−	1999 11 20	327 0.2− 0.2+
1989 10 23	033	0.2+	0.2+	1999 11 11	327	0.0	0.2−	1999 11 20	327 0.3− 0.4+
1989 10 26	033	0.2−	0.1−	1999 11 11	327	0.3−	0.3−	1999 11 20	327 0.3+ 0.4+
1991 04 10	809	1.0+	0.4−	1999 11 17	327	0.3+	0.5−	1999 12 05	699 0.1− 0.3−
1991 04 10	809	0.1−	0.2+	1999 11 17	327	0.0	0.4−	1999 12 05	699 0.2− 0.0
1991 04 10	809	0.8−	0.4+	1999 11 17	327	0.6+	0.3+	1999 12 05	699 0.0 0.4+

1999 VL₇₂ = 1995 UH₄₈ = 1997 HW₁₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	293.41758			(2000.0)			P			Q		
n	0.24442211	ω	65.28844				−0.32525132			−0.94340836		
a	2.5334309	Ω	43.85932				+0.83032690			−0.31768845		
e	0.1553892	i	5.36187				+0.45251388			−0.09515631		
P	4.03	H	14.7	G	0.15	U	3					
Residuals in seconds of arc												
1995 09 29	327	0.3−	0.2−	1997 04 28	691	0.0	0.7−	1999 12 07	704	0.1−	0.4+	
1995 09 29	327	0.4+	0.4+	1997 05 08	691	0.8−	0.4−	1999 12 07	704	0.0	0.2+	
1995 09 29	327	1.0+	0.3+	1997 05 08	691	0.1−	0.3−	1999 12 07	704	0.0	0.3+	
1995 09 29	327	0.6+	0.3+	1997 05 08	691	0.2−	0.1−	1999 12 08	704	0.5−	0.5−	
1995 10 17	327	0.6+	1.5−	1999 11 14	327	0.3+	0.1−	1999 12 08	704	0.2−	0.1+	
1995 10 17	327	0.4−	0.3−	1999 11 14	327	0.1+	0.2−	1999 12 08	704	0.7+	0.3+	
1995 10 17	327	0.4−	1.2−	1999 11 14	327	0.4+	0.1+	1999 12 08	704	0.2−	0.1+	
1995 10 18	327	0.0	0.3−	1999 11 19	327	0.3+	0.1−	1999 12 08	704	0.1+	0.6+	
1995 10 18	327	0.4−	0.7−	1999 11 19	327	0.2−	0.1+	1999 12 12	703	0.1−	0.3−	
1995 10 18	327	0.3+	0.3−	1999 11 19	327	0.2+	0.2−	1999 12 12	703	0.1+	0.8+	
1997 04 28	691	0.1+	0.3−	1999 12 07	704	0.3−	0.3+	1999 12 12	703	0.4−	0.2−	
1997 04 28	691	0.1−	0.2−	1999 12 07	704	0.5−	0.2+	1999 12 12	703	0.4−	0.7−	

1999 VN₇₂ = 1998 KH₁₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	69.51231		(2000.0)		P		Q				
<i>n</i>	0.27464699	ω	63.22013		+0.41163226		+0.90805637				
<i>a</i>	2.3439742	Ω	231.30347		−0.86741340		+0.36431542				
<i>e</i>	0.1192169	<i>i</i>	5.69228		−0.27955834		+0.20665892				
<i>P</i>	3.59	<i>H</i>	14.5		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1998 05 22	704	0.3−	0.7+	1999 11 15	327	0.1+	0.0	1999 11 26	120	0.2−	0.3−
1998 05 22	704	(0.4−	2.4+)	1999 11 15	327	0.6+	0.2−	1999 11 27	120	0.1−	1.3−
1998 05 22	704	0.4+	1.0+	1999 11 15	327	0.2+	0.2−	1999 11 27	120	0.5−	1.0+
1998 05 22	704	0.6+	0.4−	1999 11 19	327	0.3−	0.5+	1999 11 30	120	0.7+	0.5+
1998 05 22	704	0.1−	0.3−	1999 11 19	327	0.7−	0.4−	1999 11 30	120	(2.6−	0.5+)
1998 05 24	704	0.5−	0.1−	1999 11 19	327	0.3−	1.0+	1999 11 30	120	0.4+	0.3+
1998 05 24	704	0.8+	1.4−	1999 11 25	120	0.9−	0.4−	1999 12 07	704	1.6+	0.0
1998 05 24	704	0.1−	0.7+	1999 11 25	120	0.2−	0.1−	1999 12 07	704	0.3−	0.3+
1998 05 24	704	0.4−	0.4−	1999 11 25	120	0.6+	0.4+	1999 12 07	704	0.2−	0.3−
1998 05 24	704	0.4−	0.3+	1999 11 26	120	(2.3−	0.0)	1999 12 07	704	1.2−	0.1−
1999 11 15	327	0.2+	0.2−	1999 11 26	120	0.5+	0.4−				

1999 DEC. 22

M.P.C. 37237

1999 WB = 1998 MW₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	17.24262		(2000.0)	P		Q	
<i>n</i>	0.22794675	ω	134.72516	+0.97526822		-0.11366927	
<i>a</i>	2.6540786	Ω	232.73215	+0.06312197		+0.96514332	
<i>e</i>	0.1396623	<i>i</i>	13.77977	+0.21181956		+0.23574915	
<i>P</i>	4.32	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 06 19	704	(2.2- 4.4+)	1999 11 16	678	0.2- 0.6-	1999 12 05	703	0.1- 0.2+
1998 06 19	704	1.7- 0.8+	1999 11 16	678	1.1- 0.8-	1999 12 06	704	0.2+ 0.0
1998 06 19	704	(0.5- 2.4+)	1999 11 16	678	0.6+ 0.6-	1999 12 06	704	0.4+ 0.1+
1998 06 19	704	(2.8- 4.0+)	1999 11 17	678	0.1- 0.3+	1999 12 06	704	0.5+ 0.3-
1998 06 25	704	0.8+ 0.5+	1999 11 17	678	0.5+ 0.7+	1999 12 06	704	0.2- 0.6-
1998 06 25	704	0.0 0.5-	1999 11 28	691	0.5- 0.1-	1999 12 06	704	0.2+ 0.3-
1998 06 25	704	0.6+ 0.5-	1999 11 28	691	0.5- 0.1-	1999 12 07	704	0.2+ 0.1-
1998 06 25	704	0.4+ 0.2-	1999 11 28	691	0.4- 0.1-	1999 12 07	704	0.2+ 0.1-
1999 11 12	704	0.3+ 0.2+	1999 11 29	678	0.4- 1.2+	1999 12 07	704	0.7+ 0.1-
1999 11 12	704	0.4+ 0.0	1999 11 29	678	1.4- 0.7+	1999 12 07	704	0.2+ 0.1-
1999 11 12	704	0.6+ 0.0	1999 12 05	703	0.2- 0.4+	1999 12 07	704	0.2+ 0.6-
1999 11 12	704	0.4+ 0.0	1999 12 05	703	0.2- 0.3+			
1999 11 12	704	0.3+ 0.2+	1999 12 05	703	0.3- 0.3+			

1999 WD = 1997 JQ₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	290.12026		(2000.0)	P		Q	
<i>n</i>	0.21230466	ω	22.25653	-0.32874809		-0.94391968	
<i>a</i>	2.7828921	Ω	86.94710	+0.86179401		-0.31311052	
<i>e</i>	0.0191334	<i>i</i>	1.75974	+0.38631047		-0.10477330	
<i>P</i>	4.64	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 05 03	809	1.0- 0.6+	1999 11 12	704	0.4+ 0.9-	1999 12 05	703	0.1+ 0.5-
1997 05 03	809	1.2+ 1.4-	1999 11 17	739	1.3- 0.2+	1999 12 05	703	0.0 0.1+
1997 05 03	809	0.8+ 1.0-	1999 11 17	739	1.4+ 1.1+	1999 12 05	703	0.2+ 0.6-
1997 05 04	809	0.1+ 0.8-	1999 11 17	739	0.5- 0.9-	1999 12 07	691	0.2+ 0.2-
1997 05 04	809	1.2- 0.0	1999 11 17	739	0.5+ 0.1+	1999 12 07	704	0.4- 0.1-
1997 05 04	809	0.1- 1.4+	1999 11 17	739	0.7+ 0.1+	1999 12 07	691	0.2+ 0.2-
1997 05 07	704	0.4+ 0.2+	1999 11 18	739	0.8+ 0.7+	1999 12 07	704	0.6+ 0.9-
1997 05 07	704	0.4+ 0.7+	1999 11 18	739	0.8- 0.2+	1999 12 07	691	0.2+ 0.3-
1997 05 07	704	0.7- 0.4+	1999 11 18	739	0.2- 0.4+	1999 12 07	704	0.1- 0.2-
1997 05 07	704	(2.9- 0.5+)	1999 11 20	739	0.8+ 0.0	1999 12 07	704	0.1- 0.4-
1999 11 03	704	0.1- 0.5+	1999 11 20	739	(2.3+ 0.8-)	1999 12 08	704	1.3- 0.4+
1999 11 03	704	0.6- 0.0	1999 11 20	739	0.4- 0.6-	1999 12 08	704	0.3+ 0.5+
1999 11 03	704	0.4+ 0.3+	1999 11 25	739	1.1- 0.1+	1999 12 08	704	0.6- 0.5+
1999 11 03	704	1.0- 0.3+	1999 11 25	739	0.7+ 0.2+	1999 12 08	704	0.6- 0.0
1999 11 12	704	0.7- 0.0	1999 11 29	691	0.1+ 0.1-	1999 12 08	704	0.0 0.1+
1999 11 12	704	0.4+ 0.5-	1999 11 29	691	0.0 0.1-	1999 12 13	691	0.2+ 0.2+
1999 11 12	704	0.2+ 0.2-	1999 11 29	691	0.1- 0.1-	1999 12 13	691	0.6- 1.5+
1999 11 12	704	0.4+ 0.3-	1999 12 05	703	1.9+ 0.0			

1999 WF = 1972 BL = 1981 SN₄ = 1989 CW₈ = 1996 HB₂₄ = 1998 QY₄₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	298.73528		(2000.0)	P		Q	
<i>n</i>	0.17115199	ω	290.94843	-0.46774616		-0.88386099	
<i>a</i>	3.2127831	Ω	186.94049	+0.81639998		-0.43125745	
<i>e</i>	0.1245514	<i>i</i>	0.85967	+0.33868067		-0.18112637	
<i>P</i>	5.76	<i>H</i>	12.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1972 01 17	095	0.1+ 1.4+	1999 11 03	704	0.3- 0.0	1999 11 30	727	0.1+ 0.3+
1981 09 25	095	0.6+ 0.5-	1999 11 03	704	0.1- 0.2-	1999 11 30	411	0.5+ 0.9+
1989 02 04	071	(10.8- 0.2-)	1999 11 03	704	0.6- 0.1-	1999 11 30	411	0.7+ 1.4+
1989 02 04	071	0.3+ 0.2-	1999 11 12	704	0.9+ 0.4-	1999 12 03	699	0.2- 0.5+
1996 04 20	809	1.5+ 1.1-	1999 11 12	704	0.7+ 0.8-	1999 12 03	699	0.6- 0.9+

1996 04 20	809	0.2+ 0.7-	1999 11 12	704	0.6+ 0.7-	1999 12 03	699	0.1+ 0.6+
1996 04 20	809	0.2+ 0.7-	1999 11 12	704	0.7+ 0.8-	1999 12 04	703	0.4- 0.6+
1996 04 21	809	0.4+ 1.5+	1999 11 12	704	0.3+ 1.2-	1999 12 04	703	0.5- 0.7+
1996 04 21	809	0.8- 1.2+	1999 11 17	727	0.5+ 0.0	1999 12 04	703	0.5- 0.8+
1996 04 21	809	1.0- 1.7+	1999 11 17	727	0.7+ 0.3+	1999 12 04	703	0.2- 0.7+
1998 08 17	704	0.7- 0.5+	1999 11 18	727	0.3- 0.1-	1999 12 07	704	0.4+ 0.1+
1998 08 17	704	0.3+ 0.7-	1999 11 18	727	0.3- 0.1+	1999 12 07	704	0.2+ 0.0
1998 08 17	704	0.3- 0.6+	1999 11 18	727	0.3- 0.1+	1999 12 07	704	0.2+ 0.2-
1998 08 17	704	0.6- 0.5+	1999 11 25	739	1.0+ 1.1-	1999 12 07	704	0.2- 0.2-
1998 08 17	704	0.2- 1.1+	1999 11 25	739	1.4- 0.9-	1999 12 07	704	0.0 0.3-
1998 08 23	704	1.0+ 0.1+	1999 11 26	120	0.5- 0.0	1999 12 08	704	0.0 0.1-
1998 08 23	704	1.0- 0.6+	1999 11 26	120	0.7- 0.5+	1999 12 08	704	0.7+ 0.1-
1998 08 23	704	0.9+ 0.7-	1999 11 27	120	0.4- 0.0	1999 12 08	704	0.2- 1.0-
1998 08 23	704	0.9- 0.6+	1999 11 27	120	0.4- 0.1+	1999 12 08	704	0.6- 0.4-
1999 11 03	704	0.1+ 0.2+	1999 11 30	727	0.3+ 0.1+	1999 12 08	704	0.1- 0.1+
1999 11 03	704	0.1- 0.1+	1999 11 30	727	0.0 0.1+			

1999 WH = 1980 BE₂ = 1983 YR

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	122.80978		(2000.0)	P		Q	
<i>n</i>	0.19056496	ω	237.86175	+0.36045748		+0.91930740	
<i>a</i>	2.9907081	Ω	54.07762	-0.77659441		+0.38956195	
<i>e</i>	0.0900036	<i>i</i>	11.24647	-0.51669287		+0.05581574	
<i>P</i>	5.17	<i>H</i>	12.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1980 01 23	095	0.0 0.4-	1999 11 18	411	1.5+ 0.1+	1999 12 09	411	0.7- 0.3-
1983 12 28	033	0.8+ 0.4-	1999 11 18	411	0.0 0.1+	1999 12 12	704	0.1+ 0.0
1983 12 29	033	0.1- 0.1+	1999 11 21	411	1.2- 1.8-	1999 12 12	704	0.8+ 0.8+
1983 12 29	033	0.1- 0.3+	1999 11 21	411	1.2- 0.8-	1999 12 12	704	0.8+ 0.9+
1999 11 16	411	1.2- 0.3-	1999 11 21	411	0.4- 0.6-	1999 12 12	704	0.8+ 1.2+
1999 11 16	411	0.2+ 0.1+	1999 12 09	411	0.0 0.1-	1999 12 12	704	0.0 1.2+

1999 WL = 1980 BX = 1980 DW₁ = 1992 UK₄ = 1996 WN₃ = 1998 MP₃₅

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	297.14399		(2000.0)	P		Q	
<i>n</i>	0.29146152	ω	14.98389	-0.40969613		-0.90622336	
<i>a</i>	2.2529345	Ω	99.29189	+0.82568662		-0.41706585	
<i>e</i>	0.0982688	<i>i</i>	6.07507	+0.38780238		-0.06939234	
<i>P</i>	3.38	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1980 01 23	095	(0.5- 3.2-)	1998 06 24	704	0.2+ 1.5-	1999 11 21	411	0.1+ 0.6+
1980 02 20	095	0.1- 0.1+	1998 06 24	699	0.8+ 1.3+	1999 11 21	411	0.5- 0.0
1992 10 26	400	0.7+ 0.0	1998 06 24	699	1.2+ 0.8+	1999 12 07	704	0.9+ 0.7-
1992 10 26	400	0.3- 0.4-	1998 06 26	704	0.3+ 0.1-	1999 12 07	704	0.1+ 0.0
1996 11 30	327	0.3+ 0.3+	1998 06 26	704	0.8- 0.2-	1999 12 07	704	0.2+ 0.0
1996 11 30	327	0.2- 1.1-	1998 06 26	704	0.5- 0.4-	1999 12 07	704	0.3+ 0.1+
1996 11 30	327	0.2- 0.8-	1998 06 26	704	1.3+ 0.3-	1999 12 08	704	0.3+ 0.4-
1998 06 24	704	0.1- 0.7-	1999 11 16	411	0.4- 0.1-	1999 12 08	704	0.1- 0.3-
1998 06 24	704	(2.3- 1.2-)	1999 11 16	411	0.6- 0.7-	1999 12 08	704	0.3+ 0.2+
1998 06 24	704	0.9- 0.0	1999 11 18	411	1.0- 0.7+	1999 12 08	704	0.2+ 0.2+
1998 06 24	704	1.6- 0.7-	1999 11 18	411	0.6- 0.1-	1999 12 08	704	0.0 0.4+
1998 06 24	699	0.1+ 0.9+	1999 11 21	411	0.3+ 0.6+			

1999 WM = 1991 PB₁₉ = 1995 SW₄ = 4315 T-2

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	342.74366		(2000.0)	P		Q	
<i>n</i>	0.26861163	ω	286.98249	+0.53046296	−0.84553084		
<i>a</i>	2.3789547	Ω	130.82292	+0.80508828	+0.48007386		
<i>e</i>	0.2026133	<i>i</i>	4.60216	+0.26540893	+0.23368073		
<i>P</i>	3.67	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1973 09 29	675	0.6+	0.8−	1991 08 14	809	1.3+	0.9−	1999 11 18	411	0.4+	0.4+
1973 09 29	675	0.4−	1.1−	1991 08 14	809	0.2+	1.4−	1999 11 18	411	0.4−	0.0
1973 09 30	675	1.9−	1.2+	1991 08 14	809	0.1+	1.4−	1999 11 21	411	0.9−	0.3+
1973 09 30	675	1.9−	0.8+	1995 09 20	400	0.9−	0.8+	1999 11 21	411	1.1−	0.2−
1973 10 04	675	0.5−	0.9+	1995 09 20	400	(0.2+ 2.3+)		1999 12 06	704	0.4+	0.5−
1973 10 04	675	0.6−	2.1+	1995 09 21	400	1.2+	1.4−	1999 12 06	704	0.6+	0.5−
1973 10 05	675	1.8+	0.8−	1995 09 21	400	(3.6+ 1.8+)		1999 12 06	704	0.5+	0.6−
1973 10 05	675	1.7+	0.5+	1995 09 30	400	(2.2− 6.4+)		1999 12 06	704	0.4+	0.3−
1991 08 02	809	(0.1+ 3.4−)		1995 09 30	400	(0.9+ 2.8+)		1999 12 06	704	0.4+	0.3−
1991 08 02	809	1.1−	0.3+	1999 11 16	411	0.8+	0.7+	1999 12 09	411	0.2+	1.1−
1991 08 02	809	(0.5− 2.9−)		1999 11 16	411	0.1−	0.6+	1999 12 09	411	1.1−	0.9−

1999 WP = 1997 EQ₅₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	324.28894		(2000.0)	P		Q	
<i>n</i>	0.27008498	ω	287.99728	+0.20804343	−0.97805161		
<i>a</i>	2.3702952	Ω	149.98760	+0.90590351	+0.18822393		
<i>e</i>	0.1704068	<i>i</i>	1.32104	+0.36885874	+0.08936890		
<i>P</i>	3.65	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 03 08	809	0.2+	1.0−	1999 11 19	411	0.3−	1.1+	1999 12 07	704	0.3−	0.3−
1997 03 08	809	0.2−	0.3−	1999 11 25	739	0.1+	0.3−	1999 12 07	704	0.0	0.3+
1997 03 08	809	0.3+	0.1+	1999 11 25	739	0.4+	0.4−	1999 12 07	411	0.1+	0.6+
1997 03 09	809	0.2−	0.5+	1999 11 25	739	(2.4+ 0.7+)		1999 12 07	411	1.3−	0.7+
1997 03 09	809	0.0	0.3+	1999 11 28	120	0.6+	0.4−	1999 12 07	411	1.0−	0.1+
1997 03 09	809	0.3−	0.0	1999 11 28	120	0.2+	0.7−	1999 12 08	704	0.5+	0.0
1999 11 09	411	1.2−	1.2−	1999 11 29	120	0.1−	0.3+	1999 12 08	704	0.4+	0.3−
1999 11 09	411	0.3+	0.1−	1999 11 29	120	0.4−	0.1+	1999 12 08	704	0.4+	0.1+
1999 11 18	411	0.4+	0.1+	1999 12 04	411	1.2−	0.9+	1999 12 08	704	0.2+	0.4+
1999 11 18	411	0.9+	0.2+	1999 12 07	704	0.2+	0.3−	1999 12 08	704	0.5+	0.1+
1999 11 18	411	1.1+	0.7−	1999 12 07	704	0.0	0.2−				
1999 11 19	411	0.3−	0.3−	1999 12 07	704	0.1−	0.0				

1999 WR = 1998 MO₂₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	137.47486		(2000.0)	P		Q	
<i>n</i>	0.25147165	ω	14.88690	−0.55217202	+0.83214562		
<i>a</i>	2.4858602	Ω	221.63207	−0.77261859	−0.53388428		
<i>e</i>	0.1536224	<i>i</i>	4.43550	−0.31331546	−0.15000411		
<i>P</i>	3.92	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 06 24	704	0.5+	0.1−	1999 11 04	704	0.1−	0.6+	1999 11 20	747	0.7−	0.2+
1998 06 24	704	0.7−	1.2−	1999 11 04	704	0.1−	0.0	1999 11 20	747	0.4+	1.9+
1998 06 24	704	0.7−	0.5+	1999 11 04	704	0.9+	0.3−	1999 11 20	747	(2.6− 0.8+)	
1998 06 24	704	0.8−	0.1−	1999 11 12	704	0.4+	0.5−	1999 11 20	747	1.9−	0.3−
1998 06 26	704	0.2+	0.1−	1999 11 12	704	0.4+	1.0−	1999 11 27	747	0.4+	0.1−
1998 06 26	704	0.1−	0.2+	1999 11 12	704	0.2+	0.3−	1999 11 27	747	0.6−	0.0
1998 06 26	704	0.7−	1.9+	1999 11 12	704	0.4+	0.2+	1999 12 07	704	0.8+	0.2−
1998 06 26	704	0.5+	0.1−	1999 11 12	704	0.7+	1.0−	1999 12 07	704	0.3−	0.1+
1998 06 26	704	1.6+	1.0−	1999 11 19	747	0.2−	0.2+	1999 12 07	704	0.5+	1.5+
1999 11 04	704	0.1−	0.2+	1999 11 19	747	0.3−	0.1+	1999 12 07	704	0.0	1.3−
1999 11 04	704	0.3−	0.0	1999 11 19	747	0.3−	0.5+	1999 12 07	704	0.1−	0.4−

1999 WS = 1998 HB₉₃

Id. T. Urata

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	100.28333		(2000.0)	P		Q	
<i>n</i>	0.31366954	ω	279.92792	+0.10840702	+0.99410541		
<i>a</i>	2.1452990	Ω	356.29454	−0.90252405	+0.09777303		
<i>e</i>	0.1221152	<i>i</i>	1.35987	−0.41677123	+0.04684942		
<i>P</i>	3.14	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 04 21	704	0.1+	0.1+	1999 11 19	385	1.3+	0.3−	1999 12 05	703	0.6−	0.5+
1998 04 21	704	0.0	0.2+	1999 11 19	385	0.0	0.2−	1999 12 05	703	0.4+	1.7+
1998 04 21	704	0.3−	0.2+	1999 11 20	385	0.4+	0.1+	1999 12 07	704	0.5+	0.6+
1998 04 21	704	0.5+	0.1+	1999 11 20	385	0.2+	1.0−	1999 12 07	704	0.6+	0.0
1998 04 21	704	0.2−	0.3−	1999 11 29	385	0.2−	0.8−	1999 12 07	704	0.3−	0.6−
1998 04 22	704	0.7−	0.1+	1999 11 29	385	0.1+	0.8−	1999 12 07	704	0.1+	0.1+
1998 04 22	704	0.0	0.1−	1999 11 30	385	1.2−	1.5−	1999 12 07	704	0.0	0.5+
1998 04 22	704	0.5+	0.2−	1999 11 30	385	0.7−	0.2−	1999 12 08	704	0.4+	0.0
1998 04 22	704	0.1−	0.4−	1999 12 02	385	1.2−	0.7−	1999 12 08	704	0.5+	0.5+
1999 11 18	385	0.1+	0.9+	1999 12 02	385	0.4−	0.5−	1999 12 08	704	0.6+	0.4−
1999 11 18	385	0.2−	0.3+	1999 12 05	703	0.1+	0.8+	1999 12 08	704	0.0	0.4+
1999 11 19	385	0.2−	0.5−	1999 12 05	703	0.5−	0.6+	1999 12 08	704	0.0	0.4+

1999 WY = 1990 OG₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	8.54541		(2000.0)	P		Q	
<i>n</i>	0.23115664	ω	95.10237	+0.83451895	−0.35251279		
<i>a</i>	2.6294513	Ω	286.07512	+0.13095273	+0.87342271		
<i>e</i>	0.4283264	<i>i</i>	26.14756	+0.53519109	+0.33595760		
<i>P</i>	4.26	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 07 20	675	0.5+	0.1−	1999 11 19	557	0.1+	0.0	1999 12 03	118	0.0	0.0
1990 07 20	675	0.3−	0.3+	1999 11 19	587	1.2−	0.0	1999 12 03	118	0.0	0.1+
1990 07 22	675	0.2−	0.3−	1999 11 20	587	0.4−	0.8+	1999 12 07	704	0.5−	0.2−
1990 07 22	675	(3.7+ 1.8−)		1999 11 20	540	(2.7− 0.3−)		1999 12 07	704	0.3−	0.2−
1999 11 17	703	0.2−	0.4+	1999 11 20	540	0.3−	0.7−	1999 12 07	704	0.2−	0.7−
1999 11 17	703	0.2−	0.0	1999 11 20	540	0.4−	0.5+	1999 12 07	704	0.1−	0.7−
1999 11 17	703	0.1−	0.1+	1999 11 20	540	(2.2+ 0.6+)		1999 12 07	704	0.5−	0.8−
1999 11 17	703	0.0	0.3+	1999 11 21	046	0.0	0.3+	1999 12 07	402	0.2+	0.1−
1999 11 18	850	0.8+	0.6−	1999 11 21	046	0.3+	0.1+	1999 12 07	402	0.2+	0.2−
1999 11 18	850	0.8+	0.5−	1999 11 21	046	0.4−	0.3+	1999 12 07	402	0.3+	0.2−
1999 11 18	850	1.1+	0.9−	1999 11 21	046	0.2−	0.1+	1999 12 08	704	0.2−	0.0
1999 11 18	850	0.5+	0.5−	1999 11 21	946	0.0	0.2−	1999 12 08	704	0.1−	0.0
1999 11 19	046	0.1−	0.2+	1999 11 21	557	0.0	0.2−	1999 12 08	704	0.1−	0.5+
1999 11 19	046	0.2−	0.8+	1999 11 21	557	0.1−	0.1+	1999 12 08	704	0.3+	0.0
1999 11 19	046	0.1+	0.3+	1999 11 21	557	0.1+	0.1−	1999 12 14	118	0.2+	0.7+
1999 11 19	046	0.1+	0.5−	1999 11 21	557	0.4−	0.1+	1999 12 14	118	0.5+	0.7+
1999 11 19	557	0.2+	0.3−	1999 11 21	946	0.4+	1.0+				

1999 WA₁ = 1994 YA

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	343.76682		(2000.0)	P		Q	
<i>n</i>	0.18727765	ω	321.27648	+0.62221926	−0.73617654		
<i>a</i>	3.0256040	Ω	88.57237	+0.76806222	+0.50830270		
<i>e</i>	0.0897622	<i>i</i>	15.44596	+0.15140549	+0.44684725		
<i>P</i>	5.26	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 12 22	894	0.4−	0.5+	1999 11 19	757	0.0	0.9+	1999 12 05	704	0.9+	0.3−
1994 12 22	894	1.0+	0.6−	1999 11 20	757	1.2−	1.4−	1999 12 05	704	0.1+	0.2−
1994 12 23	894	(2.5− 0.5+)		1999 11 20	757	(2.5− 0.7−)		1999 12 05	704	0.6+	0.7−
1994 12 28	894	1.4−	1.6−	1999 11 28	757	0.7+	0.0	1999 12 05	704	0.2+	0.0
1994 12 28	894	1.7−	0.6+	1999 11 28	757	1.0+	0.4−	1999 12 05	704	0.1+	0.0
1994 12 29	894	1.2+	0.3+	1999 12 04	699	0.3+	0.1+	1999 12 08	757	1.2−	0.1+

1999 DEC. 22

M.P.C. 37239

1994 12 29 894 1.4+ 0.9+ 1999 12 04 699 0.3+ 1.1+ 1999 12 08 757 0.4- 0.1-
 1999 11 19 757 1.1- 0.2+ 1999 12 04 699 0.2- 0.5+

1999 WR₁ = 1991 XJ₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams	
<i>M</i>	23.20218	(2000.0)	P	Q	
<i>n</i>	0.24084249	ω	307.90066	+0.95258562	+0.08455825
<i>a</i>	2.5584719	Ω	49.31568	+0.11288978	+0.79382724
<i>e</i>	0.0229594	<i>i</i>	22.67114	-0.28255360	+0.60223601
<i>P</i>	4.09	<i>H</i>	14.3	<i>G</i>	0.15 <i>U</i> 5

Residuals in seconds of arc

1991 12 11	033	0.5-	0.5+	1999 11 30	120	1.0+	0.5-	1999 12 06	704	0.5+	0.3+
1991 12 11	033	0.1-	0.7-	1999 12 04	703	0.1-	0.6+	1999 12 06	704	0.0	0.2+
1991 12 12	033	0.6+	0.2+	1999 12 04	699	0.1+	0.0	1999 12 07	704	0.0	0.3-
1999 11 25	120	0.0	0.4+	1999 12 04	703	0.1-	0.5+	1999 12 07	704	0.4-	0.2-
1999 11 25	120	0.2+	0.4+	1999 12 04	703	0.1-	0.3+	1999 12 07	704	0.4-	0.5+
1999 11 25	120	0.0	0.4+	1999 12 04	699	0.5-	0.2+	1999 12 07	704	0.1-	0.5+
1999 11 26	120	0.3-	0.0	1999 12 04	703	0.3-	0.2+	1999 12 07	704	0.8-	0.0
1999 11 26	120	0.7+	0.0	1999 12 04	699	0.1-	0.1+	1999 12 12	703	0.0	0.7-
1999 11 27	120	0.1-	0.3+	1999 12 06	704	0.6+	0.9-	1999 12 12	703	0.0	0.6+
1999 11 27	120	1.1-	1.0-	1999 12 06	704	0.1+	0.4-	1999 12 12	703	0.1-	0.5+
1999 11 30	120	0.6+	1.5-	1999 12 06	704	0.3+	0.1+	1999 12 12	703	0.6+	0.7-

1999 WN₂ = 1992 YF₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams	
<i>M</i>	44.01406	(2000.0)	P	Q	
<i>n</i>	0.27398064	ω	266.57222	+0.96845347	+0.24328651
<i>a</i>	2.3477732	Ω	79.34196	-0.20124317	+0.89121613
<i>e</i>	0.0604952	<i>i</i>	3.14638	-0.14696618	+0.38281260
<i>P</i>	3.60	<i>H</i>	14.7	<i>G</i>	0.15 <i>U</i> 6

Residuals in seconds of arc

1992 12 18	010	0.0	0.6-	1999 11 27	120	0.4+	0.1+	1999 12 07	704	0.1-	0.1-
1992 12 19	010	0.7+	0.9-	1999 11 28	120	0.3+	0.0	1999 12 07	704	0.3-	0.3-
1992 12 19	010	0.3+	1.4-	1999 11 28	120	0.5+	0.2-	1999 12 07	704	0.2+	0.2-
1992 12 19	010	0.5+	0.7+	1999 11 29	120	0.2-	0.3-	1999 12 08	704	0.2+	0.1+
1992 12 19	010	0.5-	0.8+	1999 11 29	120	0.5-	0.3-	1999 12 08	704	0.2+	0.2-
1992 12 20	010	1.0-	1.3+	1999 12 03	699	0.8-	0.3+	1999 12 08	704	0.1-	0.2-
1999 11 26	120	0.3+	0.5+	1999 12 03	699	0.2+	0.4+	1999 12 08	704	0.2+	0.3+
1999 11 26	120	0.0	0.4-	1999 12 03	699	0.2+	1.1+	1999 12 08	704	0.1+	0.3-
1999 11 26	120	(2.9+	2.0-)	1999 12 07	704	0.3-	0.2-				
1999 11 27	120	0.7-	0.0	1999 12 07	704	0.2+	0.1-				

1999 WT₂ = 1994 RJ₁₇

Id. B. G. Marsden

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams	
<i>M</i>	1.34481	(2000.0)	P	Q	
<i>n</i>	0.21875936	ω	39.44617	+0.86011759	-0.51008116
<i>a</i>	2.7278781	Ω	351.22054	+0.46136947	+0.78116606
<i>e</i>	0.2267439	<i>i</i>	1.45139	+0.21756826	+0.35999556
<i>P</i>	4.51	<i>H</i>	14.7	<i>G</i>	0.15 <i>U</i> 6

Residuals in seconds of arc

1994 09 03	809	0.3+	0.1+	1999 11 30	046	0.2-	0.4+	1999 12 07	704	0.1+	0.0
1994 09 03	809	0.5+	0.8+	1999 11 30	046	0.1+	0.6+	1999 12 07	704	0.1+	0.8-
1994 09 03	809	0.5+	1.1+	1999 11 30	046	0.7+	0.2+	1999 12 07	704	0.1+	0.4-
1994 09 04	809	0.7+	0.8-	1999 11 30	046	0.2-	0.3+	1999 12 07	704	0.2+	0.4-
1994 09 04	809	0.9-	0.4-	1999 11 30	046	0.1+	0.1+	1999 12 07	046	0.1-	0.4-
1994 09 04	809	1.0-	0.9-	1999 12 03	046	0.1-	0.0	1999 12 07	046	0.1-	0.3-
1999 11 29	046	0.1-	0.3+	1999 12 03	046	0.1-	0.8+	1999 12 07	046	0.2-	0.7-
1999 11 30	046	0.1-	0.4+	1999 12 03	046	0.3+	0.3-	1999 12 07	046	0.5+	0.3-
1999 11 30	046	0.3-	0.4+	1999 12 03	046	0.4-	0.2+				

1999 WX₂ = 1979 SH₁₄ = 1992 OA₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams	
<i>M</i>	20.11469	(2000.0)	P	Q	
<i>n</i>	0.29986065	ω	230.01647	+0.99505720	+0.09715341
<i>a</i>	2.2106657	Ω	124.39879	-0.08181909	+0.91939011
<i>e</i>	0.1809165	<i>i</i>	1.42725	-0.05627434	+0.38116012
<i>P</i>	3.29	<i>H</i>	15.9	<i>G</i>	0.15 <i>U</i> 4

Residuals in seconds of arc

1979 09 20	675	0.7-	1.0+	1999 11 27	120	1.0+	0.2+	1999 12 07	704	0.1+	0.4-
1979 09 21	675	0.1-	1.0+	1999 11 28	120	0.8-	0.3-	1999 12 07	704	0.2-	0.2+
1992 07 26	809	0.1+	0.9-	1999 11 28	120	0.6+	0.0	1999 12 08	704	0.1-	0.4+
1992 07 26	809	0.8-	1.5-	1999 11 29	120	0.9+	0.2+	1999 12 08	704	0.5-	0.2-
1992 07 26	809	0.3-	0.6-	1999 11 29	120	0.6+	0.6+	1999 12 08	704	0.0	0.2+
1992 07 30	809	0.7+	0.7+	1999 11 29	120	0.4+	0.7-	1999 12 08	704	0.5-	0.0
1992 07 30	809	0.1-	0.0	1999 12 07	704	0.3-	0.3-	1999 12 08	704	0.4-	0.1+
1992 07 30	809	1.0+	0.0	1999 12 07	704	0.2-	0.6-				
1999 11 27	120	0.1-	0.8-	1999 12 07	704	0.3-	0.6-				

1999 WW₃ = 1981 AP₁ = 1991 RO₂₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Nakano	
<i>M</i>	340.11018	(2000.0)	P	Q	
<i>n</i>	0.25677774	ω	316.39562	+0.45034694	-0.88381524
<i>a</i>	2.4514957	Ω	106.46564	+0.85114975	+0.38209623
<i>e</i>	0.1632781	<i>i</i>	7.59329	+0.26968821	+0.26995018
<i>P</i>	3.84	<i>H</i>	14.0	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1981 01 08	381	(2.9+	0.6+)	1991 09 16	675	0.1-	0.2+	1999 12 06	704	0.7-	0.4+
1981 01 08	381	0.1-	0.0	1999 11 28	411	0.8+	0.1+	1999 12 06	704	0.1-	0.2-
1981 01 08	381	0.6+	1.1-	1999 11 28	411	0.2+	0.1+	1999 12 06	704	0.1-	0.3-
1981 01 08	381	0.5-	1.2+	1999 11 29	411	0.2-	0.1-	1999 12 09	411	0.3+	0.2-
1991 09 12	675	0.0	0.6+	1999 11 29	411	0.3-	0.3+	1999 12 09	411	0.2+	0.3-
1991 09 12	675	0.1-	0.9-	1999 12 06	704	0.1-	0.5+				
1991 09 16	675	0.2+	0.2+	1999 12 06	704	0.1+	0.3-				

1999 WE₄ = 1975 VQ₇ = 1982 YG = 1998 NO

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Nakano	
<i>M</i>	255.72388	(2000.0)	P	Q	
<i>n</i>	0.29037498	ω	322.95623	-0.91737345	-0.39745156
<i>a</i>	2.2585511	Ω	193.67320	+0.38343697	-0.86803820
<i>e</i>	0.0719164	<i>i</i>	5.19561	+0.10678040	-0.29755999
<i>P</i>	3.39	<i>H</i>	14.4	<i>G</i>	0.15 <i>U</i> 3

Residuals in seconds of arc

1975 11 06	095	0.1-	1.4+	1998 07 16	699	0.2+	0.5+	1999 12 06	704	(1.2-	3.1-)
1982 12 18	801	0.3-	1.0+	1999 11 28	411	0.7+	1.0-	1999 12 06	704	0.1-	0.8-
1998 07 15	699	0.2+	0.8-	1999 11 28	411	0.2+	0.7-	1999 12 06	704	0.2+	1.4-
1998 07 15	699	0.1+	0.4-	1999 11 29	411	0.2-	0.1-	1999 12 09	411	0.0	0.2-
1998 07 15	699	0.3+	0.6-	1999 11 29	411	0.3+	0.1+	1999 12 09	411	0.2+	0.1-
1998 07 16	699	0.0	0.1+	1999 12 06	704	0.2-	0.3-				
1998 07 16	699	0.6-	0.1+	1999 12 06	704	0.8-	1.6+				

1999 WJ₄ = 1996 EY₈ = 1998 RR₁₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams	
<i>M</i>	348.15397	(2000.0)	P	Q	
<i>n</i>	0.20441647	ω	64.31748	+0.49064759	-0.87135637
<i>a</i>	2.8540317	Ω	356.29799	+0.78951904	+0.44540651
<i>e</i>	0.0467012	<i>i</i>	1.53901	+0.36867958	+0.20579385
<i>P</i>	4.82	<i>H</i>	13.8	<i>G</i>	0.15 <i>U</i> 5

Residuals in seconds of arc

1996 03 12	691	0.1+	0.1+	1998 09 14	704	0.2+	0.9+	1999 11 29	411	0.0	1.1-
1996 03 12	691	0.7+	0.1+	1998 09 14	704	0.5-	0.6+	1999 11 29	411	0.2-	0.3-

1996 03 12	691	0.7+	0.0	1998 09 14	704	0.3−	0.4+	1999 12 07	704	0.3−	0.0
1996 03 15	566	0.3−	0.1+	1998 09 14	704	0.6−	0.4−	1999 12 07	704	0.4+	0.0
1996 03 15	566	0.1−	0.3−	1998 09 18	704	0.2+	1.8−	1999 12 07	704	0.2+	0.3+
1996 03 15	566	0.2−	0.3−	1998 09 18	704	1.0+	0.8−	1999 12 07	704	0.1−	0.2−
1996 03 17	691	0.3+	0.2+	1998 09 18	704	1.0−	0.8−	1999 12 07	704	0.2+	0.4+
1996 03 17	691	0.9−	0.1+	1998 09 18	704	0.5+	1.2+	1999 12 10	704	0.5−	1.2+
1996 03 17	691	0.5−	0.1−	1999 11 28	411	0.3−	0.3−	1999 12 10	704	1.3+	0.5+
1998 09 14	704	0.5+	0.5+	1999 11 28	411	0.2−	0.2−	1999 12 10	704	0.6−	0.3−

1999 WL₄ = 1998 ML₄₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	330.29611		(2000.0)	P		Q
<i>n</i>	0.26607158	ω	339.53337	+0.23649045	−0.96952853	
<i>a</i>	2.3940711	Ω	96.74466	+0.90017082	+0.19385622	
<i>e</i>	0.1428620	<i>i</i>	3.69084	+0.36573866	+0.14978052	
<i>P</i>	3.70	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1998 06 26	809	0.1−	0.5+	1999 11 28	411	0.1+	1.4−	1999 12 07	411	0.8−	0.1+
1998 06 26	809	0.1+	0.0	1999 11 29	411	1.2−	2.1+	1999 12 07	411	0.0	0.2+
1998 06 26	809	0.0	0.6+	1999 11 29	411	(1.1−	2.9+)	1999 12 08	704	0.2+	0.3−
1998 06 27	809	0.2+	0.8−	1999 12 07	704	0.2−	0.0	1999 12 08	704	0.3+	0.3−
1998 06 27	809	0.1−	0.1−	1999 12 07	704	0.1−	0.1+	1999 12 08	704	0.3+	0.2−
1998 06 27	809	0.1−	0.3−	1999 12 07	704	0.2−	0.2+	1999 12 08	704	0.2+	0.2−
1999 11 28	411	1.1+	0.8−	1999 12 07	704	0.4−	0.2+	1999 12 08	704	0.5+	0.3+

1999 WP₄ = 1998 QW₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	218.46170		(2000.0)	P		Q
<i>n</i>	0.27973904	ω	98.51621	−0.96524176	+0.22388695	
<i>a</i>	2.3154425	Ω	94.50100	−0.25921334	−0.88603523	
<i>e</i>	0.0490584	<i>i</i>	7.77374	+0.03341855	−0.40597561	
<i>P</i>	3.52	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1998 08 17	704	0.3−	0.3+	1999 11 28	411	0.1+	0.1−	1999 12 07	411	0.8−	0.6+
1998 08 17	704	0.8+	1.0+	1999 11 28	411	0.4−	0.1−	1999 12 07	411	0.3−	0.4−
1998 08 17	704	(3.1+ 0.4+)		1999 11 29	411	0.1+	0.4−	1999 12 08	704	0.0	0.2+
1998 08 17	704	0.8−	0.6+	1999 11 29	411	0.2+	0.2+	1999 12 08	704	0.1−	0.0
1998 08 23	704	0.4+	1.7−	1999 12 07	704	0.3+	0.4+	1999 12 08	704	0.1−	0.0
1998 08 23	704	0.1−	0.6+	1999 12 07	704	0.3+	0.0	1999 12 08	704	0.3−	0.2+
1998 08 23	704	0.3−	0.6−	1999 12 07	704	0.5+	0.2−	1999 12 08	704	0.1−	0.1−
1998 08 23	704	0.4+	0.3−	1999 12 07	704	0.7+	0.2−				

1999 WB₅ = 1989 AB₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	283.24531		(2000.0)	P		Q
<i>n</i>	0.26284007	ω	340.74492	−0.73994939	−0.67234925	
<i>a</i>	2.4136539	Ω	156.96705	+0.62383385	−0.69733147	
<i>e</i>	0.1284080	<i>i</i>	3.00742	+0.25160728	−0.24834513	
<i>P</i>	3.75	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1989 01 04	413	0.9+	0.1−	1999 11 28	411	1.0+	0.8+	1999 12 08	704	0.1+	0.1−
1989 01 04	413	1.1−	1.0−	1999 11 29	411	0.6−	0.6−	1999 12 08	704	0.2+	0.4−
1989 01 10	413	0.1+	1.1+	1999 11 29	411	0.6+	0.4+	1999 12 08	704	0.1−	0.4−
1989 01 10	413	(4.4+ 3.0−)		1999 12 07	411	0.5−	0.1−	1999 12 08	704	0.0	0.3−
1999 11 28	411	0.8−	0.2−	1999 12 07	411	0.3−	1.0+	1999 12 08	704	0.4+	0.1−

1999 WB₆ = 1997 GY₄₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	301.48958		(2000.0)	P		Q
<i>n</i>	0.21705459	ω	3.82561	−0.00396098	−0.99678665	
<i>a</i>	2.7421428	Ω	86.41361	+0.91533429	−0.03583031	
<i>e</i>	0.0522752	<i>i</i>	4.59784	+0.40267537	+0.07164197	
<i>P</i>	4.54	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1997 04 09	809	0.8+	0.9+	1999 11 29	120	0.5+	0.1−	1999 12 07	704	0.3+	0.2+
1997 04 09	809	0.4+	0.3+	1999 12 04	703	0.3−	0.2−	1999 12 07	704	0.2+	0.0
1997 04 09	809	0.3−	0.4+	1999 12 04	703	0.4−	0.2−	1999 12 07	704	0.0	0.3−
1997 04 10	809	0.9+	0.8−	1999 12 04	703	0.0	0.6+	1999 12 07	704	0.2−	0.0
1997 04 10	809	1.1−	0.7−	1999 12 04	703	0.3−	0.6+	1999 12 07	704	0.6+	0.0
1997 04 10	809	0.7−	0.1−	1999 12 06	704	0.7−	0.6−	1999 12 07	704	0.4−	0.1+
1997 04 11	809	(3.0+ 6.9+)		1999 12 06	704	0.4−	0.3−	1999 12 07	704	0.5+	0.4−
1997 04 11	809	(1.2+ 6.7+)		1999 12 06	704	0.2−	0.0	1999 12 07	120	0.6+	0.0
1997 04 11	809	(1.6+ 6.6+)		1999 12 06	704	0.8−	0.4+	1999 12 07	120	1.1+	0.0
1999 11 28	120	0.7+	0.5+	1999 12 06	704	0.0	0.1+	1999 12 12	703	0.2−	0.4−
1999 11 28	120	0.1+	0.2−	1999 12 07	704	0.4+	0.2+	1999 12 12	703	0.7+	0.0
1999 11 28	120	0.4−	0.3+	1999 12 07	704	0.1+	0.1−	1999 12 12	703	0.5−	0.3+
1999 11 29	120	0.7−	0.6−	1999 12 07	704	0.2+	0.1−	1999 12 12	703	0.6−	0.2+

1999 WM₆ = 1997 HM

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	319.83447		(2000.0)	P		Q
<i>n</i>	0.23797703	ω	233.66084	+0.09551731	−0.99505543	
<i>a</i>	2.5789684	Ω	210.89155	+0.92943621	+0.09894373	
<i>e</i>	0.1024672	<i>i</i>	3.03954	+0.35640535	+0.00865062	
<i>P</i>	4.14	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1997 04 28	691	0.2−	0.1−	1999 11 28	120	0.2+	0.1+	1999 12 07	704	0.1+	0.1+
1997 04 28	691	0.1−	0.2+	1999 11 29	120	0.1+	0.3−	1999 12 07	704	0.1+	0.7+
1997 04 28	691	0.2−	0.2+	1999 11 29	120	0.4+	0.4−	1999 12 07	120	0.4+	0.2+
1997 04 29	691	0.1−	0.8+	1999 11 30	120	1.4+	0.5−	1999 12 07	120	0.9−	0.5−
1997 04 29	691	0.0	0.2−	1999 11 30	120	0.3+	0.3+	1999 12 08	704	0.2+	0.5−
1997 04 29	691	0.0	0.0	1999 12 03	699	0.4−	0.3+	1999 12 08	704	0.2−	0.1−
1997 05 08	691	0.2+	0.2−	1999 12 03	699	1.2−	1.4+	1999 12 08	704	0.4+	0.7−
1997 05 08	691	0.3+	0.2−	1999 12 03	699	0.3−	0.4+	1999 12 08	704	0.3+	0.1−
1997 05 08	691	0.2+	0.2−	1999 12 07	704	0.1+	0.4−	1999 12 08	704	0.0	0.9−
1999 11 28	120	0.1−	0.3+	1999 12 07	704	0.3−	0.0				
1999 11 28	120	0.1−	0.2+	1999 12 07	704	0.3−	0.4+				

1999 WB₇ = 1996 KU₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	350.30989		(2000.0)	P		Q
<i>n</i>	0.19779488	ω	291.70868	+0.63005755	−0.77542554	
<i>a</i>	2.9173779	Ω	119.16847	+0.72897114	+0.57207256	
<i>e</i>	0.1483515	<i>i</i>	2.74026	+0.26763514	+0.26729799	
<i>P</i>	4.98	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1996 05 22	691	0.2+	0.2+	1999 11 30	120	0.1+	0.0	1999 12 07	120	0.0	0.2−
1996 05 22	691	0.6+	0.4−	1999 11 30	120	0.7−	0.2−	1999 12 07	120	0.1+	0.1+
1996 05 22	691	0.5+	0.2+	1999 12 03	699	0.3−	0.5+	1999 12 08	704	0.5+	0.3+
1996 05 23	691	0.5−	0.5+	1999 12 03	699	0.1−	0.0	1999 12 08	704	0.5−	0.4−
1996 05 23	691	0.3−	0.0	1999 12 03	699	0.2−	0.7+	1999 12 08	704	0.6+	0.7−
1996 05 23	691	0.5−	0.5−	1999 12 07	704	0.3−	0.0	1999 12 08	704	0.1+	0.7−
1999 11 28	120	0.8+	0.1+	1999 12 07	704	0.1−	0.0	1999 12 08	704	0.4+	0.8−
1999 11 28	120	0.0	0.2+	1999 12 07	704	0.3−	0.1−	1999 12 13	120	0.3−	0.5+
1999 11 29	120	0.5−	0.1+	1999 12 07	704	0.2+	0.1−	1999 12 13	120	0.6−	0.5+
1999 11 29	120	1.0+	0.2−	1999 12 07	704	0.0	0.7+				

1999 WN₇ = 1998 KE₂₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	43.13415	(2000.0)	P		Q		Williams			
<i>n</i>	0.26921786	ω	252.37299	+0.87714225	+0.46235092					
<i>a</i>	2.3753820	Ω	79.91976	-0.37526447	+0.82858591					
<i>e</i>	0.2176405	<i>i</i>	7.57679	-0.29966323	+0.31571666					
<i>P</i>	3.66	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5			

Residuals in seconds of arc

1998 05 22	704	0.9-	0.0	1998 05 24	704	1.4+	0.3+	1999 12 06	120	0.1+	0.2-
1998 05 22	704	0.8-	0.4+	1998 05 24	704	(0.6-	3.6-)	1999 12 06	120	0.9-	0.0
1998 05 22	704	0.7-	1.2-	1998 05 24	704	0.1-	0.3-	1999 12 08	704	0.4-	0.5-
1998 05 22	704	0.9+	0.3-	1999 11 28	120	0.1-	0.1-	1999 12 08	704	0.2-	0.1+
1998 05 22	704	0.4-	0.6+	1999 11 28	120	0.2-	0.2+	1999 12 08	704	0.3+	0.3-
1998 05 24	704	0.9+	0.7+	1999 11 29	120	0.6+	0.1-	1999 12 08	704	0.2+	0.4+
1998 05 24	704	0.2-	0.2-	1999 11 29	120	0.3+	0.2+	1999 12 08	704	0.3+	0.3+

1999 WF₈ = 1977 RP₁₇ = 1997 AX₂₀ = 1998 MS₂₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	49.47675	(2000.0)	P		Q		Williams			
<i>n</i>	0.27394372	ω	162.41149	+0.90155528	+0.43264948					
<i>a</i>	2.3479841	Ω	171.94999	-0.39993390	+0.83644418					
<i>e</i>	0.0894487	<i>i</i>	1.44647	-0.16507860	+0.33641576					
<i>P</i>	3.60	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	1			

Residuals in seconds of arc

1977 09 09	675	0.3-	1.3-	1998 06 24	704	1.1+	0.8-	1999 11 29	049	1.4+	0.0
1977 09 10	675	1.0+	0.5-	1998 06 24	704	(2.8-	0.1+)	1999 12 07	704	1.1-	0.3-
1990 04 15	675	0.2+	0.6-	1998 06 26	704	0.5-	0.6+	1999 12 07	704	1.5-	0.1+
1997 01 11	691	0.0	0.3-	1998 06 26	704	0.1-	0.3-	1999 12 07	704	1.1-	0.3-
1997 01 11	691	0.1-	0.1+	1998 06 26	704	(2.2+	1.0+)	1999 12 07	704	0.6-	0.4-
1997 01 11	691	0.2+	0.1-	1998 06 26	704	0.2+	0.3+	1999 12 08	704	0.8-	0.1-
1997 01 17	691	0.2-	0.4-	1999 11 28	049	1.3+	0.9+	1999 12 08	704	1.3-	0.2-
1997 01 17	691	0.4-	0.4-	1999 11 28	049	1.3+	0.7+	1999 12 08	704	0.5-	0.2+
1997 01 17	691	0.4-	0.6-	1999 11 28	049	1.4+	0.6+	1999 12 08	704	0.8-	0.1+
1998 06 24	704	1.1-	0.9+	1999 11 29	049	1.2+	0.1-	1999 12 08	704	0.7-	0.0
1998 06 24	704	0.4+	1.1-	1999 11 29	049	1.6+	0.3-				

1999 WS₈ = 1997 AG₂₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	27.21836	(2000.0)	P		Q		Williams			
<i>n</i>	0.29529472	ω	230.77580	+0.98817904	+0.12786334					
<i>a</i>	2.2333953	Ω	121.72404	-0.09097000	+0.93313165					
<i>e</i>	0.1387200	<i>i</i>	5.70649	-0.12339631	+0.33603019					
<i>P</i>	3.34	<i>H</i>	15.9	<i>G</i>	0.15	<i>U</i>	6			

Residuals in seconds of arc

1997 01 09	691	0.1-	0.5+	1997 01 16	599	0.1+	0.1-	1999 12 06	704	0.1+	0.2+
1997 01 09	691	0.0	0.9+	1997 01 16	599	0.3+	0.3-	1999 12 06	704	0.6+	0.5+
1997 01 14	599	1.0-	0.4-	1999 11 28	143	0.3-	0.4-	1999 12 06	704	1.3+	1.5-
1997 01 14	599	0.2+	1.2-	1999 11 28	143	0.1-	1.1+	1999 12 06	704	1.1+	0.1+
1997 01 14	910	0.2+	0.3+	1999 11 28	143	1.1-	0.4-	1999 12 07	143	0.5-	0.1+
1997 01 14	910	0.1+	0.1+	1999 11 29	143	0.3-	0.9-	1999 12 07	143	0.1-	1.1+
1997 01 14	910	0.3+	0.1-	1999 11 29	143	0.5-	0.1+	1999 12 07	143	0.2+	0.1-
1997 01 15	599	0.1-	0.2+	1999 11 30	143	0.2-	0.3-				
1997 01 15	599	0.1+	0.1+	1999 11 30	143	0.3-	0.3+				

1999 WU₈ = 1997 CQ₁₆ = 1998 KZ₂₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	43.02415	(2000.0)	P		Q		Williams			
<i>n</i>	0.28045383	ω	206.00224	+0.90853596	+0.41294909					
<i>a</i>	2.3115066	Ω	129.45943	-0.36755042	+0.86225716					
<i>e</i>	0.1555839	<i>i</i>	4.71955	-0.19866830	+0.29323309					
<i>P</i>	3.51	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	2			

Residuals in seconds of arc

1997 01 30	098	1.0+	0.9-	1997 02 11	691	0.1-	0.2+	1999 11 29	143	0.1-	0.2+
1997 01 30	098	0.4+	0.1+	1997 02 11	691	0.2-	0.1+	1999 11 29	143	0.0	0.4+
1997 01 31	098	0.2-	0.8+	1998 05 22	704	0.4-	0.3-	1999 11 29	143	0.7-	0.2+
1997 01 31	098	(4.3+	1.5-)	1998 05 22	704	0.0	0.6+	1999 11 29	143	0.0	0.2+
1997 02 07	098	0.2-	0.5+	1998 05 22	704	0.6+	0.1-	1999 11 30	143	0.1-	0.1-
1997 02 07	098	0.6+	1.2-	1998 05 22	704	0.7+	0.2-	1999 11 30	143	0.1-	0.1-
1997 02 07	098	1.0-	0.3+	1998 05 22	704	0.2+	1.0+	1999 12 03	699	0.4-	0.2-
1997 02 07	098	1.1+	1.4-	1998 05 24	704	0.6+	0.1-	1999 12 03	699	0.2-	0.2-
1997 02 09	691	0.2+	0.1+	1998 05 24	704	0.8-	0.3+	1999 12 03	699	0.3-	0.2-
1997 02 09	691	0.0	0.4+	1998 05 24	704	0.6-	0.1+	1999 12 06	704	0.4+	0.4-
1997 02 09	691	0.0	0.3+	1998 05 24	704	0.0	1.4-	1999 12 06	704	0.3+	0.2-
1997 02 10	691	0.6-	0.2-	1998 05 24	704	0.5-	0.1+	1999 12 06	704	0.5+	0.1-
1997 02 10	691	0.4-	0.3+	1999 11 28	143	0.2-	0.2+	1999 12 06	704	0.5+	0.4-
1997 02 10	691	0.4-	0.2+	1999 11 28	143	0.3-	0.3+	1999 12 06	704	1.3+	0.0
1997 02 10	691	0.3-	0.2+	1999 11 28	143	0.3-	0.4+				
1997 02 11	691	0.0	0.2+	1999 11 29	143	0.3-	0.0				

1999 WX₈ = 1990 HD₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	278.14967	(2000.0)	P		Q		Williams			
<i>n</i>	0.17309963	ω	54.17392	-0.70428826	-0.64618914					
<i>a</i>	3.1886385	Ω	83.58727	+0.51762648	-0.75081740					
<i>e</i>	0.0793641	<i>i</i>	17.20669	+0.48584037	-0.13679485					
<i>P</i>	5.69	<i>H</i>	12.3	<i>G</i>	0.15	<i>U</i>	5			

Residuals in seconds of arc

1990 04 29	413	(3.6-	0.4-)	1999 11 29	143	0.1+	0.4-	1999 12 06	704	0.3-	0.0
1990 04 29	413	0.2-	0.7-	1999 11 29	143	0.2+	0.0	1999 12 06	704	0.3-	0.1-
1990 04 30	413	1.1-	0.8+	1999 11 30	143	0.0	0.0	1999 12 06	704	0.1-	0.6-
1990 04 30	413	1.3+	0.1-	1999 11 30	143	0.2-	0.0	1999 12 06	704	0.1-	0.5-
1999 11 28	143	0.1+	0.2+	1999 11 30	143	0.1+	0.2+	1999 12 07	143	0.5+	0.5+
1999 11 29	143	0.0	0.1+	1999 11 30	143	0.2-	0.1+				
1999 11 29	143	0.2+	0.2+	1999 12 06	704	0.1-	0.3+				

1999 WZ₈ = 1998 KQ₄₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	54.72975	(2000.0)	P		Q		Williams			
<i>n</i>	0.23166121	ω	209.67451	+0.74556194	+0.65673141					
<i>a</i>	2.6256319	Ω	108.82347	-0.58544364	+0.72665918					
<i>e</i>	0.2470442	<i>i</i>	6.87608	-0.31842288	+0.20166876					
<i>P</i>	4.25	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5			

Residuals in seconds of arc

1998 05 22	704	0.4+	0.3-	1999 11 28	143	0.5-	0.5-	1999 12 03	699	0.3-	0.0
1998 05 22	704	0.7+	1.0-	1999 11 29	143	0.4-	0.2-	1999 12 06	704	0.9-	0.9-
1998 05 22	704	0.2+	0.0	1999 11 29	143	0.2+	0.7+	1999 12 06	704	1.7+	0.1+
1998 05 22	704	0.2-	0.6+	1999 11 29	143	0.3-	0.4+	1999 12 06	704	1.0+	1.4+
1998 05 22	704	0.3-	0.2+	1999 11 30	143	0.5+	0.2-	1999 12 07	143	0.4-	0.5+
1998 05 24	704	0.5-	0.1-	1999 11 30	143	0.1+	0.2+	1999 12 07	143	0.2+	0.1-
1998 05 24	704	0.2+	0.1+	1999 11 30	143	0.3+	0.2-	1999 12 07	143	0.1-	0.3-
1998 05 24	704	0.7-	1.1+	1999 11 30	143	0.3-	0.1-	1999 12 07	143	1.0-	0.3-
1998 05 24	704	0.5+	0.1+	1999 12 03	699	0.3-	1.6-				
1998 05 24	704	0.4-	0.6-	1999 12 03	699	0.6+	1.1+				

1999 WC₉ = 1998 HH₆₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	27.00546	(2000.0)	P		Q	
<i>n</i>	0.28023532	ω	293.92164	+0.91012594	+0.41013682	
<i>a</i>	2.3127080	Ω	41.93096	-0.34090742	+0.82192988	
<i>e</i>	0.2065986	<i>i</i>	5.04898	-0.23548441	+0.39524557	
<i>P</i>	3.52	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1998 04 21	704	0.6-	1.0+	1999 12 01	104	0.2+	0.1+	1999 12 07	104	0.2+	0.1-
1998 04 21	704	0.7-	1.0-	1999 12 01	104	0.1+	0.1+	1999 12 08	704	0.1+	0.0
1998 04 21	704	(0.4+	2.7-)	1999 12 01	104	0.1+	0.2+	1999 12 08	704	1.0-	1.0-
1998 04 21	704	(4.4-	0.4+)	1999 12 01	104	0.2+	0.1+	1999 12 08	704	0.2+	0.3+
1998 04 22	704	0.4-	0.3-	1999 12 04	703	1.2-	1.4+	1999 12 08	704	0.1-	0.3-
1998 04 22	704	0.7+	0.0	1999 12 04	703	0.0	0.6+	1999 12 08	704	0.8+	0.2-
1998 04 22	704	0.9+	0.3+	1999 12 04	703	1.0-	0.0	1999 12 11	104	0.4-	0.5-
1998 04 22	704	(3.1-	1.1+)	1999 12 04	703	0.3+	0.4+	1999 12 11	104	0.1-	0.6-
1999 11 29	104	0.1-	0.0	1999 12 07	704	0.5-	0.3+	1999 12 11	104	0.1+	0.5-
1999 11 29	104	0.3-	0.1-	1999 12 07	704	0.5-	0.1+	1999 12 11	104	0.2+	0.4-
1999 11 29	104	0.2+	0.2-	1999 12 07	704	0.0	0.3+	1999 12 12	703	0.7-	0.9+
1999 11 29	104	0.2-	0.7-	1999 12 07	704	1.0+	0.2-	1999 12 12	703	0.1+	0.1-
1999 11 30	104	0.5+	0.2-	1999 12 07	704	0.7+	0.3-	1999 12 12	703	0.5+	0.3+
1999 11 30	104	0.3+	0.3-	1999 12 07	104	0.0	0.1+	1999 12 12	703	0.1-	0.7+
1999 11 30	104	0.1+	0.4-	1999 12 07	104	0.3+	0.1+				

1999 WD₉ = 1997 HJ₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	304.70693	(2000.0)	P		Q	
<i>n</i>	0.26858386	ω	250.61518	-0.07910972	-0.99568184	
<i>a</i>	2.3791187	Ω	204.07955	+0.95345523	-0.06135247	
<i>e</i>	0.0681827	<i>i</i>	6.83727	+0.29097214	-0.06966741	
<i>P</i>	3.67	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1997 04 28	704	1.2-	0.4+	1999 11 28	106	0.9-	0.0	1999 12 06	739	0.0	0.1-
1997 04 28	704	0.8-	0.3+	1999 11 29	106	0.1-	0.2-	1999 12 06	649	1.0+	0.0
1997 04 28	704	1.2-	0.2-	1999 11 29	106	1.2-	0.0	1999 12 06	739	0.2-	0.2+
1997 04 28	704	0.2-	1.7-	1999 11 30	106	0.9+	1.1+	1999 12 06	739	0.3+	0.4-
1997 04 28	704	(2.9-	0.2+)	1999 11 30	106	0.4-	0.3-	1999 12 06	704	0.5+	0.2-
1997 04 29	704	1.1+	0.3+	1999 11 30	106	0.8-	0.5-	1999 12 06	704	0.4+	0.2+
1997 04 29	704	0.7+	0.3+	1999 11 30	106	0.0	0.3-	1999 12 06	704	0.1+	0.1-
1997 04 29	704	0.4+	0.3+	1999 12 03	699	0.1+	0.1+	1999 12 06	704	0.1-	0.2-
1997 04 29	704	0.3+	0.0	1999 12 03	699	0.0	0.5+	1999 12 06	704	0.3+	0.0
1997 04 29	704	1.0+	0.3+	1999 12 03	699	0.2-	0.5-	1999 12 06	106	0.2-	0.5+
1999 11 28	106	0.8-	0.1+	1999 12 06	649	(1.9-	5.8+)	1999 12 06	106	0.3-	0.3+
1999 11 28	106	0.8+	0.5-	1999 12 06	649	0.7+	0.1-	1999 12 06	106	0.1+	0.3+

1999 WG₉ = 1994 NX₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	10.25485	(2000.0)	P		Q	
<i>n</i>	0.23155760	ω	264.72288	+0.95717781	-0.16740594	
<i>a</i>	2.6264151	Ω	104.75764	+0.24081642	+0.91323549	
<i>e</i>	0.1880389	<i>i</i>	14.13737	-0.16068009	+0.37145145	
<i>P</i>	4.26	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 6	

Residuals in seconds of arc

1994 07 11	809	0.4-	0.1+	1999 11 28	609	0.3-	0.3+	1999 12 03	704	0.4+	0.4-
1994 07 11	809	1.7-	0.8-	1999 11 29	609	1.0-	0.5+	1999 12 03	704	1.4+	0.2+
1994 07 11	809	0.2+	0.2+	1999 11 29	609	1.6-	0.6+	1999 12 03	704	0.8+	0.8-
1994 07 12	809	0.3+	0.2+	1999 11 29	609	(2.2-	2.3+)	1999 12 06	589	0.4-	0.0
1994 07 12	809	0.6+	0.6+	1999 11 30	609	0.4-	0.0	1999 12 06	589	(3.4-	1.6-)
1994 07 12	809	1.1+	0.3-	1999 11 30	609	(1.7-	2.6+)	1999 12 07	609	0.2+	0.2+
1999 11 27	609	0.1+	0.5-	1999 12 03	704	0.7+	0.1-				

1999 WL₉ = 1998 HT₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	42.83241	(2000.0)	P		Q	
<i>n</i>	0.23759342	ω	231.26115	+0.81096943	+0.57722430	
<i>a</i>	2.5817436	Ω	93.28158	-0.50270299	+0.77101987	
<i>e</i>	0.2248329	<i>i</i>	5.49530	-0.29936314	+0.26896185	
<i>P</i>	4.15	<i>H</i>	15.6	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1998 04 22	910	0.2-	0.2-	1998 05 24	704	1.2-	0.0	1999 12 04	703	0.2-	0.1-
1998 04 22	910	0.2-	0.0	1998 05 24	704	0.2-	0.2-	1999 12 04	703	0.1+	0.1-
1998 04 22	910	0.1+	0.0	1998 05 24	704	0.4+	0.7-	1999 12 04	703	0.2-	1.1-
1998 04 24	910	0.2+	0.3-	1999 11 29	595	0.1+	0.5-	1999 12 04	703	0.1+	0.5+
1998 04 24	910	0.3-	0.1+	1999 11 29	595	0.9-	0.9-	1999 12 06	704	0.8-	0.3-
1998 04 24	910	0.1-	0.2-	1999 11 29	595	0.2+	0.0	1999 12 06	704	0.2+	1.0+
1998 05 22	704	0.9+	0.7+	1999 11 30	595	0.3+	0.8-	1999 12 06	704	0.4+	0.5+
1998 05 22	704	(0.1+	2.1-)	1999 11 30	595	0.5+	1.1+	1999 12 07	120	0.6-	0.5+
1998 05 22	704	0.0	1.1+	1999 12 02	699	0.5+	0.1+	1999 12 07	120	0.9-	0.4+
1998 05 22	704	(1.4-	2.9+)	1999 12 02	699	0.9+	0.1-				
1998 05 24	704	0.6+	0.1-	1999 12 02	699	0.1+	0.2+				

1999 WN₉ = 1994 ND₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	53.83401	(2000.0)	P		Q	
<i>n</i>	0.24107813	ω	197.24245	+0.86988723	+0.49259736	
<i>a</i>	2.5568044	Ω	133.21832	-0.44834349	+0.81109191	
<i>e</i>	0.1467838	<i>i</i>	1.99568	-0.20563151	+0.31540094	
<i>P</i>	4.09	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 7	

Residuals in seconds of arc

1994 07 08	809	0.2+	1.0+	1999 12 02	411	1.2-	0.3-	1999 12 07	704	0.2-	0.6-
1994 07 08	809	0.5+	0.3+	1999 12 02	411	0.3-	0.2-	1999 12 07	411	0.0	0.0
1994 07 08	809	0.7+	0.7+	1999 12 03	699	0.7-	0.4+	1999 12 07	411	0.5+	0.9+
1994 07 09	809	0.2-	0.6-	1999 12 03	699	0.2-	1.1+	1999 12 08	704	0.3-	0.0
1994 07 09	809	0.0	0.3-	1999 12 03	699	1.6+	0.8-	1999 12 08	704	0.4-	0.1-
1994 07 09	809	1.2-	1.0-	1999 12 07	704	0.1+	0.4+	1999 12 08	704	0.2-	0.2+
1999 11 30	411	0.2+	1.5-	1999 12 07	704	0.1-	0.2+	1999 12 08	704	0.5+	0.5-
1999 11 30	411	0.7+	0.7+	1999 12 07	704	0.1+	0.2+	1999 12 08	704	0.2-	0.1-

1999 WS₉ = 1983 ED₃ = 1993 LN₁

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	132.12907	(2000.0)	P		Q	
<i>n</i>	0.22438622	ω	209.45051	+0.35104326	+0.91933346	
<i>a</i>	2.6820812	Ω	81.58578	-0.82011891	+0.39347934	
<i>e</i>	0.0820128	<i>i</i>	10.35129	-0.45185573	+0.00005748	
<i>P</i>	4.39	<i>H</i>	11.5	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1983 03 14	095	0.1-	0.5-	1999 12 02	411	0.5+	0.7-	1999 12 10	704	0.8-	0.3-
1993 06 15	675	0.2-	0.3-	1999 12 02	411	0.2-	1.8-	1999 12 10	704	0.3+	0.1+
1993 06 15	675	0.1-	1.0-	1999 12 07	704	0.9+	0.2-	1999 12 10	704	0.3+	0.1-
1993 06 19	675	0.2-	1.2-	1999 12 07	704	0.6+	0.3-	1999 12 10	704	0.3+	0.1-
1993 06 19	675	0.3+	1.0-	1999 12 07	704	0.5+	0.1-	1999 12 10	704	0.4+	0.1-
1999 11 30	411	1.5-	0.6-	1999 12 07	704	0.4+	0.3+	1999 12 10	411	0.2-	0.1+
1999 11 30	411	1.3-	0.6-	1999 12 07	704	0.3+	0.3+	1999 12 10	411	0.4-	0.4+

1999 WT₉ = 1994 LD₇

Id. G. V. Williams, S. Nakano

1999 DEC. 22

M.P.C. 37243

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams						
<i>M</i>	318.91883			(2000.0)			P			Q		
<i>n</i>	0.28090435			ω	24.22456		−0.15781130			−0.98031261		
<i>a</i>	2.3090344			Ω	75.02955		+0.88475520			−0.19374063		
<i>e</i>	0.1025965			<i>i</i>	7.05605		+0.43852460			+0.03810190		
<i>P</i>	3.51			<i>H</i>	14.3		<i>G</i>	0.15		<i>U</i>	5	
Residuals in seconds of arc												
1994 06 03	809	0.2−	0.2+	1999 11 30	411	0.8+	0.0	1999 12 07	704	0.4−	0.7−	
1994 06 03	809	0.9−	0.9−	1999 12 02	411	0.6+	2.0+	1999 12 10	704	0.3+	0.5+	
1994 06 03	809	0.4+	0.0	1999 12 02	411	0.0	0.5+	1999 12 10	704	0.3−	0.3−	
1994 06 04	809	0.9+	1.5+	1999 12 07	704	0.1−	0.0	1999 12 10	704	0.4+	0.7+	
1994 06 04	809	0.3−	0.3+	1999 12 07	704	0.2+	0.3−	1999 12 10	411	0.3−	0.6−	
1994 06 04	809	0.3+	1.0−	1999 12 07	704	0.6−	0.7−	1999 12 10	411	1.0+	0.4+	
1999 11 30	411	1.1−	1.1−	1999 12 07	704	0.6−	0.2−					

1999 WY₉ = 1990 KH₁ = 1998 KT₂

Id. S. Nakano, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
<i>M</i>	15.14800		(2000.0)		P	Q					
<i>n</i>	0.36705286		ω	298.79828	+0.84636082	−0.31982395					
<i>a</i>	1.9318955		Ω	82.67793	+0.49551036	+0.76604279					
<i>e</i>	0.0831660		<i>i</i>	25.42923	−0.19530192	+0.55757609					
<i>P</i>	2.69		<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>		4		
Residuals in seconds of arc											
1990 05 26	413(31.0−	16.4−)		1998 05 24	704	0.3−	0.8−	1999 12 10	704	2.4+	0.7+
1990 05 26	413	0.2+	0.7−	1998 05 24	704	0.2+	0.1−	1999 12 10	704	1.2+	0.7+
1990 05 29	413	1.5−	2.2+	1998 05 24	704	1.1−	0.4+	1999 12 10	704	0.4−	0.1+
1990 05 29	413	2.8+	0.6+	1999 11 30	411	0.2−	0.4+	1999 12 10	411	0.4−	0.5+
1998 05 23	704	0.4+	0.4−	1999 11 30	411	1.1−	0.5−	1999 12 10	411	0.8−	0.2−
1998 05 23	704	0.1+	1.3−	1999 12 02	411	0.2+	0.1−	1999 12 15	704	0.3−	0.1+
1998 05 23	704	0.6+	0.9−	1999 12 02	411	0.0	0.7−	1999 12 15	704	0.1−	0.0
1998 05 23	704	0.1−	0.2+	1999 12 07	411	0.1−	0.2+	1999 12 15	704	0.3−	0.2−
1998 05 23	704	0.8−	1.0+	1999 12 07	411	0.3−	0.9+	1999 12 15	704	0.1+	0.3−
1998 05 24	704	0.1−	0.3+	1999 12 10	704	0.0	0.2−	1999 12 15	704	0.3+	0.7−
1998 05 24	704	0.2−	0.1−	1999 12 10	704	0.5−	0.0				

1999 WM₁₁ = 1995 YD₁₃

Id. T. Urata

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Williams							
M	23.77697		(2000.0)	P		Q					
n	0.21011801	ω	65.63133	+0.99163115		+0.07520431					
a	2.8021660	Ω	289.91642	−0.11344327		+0.89558908					
e	0.2451260	i	6.40833	+0.06163024		+0.43847976					
P	4.69	H	14.3	G	0.15	U	5				
Residuals in seconds of arc											
1995 12 19	691	0.1+	0.1+	1999 12 02	385	0.2+	0.0	1999 12 07	703	1.0−	0.2−
1995 12 19	691	0.1−	0.1−	1999 12 02	385	0.2+	0.0	1999 12 10	704	0.1+	0.4+
1995 12 19	691	0.3+	0.1+	1999 12 02	385	0.3+	0.4+	1999 12 10	704	0.7+	0.2−
1995 12 26	691	0.5−	0.1+	1999 12 04	385	0.8+	0.2+	1999 12 10	704	0.1−	0.8+
1995 12 26	691	0.2−	0.3−	1999 12 04	385	0.2−	0.6−	1999 12 10	704	0.0	0.7+
1995 12 26	691	0.4+	0.0	1999 12 07	703	0.6−	0.0	1999 12 10	385	1.1+	0.7−
1999 11 29	905	0.5+	0.5−	1999 12 07	703	1.2−	0.3−				
1999 11 29	905	0.5−	0.5+	1999 12 07	703	0.4−	0.5−				

1999 WO₁₁ = 1998 QU₇₂

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
<i>M</i>	297.92366		(2000.0)			P		Q			
<i>n</i>	0.19083942		ω	191.28570		−0.42972024		−0.89189773			
<i>a</i>	2.9878399		Ω	284.29210		+0.83936043		−0.33702182			
<i>e</i>	0.0734972		<i>i</i>	8.36175		+0.33288825		−0.30155385			
<i>P</i>	5.16		<i>H</i>	13.4		<i>G</i>	0.15		<i>U</i>	5	
Residuals in seconds of arc											
1998 08 24	704	0.3−	0.2+	1998 08 27	704	0.2+	0.4−	1999 12 06	385	0.3−	0.0
1998 08 24	704	0.4+	0.3−	1998 08 27	704	0.0	0.4−	1999 12 06	385	0.0	0.3−
1998 08 24	704	0.1−	1.5+	1998 08 27	704	(0.1+ 2.3−)		1999 12 10	704	0.2+	0.1+
1998 08 24	704	0.5+	0.6−	1999 11 29	905	0.6− 0.4−		1999 12 10	704	0.4−	0.4+
1998 08 24	704	1.7−	0.2+	1999 11 29	905	0.5+ 0.0		1999 12 10	704	0.3−	0.4−
1998 08 27	704	0.7+	0.5−	1999 12 02	385	0.3+ 0.4+		1999 12 10	704	0.2+	0.8+
1998 08 27	704	0.3+	0.4+	1999 12 02	385	0.3+ 0.1−		1999 12 10	704	0.0	0.5−

1999 WP₁₁ = 1996 XO₃₃

Id. T. Urata

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
<i>M</i>	317.87853		(2000.0)			P		Q			
<i>n</i>	0.29700582		ω	45.56392		+0.18054254		−0.98221935			
<i>a</i>	2.2248090		Ω	34.13311		+0.87434711		+0.13630580			
<i>e</i>	0.0979565		<i>i</i>	5.26338		+0.45046811		+0.12909637			
<i>P</i>	3.32		<i>H</i>	15.2		<i>G</i>	0.15		<i>U</i>	5	
Residuals in seconds of arc											
1996 12 02	327	0.4−	0.4+	1999 11 29	905	0.3+	0.3+	1999 12 10	704	0.2−	0.0
1996 12 02	327	0.6+	0.1+	1999 12 02	385	0.5−	0.2−	1999 12 10	704	0.4+	0.3−
1996 12 02	327	0.0	0.1−	1999 12 02	385	0.2−	0.4−	1999 12 10	704	0.6−	0.8−
1996 12 12	327	0.8−	0.1−	1999 12 06	385	0.1+	1.1+	1999 12 10	385	0.2−	0.2+
1996 12 12	327	0.7+	0.1−	1999 12 06	385	0.6−	0.8+	1999 12 10	385	0.2−	0.1+
1996 12 12	327	0.2−	0.3−	1999 12 06	385	0.1+	1.0+				
1999 11 29	905	1.3+	1.4−	1999 12 10	704	0.0	0.2−				

1999 WQ₁₁ = 1998 MY₂₆

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
<i>M</i>	110.57653		(2000.0)		P		Q				
<i>n</i>	0.25793693	ω	357.05041		+0.06655085		+0.99423023				
<i>a</i>	2.4441454	Ω	276.75494		−0.91370532		+0.02685049				
<i>e</i>	0.1936085	<i>i</i>	4.85960		−0.40089097		+0.10385226				
<i>P</i>	3.82	<i>H</i>	15.1		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1998 06 24	704	0.8−	0.4+	1999 11 29	385	0.4−	0.4−	1999 12 07	704	0.6+	0.7+
1998 06 24	704	1.2+	0.7+	1999 11 29	385	0.2−	0.3−	1999 12 07	704	0.4−	0.4+
1998 06 24	704	0.7+	0.9−	1999 12 02	385	0.3−	0.2−	1999 12 07	704	0.1−	0.9+
1998 06 24	704	0.2−	1.4+	1999 12 02	385	0.5+	0.0	1999 12 13	703	0.8−	0.5+
1998 06 24	704	0.7+	1.0−	1999 12 02	385	1.1+	0.9−	1999 12 13	703	0.8−	0.7+
1998 06 26	704	0.6−	1.7−	1999 12 06	385	0.3+	0.0	1999 12 13	703	0.6+	0.2+
1998 06 26	704	0.5+	0.1+	1999 12 06	385	0.5−	1.1−	1999 12 13	703	0.4+	0.4+
1998 06 26	704	0.9−	0.3−	1999 12 06	385	0.4−	0.1−				
1998 06 26	704	0.6−	1.4+	1999 12 07	704	0.4+	0.7−				

1999 WT₁₁ = 1995 VW₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	348.44446		(2000.0)	P	Q
n	0.24287849	ω	337.39044	+0.97004143	−0.19043340
a	2.5441537	Ω	34.68652	+0.24287093	+0.77492892
e	0.1607515	i	15.37102	−0.00577327	+0.60267760
P	4.06	H	15.5	G 0.15	U 4

Residuals in seconds of arc

1995 11 15	691	0.1+	0.4-	1995 11 24	691	0.3+	0.2+	1999 12 03	691	0.5-	0.1-
1995 11 15	691	0.0	0.2-	1995 11 24	691	0.3+	0.0	1999 12 05	691	0.2-	0.0
1995 11 15	691	0.2+	0.4-	1999 11 28	691	0.1+	0.3+	1999 12 05	691	0.3+	0.3+
1995 11 23	691	0.2-	0.3+	1999 11 28	691	0.1+	0.3+	1999 12 05	691	0.6-	0.1-
1995 11 23	691	0.7-	0.3+	1999 11 28	691	0.0	0.3+	1999 12 07	704	0.3+	0.2-
1995 11 23	691	0.5-	0.4+	1999 12 03	691	0.6-	0.0	1999 12 07	704	1.0+	0.7-
1995 11 24	691	0.4+	0.3-	1999 12 03	691	0.3-	0.1-	1999 12 07	704	0.5+	0.4-

1999 WL₁₆ = 1999 VE₆₆ = 1998 KP₂₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	28.41444		(2000.0)	P	Q
<i>n</i>	0.27283715	ω	273.64512	+0.94857660	+0.30659537
<i>a</i>	2.3543284	Ω	68.51349	-0.24630093	+0.87114183
<i>e</i>	0.1294475	<i>i</i>	4.85490	-0.19884238	+0.38355077
<i>P</i>	3.61	<i>H</i>	15.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 05 22	704	0.7+	0.7-	1999 11 04	704	0.2+	0.3+	1999 12 07	704	0.6+	0.2-
1998 05 22	704	1.6-	0.1-	1999 11 04	704	0.2-	0.0	1999 12 07	704	0.2+	0.6-
1998 05 22	704	0.7+	1.0-	1999 11 04	704	0.3-	0.0	1999 12 07	704	0.2+	0.5+
1998 05 22	704	0.8+	1.3-	1999 11 04	704	0.1+	0.0	1999 12 07	704	0.5+	0.0
1998 05 24	704	1.4+	1.1+	1999 11 29	691	0.7+	0.6-	1999 12 07	704	0.8+	0.0
1998 05 24	704	1.6-	1.0+	1999 11 29	691	0.2-	0.0	1999 12 12	703	0.0	0.1+
1998 05 24	704	1.0-	0.0	1999 11 29	691	0.0	0.0	1999 12 12	703	0.4-	0.2+
1998 05 24	704	0.3+	0.6+	1999 12 06	691	0.3+	0.3-	1999 12 12	703	1.2-	0.1+
1998 05 24	704	(3.4-	0.3+)	1999 12 06	691	0.6-	0.0	1999 12 12	703	0.4-	0.5+
1999 11 04	704	0.1-	0.2-	1999 12 06	691	0.2-	0.1-				

1999 XM = 1978 ES₈ = 1984 YP₁ = 1984 YF₂ = 1997 JS

Id. G. V. Williams, F. N. Bowman (d)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	332.92354		(2000.0)	P	Q
<i>n</i>	0.26301230	ω	356.75925	+0.30028614	-0.94213448
<i>a</i>	2.4126001	Ω	75.72681	+0.87856120	+0.21234635
<i>e</i>	0.2427553	<i>i</i>	8.84605	+0.37142758	+0.25940634
<i>P</i>	3.75	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1978 03 03	033	0.4-	1.0+	1999 12 02	732	0.0	0.1-	1999 12 07	704	0.1+	0.1+
1978 03 04	033	1.5+	0.8-	1999 12 02	732	0.2+	0.0	1999 12 07	704	0.5+	0.3+
1978 03 04	033	0.5-	0.8+	1999 12 02	732	0.0	0.1+	1999 12 07	704	0.0	0.2+
1984 12 17	095	0.2-	1.4-	1999 12 03	732	0.0	0.3-	1999 12 07	704	0.1-	0.4+
1984 12 23	095	0.6+	0.6-	1999 12 03	732	0.1+	0.1-	1999 12 08	732	0.2-	0.1+
1997 05 01	552	0.1+	0.4-	1999 12 03	732	(2.4-	0.6+)	1999 12 08	732	0.0	0.4+
1997 05 01	552	0.3-	0.5+	1999 12 04	732	0.9-	0.1-	1999 12 08	732	0.2-	0.3+
1997 05 01	552	0.0	0.2-	1999 12 04	732	0.1-	0.1+	1999 12 09	732	0.6-	0.6-
1997 05 03	552	0.4-	0.8+	1999 12 04	732	0.7-	0.1+	1999 12 09	732	0.1-	0.1-
1997 05 03	552	1.7+	0.4-	1999 12 05	732	0.1-	0.1-	1999 12 10	704	0.5+	0.2+
1997 05 10	552	0.9-	0.6-	1999 12 05	732	0.1-	0.3+	1999 12 10	704	0.7+	0.0
1997 05 10	552	1.0-	0.9-	1999 12 05	732	0.0	0.2+	1999 12 10	704	0.3+	0.2+
1999 12 02	732	0.3-	0.2+	1999 12 07	704	0.3+	0.1+	1999 12 10	704	0.4+	0.4-

1999 XE₁ = 1991 YS = 1997 GL₄₂ = 1998 QH₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	0.77807		(2000.0)	P	Q
<i>n</i>	0.24537856	ω	224.11000	+0.58426072	-0.81146558
<i>a</i>	2.5268433	Ω	190.16195	+0.76319831	+0.55472209
<i>e</i>	0.1165263	<i>i</i>	4.15006	+0.27598504	+0.18386685
<i>P</i>	4.02	<i>H</i>	13.1	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1991 12 30	511	0.2+	0.8-	1998 08 17	704	0.1+	1.4+	1999 12 02	411	0.6+	0.8-
1991 12 30	511	0.6+	1.1-	1998 08 17	704	0.2-	0.8-	1999 12 02	411	0.7-	0.7-
1992 01 02	511	1.2-	1.0-	1998 08 17	704	0.9-	0.1+	1999 12 03	411	0.7-	0.0

1992 01 02	511	0.1+	0.6-	1998 08 17	704	0.4+	0.8-	1999 12 03	411	0.5-	1.3+
1997 04 11	809	0.1+	0.1-	1998 08 17	704	0.2+	1.2-	1999 12 06	704	0.4+	0.9+
1997 04 11	809	0.1-	0.5+	1998 08 23	704	0.5+	0.9-	1999 12 06	704	0.0	0.8+
1997 04 11	809	0.0	0.3-	1998 08 23	704	0.7-	0.4+	1999 12 06	704	0.8+	0.1+
1997 04 12	809	(1.8-	3.4-)	1998 08 23	704	0.6+	0.6+	1999 12 06	704	0.5-	0.6+
1997 04 12	809	(1.7-	2.8-)	1998 08 23	704	0.4+	0.1+	1999 12 11	411	0.6+	0.7+
1997 04 12	809	(1.2-	3.6-)	1998 08 23	704	0.0	0.2+	1999 12 11	411	0.1+	0.1-

1999 XL₁ = 1988 VF₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	293.66819		(2000.0)	P	Q
<i>n</i>	0.18605628	ω	249.49673	-0.87076729	-0.43796691
<i>a</i>	3.0388306	Ω	263.95975	+0.49142247	-0.79032790
<i>e</i>	0.1589863	<i>i</i>	12.98766	-0.01637924	-0.42844695
<i>P</i>	5.30	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 7

Residuals in seconds of arc

1988 11 03	033	0.0	0.3-	1999 12 07	704	0.8-	0.4+	1999 12 08	704	0.2+	0.1-
1988 11 04	033	0.1+	0.2+	1999 12 07	704	0.5-	0.1-	1999 12 08	704	0.5-	0.7-
1988 11 04	033	0.0	0.1+	1999 12 07	704	0.2-	0.2-	1999 12 08	704	0.5+	0.8-
1999 12 02	411	0.4+	0.6+	1999 12 07	704	0.1-	0.1+	1999 12 11	411	1.4+	1.1+
1999 12 02	411	0.1-	0.3-	1999 12 07	704	0.1+	1.0-	1999 12 11	411	0.7+	0.5+
1999 12 03	411	0.9-	0.1-	1999 12 08	704	0.3+	0.4+				
1999 12 03	411	0.6-	0.1-	1999 12 08	704	0.1+	0.2+				

1999 XV₁ = 1982 YQ₄ = 1998 ME₂₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	348.03472		(2000.0)	P	Q
<i>n</i>	0.22786455	ω	307.79417	+0.74295512	-0.66331518
<i>a</i>	2.6547169	Ω	93.94854	+0.63888098	+0.66283147
<i>e</i>	0.1055510	<i>i</i>	5.15367	+0.19962161	+0.34737215
<i>P</i>	4.33	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1982 12 23	095	0.0	0.7-	1999 12 05	703	0.1+	0.5+	1999 12 07	704	0.2+	0.1-
1998 06 24	704	0.2+	0.5-	1999 12 05	703	0.2+	0.1+	1999 12 07	704	0.1+	0.1+
1998 06 24	704	0.4-	0.4+	1999 12 05	703	0.1-	0.1+	1999 12 07	704	0.0	0.1+
1998 06 24	704	0.3-	0.2+	1999 12 05	703	0.5-	0.0	1999 12 07	704	0.0	0.0
1998 06 24	704	(1.9+	3.0-)	1999 12 06	704	0.8+	0.1+	1999 12 08	704	0.2+	0.0
1998 06 26	704	0.7+	0.4-	1999 12 06	704	0.3+	0.2+	1999 12 08	704	0.6+	0.0
1998 06 26	704	0.3+	0.1-	1999 12 06	704	0.2+	0.2+	1999 12 08	704	0.2+	0.3-
1998 06 26	704	0.5-	0.1-	1999 12 06	704	0.3+	0.4-	1999 12 08	704	0.1+	0.3-
1998 06 26	704	(0.7-	2.6-)	1999 12 06	704	0.1-	0.3-	1999 12 08	704	0.1-	0.4-
1999 12 03	678	0.9+	0.5-	1999 12 07	649	0.4-	0.0	1999 12 12	703	0.7-	0.7+
1999 12 03	678	0.1-	0.0	1999 12 07	649	0.8+	0.4+	1999 12 12	703	0.5-	0.1+
1999 12 04	678	0.7-	0.5-	1999 12 07	649	0.1+	0.7+	1999 12 12	703	0.4-	0.1-
1999 12 04	678	1.6-	0.2-	1999 12 07	704	0.2+	0.0	1999 12 12	703	0.2-	0.1+

1999 XW₁ = 1997 EU₃₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	6.96565		(2000.0)	P	Q
<i>n</i>	0.26977039	ω	249.49920	+0.99463555	+0.08091923
<i>a</i>	2.3721375	Ω	105.81591	-0.05050879	+0.92355009
<i>e</i>	0.3009897	<i>i</i>	3.84015	-0.09027178	+0.37484306
<i>P</i>	3.65	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1997 03 05	704	0.4-	0.2-	1999 12 04	678	0.2-	0.3+	1999 12 05	703	0.2-	0.3+
1997 03 05	704	0.2-	0.7+	1999 12 04	678	0.2+	0.1-	1999 12 06	704	0.6+	0.5+
1997 03 06	704	0.5+	0.0	1999 12 04	678	0.1+	0.2-	1999 12 06	704	0.1+	0.0
1997 03 06	704	0.1+	0.5-	1999 12 05	703	0.1-	0.3+	1999 12 06	704	0.5+	0.3+
1999 12 03	678	0.1+	0.1-	1999 12 05	703	0.1-	0.5+	1999 12 06	704	0.2+	1.1-
1999 12 03	678	0.1+	0.4-	1999 12 05	703	0.3-	0.5+	1999 12 06	704	1.0-	0.7-

1999 XG₂ = 1986 WV

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	15.11447		(2000.0)		P		Q				
<i>n</i>	0.22899482	ω	117.05877		+0.97874130		-0.15098368				
<i>a</i>	2.6459743	Ω	251.89397		+0.09376607		+0.93134076				
<i>e</i>	0.2172720	<i>i</i>	8.39786		+0.18240995		+0.33137338				
<i>P</i>	4.30	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1986 11 25	046	1.0-	0.5-	1999 12 04	133	0.3-	0.3-	1999 12 07	133	0.3+	0.3+
1986 11 25	046	(2.8-	0.5+)	1999 12 04	133	0.2+	0.3-	1999 12 07	133	0.5-	0.1+
1986 11 26	046	0.2+	0.4-	1999 12 04	133	0.4+	0.5-	1999 12 07	133	0.2+	0.2+
1986 11 26	046	0.2-	0.1-	1999 12 07	704	0.0	0.0	1999 12 08	704	0.1+	0.1+
1986 11 28	046	(2.6+	4.0+)	1999 12 07	704	0.2-	0.1+	1999 12 08	704	0.1+	0.0
1986 11 28	046	1.1+	1.0+	1999 12 07	704	0.4-	0.2-	1999 12 08	704	0.3+	0.1+
1999 12 02	133	0.2-	0.4+	1999 12 07	704	0.5-	0.3+	1999 12 08	704	0.3+	0.1-
1999 12 02	133	0.4+	0.1+	1999 12 07	704	0.4-	0.0	1999 12 08	704	0.2+	0.4-

1999 XP₅ = 1994 CV₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	349.93036		(2000.0)			P		Q			
<i>n</i>	0.30266049		ω	288.12378		+0.87228829		-0.48797151			
<i>a</i>	2.1970110		Ω	101.09394		+0.45992707		+0.79679899			
<i>e</i>	0.1725886		<i>i</i>	1.84386		+0.16607298		+0.35636382			
<i>P</i>	3.26		<i>H</i>	16.3		<i>G</i>	0.15	<i>U</i>	6		
Residuals in seconds of arc											
1994 02 15	691	0.6-	0.1-	1999 12 05	703	0.6-	0.4+	1999 12 08	704	0.0	0.0
1994 02 15	691	0.2-	0.3+	1999 12 05	703	0.4-	0.2+	1999 12 08	704	0.5-	0.2-
1994 02 15	691	0.3-	0.3+	1999 12 05	703	0.2-	0.1+	1999 12 08	704	0.3-	0.1+
1994 02 16	691	0.2+	0.1-	1999 12 05	703	0.7-	0.8+	1999 12 08	704	0.2+	0.1-
1994 02 16	691	0.6+	0.3-	1999 12 07	704	0.7+	0.2+	1999 12 09	691	0.0	0.1+
1994 02 16	691	0.2+	0.0	1999 12 07	704	1.1+	1.1-	1999 12 09	691	0.1-	0.1+
1999 12 04	703	0.4-	0.6+	1999 12 07	704	0.0	1.2-	1999 12 09	691	0.6+	0.6-
1999 12 04	703	0.1+	0.3+	1999 12 07	704	0.3+	0.2-	1999 12 12	691	0.0	0.1-
1999 12 04	703	0.0	0.3+	1999 12 07	704	0.1-	0.6-	1999 12 12	691	0.1-	0.1+
1999 12 04	703	0.1-	0.2+	1999 12 08	704	0.5+	0.5+	1999 12 12	691	0.2-	0.0

1999 XV₆ = 1998 KM₂₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	73.72177		(2000.0)			P		Q			
<i>n</i>	0.29356806	ω	317.08032			+0.56664246		+0.82394422			
<i>a</i>	2.2421441	Ω	347.43260			−0.74872644		+0.51201195			
<i>e</i>	0.1274717	<i>i</i>	1.49555			−0.34398409		+0.24281615			
<i>P</i>	3.36	<i>H</i>	15.2		<i>G</i>	0.15		<i>U</i>	5		
Residuals in seconds of arc											
1998 05 22	704	0.5−	0.1−	1999 12 04	703	0.2−	0.2−	1999 12 07	704	0.3+	0.1−
1998 05 22	704	0.1+	1.1−	1999 12 04	703	0.1+	0.4−	1999 12 07	704	0.4+	0.3−
1998 05 22	704	0.3+	0.4+	1999 12 04	703	0.1−	0.6+	1999 12 08	704	0.2−	0.5−
1998 05 22	704	0.3−	1.1−	1999 12 04	703	0.2−	0.9−	1999 12 08	704	0.0	0.3−
1998 05 24	704	0.2−	1.2+	1999 12 05	703	0.0	0.1+	1999 12 08	704	0.7−	0.3+
1998 05 24	704	0.3+	1.7−	1999 12 05	703	0.1+	1.4+	1999 12 08	704	0.2+	0.0
1998 05 24	704	0.3+	1.3+	1999 12 05	703	0.3+	0.3−	1999 12 08	704	0.5+	0.1+
1998 05 24	704	0.3+	1.4+	1999 12 05	703	0.7−	0.3−	1999 12 13	703	0.6+	0.3+
1998 05 24	704	0.4−	0.2−	1999 12 06	691	0.4+	0.3−	1999 12 13	703	0.6−	0.3−
1999 12 03	699	0.5−	0.5+	1999 12 06	691	0.1−	0.3−	1999 12 13	703	0.4−	0.6+
1999 12 03	699	0.5+	0.4+	1999 12 06	691	0.1−	0.3−	1999 12 13	703	0.1−	0.7+
1999 12 03	699	0.1−	0.0	1999 12 07	704	0.8+	0.3−				

1999 XD₈ = 1981 RV₇ = 1991 LN₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	30.92423		(2000.0)		P		Q				
n	0.28169983	ω	252.70378		+0.99477684		-0.02226625				
a	2.3046854	Ω	108.48270		+0.05735236		+0.92922866				
e	0.1692299	i	6.02908		-0.08443780		+0.36883373				
P	3.50	H	14.7	G	0.15	U	3				
Residuals in seconds of arc											
1981 09 03	675	0.1+	0.1+	1991 06 08	809	1.3-	0.2-	1999 12 08	704	0.4+	0.1+
1981 09 04	675	0.1-	0.1-	1991 06 08	809	0.3-	1.3-	1999 12 08	704	0.0	0.1-
1991 06 06	809	1.4+	0.8+	1999 12 03	411	1.4+	0.1+	1999 12 08	704	0.0	0.3-
1991 06 06	809	0.3+	0.3+	1999 12 03	411	1.1-	0.1+	1999 12 11	411	0.1-	0.0
1991 06 06	809	0.1-	0.4+	1999 12 06	411	(2.6-	1.5-)	1999 12 11	411	0.0	0.9+
1991 06 08	809	(3.0-	0.1-)	1999 12 06	411	0.6-	0.6-				

1999 XL₈ = 1980 FS₅ = 1997 HX₅

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	281.35567		(2000.0)		P		Q				
n	0.28920340	ω	262.91071		-0.68496149		-0.72732754				
a	2.2646467	Ω	230.41428		+0.68841871		-0.62690863				
e	0.1424945	i	3.17540		+0.23855280		-0.27924938				
P	3.41	H	14.9	G	0.15		U	3			
Residuals in seconds of arc											
1980 03 23	809	0.1+	0.3+	1999 12 04	888	0.2-	0.1-	1999 12 07	704	0.2+	0.3+
1997 04 28	704	0.8-	0.2+	1999 12 04	888	0.2-	0.3-	1999 12 08	704	0.0	0.1-
1997 04 28	704	0.7-	0.0	1999 12 04	888	0.1-	0.0	1999 12 08	704	0.5-	0.1-
1997 04 28	704	1.2-	0.8-	1999 12 06	888	0.1-	0.3+	1999 12 08	704	0.6+	0.2-
1997 04 28	704	0.5-	0.3-	1999 12 06	888	0.2+	0.2+	1999 12 08	704	0.2-	0.1+
1997 04 29	704	0.6+	0.1-	1999 12 06	888	0.1+	0.3+	1999 12 08	704	0.2-	0.6+
1997 04 29	704	0.5+	0.7+	1999 12 07	704	0.2-	0.1-	1999 12 08	888	0.2+	0.5-
1997 04 29	704	0.8+	0.1+	1999 12 07	704	0.0	0.1-	1999 12 08	888	0.3+	0.2-
1997 04 29	704	1.0+	0.2-	1999 12 07	704	0.1+	0.1-	1999 12 12	888	0.0	0.1-
1997 04 29	704	0.3+	0.1+	1999 12 07	704	0.1-	0.3+	1999 12 12	888	0.1+	0.1-

1999 XE₁₀ = 1997 EU₃₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	278.64221		(2000.0)		P		Q				
<i>n</i>	0.27467713	<i>ω</i>	144.85137		−0.30713297		−0.94908986				
<i>a</i>	2.3438027	<i>Ω</i>	322.89405		+0.84441956		−0.23786851				
<i>e</i>	0.0675799	<i>i</i>	6.66154		+0.43889058		−0.20651153				
<i>P</i>	3.59	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1997 03 05	704	0.3+	0.2−	1999 12 05	703	1.0+	0.9+	1999 12 10	704	0.1+	0.7−
1997 03 05	704	0.6+	0.6+	1999 12 05	703	0.3−	0.0	1999 12 10	704	0.9−	1.1−
1997 03 06	704	0.1+	0.1+	1999 12 05	699	0.0	0.8+	1999 12 13	703	0.1−	1.0+
1997 03 06	704	1.0−	0.5−	1999 12 07	703	0.3−	0.6−	1999 12 13	703	0.2−	0.2−
1999 12 05	699	0.1+	0.3+	1999 12 07	703	0.1+	0.2−	1999 12 13	703	0.9+	0.1−
1999 12 05	703	0.4−	0.4−	1999 12 07	703	0.2−	0.7+	1999 12 13	703	0.5−	0.7+
1999 12 05	703	0.3−	0.6+	1999 12 07	703	0.5+	0.4−				
1999 12 05	699	0.2−	0.3−	1999 12 10	704	0.6+	0.8−				

1999 XE₁₁ = 1998 HC₇₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.29828808	ω	0.75245	+0.92751557	+0.37250049				
<i>a</i>	2.2184286	Ω	337.30084	-0.34335827	+0.81636007				
<i>e</i>	0.1346758	<i>i</i>	4.60112	-0.14771582	+0.44136110				
<i>P</i>	3.30	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1998 04 21	704	(0.5+ 3.6+)	1998 04 22	704	0.1- 0.4+	1999 12 07	703	0.0 0.8+
1998 04 21	704	0.3- 0.8-	1999 12 05	703	0.1- 0.0	1999 12 07	699	0.2- 0.8-
1998 04 21	704	(0.3+ 3.2+)	1999 12 05	703	0.2+ 0.0	1999 12 07	699	0.3+ 0.3+
1998 04 21	704	(2.9- 1.4+)	1999 12 05	703	0.9- 0.3+	1999 12 07	699	1.7+ 0.7-
1998 04 22	704	0.7+ 0.0	1999 12 05	703	0.7- 1.1+	1999 12 13	703	0.0 0.4+
1998 04 22	704	0.1- 0.2+	1999 12 07	703	0.9+ 0.0	1999 12 13	703	0.0 0.4-
1998 04 22	704	0.2- 0.3+	1999 12 07	703	0.4- 0.7-	1999 12 13	703	0.4+ 0.3+
1998 04 22	704	(2.6- 0.7-)	1999 12 07	703	0.3- 0.4-	1999 12 13	703	1.0- 0.2-

1999 XM₁₄ = 1998 QC₁₁

Id. T. Urata

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21891382	ω	324.60677	+0.87813553	+0.47828912		
<i>a</i>	2.7265948	Ω	6.84578	-0.41531320	+0.77336816		
<i>e</i>	0.0660186	<i>i</i>	5.21799	-0.23747197	+0.41610241		
<i>P</i>	4.50	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 08 17	704	0.1+ 0.1+	1998 08 23	704	0.0 0.6-	1999 12 10	704	2.0- 0.3-
1998 08 17	704	0.5- 0.7-	1999 12 03	905	0.9+ 0.5+	1999 12 10	704	0.2- 0.1-
1998 08 17	704	0.1- 0.0	1999 12 03	905	1.2- 1.1+	1999 12 10	704	0.3- 0.6+
1998 08 17	704	0.6+ 1.0+	1999 12 06	385	1.0+ 0.3+	1999 12 10	704	0.1- 0.0
1998 08 17	704	1.2- 0.3+	1999 12 06	385	0.8+ 0.1+	1999 12 10	704	1.3+ 0.4+
1998 08 23	704	1.0- 0.1-	1999 12 06	385	0.5+ 0.1+	1999 12 10	385	0.0 0.7-
1998 08 23	704	1.8+ 0.4-	1999 12 06	385	0.4- 0.1-	1999 12 10	385	0.1- 0.6-
1998 08 23	704	0.7- 0.6+	1999 12 06	385	0.4- 1.2-	1999 12 10	385	0.1+ 0.1-
1998 08 23	704	0.9+ 0.3-	1999 12 06	385	0.2+ 0.1-			

1999 XB₁₆ = 1998 SR₉₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25385226	ω	167.27866	-0.99818452	-0.05099759		
<i>a</i>	2.4702943	Ω	9.96560	+0.02444957	-0.82932807		
<i>e</i>	0.1457510	<i>i</i>	10.67117	+0.05504431	-0.55642987		
<i>P</i>	3.88	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 09 26	704	1.4+ 0.4+	1999 12 07	703	0.1+ 0.1-	1999 12 12	703	0.4+ 0.3+
1998 09 26	704	0.7- 0.3+	1999 12 07	703	0.6- 0.1-	1999 12 12	704	0.4- 0.3-
1998 09 26	704	0.0 0.2-	1999 12 07	703	0.1+ 0.4+	1999 12 12	704	0.4- 0.7-
1998 09 26	704	0.9- 1.1+	1999 12 08	703	0.1- 0.6-	1999 12 12	704	0.6- 0.6-
1998 09 26	704	0.4- 0.3-	1999 12 08	703	0.1+ 0.1-	1999 12 12	704	1.1+ 1.1-
1998 09 27	704	0.2- 0.9-	1999 12 08	703	0.1+ 0.1+	1999 12 12	704	0.6+ 0.2+
1998 09 27	704	0.0 0.3-	1999 12 08	703	0.3+ 0.1+	1999 12 13	704	0.6- 0.1+
1998 09 27	704	0.2+ 0.1-	1999 12 12	703	0.2- 0.3+	1999 12 13	704	0.2+ 0.1+
1998 09 27	704	0.4+ 0.0	1999 12 12	703	0.3+ 0.5+	1999 12 13	704	0.4+ 0.1-
1999 12 07	703	0.2+ 0.1+	1999 12 12	703	0.6- 0.5+	1999 12 13	704	0.4- 1.1+

1999 XF₁₈ = 1992 HS₅ = 1998 FK₁₃₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.31402684	ω	271.15463	+0.35217648	+0.93575611		
<i>a</i>	2.1436713	Ω	19.49635	-0.83552022	+0.32310874		
<i>e</i>	0.1449061	<i>i</i>	3.13067	-0.42175548	+0.14128426		
<i>P</i>	3.14	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1992 04 27	675	1.8+ 0.8-	1999 11 27	699	1.0+ 0.6-	1999 12 07	704	0.0 0.2+
1992 04 27	675	1.3- 1.9+	1999 11 27	699	0.0 0.0	1999 12 07	704	0.2+ 0.1-
1998 03 20	704	0.5+ 0.4-	1999 11 27	699	0.4- 0.4+	1999 12 07	704	0.0 0.5-
1998 03 20	704	0.7- 0.1-	1999 12 03	704	1.1- 0.1-	1999 12 12	704	0.1- 0.6-
1998 03 20	704	0.6+ 1.0+	1999 12 03	704	0.1- 0.6+	1999 12 12	704	0.1- 0.5-
1998 03 20	704	0.6- 0.8+	1999 12 03	704	0.2- 1.0+	1999 12 12	704	0.0 0.1+

1998 03 20	704	0.1- 0.2-	1999 12 03	704	0.2+ 0.7+	1999 12 12	704	0.5- 0.7+
1998 03 21	691	0.1- 0.4-	1999 12 03	704	0.4+ 0.5+	1999 12 12	704	0.2+ 0.3+
1998 03 21	691	0.3+ 0.3-	1999 12 07	704	0.1- 0.5-			
1998 03 21	691	0.1+ 0.5-	1999 12 07	704	0.0 0.3-			

1999 XH₁₈ = 1981 EB₄₅ = 1998 HB₈₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19494	ω	144.33250	+0.97779889	+0.20358944		
<i>a</i>	2.5744884	Ω	204.06452	-0.20911971	+0.93299111		
<i>e</i>	0.2451746	<i>i</i>	6.98742	-0.01335226	+0.29678093		
<i>P</i>	4.13	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1981 03 07	413	0.5- 0.4-	1998 04 22	704	1.0- 1.0-	1999 12 03	704	0.5- 0.7-
1981 03 07	413	(3.5+ 1.8-)	1998 04 22	704	0.7- 0.7-	1999 12 03	704	0.0 0.2-
1981 03 11	413	0.6+ 0.6+	1998 04 22	704	0.1- 0.6+	1999 12 03	704	0.4- 0.1+
1981 03 15	413	(4.1- 3.0+)	1998 04 22	704	0.2- 2.0+	1999 12 03	704	0.5+ 0.8+
1998 04 21	704	1.6+ 0.4-	1998 04 22	704	0.5+ 1.2-	1999 12 07	704	0.4+ 0.8+
1998 04 21	704	0.4+ 0.1+	1999 11 27	699	0.0 0.6+	1999 12 07	704	0.6+ 0.1-
1998 04 21	704	0.7- 0.6-	1999 11 27	699	1.2- 0.5+	1999 12 07	704	0.3+ 0.5-
1998 04 21	704	0.6+ 1.9+	1999 11 27	699	0.2- 1.2+	1999 12 07	704	0.5+ 0.1-
1998 04 21	704	0.2- 0.4+	1999 12 03	704	0.4- 0.5-	1999 12 07	704	0.0 0.9-

1999 XL₁₈ = 1992 WE₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27491479	ω	3.68155	+0.65531204	-0.75290153		
<i>a</i>	2.3424517	Ω	45.38783	+0.69082531	+0.56478480		
<i>e</i>	0.1943173	<i>i</i>	4.90532	+0.30549389	+0.33787189		
<i>P</i>	3.59	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 11 18	399	1.0- 0.4+	1992 11 27	399	0.4+ 1.2+	1999 12 03	704	0.1+ 0.5-
1992 11 18	399	1.3- 0.7+	1992 11 28	675	0.6+ 0.7-	1999 12 03	704	0.1+ 0.2+
1992 11 21	399	0.2- 0.0	1992 11 28	675	0.8+ 1.4-	1999 12 03	704	0.1+ 0.4+
1992 11 21	399	0.1+ 0.4+	1999 11 27	699	0.4- 0.2-	1999 12 07	704	0.1+ 0.0
1992 11 25	691	0.2+ 0.4-	1999 11 27	699	0.3- 0.3+	1999 12 07	704	0.1- 0.1-
1992 11 25	675	1.0+ 0.8-	1999 11 27	699	0.0 0.5+	1999 12 07	704	0.1- 0.5-
1992 11 25	675	0.8+ 1.0-	1999 12 03	704	0.0 0.2+	1999 12 07	704	0.1- 0.2-
1992 11 27	399	1.5- 1.8+	1999 12 03	704	0.4+ 0.3-	1999 12 07	704	0.4+ 0.3-

1999 XD₁₉ = 1998 HR₁₃₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27944793	ω	281.75547	+0.80754920	+0.58404174		
<i>a</i>	2.3170502	Ω	42.58128	-0.48269088	+0.73454833		
<i>e</i>	0.1990339	<i>i</i>	6.97912	-0.33893037	+0.34544753		
<i>P</i>	3.53	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1998 04 19	704	0.6+ 0.0	1998 04 20	704	0.1- 0.4+	1999 12 03	704	0.4+ 0.8-
1998 04 19	704	0.7- 1.1-	1998 04 20	704	0.7+ 0.7-	1999 12 03	704	0.7- 0.3-
1998 04 19	704	0.5- 1.0+	1999 11 27	699	0.3+ 0.6+	1999 12 07	704	0.2+ 0.5+
1998 04 19	704	0.7+ 0.1-	1999 11 27	699	0.1+ 0.0	1999 12 07	704	0.4+ 0.2-
1998 04 20	704	(2.6+ 2.3-)	1999 11 27	699	0.3- 0.6+	1999 12 07	704	0.1- 0.1+
1998 04 20	704	1.3- 0.9+	1999 12 03	704	0.2- 0.1+	1999 12 07	704	0.3+ 0.3-
1998 04 20	704	0.5+ 0.3-	1999 12 03	704	0.7- 0.7-	1999 12 07	704	0.3+ 0.3+

1999 XR₁₉ = 1998 HN₇₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	358.91676		(2000.0)		P		Q				
<i>n</i>	0.28352133	ω	325.33020		+0.99612904		+0.04835515				
<i>a</i>	2.2948038	Ω	32.13825		−0.00507237		+0.86532921				
<i>e</i>	0.1335955	<i>i</i>	7.93178		−0.08775646		+0.49886586				
<i>P</i>	3.48	<i>H</i>	15.2		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1998 04 21	704	0.9−	0.3+	1998 04 22	704	0.0	0.1−	1999 12 05	704	0.3+	0.5+
1998 04 21	704	1.1+	0.3−	1998 04 22	704	1.2+	0.9+	1999 12 05	704	0.8−	0.0
1998 04 21	704	1.4−	1.1−	1999 11 27	699	0.7+	0.3+	1999 12 07	704	0.2+	0.3+
1998 04 21	704	0.8+	0.4−	1999 11 27	699	0.0	0.4+	1999 12 07	704	0.4+	0.7−
1998 04 21	704	1.7−	1.3+	1999 11 27	699	0.7−	0.3−	1999 12 07	704	0.4−	0.3+
1998 04 22	704	(0.4+	2.9+)	1999 12 05	704	0.9−	0.5−	1999 12 07	704	0.2−	0.2−
1998 04 22	704	0.4−	0.3+	1999 12 05	704	0.5+	0.4−				
1998 04 22	704	1.4+	0.7−	1999 12 05	704	0.7+	0.6+				

1999 XF₂₄ = 1957 UL = 1980 DJ₁ = 1990 JG

Id. T. Urata

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	1.53629		(2000.0)			P		Q			
n	0.23495949	ω	319.61622			+0.95891529		-0.19808354			
a	2.6010022	Ω	52.98046			+0.27741551		+0.80448905			
e	0.1732152	i	14.73555			-0.05934735		+0.55996453			
P	4.19	H	12.6			G	0.15	U	2		
Residuals in seconds of arc											
1957 10 30	024	1.3-	2.0+	1999 12 06	704	0.3+	0.2-	1999 12 12	385	0.1-	0.5-
1980 02 20	033	0.3-	0.4+	1999 12 06	704	0.7-	0.0	1999 12 12	385	0.1-	0.5-
1980 02 20	033	0.6+	0.1+	1999 12 07	704	0.7+	0.7-	1999 12 13	888	0.1-	0.3+
1990 05 03	413	0.3-	0.3-	1999 12 07	704	0.5+	0.5-	1999 12 13	888	0.0	0.2+
1990 05 04	413	0.2+	0.3-	1999 12 07	704	0.1+	0.3-	1999 12 13	888	0.1-	0.3+
1999 12 06	704	0.3+	0.7-	1999 12 07	704	0.3+	0.0	1999 12 14	888	0.0	0.6+
1999 12 06	704	0.0	0.5-	1999 12 07	704	0.1+	0.1+	1999 12 14	888	0.0	0.7+
1999 12 06	704	0.1+	0.6-	1999 12 12	385	0.1-	0.6-	1999 12 14	888	0.2+	0.6+

1999 XN₂₅ = 1988 XM₅ = 1995 DT₃ = 1995 EO₁ = 1998 RE₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	327.14222		(2000.0)		P		Q				
<i>n</i>	0.17668823	ω	313.11024		+0.18655367		-0.98216313				
<i>a</i>	3.1453161	Ω	126.12344		+0.90962095		+0.16362952				
<i>e</i>	0.2230797	<i>i</i>	1.66875		+0.37119734		+0.09263346				
<i>P</i>	5.58	<i>H</i>	14.3		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
1988 12 03	888	0.6+	1.1-	1995 03 09	104	0.2-	0.2-	1999 12 06	704	0.5+	0.0
1988 12 03	888	0.0	2.3-	1995 03 09	104	1.3+	0.2-	1999 12 06	704	0.5+	0.8+
1995 02 27	104	1.7+	0.9+	1995 03 10	104	0.4-	1.3+	1999 12 07	704	0.8+	0.3-
1995 02 27	104	0.5+	0.7+	1995 03 10	104	(1.1-	3.3+)	1999 12 07	704	0.3+	0.1+
1995 02 27	104	0.5-	0.2+	1998 09 14	691	0.6-	0.2+	1999 12 07	704	0.5-	0.6-
1995 02 27	104	0.5-	0.5-	1998 09 14	691	0.3-	0.5+	1999 12 07	704	0.6+	0.1-
1995 02 27	104	1.4-	0.7-	1998 09 14	691	1.1-	0.5+	1999 12 07	704	0.3-	0.1-
1995 02 28	104	1.3-	0.5+	1998 09 18	691	0.5+	0.5+	1999 12 12	703	1.0-	1.4+
1995 02 28	104	0.1+	0.5+	1998 09 18	691	0.4-	1.1+	1999 12 12	703	0.7-	0.4+
1995 02 28	104	0.0	0.0	1998 09 18	691	1.2+	0.5-	1999 12 12	703	0.3-	1.2+
1995 02 28	104	1.1+	0.2-	1999 12 06	704	0.3-	0.3-	1999 12 12	703	0.1-	0.9+
1995 03 09	104	0.2+	0.5+	1999 12 06	704	0.3-	0.1+				
1995 03 09	104	0.1+	0.1-	1999 12 06	704	0.1-	0.1-				

1999 XW₂₆ = 1997 HW₁₃ = 1998 MK₄₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	17.29942		(2000.0)		P		Q				
n	0.17366534	ω	242.90861		+0.99913935		-0.03352625				
a	3.1817101	Ω	119.00375		+0.04035259		+0.92195106				
e	0.1826712	i	1.60030		-0.00960396		+0.38585261				
P	5.68	H	14.2		G	0.15	U	5			
Residuals in seconds of arc											
1997 04 30	704	0.1+	0.6+	1998 06 26	809	1.5+	0.5+	1999 12 07	704	0.2+	0.2-
1997 04 30	704	1.1+	1.5+	1998 06 26	704	0.1-	1.7+	1999 12 07	704	0.1+	0.1+
1997 04 30	704	0.9+	0.8+	1998 06 26	704	1.5-	2.1+	1999 12 07	704	0.6-	0.2-
1997 04 30	704	0.0	0.8-	1998 06 26	704	0.1-	0.0	1999 12 07	704	0.3+	0.3+
1997 05 05	704	0.5+	0.4+	1998 06 26	704	4.1-	0.3-	1999 12 12	691	0.3+	0.4-
1997 05 05	704	0.1-	0.7+	1998 06 27	809	0.8+	1.2-	1999 12 12	691	0.3+	0.5-
1997 05 05	704	0.0	0.2-	1998 06 27	809	0.0	0.8-	1999 12 12	691	0.3+	0.4-
1997 05 05	704	0.2-	0.2-	1998 06 27	809	0.3-	1.4-	1999 12 12	703	0.3-	0.6+
1997 05 05	704	1.6-	0.3-	1999 12 06	704	0.6-	1.2+	1999 12 12	703	0.8-	0.7+
1998 06 26	809	2.0+	0.2+	1999 12 06	704	0.1-	0.3-	1999 12 12	703	0.1-	0.5+
1998 06 26	809	1.7+	0.0	1999 12 06	704	0.1-	0.1+	1999 12 12	703	0.4+	1.0+

1999 XS₂₈ = 1997 GH₄₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	40.24228		(2000.0)			P		Q			
n	0.21772101	ω	270.57439			+0.99398591		+0.02855435			
a	2.7365443	Ω	87.79257			+0.01613380		+0.91668555			
e	0.0084293	i	6.07316			-0.10831299		+0.39858782			
P	4.53	H	14.4		G	0.15		U	5		
Residuals in seconds of arc											
1997 04 09	809	0.3+	0.0	1999 12 06	704	0.2-	0.9-	1999 12 09	691	0.2-	0.1-
1997 04 09	809	0.0	0.2-	1999 12 06	704	0.5+	0.3+	1999 12 09	691	0.3-	0.0
1997 04 09	809	0.7-	0.9-	1999 12 06	704	0.1+	0.7-	1999 12 09	691	0.4-	0.1-
1997 04 10	809	1.1+	0.5+	1999 12 07	704	0.3+	0.3-	1999 12 12	691	0.1+	0.0
1997 04 10	809	0.5-	0.3+	1999 12 07	704	0.5-	0.3+	1999 12 12	691	0.1+	0.0
1997 04 10	809	0.2-	0.3+	1999 12 07	704	0.5+	0.2+	1999 12 12	691	0.0	0.1+
1999 12 06	704	0.8-	1.6+	1999 12 07	704	0.0	0.2-				
1999 12 06	704	0.1+	0.1-	1999 12 07	704	0.5+	0.2-				

1999 XD₃₆ = 1990 VV

Id. S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	231.88271		(2000.0)			P		Q			
<i>n</i>	0.23775928	ω	123.32842			-0.81653614		+0.52428917			
<i>a</i>	2.5805428	Ω	89.39417			-0.57652037		-0.71890347			
<i>e</i>	0.1075052	<i>i</i>	13.98412			-0.02988307		-0.45639749			
<i>P</i>	4.15	<i>H</i>	13.1			<i>G</i>	0.15	<i>U</i>	7		
Residuals in seconds of arc											
1990 11 08	413	1.0+	0.4-	1999 12 06	888	0.1-	0.3+	1999 12 10	704	0.2+	0.1-
1990 11 09	413	0.0	0.1-	1999 12 06	888	0.2-	0.3-	1999 12 10	704	0.1+	0.5-
1990 11 09	413	1.1-	0.4+	1999 12 06	888	0.1+	0.3-	1999 12 10	704	0.2+	0.8-
1999 12 03	699	0.3-	0.2-	1999 12 07	888	0.4-	0.1-	1999 12 10	704	0.4+	0.6-
1999 12 03	699	0.3-	0.2-	1999 12 07	888	0.3-	0.5+	1999 12 10	704	0.0	0.4-
1999 12 03	699	0.3+	0.4+	1999 12 07	888	0.1-	0.1+	1999 12 12	888	0.2+	0.4+
1999 12 03	699	1.1-	0.4+	1999 12 09	888	0.2+	0.5+	1999 12 12	888	0.3+	0.2-
1999 12 03	699	0.3-	0.5+	1999 12 09	888	0.3-	0.2+	1999 12 12	888	0.5+	0.1+
1999 12 03	699	1.5+	0.2+	1999 12 09	888	0.6-	0.2+				

1999 XW₃₆ = 1997 HE₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	350.90474		(2000.0)	P	Q
<i>n</i>	0.26019617	ω	30.73117	+0.79664434	-0.60420150
<i>a</i>	2.4299767	Ω	6.52193	+0.51905717	+0.66917882
<i>e</i>	0.1092262	<i>i</i>	8.74694	+0.30973771	+0.43259710
<i>P</i>	3.79	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 04 28	704	1.2-	0.3-	1997 04 29	704	1.0+	0.0	1999 12 08	678	0.2-	0.1-
1997 04 28	704	0.1-	0.4-	1997 04 29	704	1.4+	0.4+	1999 12 08	678	1.6-	0.3-
1997 04 28	704	0.8-	0.3-	1999 12 05	699	0.3+	0.3+	1999 12 12	704	0.1-	0.9-
1997 04 28	704	0.9-	0.7-	1999 12 05	699	0.5+	1.2+	1999 12 12	704	0.4-	0.6-
1997 04 29	704	0.2+	0.5+	1999 12 05	699	0.2-	0.7+	1999 12 12	704	1.3+	1.4+
1997 04 29	704	0.5+	0.2-	1999 12 07	678	0.5-	0.8-	1999 12 12	704	0.6-	1.2-
1997 04 29	704	0.0	1.1+	1999 12 07	678	0.9+	0.7-	1999 12 12	704	0.5+	1.1+

1999 XJ₃₇ = 1998 MU₂₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	17.41628		(2000.0)	P	Q
<i>n</i>	0.22577198	ω	275.87964	+0.95934219	+0.02418609
<i>a</i>	2.6710951	Ω	82.97324	+0.09831894	+0.90528170
<i>e</i>	0.1961996	<i>i</i>	16.45938	-0.26456747	+0.42412272
<i>P</i>	4.37	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 06 24	704	0.6+	0.3+	1998 06 26	704	1.0+	0.4+	1999 12 04	699	0.3+	0.2+
1998 06 24	704	0.2-	1.1-	1998 06 26	704	0.0	0.7+	1999 12 07	678	0.4+	0.0
1998 06 24	704	0.8-	0.3-	1998 06 26	704	0.3-	0.7-	1999 12 07	678	0.1-	0.1-
1998 06 26	704	0.2+	0.4+	1999 12 04	699	0.1+	0.1-	1999 12 08	678	0.1+	0.3-
1998 06 26	704	0.4-	0.2+	1999 12 04	699	0.0	0.3+	1999 12 08	678	0.9-	0.0

1999 XX₄₁ = 1998 HF₆₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	49.81001		(2000.0)	P	Q
<i>n</i>	0.28957600	ω	282.42680	+0.71428008	+0.69923221
<i>a</i>	2.2627036	Ω	33.22160	-0.61926481	+0.65118584
<i>e</i>	0.1583148	<i>i</i>	3.10076	-0.32605991	+0.29501070
<i>P</i>	3.40	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1998 04 21	704	1.1-	0.4-	1998 04 22	704	1.3-	0.8-	1999 12 08	704	0.2-	0.6+
1998 04 21	704	0.3+	0.6+	1999 12 07	704	0.2-	0.1+	1999 12 08	704	0.4-	0.4-
1998 04 21	704	0.3-	0.7-	1999 12 07	704	0.4-	0.0	1999 12 08	704	0.1-	0.7+
1998 04 21	704	1.1+	0.3+	1999 12 07	704	0.6-	0.9+	1999 12 12	703	0.0	0.3+
1998 04 22	704	0.0	0.2+	1999 12 07	704	0.6+	1.5-	1999 12 12	703	0.2-	0.0
1998 04 22	704	0.2+	0.6-	1999 12 07	704	0.1-	0.3-	1999 12 12	703	0.6+	0.1-
1998 04 22	704	0.4+	0.8+	1999 12 08	704	0.2+	0.1+	1999 12 12	703	0.6-	0.2-
1998 04 22	704	0.7+	0.6+	1999 12 08	704	1.4+	0.1+				

1999 XM₄₈ = 1995 UG₄₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	18.07237		(2000.0)	P	Q
<i>n</i>	0.24891900	ω	131.01261	+0.99783021	+0.00845369
<i>a</i>	2.5028262	Ω	228.61007	-0.03042817	+0.93867006
<i>e</i>	0.1912777	<i>i</i>	4.99296	+0.05838671	+0.34471300
<i>P</i>	3.96	<i>H</i>	15.7	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1995 10 17	327	0.3-	1.4-	1999 12 03	699	0.9-	0.7-	1999 12 08	704	0.0	0.6+
1995 10 17	327	0.4-	1.1-	1999 12 07	704	1.4+	0.7+	1999 12 08	704	0.2+	0.9+
1995 10 17	327	0.2-	1.1-	1999 12 07	704	0.9+	0.3+	1999 12 08	704	0.3-	0.0
1995 10 18	327	0.3+	1.3+	1999 12 07	704	1.5+	0.4+	1999 12 12	691	0.7-	0.2+
1995 10 18	327	0.3+	1.5+	1999 12 07	704	1.3+	0.3+	1999 12 12	691	0.9-	0.3+

1995 10 18	327	0.2+	1.2+	1999 12 07	704	1.1+	0.5-	1999 12 12	691	1.1-	0.3+
1999 12 03	699	1.3-	1.8-	1999 12 08	704	0.3-	0.3+				
1999 12 03	699	1.3-	1.3-	1999 12 08	704	0.4+	0.4-				

1999 XD₈₆ = 1990 CK = 1990 DC₇ = 1994 LP₆ = 1995 SY₄₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	288.33137		(2000.0)	P	Q
<i>n</i>	0.29219173	ω	56.48969	-0.79835111	-0.60100041
<i>a</i>	2.2491794	Ω	86.54028	+0.53915547	-0.74137587
<i>e</i>	0.1187227	<i>i</i>	2.17418	+0.26822915	-0.29859726
<i>P</i>	3.37	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1990 02 01	372	0.7-	1.5-	1995 09 25	691	0.0	0.3+	1999 12 07	704	0.3-	1.3+
1990 02 01	372	0.1+	0.1-	1995 09 25	691	0.3-	0.3+	1999 12 08	704	1.1+	0.7-
1990 02 20	372	1.3-	0.9-	1995 09 30	691	0.1-	0.6+	1999 12 08	704	0.2-	0.7-
1990 02 20	372	1.6+	1.5+	1995 09 30	691	0.2-	0.6+	1999 12 08	704	0.1+	1.5+
1994 06 03	809	0.8+	1.5+	1995 09 30	691	0.3-	0.5+	1999 12 08	704	1.1+	1.2+
1994 06 03	809	0.8+	2.0+	1999 12 03	699	0.9-	0.5+	1999 12 08	704	0.7-	1.6+
1994 06 03	809	0.5+	1.4+	1999 12 03	699	0.9-	1.1+	1999 12 12	691	0.2+	0.4+
1994 06 04	809	(0.3-	2.2+)	1999 12 03	699	0.2+	1.4+	1999 12 12	691	0.2+	0.5+
1994 06 04	809	0.1-	1.8+	1999 12 07	704	0.9+	0.6-	1999 12 12	691	0.2+	0.4+
1994 06 04	809	0.7-	1.2+	1999 12 07	704	1.0-	0.1+				
1995 09 25	691	0.3-	0.4+	1999 12 07	704	1.1+	0.6+				

1999 XV₈₆ = 1998 QZ₇₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	88.81848		(2000.0)	P	Q
<i>n</i>	0.23502843	ω	53.68947	+0.92990438	+0.34739342
<i>a</i>	2.6004936	Ω	285.70693	-0.36467163	+0.82807373
<i>e</i>	0.0660249	<i>i</i>	7.20956	-0.04787960	+0.44001331
<i>P</i>	4.19	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 08 24	704	0.4+	0.0	1998 08 27	704	1.1-	0.0	1999 12 07	704	0.1-	0.5-
1998 08 24	704	0.3+	0.2-	1998 08 27	704	0.4+	0.2-	1999 12 07	704	0.5-	0.0
1998 08 24	704	0.4-	0.3-	1999 12 03	699	0.1+	0.4+	1999 12 08	704	0.4+	0.2+
1998 08 24	704	0.6+	1.1-	1999 12 03	699	0.2+	0.3-	1999 12 08	704	0.2+	0.0
1998 08 24	704	0.4-	0.1+	1999 12 03	699	0.3-	0.5+	1999 12 08	704	0.2-	0.1+
1998 08 27	704	0.5-	0.3+	1999 12 07	704	0.2+	0.4+	1999 12 08	704	0.1-	0.3-
1998 08 27	704	0.2+	0.7+	1999 12 07	704	0.4+	0.1+	1999 12 08	704	0.3-	0.7-
1998 08 27	704	0.5+	0.6+	1999 12 07	704	0.0	0.1-				

1999 XC₉₁ = 1995 SR₅₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	14.91056		(2000.0)	P	Q
<i>n</i>	0.26533756	ω	195.78978	+0.81995374	-0.57242287
<i>a</i>	2.3984844	Ω	199.13039	+0.52611948	+0.75554710
<i>e</i>	0.1803441	<i>i</i>	0.49219	+0.22555301	+0.31856025
<i>P</i>	3.71	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1995 09 28	327	0.3+	0.3-	1999 12 07	704	0.3+	0.4+	1999 12 08	691	0.3+	0.4+
1995 09 28	327	0.1+	0.2-	1999 12 07	704	0.3-	0.5-	1999 12 09	691	0.4-	0.2+
1995 09 28	327	0.4-	0.1-	1999 12 08	704	0.6+	0.3+	1999 12 09	691	0.2-	0.2+
1995 09 28	327	0.1+	0.0	1999 12 08	704	0.1-	0.7-	1999 12 09	691	0.5-	0.1+
1995 09 29	327	0.3+	0.5+	1999 12 08	691	0.3+	0.3+	1999 12 12	691	0.2+	0.4+
1995 09 29	327	0.0	0.3+	1999 12 08	704	0.1+	0.0	1999 12 12	691	0.1+	0.0
1995 09 29	327	0.3-	0.1-	1999 12 08	704	0.1+	0.6+	1999 12 12	691	(4.2-	1.0-)
1999 12 07	704	0.3+	0.7-	1999 12 08	704	0.1-	0.5-				
1999 12 07	704	1.1-	0.8-	1999 12 08	691	0.4+	0.3+				

1999 XJ₉₅ = 1978 WD₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	27.53665			(2000.0)			P		Q		
<i>n</i>	0.23703654	ω		298.51567			+0.95549135		-0.16366063		
<i>a</i>	2.5857856	Ω		71.79943			+0.26314945		+0.84893999		
<i>e</i>	0.2215647	<i>i</i>		14.97451			-0.13337407		+0.50250980		
<i>P</i>	4.16	<i>H</i>		14.3		<i>G</i>	0.15		<i>U</i>		6
Residuals in seconds of arc											
1978 11 29	675	0.2-	0.4-	1999 12 07	411	0.1-	0.0	1999 12 12	704	0.9-	0.2+
1978 11 30	675	0.2+	0.4+	1999 12 09	411	0.7-	0.2+	1999 12 12	704	1.8+	0.3-
1999 12 07	411	0.2+	0.2+	1999 12 09	411	0.3+	0.3-	1999 12 12	704	0.7-	0.0

2090 P-L = 1999 UC₁₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	348.43732		(2000.0)		P		Q				
<i>n</i>	0.20210242	ω	48.51606		+0.98253593		−0.17850956				
<i>a</i>	2.8757759	Ω	321.68099		+0.13525089		+0.87896174				
<i>e</i>	0.0932226	<i>i</i>	4.85826		+0.12779023		+0.44222234				
<i>P</i>	4.88	<i>H</i>	14.7	<i>G</i>	0.15		<i>U</i>	5			
Residuals in seconds of arc											
1960 09 24	675	0.2+	0.6+	1960 10 26	675	0.5−	0.2+	1999 11 03	703	0.2+	0.7+
1960 09 26	675	0.1−	0.1−	1999 10 29	703	0.1+	0.2+	1999 11 03	703	0.1−	0.4+
1960 10 17	675	0.2+	0.5−	1999 10 29	703	0.4−	0.3−	1999 11 03	703	0.4+	0.0
1960 10 22	675	0.2+	1.1−	1999 10 29	703	0.7+	0.1+	1999 11 03	703	0.5−	0.0
1960 10 25	675	0.4+	0.0	1999 10 29	703	0.9−	0.1−				

3082 P-L

Id. E. Bowell (1999 obsrvations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	357.87751		(2000.0)		P		Q				
<i>n</i>	0.22869038	ω	72.51765	+0.91449888			-0.38812338				
<i>a</i>	2.6483220	Ω	310.15984	+0.29067177			+0.82669054				
<i>e</i>	0.0567829	<i>i</i>	8.59722	+0.28142800			+0.40736101				
<i>P</i>	4.31	<i>H</i>	14.1	<i>G</i>	0.15		<i>U</i>	5			
Residuals in seconds of arc											
1960 09 24	675	0.9-	0.9+	1960 09 29	675	1.5-	1.5-	1999 12 05	699	0.5-	1.4+
1960 09 25	675	1.1+	0.2+	1960 10 17	675	1.1+	0.5+	1999 12 05	699	0.9-	0.7+
1960 09 25	675	0.0	0.4+	1960 10 17	675	0.9-	1.3+	1999 12 10	704	0.3+	0.2-
1960 09 26	675	0.1-	0.7+	1960 10 22	675	0.2+	0.5+	1999 12 10	704	0.0	0.4-
1960 09 27	675	1.3-	0.5-	1960 10 24	675	0.4-	1.3-	1999 12 10	704	0.5+	0.8-
1960 09 28	675	0.1-	0.2-	1960 10 25	675	0.1+	0.5-	1999 12 10	704	0.1+	0.0
1960 09 28	675	1.3+	0.0	1960 10 26	675	1.1+	0.6-				
1960 09 28	675	0.3+	0.1+	1999 12 05	699	0.5+	0.6-				

4273 P-L = 1999 HH₉

Id. M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	3.96381		(2000.0)		P		Q				
<i>n</i>	0.27152871	ω	359.88277		-0.46415280		+0.88568200				
<i>a</i>	2.3618857	Ω	242.46181		-0.81265401		-0.43092358				
<i>e</i>	0.1527197	<i>i</i>	0.73557		-0.35235726		-0.17283597				
<i>P</i>	3.63	<i>H</i>	16.4	<i>G</i>	0.15	<i>U</i>	7				
Residuals in seconds of arc											
1960 09 24	675	0.3+	1.0+	1999 04 15	704	2.4-	2.3-	1999 04 17	704	2.2-	0.6+
1960 09 25	675	0.2-	0.1-	1999 04 15	704	3.1+	0.8+	1999 04 17	691	0.4+	0.8+
1960 09 26	675	0.2-	0.9-	1999 04 15	704	1.2-	0.2-	1999 04 17	691	0.9+	0.6+
1960 09 26	675	0.7-	0.3-	1999 04 17	704	0.4+	1.5+	1999 04 18	704	1.3+	0.7-
1960 09 28	675	0.2+	0.5-	1999 04 17	704	0.6-	0.4+	1999 04 18	704	0.6+	0.9-
1960 09 28	675	0.7+	0.6+	1999 04 17	704	0.2+	0.7-	1999 04 18	704	0.7+	0.5+

1999 04 15	704	0.1+	0.3-	1999 04 17	691	0.1-	1.0+	1999 04 18	704	1.2-	1.1+
1999 04 15	704	1.0+	1.3-	1999 04 17	704	1.1-	1.0-				

4772 P-L = 1999 RF₁₇₅

Id. M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	346.63939		(2000.0)		P		Q				
<i>n</i>	0.20185080	ω	355.63128		+0.99994423		-0.00992514				
<i>a</i>	2.8781653	Ω	4.94172		+0.01050576		+0.90002121				
<i>e</i>	0.1546442	<i>i</i>	2.40089		+0.00107676		+0.43573308				
<i>P</i>	4.88	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1960 09 24	675	1.2-	1.0-	1999 09 07	704	0.1-	1.4-	1999 09 11	699	1.7-	1.0+
1960 09 26	675	0.7+	0.2+	1999 09 07	704	0.0	0.7-	1999 09 14	704	0.5+	0.4+
1960 09 27	675	1.7+	1.0+	1999 09 09	704	0.4+	0.0	1999 09 14	704	0.8+	0.6+
1960 09 28	675	0.4-	0.4+	1999 09 09	704	1.2+	0.2+	1999 09 14	704	0.0	0.3+
1960 10 17	675	0.7-	0.9-	1999 09 09	704	0.3-	1.1-	1999 09 14	704	0.0	0.9+
1999 09 07	704	0.6-	0.5-	1999 09 09	704	0.0	0.2-	1999 09 14	704	0.3+	0.9+
1999 09 07	704	0.4+	0.0	1999 09 11	699	0.2-	0.6+				
1999 09 07	704	0.3-	1.7-	1999 09 11	699	0.4-	0.7+				

6576 P-L

Id. T. Kobayashi (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	310.22639		(2000.0)		P		Q				
<i>n</i>	0.28190559	ω	77.14882		-0.24654152		-0.96859210				
<i>a</i>	2.3035639	Ω	27.19024		+0.85944623		-0.23394250				
<i>e</i>	0.0854215	<i>i</i>	4.05991		+0.44784981		-0.08426299				
<i>P</i>	3.50	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1960 09 24	675	0.3-	0.2-	1960 10 24	675	0.8+	0.0	1999 12 10	704	0.0	1.1-
1960 09 26	675	0.2-	0.1+	1960 10 26	675	0.2+	0.2+	1999 12 10	704	0.6+	0.4-
1960 09 27	675	0.1+	0.1-	1999 12 02	411	0.6-	0.7+	1999 12 10	704	0.1+	0.5-
1960 09 28	675	1.2+	0.3+	1999 12 02	411	0.1+	1.5+	1999 12 10	704	0.2-	0.0
1960 10 17	675	0.5-	0.5-	1999 12 03	411	0.4+	0.7-				
1960 10 22	675	1.3-	0.3+	1999 12 03	411	0.2-	0.6+				

6587 P-L = 1999 VP₆₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	18.79701		(2000.0)		P		Q				
<i>n</i>	0.17936870	ω	296.34479		+0.99694740		+0.07081934				
<i>a</i>	3.1139021	Ω	59.61014		-0.05083460		+0.90832020				
<i>e</i>	0.1988528	<i>i</i>	2.18388		-0.05925980		+0.41223663				
<i>P</i>	5.49	<i>H</i>	14.2	<i>G</i>	0.15		<i>U</i>	4			
Residuals in seconds of arc											
1960 09 24	675	0.5-	0.4-	1999 11 04	704	0.5-	0.4+	1999 12 07	704	0.4+	1.2-
1960 09 26	675	0.2+	0.4+	1999 11 04	704	0.3-	0.5+	1999 12 07	704	0.2-	0.6-
1960 09 27	675	0.4-	0.3+	1999 11 04	704	0.8-	0.7+	1999 12 07	691	0.5+	0.2-
1960 09 28	675	0.8+	0.3+	1999 11 12	704	0.4+	0.1+	1999 12 07	704	0.2+	0.8-
1960 10 17	675	1.2-	0.1-	1999 11 12	704	0.2+	0.8+	1999 12 07	704	0.5-	0.5-
1960 10 22	675	1.0-	0.6-	1999 11 12	704	0.3-	0.3+	1999 12 07	704	0.1+	0.8-
1960 10 24	675	1.0+	0.6-	1999 11 12	704	0.1+	0.1+	1999 12 12	703	0.2-	0.7+
1960 10 26	675	1.5+	0.1-	1999 11 12	704	0.2+	0.4+	1999 12 12	703	1.5+	1.1-
1999 11 04	704	0.6-	0.4-	1999 12 07	691	0.3+	0.1-	1999 12 12	703	0.4+	0.0
1999 11 04	704	0.7-	0.7+	1999 12 07	691	0.5+	0.1-	1999 12 12	703	0.7-	1.8+

6640 P-L = 1999 XR₁₂₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.17957876	ω	55.43303	+0.48907635	-0.87220821				
<i>a</i>	3.1114732	Ω	5.30383	+0.77108679	+0.42829027				
<i>e</i>	0.1593125	<i>i</i>	4.69126	+0.40771249	+0.23626316				
<i>P</i>	5.49	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1960 09 26	675	0.2+	0.1+	1960 10 24	675	0.3+	0.4+	1999 12 13	704	0.2+	0.4+
1960 09 27	675	0.4-	0.2-	1960 10 26	675	0.3+	0.1-	1999 12 13	704	0.0	0.7+
1960 09 28	675	0.1-	0.4+	1999 12 10	704	0.5-	1.9-	1999 12 13	704	0.2-	0.8+
1960 10 17	675	0.3+	0.6+	1999 12 10	704	0.4+	0.4-	1999 12 13	704	0.1+	0.8+
1960 10 17	675	0.3-	1.1-	1999 12 10	704	0.3-	1.4-	1999 12 13	704	0.4-	1.1+
1960 10 22	675	0.5-	0.0	1999 12 10	704	0.7+	0.1-				

9602 P-L = 1977 CM = 1996 RK₃₂Id. E. Bowell (*MPC* 10833), M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.08131767	ω	244.56150	+0.84738404	-0.52677931				
<i>a</i>	5.2765021	Ω	147.10777	+0.52052473	+0.79933356				
<i>e</i>	0.0609807	<i>i</i>	7.05100	+0.10485367	+0.28908375				
<i>P</i>	12.12	<i>H</i>	12.1	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1960 10 17	675	0.1-	0.5-	1977 02 11	675	(6.7+	3.4-)	1996 09 14	809	0.5+	0.5+
1960 10 22	675	0.4-	0.4+	1977 02 12	675	0.1-	0.2-	1996 09 15	809	0.2-	0.4-
1960 10 26	675	0.5+	0.3+	1977 02 14	675	0.1+	0.2+	1996 09 15	809	0.2-	0.4-

1178 T-1 = 1999 UF₂₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Doppler	
<i>n</i>	0.22907723	ω	71.59394	+0.52750627	-0.84926470				
<i>a</i>	2.6453396	Ω	346.50207	+0.73942398	+0.47175627				
<i>e</i>	0.1913259	<i>i</i>	5.42297	+0.41831724	+0.23705587				
<i>P</i>	4.30	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1971 03 24	675	0.2+	1.6-	1971 04 02	675	0.6+	0.5+	1999 11 04	703	0.6+	0.1-
1971 03 25	675	0.1+	1.3+	1999 10 30	703	0.3+	0.1-	1999 11 04	703	0.6-	0.1-
1971 03 25	675	1.2-	1.3+	1999 10 30	703	0.1+	0.0	1999 11 04	703	0.2-	0.2+
1971 03 26	675	1.3+	0.4-	1999 10 30	703	0.2+	0.1+	1999 11 04	703	0.5-	0.1+
1971 03 27	675	0.9-	1.0-	1999 10 30	703	0.0	0.1-				

2072 T-1 = 1995 SY₃₉ = 1999 HK₁₂Id. A. Doppler (*MPC* 36867), G. V. Williams, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.17805403	ω	11.35629	-0.99565253	+0.09313549				
<i>a</i>	3.1292110	Ω	173.98724	-0.08643443	-0.91843448				
<i>e</i>	0.1323931	<i>i</i>	0.73659	-0.03471487	-0.38445271				
<i>P</i>	5.54	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1971 03 24	675	0.2+	1.0-	1995 09 25	691	0.1-	0.1+	1995 10 01	691	0.1+	0.1+
1971 03 25	675	0.1+	0.2-	1995 09 25	691	0.1+	0.1+	1999 04 18	691	0.0	0.4-
1971 03 25	675	0.3+	0.5+	1995 09 25	691	0.2-	0.1+	1999 04 18	691	0.1-	0.0
1971 03 26	675	0.4+	0.1-	1995 10 01	691	0.0	0.1+	1999 04 18	691	0.0	0.2+
1971 03 27	675	0.7-	1.2+	1995 10 01	691	0.1-	0.2-				

2290 T-1 = 1999 WY₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Nakano	
<i>n</i>	0.23206989	ω	11.60975	-0.76521480	-0.64191571				
<i>a</i>	2.6225484	Ω	128.34369	+0.58554959	-0.72555800				
<i>e</i>	0.0982032	<i>i</i>	3.57411	+0.26754064	-0.24801172				
<i>P</i>	4.25	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1971 03 24	675	0.6+	1.4-	1999 11 28	411	0.6-	0.1+	1999 12 08	704	0.3+	0.2+
1971 03 25	675	0.6+	1.2+	1999 11 28	411	0.5+	0.2+	1999 12 08	704	0.3-	0.5-
1971 03 25	675	1.0-	1.1+	1999 11 29	411	0.4+	0.2+	1999 12 08	704	0.2-	0.2-
1971 03 26	675	1.3-	0.3+	1999 11 29	411	0.3-	0.6-	1999 12 08	704	0.5+	0.2-
1971 03 27	675	1.1+	1.0-	1999 12 07	411	0.6-	1.0+				
1971 04 02	675	(4.0+	2.3-)	1999 12 07	411	0.3+	0.0				

3747 T-1 = 1989 VF₆ = 1999 VS₆₂

Id. A. Doppler, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.29737397	ω	305.64557	-0.69991819	-0.71420540				
<i>a</i>	2.2229725	Ω	188.78025	+0.66545293	-0.64955755				
<i>e</i>	0.0756109	<i>i</i>	1.88353	+0.25939725	-0.26074055				
<i>P</i>	3.31	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	3		

Residuals in seconds of arc

1971 04 16	675	0.1+	0.3-	1999 11 04	704	0.0	0.1-	1999 12 07	704	0.2+	0.3+
1971 04 16	675	0.7-	0.6+	1999 11 12	704	0.3+	0.0	1999 12 07	704	0.0	0.0
1971 05 13	675	0.8-	0.1-	1999 11 12	704	0.3+	0.1+	1999 12 07	704	0.0	0.4+
1971 05 14	675	0.7+	0.8-	1999 11 12	704	0.1-	0.3+	1999 12 07	704	0.3+	0.5+
1971 05 16	675	0.2+	1.3-	1999 11 12	704	0.1-	0.8+	1999 12 07	704	0.3+	0.1+
1989 11 04	675	0.2-	2.5-	1999 11 12	704	0.1+	0.1+	1999 12 12	703	0.1-	0.5-
1989 11 04	675	1.1+	0.4-	1999 12 06	704	0.8+	0.2+	1999 12 12	703	0.4-	0.5-
1999 11 04	704	0.5-	0.2-	1999 12 06	704	0.1+	0.2+	1999 12 12	703	0.3-	0.1-
1999 11 04	704	0.2-	0.2-	1999 12 06	704	0.3+	0.3+	1999 12 12	703	0.2-	0.3+
1999 11 04	704	0.5-	0.5-	1999 12 06	704	0.1-	0.2-				
1999 11 04	704	0.1-	0.1-	1999 12 06	704	0.4-	0.2+				

4235 T-1 = 1999 XV₃₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.30308698	ω	297.48581	+0.29128343	-0.95540639				
<i>a</i>	2.1949495	Ω	135.49010	+0.90030387	+0.25663625				
<i>e</i>	0.1246744	<i>i</i>	3.96740	+0.32342990	+0.14607011				
<i>P</i>	3.25	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1971 03 24	675	1.0+	0.6-	1971 05 13	675	0.8+	0.4-	1999 12 06	704	0.1+	0.2-
1971 03 26	675	0.3+	0.3+	1971 05 14	675	1.9-	1.0-	1999 12 07	704	0.1+	0.6+
1971 03 26	675	0.3-	0.4+	1971 05 16	675	0.9+	1.0+	1999 12 07	704	0.3+	0.4-
1971 03 27	675	1.4-	1.3-	1999 12 06	704	0.2+	0.6-	1999 12 07	704	0.0	0.3+
1971 04 02	675	0.1+	1.7+	1999 12 06	704	0.2-	0.5+	1999 12 07	704	0.2-	0.0
1971 04 16	675	0.6+	1.3-	1999 12 06	704	0.3+	0.1+	1999 12 07	704	1.0-	0.1+
1971 04 16	675	0.1-	1.2+	1999 12 06	704	0.3+	0.5-				

4326 T-1 = 1998 MN₁₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q		Doppler	
<i>n</i>	0.18945810	ω	164.41430	+0.90810879	+0.41764846				
<i>a</i>	3.0023450	Ω	170.72668	-0.40139229	+0.88873937				
<i>e</i>	0.1223308	<i>i</i>	10.77859	-0.11925879	+0.18897644				
<i>P</i>	5.20	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1971 03 24	675	0.7+	1.0+	1998 06 19	704	0.0	0.0	1998 06 25	704	0.9-	1.1+
1971 03 26	675	0.8-	0.4-	1998 06 19	704	0.2+	0.2+	1998 06 25	704	0.2+	1.2-
1971 03 26	675	0.4-	0.1+	1998 06 19	704	0.2+	0.1+	1998 06 25	704	0.0	1.0-
1971 03 27	675	0.3-	1.2-	1998 06 19	704	0.2+	0.7+	1998 06 25	704	0.1+	0.1+
1971 04 02	675	0.8+	0.4+	1998 06 19	704	(0.5+	2.8-)				

1160 T-2 = 1999 VZ₄₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	39.45451		(2000.0)	P		Q	
<i>n</i>	0.26666392	ω	324.70987	+0.73763249	+0.67499648		
<i>a</i>	2.3905246	Ω	352.76593	-0.58506580	+0.62663908		
<i>e</i>	0.0930514	<i>i</i>	7.60961	-0.33704052	+0.38949098		
<i>P</i>	3.70	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1973 09 19	675	1.5+	1.5+	1973 09 29	675	0.1+	0.9+	1999 11 04	703	0.6-	0.3+
1973 09 19	675	0.8+	1.3-	1973 09 30	675	0.0	1.2+	1999 11 04	703	0.4+	0.1-
1973 09 20	675	0.2-	0.8-	1973 09 30	675	1.3-	1.1+	1999 11 04	703	0.7-	0.0
1973 09 24	675	1.3-	0.3+	1973 10 04	675	(2.3+	2.0-)	1999 11 11	703	0.7+	0.2-
1973 09 24	675	0.8-	0.2+	1973 10 04	675	1.3+	1.0-	1999 11 11	703	0.3+	0.8+
1973 09 25	675	1.5-	1.2-	1973 10 05	675	1.0+	0.7-	1999 11 11	703	1.0+	0.3+
1973 09 25	675	1.6-	0.0	1973 10 05	675	1.6+	1.2-	1999 11 11	703	0.6-	1.8-
1973 09 29	675	0.2+	0.4+	1999 11 04	703	0.6-	1.0+				

1181 T-2 = 1999 XS₄₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	352.28761		(2000.0)	P		Q	
<i>n</i>	0.19293252	ω	59.83752	+0.74027340	-0.67228365		
<i>a</i>	2.9661909	Ω	342.40412	+0.61043004	+0.67553363		
<i>e</i>	0.1016657	<i>i</i>	1.03815	+0.28172765	+0.30280193		
<i>P</i>	5.11	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1973 09 19	675	0.1-	0.2-	1973 09 30	675	0.8+	0.2+	1999 12 07	704	0.2+	0.1-
1973 09 19	675	0.4+	0.5-	1973 09 30	675	0.3+	0.4-	1999 12 07	704	0.2-	0.1-
1973 09 20	675	0.7+	0.9+	1973 10 04	675	0.8-	1.4-	1999 12 08	704	0.0	0.3+
1973 09 24	675	1.3+	0.6-	1973 10 04	675	0.9-	0.3-	1999 12 08	704	0.1+	0.4-
1973 09 24	675	1.0-	0.7-	1973 10 05	675	1.0-	0.7+	1999 12 08	704	0.2-	0.3-
1973 09 25	675	1.6-	0.5-	1973 10 05	675	1.5+	0.9+	1999 12 08	704	0.3-	0.0
1973 09 25	675	0.9-	1.3+	1999 12 07	704	0.1+	0.3+	1999 12 08	704	0.1-	0.4-
1973 09 29	675	0.5+	0.2-	1999 12 07	704	0.3+	0.0				
1973 09 29	675	0.7+	0.8+	1999 12 07	704	0.2+	0.6+				

1332 T-2 = 1999 VM₅₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	343.06859		(2000.0)	P		Q	
<i>n</i>	0.19296901	ω	104.51493	+0.48661914	-0.87318282		
<i>a</i>	2.9658170	Ω	316.33179	+0.78543769	+0.45104426		
<i>e</i>	0.1515038	<i>i</i>	2.27848	+0.38247804	+0.18469117		
<i>P</i>	5.11	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1973 09 19	675	1.5-	1.8+	1973 09 29	675	1.4-	0.1-	1999 11 03	704	0.1-	0.0
1973 09 19	675	1.5-	1.1+	1973 09 30	675	0.3+	1.0+	1999 11 03	704	0.9-	0.5+
1973 09 20	675	1.1+	1.6-	1973 09 30	675	(0.2+	2.5+)	1999 11 03	704	0.0	0.2+
1973 09 24	675	0.8+	1.4-	1973 10 04	675	0.3-	0.2+	1999 11 04	704	0.9+	0.3+
1973 09 24	675	1.3+	1.1-	1973 10 04	675	0.6+	0.4-	1999 11 04	704	0.7+	0.5-
1973 09 25	675	1.5-	0.4+	1973 10 05	675	0.3+	0.2-	1999 11 04	704	0.6-	0.6-
1973 09 25	675	1.9+	0.7-	1973 10 05	675	0.5-	0.1-	1999 11 04	704	0.2-	0.3-
1973 09 29	675	0.1+	1.0+	1999 11 03	704	0.3+	0.7+	1999 11 04	704	0.0	0.3-

2066 T-2 = 1999 VE₆₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	41.51333		(2000.0)	P		Q	
<i>n</i>	0.19183440	ω	118.43106	+0.89023137	+0.45284136		
<i>a</i>	2.9774997	Ω	214.70800	-0.44229887	+0.83351822		
<i>e</i>	0.1028603	<i>i</i>	4.95920	-0.10890276	+0.31651554		
<i>P</i>	5.14	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1973 09 24	675	1.0-	0.5+	1973 10 05	675	1.4-	0.3+	1999 12 04	699	1.4-	0.0
1973 09 24	675	0.1-	0.9+	1999 11 04	704	0.2-	0.5-	1999 12 04	699	0.6-	0.2-
1973 09 25	675	1.2-	1.9-	1999 11 04	704	0.1-	0.7-	1999 12 04	699	0.3-	1.0+
1973 09 25	675	0.8-	1.2-	1999 11 04	704	0.2+	0.4-	1999 12 06	704	2.2+	1.8-
1973 09 29	675	0.9+	1.7+	1999 11 04	704	0.3+	0.0	1999 12 06	704	1.7+	0.2-
1973 09 29	675	1.6+	2.2+	1999 11 04	704	0.1-	0.1+	1999 12 06	704	0.3+	1.6+
1973 09 30	675	1.1+	1.5-	1999 11 12	704	0.3-	0.0	1999 12 07	704	0.4-	0.1+
1973 09 30	675	0.4+	0.8-	1999 11 12	704	0.0	0.2+	1999 12 07	704	0.1-	0.1+
1973 10 04	675	0.4-	0.3+	1999 11 12	704	0.0	0.3+	1999 12 07	704	0.2-	0.1-
1973 10 04	675	1.0+	0.7-	1999 11 12	704	0.2+	0.2+	1999 12 07	704	0.7-	0.2+
1973 10 05	675	0.1-	0.3+	1999 11 12	704	0.1-	0.1+	1999 12 07	704	0.3-	0.2-

3035 T-2 = 1999 RD₁₅₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	305.45564		(2000.0)	P		Q	
<i>n</i>	0.26453196	ω	263.52908	+0.66536468	-0.74598887		
<i>a</i>	2.4033514	Ω	144.70839	+0.70271306	+0.61316573		
<i>e</i>	0.1888878	<i>i</i>	2.78933	+0.25196070	+0.25986226		
<i>P</i>	3.73	<i>H</i>	16.7	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1973 09 19	675	0.2+	1.1+	1973 09 30	675	0.7-	0.2-	1999 09 09	704	0.1-	0.1+
1973 09 19	675	0.1+	0.4+	1973 09 30	675	1.2-	0.8-	1999 09 09	704	0.7-	0.3+
1973 09 20	675	0.9+	0.5+	1973 10 04	675	(2.5+	1.1+)	1999 09 13	704	0.1-	0.7+
1973 09 24	675	0.0	1.2-	1973 10 04	675	1.5+	0.1-	1999 09 13	704	0.3-	0.4-
1973 09 24	675	1.2-	0.5-	1973 10 05	675	0.5-	0.2+	1999 09 13	704	0.6-	1.2-
1973 09 25	675	0.7+	1.7-	1973 10 05	675	0.6+	0.5+	1999 09 13	704	0.6-	0.3-
1973 09 25	675	(3.0+	1.1-)	1999 09 09	704	0.4+	0.1+	1999 09 13	704	1.8+	0.8-
1973 09 29	675	0.1+	0.2+	1999 09 09	704	0.1-	0.8+				
1973 09 29	675	0.6-	1.6+	1999 09 09	704	0.5+	0.7+				

3234 T-2 = 1999 WA

Id. A. Doppler, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	356.38832		(2000.0)	P		Q	
<i>n</i>	0.26763218	ω	314.32963	+0.92309818	-0.38003458		
<i>a</i>	2.3847553	Ω	68.08709	+0.36841586	+0.83003819		
<i>e</i>	0.2104371	<i>i</i>	3.63696	+0.11027017	+0.40817926		
<i>P</i>	3.68	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1973 09 19	675	(4.5+	3.6-)	1999 11 12	704	0.0	0.7-	1999 12 02	699	0.6-	0.6+
1973 09 19	675	(3.8+	2.9-)	1999 11 12	704	0.1+	0.7-	1999 12 02	699	0.2+	0.7+
1973 09 20	675	2.4+	0.1-	1999 11 16	739	0.0	0.9+	1999 12 05	703	0.7-	1.2+
1973 09 24	675	0.9-	0.3+	1999 11 16	739	0.5-	1.1+	1999 12 05	703	0.2-	0.4+
1973 09 24	675	1.0+	0.9-	1999 11 16	739	0.2+	0.3+	1999 12 05	703	0.9-	0.4+
1973 09 25	675	0.1-	0.4-	1999 11 16	739	0.7-	0.5+	1999 12 05	703	0.3-	1.0+
1973 09 25	675	0.7-	0.5-	1999 11 17	739	(1.2-	2.7+)	1999 12 07	704	0.2-	0.4-
1973 09 29	675	1.1-	1.3+	1999 11 17	739	0.8-	0.6+	1999 12 07	704	0.2+	0.1-
1973 09 29	675	0.9-	0.6+	1999 11 17	739	0.5-	0.8+	1999 12 07	704	0.5-	0.6-
1973 09 30	675	0.3-	0.9-	1999 11 17	739	0.5-	0.3+	1999 12 07	704	0.0	0.4-
1973 09 30	675	1.1-	1.5-	1999 11 18	739	0.8+	0.5+	1999 12 07	704	0.0	0.0
1973 10 04	675	1.4+	1.6+	1999 11 18	739	0.2-	0.4+	1999 12 07	691	0.3+	0.2+
1973 10 04	675	0.5+	1.1+	1999 11 18	739	0.0	0.1+	1999 12 07	691	0.5+	0.2+
1973 10 05	675	0.0	0.3+	1999 11 20	739	0.3+	0.4-	1999 12 07	691	0.5+	0.2+
1973 10 05	675	0.4-	0.2-	1999 11 20	739	0.2+	0.5-	1999 12 08	691	0.1-	0.3-
1999 11 04	704	0.4+	0.8-	1999 11 20	739	0.2-	1.8-	1999 12 08	691	0.4-	0.7-

M.P.C. 37252

1999 DEC. 22

1999 11 04	704	0.8+	0.7−	1999 11 25	739	0.5−	0.0	1999 12 08	691	0.3−	0.4−
1999 11 04	704	0.3+	0.2−	1999 11 25	739	1.2+	0.2−	1999 12 08	704	0.0	0.8−
1999 11 04	704	0.5+	0.7−	1999 11 25	739	0.9+	0.0	1999 12 08	704	0.2+	0.4−
1999 11 04	704	0.0	0.8−	1999 11 29	691	0.2+	0.1+	1999 12 08	704	0.1−	0.0
1999 11 12	704	0.0	0.4−	1999 11 29	691	0.2+	0.2+	1999 12 08	704	0.2+	0.1+
1999 11 12	704	0.1+	0.3−	1999 11 29	691	0.3+	0.2+	1999 12 08	704	0.1+	0.1−
1999 11 12	704	0.1+	0.5−	1999 12 02	699	0.2−	1.1+				

5153 T-2 = 1999 VK₃₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>				<i>P</i>		<i>Q</i>	
334.35424				(2000.0)			
<i>n</i>	0.26829210	<i>ω</i>	170.19211	+0.52222855	−0.84795567		
<i>a</i>	2.3808432	<i>Ω</i>	248.27509	+0.77566007	+0.51654824		
<i>e</i>	0.1254697	<i>i</i>	5.61051	+0.35444154	+0.11894998		
<i>P</i>	3.67	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1973 09 20	675	1.8+	1.8−	1999 11 03	704	0.0	0.4+	1999 12 07	704	0.8−	0.4−
1973 09 20	675	(3.1+	4.3−)	1999 11 03	704	(0.0	2.3+)	1999 12 07	704	0.2−	0.1−
1973 09 24	675	(0.2+	2.9+)	1999 11 03	704	0.2+	0.2−	1999 12 07	704	0.2−	0.1−
1973 09 24	675	(3.2−	1.9+)	1999 11 12	704	0.5−	0.1−	1999 12 07	704	0.3−	0.7−
1973 09 25	675	2.2−	1.1+	1999 11 12	704	0.4−	0.2+	1999 12 07	704	0.4−	0.4−
1973 09 25	675	0.9−	1.3+	1999 11 12	704	0.7−	0.0	1999 12 08	704	0.7+	0.5+
1973 09 29	675	0.4+	0.1+	1999 11 12	704	0.1+	0.6−	1999 12 08	704	0.5+	0.5+
1973 09 29	675	0.6−	1.6+	1999 11 12	704	1.8+	0.5−	1999 12 08	704	0.2−	0.3+
1973 09 30	675	1.2+	1.6−	1999 12 03	699	0.5−	0.5+	1999 12 08	704	0.3+	0.1+
1973 09 30	675	0.4+	0.9−	1999 12 03	699	0.2+	0.4−	1999 12 08	704	0.4+	0.1−
1999 11 03	704	0.1+	1.1+	1999 12 03	699	(2.4−	2.7−)				

5168 T-2 = 1992 KZ = 1999 VC₅₈

Id. A. Doppler, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>				<i>P</i>		<i>Q</i>	
36.80567				(2000.0)			
<i>n</i>	0.19276356	<i>ω</i>	120.00364	+0.97029781	+0.20693370		
<i>a</i>	2.9679238	<i>Ω</i>	228.36327	−0.23528559	+0.92767004		
<i>e</i>	0.1109028	<i>i</i>	9.65161	+0.05623925	+0.31081625		
<i>P</i>	5.11	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1973 09 20	675	2.0+	1.4−	1973 10 05	675	1.2−	0.1+	1999 12 05	703	0.6+	0.3+
1973 09 20	675	(3.5+	1.0−)	1992 05 29	474	0.4+	0.3−	1999 12 05	703	0.4−	0.0
1973 09 24	675	0.1+	1.3+	1992 05 29	474	0.6−	0.4−	1999 12 05	703	0.2+	0.5+
1973 09 24	675	0.1−	0.7+	1999 11 04	704	0.1+	0.5−	1999 12 05	703	0.1−	0.1+
1973 09 25	675	1.1+	1.0−	1999 11 04	704	0.1−	0.1+	1999 12 06	704	1.0+	0.4+
1973 09 25	675	0.7+	1.5−	1999 11 04	704	0.2−	0.6−	1999 12 06	704	0.1−	0.3+
1973 09 29	675	0.8−	0.0	1999 11 04	704	0.5−	0.3+	1999 12 06	704	0.8+	0.5−
1973 09 29	675	0.0	0.1+	1999 11 04	704	0.2−	0.5−	1999 12 07	704	0.2+	0.1−
1973 09 30	675	0.2+	0.2+	1999 11 12	704	0.6−	0.1+	1999 12 07	704	0.0	0.6−
1973 09 30	675	0.3+	0.0	1999 11 12	704	0.4−	0.0	1999 12 07	704	0.1−	0.1+
1973 10 04	675	1.2−	0.7+	1999 11 12	704	0.2−	0.2+	1999 12 07	704	0.4+	0.4−
1973 10 04	675	(2.6−	0.5−)	1999 11 12	704	0.3−	0.3+	1999 12 07	704	0.3+	0.9−
1973 10 05	675	1.2−	0.6+	1999 11 12	704	0.3−	0.7+				

5179 T-2 = 1997 LE₁ = 1999 VJ₅₉

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>				<i>P</i>		<i>Q</i>	
295.70456				(2000.0)			
<i>n</i>	0.19228996	<i>ω</i>	232.26935	−0.19401663	−0.97212257		
<i>a</i>	2.9727951	<i>Ω</i>	229.44938	+0.94573607	−0.14968932		
<i>e</i>	0.0700201	<i>i</i>	9.97856	+0.26065463	−0.18047388		
<i>P</i>	5.13	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1973 09 24	675	1.2+	1.7−	1997 06 05	684	0.3−	0.2−	1999 11 12	704	0.4−	0.3+
1973 09 24	675	2.4+	1.0+	1997 06 05	684	0.1+	0.3+	1999 11 12	704	0.5−	0.1+
1973 09 25	675	1.1+	1.5−	1997 06 05	684	0.1+	0.3+	1999 11 12	704	0.1−	0.0
1973 09 25	675	1.0+	0.8−	1997 06 07	684	0.2+	0.7−	1999 11 12	704	0.1−	0.5+
1973 09 29	675	1.1+	2.4+	1997 06 07	684	0.5−	0.5+	1999 12 07	704	0.7+	0.7−
1973 09 29	675	0.5−	1.0+	1997 06 07	684	0.4+	0.8+	1999 12 07	704	0.5+	0.4−
1973 09 30	675	0.5−	0.0	1999 11 04	704	0.1+	1.0+	1999 12 07	704	0.2+	0.2−
1973 09 30	675	0.4−	0.4−	1999 11 04	704	0.7+	0.2−	1999 12 07	704	0.4−	0.1−
1973 10 04	675	2.4−	1.3−	1999 11 04	704	0.2−	0.4+	1999 12 12	691	0.3+	0.2+
1973 10 04	675	1.1−	0.0	1999 11 04	704	0.2+	0.2+	1999 12 12	691	0.1+	0.2+
1973 10 05	675	1.3−	0.6+	1999 11 04	704	0.8−	0.3−	1999 12 12	691	0.0	0.2+
1973 10 05	675	0.4−	0.1−	1999 11 12	704	0.3−	0.1+				

1141 T-3 = 1999 VG₅₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>				<i>P</i>		<i>Q</i>	
46.94744				(2000.0)			
<i>n</i>	0.18206466	<i>ω</i>	64.48612	+0.88702167	+0.44254971		
<i>a</i>	3.0830858	<i>Ω</i>	269.00724	−0.45663076	+0.79853196		
<i>e</i>	0.1348774	<i>i</i>	7.56842	−0.06841717	+0.40803978		
<i>P</i>	5.41	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1977 10 11	675	1.0+	2.4+	1977 10 22	675	1.0+	1.4−	1999 11 04	704	0.7−	0.2−
1977 10 11	675	0.2+	0.7+	1977 10 22	675	0.6+	0.0	1999 12 08	704	0.7+	0.5+
1977 10 12	675	0.3+	0.5+	1999 11 03	704	0.6+	0.9−	1999 12 08	704	0.4−	0.3+
1977 10 12	675	0.5−	0.9+	1999 11 03	704	0.5+	0.2−	1999 12 08	704	0.3+	0.1+
1977 10 16	675	1.6−	1.2−	1999 11 03	704	0.0	0.1+	1999 12 08	704	0.7+	0.3−
1977 10 16	675	1.4−	1.2−	1999 11 04	704	0.4+	0.3+	1999 12 08	704	0.1−	0.1−
1977 10 17	675	0.3+	0.3−	1999 11 04	704	0.3−	0.4−				
1977 10 17	675	0.3+	0.5−	1999 11 04	704	1.6−	1.1+				

2023 T-3 = 1999 VL₇

Id. A. Doppler, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>				<i>P</i>		<i>Q</i>	
32.22713				(2000.0)			
<i>n</i>	0.27064097	<i>ω</i>	110.83132	+0.81500309	+0.57640530		
<i>a</i>	2.3670478	<i>Ω</i>	214.04929	−0.56323623	+0.76393805		
<i>e</i>	0.2370145	<i>i</i>	6.08866	−0.13614300	+0.29009582		
<i>P</i>	3.64	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1977 10 07	675	1.3+	1.0−	1977 10 22	675	0.2+	0.5+	1999 11 12	595	0.3+	0.9+
1977 10 11	675	1.0−	1.4+	1977 10 22	675	0.9−	0.4−	1999 11 12	595	0.4−	0.8+
1977 10 11	675	0.0	1.1+	1977 10 22	675	0.7+	0.0	1999 11 12	595	0.2−	0.9+
1977 10 12	675	0.3+	0.7+	1977 10 22	675	0.4+	1.6+	1999 11 12	120	0.1−	0.2+
1977 10 12	675	1.4−	0.1+	1999 11 04	704	0.4−	0.4+	1999 11 12	595	0.8−	0.1+
1977 10 16	675	(0.7+	3.6−)	1999 11 04	704	0.7−	0.4+	1999 11 12	120	0.6−	0.3+
1977 10 16	675	0.8−	2.0−	1999 11 04	704	0.2−	1.9−	1999 11 13	120	0.9−	0.1+
1977 10 17	675	0.0	0.6+	1999 11 04	704	0.1+	0.5−	1999 11 13	120	0.3+	0.3−
1977 10 17	675	0.7+	2.0−	1999 11 04	704	0.4−	0.8+	1999 11 28	120	(2.3+	0.3−)
1977 10 17	675	0.2−	0.4−	1999 11 07	120	1.5+	1.2−	1999 11 28	120	0.5+	0.1−
1977 10 17	675	0.3−	0.1−	1999 11 07	120	0.2+	0.7−	1999 11 28	120	0.1+	0.5−
1977 10 21	675	0.1+	0.2+	1999 11 08	120	1.0+	0.3−	1999 12 07	704	0.4−	1.0+
1977 10 21	675	1.7+	0.4−	1999 11 08	120	0.6+	0.1+	1999 12 07	704	0.1+	0.1−
1977 10 21	675	1.7−	1.1+	1999 11 10	120	(2.7+	0.1−)	1999 12 07	704	0.1−	0.2+
1977 10 21	675	0.7+	0.6−	1999 11 10	120	0.3+	0.2+	1999 12 07	704	0.3+	0.8−

2152 T-3 = 1999 VN₅₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Doppler			
<i>M</i>	43.38768	(2000.0)	P	Q	
<i>n</i>	0.18087222	ω	109.63379	+0.78889475	+0.59636339
<i>a</i>	3.0966215	Ω	214.23218	-0.61451384	+0.76721486
<i>e</i>	0.1475292	<i>i</i>	15.28612	+0.00421984	+0.23607640
<i>P</i>	5.45	<i>H</i>	15.5	<i>G</i>	0.15

Residuals in seconds of arc

1977 10 07	675	0.6+	1.5-	1977 10 16	675	0.3+	0.5+	1999 11 04	704	0.5+	0.7-
1977 10 11	675	0.9-	0.6+	1977 10 17	675	0.1+	1.7+	1999 11 04	704	0.2-	0.1-
1977 10 11	675	0.3+	0.4+	1977 10 17	675	1.1-	0.1-	1999 11 12	704	0.9-	0.6+
1977 10 12	675	1.0-	0.9+	1977 10 21	675	1.1+	0.2+	1999 11 12	704	0.2-	1.1+
1977 10 12	675	1.1-	0.1-	1977 10 21	675	1.2+	1.4-	1999 11 12	704	0.4-	0.2+
1977 10 16	675	0.7+	1.0-	1999 11 04	704	0.4+	0.3+	1999 11 12	704	0.7+	1.4-

2214 T-3 = 1999 VL₄₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Doppler			
<i>M</i>	161.21039	(2000.0)	P	Q	
<i>n</i>	0.26991445	ω	323.67530	-0.85564522	+0.50891608
<i>a</i>	2.3712934	Ω	247.17558	-0.44750948	-0.81891848
<i>e</i>	0.0890910	<i>i</i>	5.86670	-0.26001255	-0.26528655
<i>P</i>	3.65	<i>H</i>	15.3	<i>G</i>	0.15

Residuals in seconds of arc

1977 10 07	675	0.5+	0.3-	1977 10 21	675	1.8+	0.6-	1999 11 04	703	1.0+	0.1+
1977 10 11	675	0.5-	1.3+	1977 10 21	675	(2.3+	0.7-)	1999 11 11	703	0.4-	0.2+
1977 10 11	675	1.3-	0.5+	1977 10 22	675	0.1+	1.3+	1999 11 11	703	0.3+	0.4+
1977 10 12	675	1.3-	1.5-	1977 10 22	675	(0.1-	4.0+)	1999 11 11	703	0.3+	0.5-
1977 10 12	675	1.0-	0.3-	1999 11 04	703	0.6-	0.4+	1999 11 11	703	0.7-	0.3-
1977 10 17	675	1.3+	0.4-	1999 11 04	703	0.2+	0.0				
1977 10 17	675	0.2+	0.1-	1999 11 04	703	0.1-	0.3-				

2220 T-3 = 1999 VU₃₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	9.57398	(2000.0)	P	Q	
<i>n</i>	0.18183457	ω	151.54842	+0.93999345	-0.33577208
<i>a</i>	3.0856861	Ω	228.20297	+0.29561842	+0.89014415
<i>e</i>	0.1626015	<i>i</i>	4.66065	+0.17035862	+0.30805924
<i>P</i>	5.42	<i>H</i>	15.3	<i>G</i>	0.15

Residuals in seconds of arc

1977 10 07	675	(0.7-	3.7-)	1999 11 03	704	1.0-	0.5-	1999 12 04	703	1.1-	1.7+
1977 10 11	675	0.2-	0.9+	1999 11 12	704	1.0+	1.0-	1999 12 04	703	(2.2-	1.7+)
1977 10 11	675	1.0-	0.1-	1999 11 12	704	0.9-	0.4+	1999 12 05	703	0.8-	0.4+
1977 10 12	675	1.7-	0.1+	1999 11 12	704	0.1+	0.1-	1999 12 05	703	1.2+	0.1+
1977 10 12	675	0.7-	0.5-	1999 11 12	704	0.0	0.5-	1999 12 05	703	0.2+	0.6-
1977 10 17	675	0.8-	1.6+	1999 11 12	704	0.1-	0.3-	1999 12 05	703	1.6-	0.8-
1977 10 17	675	0.9-	0.7-	1999 11 28	691	0.5+	0.3+	1999 12 07	704	0.2-	0.2+
1977 10 21	675	1.7+	0.3-	1999 11 28	691	0.4+	0.4+	1999 12 07	704	1.4+	0.4-
1977 10 21	675	0.7+	1.9-	1999 11 28	691	0.4+	0.3+	1999 12 07	704	0.9+	0.3+
1999 11 03	704	0.8-	0.1-	1999 12 04	703	(1.3-	2.5-)				
1999 11 03	704	0.4+	0.0	1999 12 04	703	(2.2+	1.0+)				

2603 T-3 = 1999 VF₆₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Doppler			
<i>M</i>	207.76749	(2000.0)	P	Q	
<i>n</i>	0.18076353	ω	324.45708	-0.98602749	+0.05429946
<i>a</i>	3.0978628	Ω	219.57906	-0.02017806	-0.97735388
<i>e</i>	0.0888396	<i>i</i>	14.31030	-0.16535610	-0.20452617
<i>P</i>	5.45	<i>H</i>	15.0	<i>G</i>	0.15

Residuals in seconds of arc

1977 10 07	675	0.3+	0.1+	1977 10 17	675	0.8+	0.2-	1999 11 04	704	0.8-	0.7+
1977 10 11	675	0.3+	0.7+	1977 10 17	675	0.0	0.1-	1999 11 04	704	0.3+	0.3+
1977 10 11	675	0.5-	1.3-	1977 10 22	675	0.9+	0.8+	1999 11 12	704	0.1+	0.1+
1977 10 12	675	0.1-	0.6+	1977 10 22	675	1.9+	0.3+	1999 11 12	704	0.2+	0.1-
1977 10 12	675	1.8-	0.4+	1999 11 04	704	0.2+	0.1-	1999 11 12	704	0.4-	0.1-
1977 10 16	675	1.8-	1.2-	1999 11 04	704	1.1+	0.2+	1999 11 12	704	0.3-	0.6-
1977 10 16	675	(0.1-	2.4-)	1999 11 04	704	0.3-	0.5-				

4235 T-3 = 1988 VW₁₂ = 1999 XV₂₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	293.02747	(2000.0)	P	Q	
<i>n</i>	0.27049947	ω	20.56198	+0.02683441	-0.99620600
<i>a</i>	2.3678732	Ω	67.97490	+0.90422374	-0.01112042
<i>e</i>	0.0292720	<i>i</i>	5.12354	+0.42621513	+0.08631309
<i>P</i>	3.64	<i>H</i>	13.9	<i>G</i>	0.15

Residuals in seconds of arc

1977 10 07	675	0.9-	0.1+	1977 10 22	675	1.1-	0.1+	1999 12 06	704	1.2+	1.3-
1977 10 11	675	1.3+	0.1-	1977 10 22	675	1.7+	1.6-	1999 12 07	704	0.2-	0.2+
1977 10 11	675	0.9+	0.1-	1988 11 04	327	1.0-	0.3-	1999 12 07	704	0.3-	0.2-
1977 10 12	675	1.0-	0.7-	1988 11 04	327	0.2+	1.8+	1999 12 07	704	0.4+	0.5-
1977 10 12	675	0.3-	0.8-	1999 12 04	699	0.4-	0.3+	1999 12 07	704	0.3-	0.1+
1977 10 16	675	0.4-	0.1-	1999 12 04	699	0.7-	0.1-	1999 12 07	704	0.2-	0.6-
1977 10 16	675	1.0+	0.5+	1999 12 04	699	0.3-	0.2+	1999 12 12	703	0.1-	0.4+
1977 10 17	675	0.1+	0.5+	1999 12 06	704	1.6+	0.2-	1999 12 12	703	0.8-	0.4+
1977 10 17	675	0.1+	0.3+	1999 12 06	704	0.5+	0.0	1999 12 12	703	0.9-	1.0+
1977 10 21	675	0.1-	0.9+	1999 12 06	704	0.4+	0.3+	1999 12 12	703	0.2+	0.6+
1977 10 21	675	0.7-	0.2+	1999 12 06	704	0.3+	1.1-				

4358 T-3 = 1999 VF₃₉

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	62.27644	(2000.0)	P	Q	
<i>n</i>	0.18321334	ω	267.23316	+0.82473278	+0.54380277
<i>a</i>	3.0701857	Ω	59.77762	-0.42067412	+0.77337117
<i>e</i>	0.1272514	<i>i</i>	10.34884	-0.37795386	+0.32584595
<i>P</i>	5.38	<i>H</i>	14.4	<i>G</i>	0.15

Residuals in seconds of arc

1977 10 16	675	1.0-	0.5+	1999 11 10	704	1.7-	0.4+	1999 12 05	703	0.6-	0.6+
1977 10 16	675	0.5-	0.7+	1999 11 12	704	0.3+	0.8+	1999 12 05	703	0.6-	1.0-
1977 10 17	675	0.3-	0.9+	1999 11 12	704	0.2+	0.3-	1999 12 05	703	0.6-	1.0+
1977 10 17	675	0.8-	1.3-	1999 11 12	704	0.6+	0.8+	1999 12 07	704	(0.7+	2.2+)
1977 10 21	675	0.7+	0.8-	1999 11 12	704	0.8+	0.3-	1999 12 07	704	0.5+	0.6+
1977 10 21	675	0.6+	0.1-	1999 11 12	704	0.8+	0.2-	1999 12 07	704	0.7+	0.4-
1977 10 22	675	1.4+	0.0	1999 12 04	703	0.5-	0.6-	1999 12 07	704	0.1-	0.6+
1999 11 10	704	0.8+	0.2-	1999 12 04	703	0.3-	0.2+	1999 12 13	703	0.9-	0.7+
1999 11 10	704	0.4-	0.2+	1999 12 04	703	0.6+	0.2-	1999 12 13	703	0.4+	0.7-
1999 11 10	704	0.4+	0.6-	1999 12 04	703	0.2-	0.4-	1999 12 13	703	0.2+	0.9-
1999 11 10	704	0.5-	0.4-	1999 12 05	703	0.4-	0.4+	1999 12 13	703	0.6+	0.0

5018 T-3 = 1986 WT = 1999 VF₂₉

Id. A. Doppler, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	307.33714	(2000.0)	P	Q	
<i>n</i>	0.22704459	ω	38.14926	-0.00352263	-0.97585222
<i>a</i>	2.6611046	Ω	53.12827	+0.83725353	-0.12230339
<i>e</i>	0.0872618	<i>i</i>	15.84351	+0.54680355	+0.18098159
<i>P</i>	4.34	<i>H</i>	13.7	<i>G</i>	0.15

Residuals in seconds of arc

1977 10 11	675	1.0+	0.7+	1999 11 03	704	0.3+	0.4+	1999 12 07	704	0.3+	0.1+
1977 10 11	675	0.7+	0.0	1999 11 03	704	0.8-	0.7+	1999 12 07	704	0.1+	0.0
1977 10 12	675	0.8-	0.8+	1999 11 03	704	0.9-	0.1+	1999 12 07	704	0.2+	0.2+

1977 10 12	675	0.1−	0.2+	1999 11 03	704	0.7−	0.9−	1999 12 08	704	0.2+	0.3−
1977 10 16	675	0.8−	0.0	1999 11 03	704	0.9−	0.3−	1999 12 08	704	0.3+	0.2+
1977 10 16	675	0.8−	0.0	1999 11 12	704	0.1+	0.1−	1999 12 08	704	0.1−	0.0
1977 10 17	675	1.6−	1.3−	1999 11 12	704	0.3+	0.1−	1999 12 08	704	0.2+	0.1−
1977 10 17	675	0.8−	1.1−	1999 11 12	704	0.3+	0.3−	1999 12 08	704	0.6+	0.5+
1977 10 21	675	1.8+	0.2+	1999 11 12	704	0.5+	0.3−	1999 12 13	703	0.3−	0.6+
1977 10 21	675	1.4+	0.4+	1999 11 12	704	0.1+	0.1−	1999 12 13	703	0.0	0.3+
1986 11 25	046	0.5+	0.6−	1999 12 07	704	0.1+	0.4−	1999 12 13	703	0.4+	0.1+
1986 11 25	046	0.7−	0.9+	1999 12 07	704	0.1+	0.3−	1999 12 13	703	0.4−	0.1−

5076 T-3 = 1998 KT₄

Id. M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	12.97236		(2000.0)	P	Q		
<i>n</i>	0.17828820	ω	248.26500	+0.83309420	+0.52874446		
<i>a</i>	3.1264704	Ω	79.47599	−0.42652052	+0.80105150		
<i>e</i>	0.1819490	<i>i</i>	9.50935	−0.35218504	+0.28061680		
<i>P</i>	5.53	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1977 10 11	675	2.9−	1.7−	1998 05 22	704	0.7+	0.7+	1998 05 23	699	0.3+	0.0
1977 10 11	675	2.1−	2.2−	1998 05 22	704	0.7+	0.6+	1998 05 24	704	0.2−	0.8−
1977 10 12	675	0.8−	0.5−	1998 05 22	704	1.6+	0.5−	1998 05 24	704	1.0−	0.1−

1977 10 12	675	0.8−	0.2−	1998 05 22	704	1.1+	0.5−	1998 05 24	699	1.5−	0.1−
1977 10 16	675	1.8+	3.3+	1998 05 22	699	1.1+	1.3+	1998 05 24	704	1.1−	0.2−
1977 10 16	675	1.6+	2.1+	1998 05 22	699	1.4+	0.7+	1998 05 24	699	1.3−	0.2−
1977 10 17	675	1.4+	0.0	1998 05 22	699	0.2+	0.3+	1998 05 24	699	1.4−	0.0
1977 10 17	675	1.9+	0.8−	1998 05 23	699	0.0	0.4−	1998 05 24	704	1.6−	0.1+
1998 05 22	704	2.0+	0.8−	1998 05 23	699	0.0	0.1−	1998 05 24	704	1.0−	0.0

5710 T-3 = 1999 VH₆₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Doppler			
<i>M</i>	202.40110		(2000.0)	P	Q		
<i>n</i>	0.22690653	ω	137.72027	−0.96851743	+0.15177603		
<i>a</i>	2.6621839	Ω	52.08668	−0.23526103	−0.81720751		
<i>e</i>	0.0302574	<i>i</i>	14.48441	+0.08140173	−0.55599993		
<i>P</i>	4.34	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1977 10 11	675	(4.2−	0.7+)	1977 10 17	675	0.5+	0.6−	1999 11 12	704	0.6−	1.0+
1977 10 11	675	(3.1−	0.3−)	1977 10 21	675	0.3+	0.0	1999 11 12	704	0.0	0.2−
1977 10 12	675	0.8−	0.3−	1977 10 21	675	0.4−	0.4+	1999 11 12	704	0.6+	0.4+
1977 10 12	675	(2.0−	2.4−)	1999 11 04	704	0.9−	0.2+	1999 11 12	704	0.0	1.2−
1977 10 16	675	1.0−	0.3+	1999 11 04	704	0.2+	0.1−	1999 11 12	704	0.5+	0.1+
1977 10 16	675	(3.1+	0.7+)	1999 11 04	704	0.3−	0.3+				
1977 10 17	675	1.4+	0.2+	1999 11 04	704	0.5+	0.6−				

Object	<i>H</i>	<i>G</i>	Epoch	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	<i>a</i>	Obs.	Opp. & Arc	rms Perts	<i>U</i>	Computer	<i>MPC</i>	Object
(162)	8.83	0.15	19990810	222.07960	112.01493	36.52999	6.09928	0.1772733	3.0242509	240	55 1876–1999	0.55	M-v 0	Goffin	23226	(162)
(169)	9.56	0.15	19990810	2.08728	334.89719	354.93399	5.51031	0.1310117	2.3580190	203	45 1876–1999	0.55	M-v 0	Goffin	12303	(169)
(224)	8.59	0.15	19990810	24.69039	280.63606	353.24483	5.84144	0.0442059	2.6442909	204	50 1882–1999	0.55	M-v 0	Goffin	15528	(224)
(239)	10.3	0.15	19990810	123.39741	208.13587	180.97195	6.16212	0.2290764	2.9736211	145	32 1884–1999	0.56	M-v 0	Goffin	35405	(239)
(242)	9.2	0.15	19990810	171.81460	277.23017	207.47360	11.32790	0.1227277	2.8604640	170	41 1884–1999	0.54	M-v 0	Goffin	11723	(242)
(256)	9.8	0.15	19990810	250.92429	51.13898	183.13587	13.32060	0.0700580	2.9973654	87	30 1886–1998	0.55	M-v 0	Goffin	12304	(256)
(272)	10.7	0.15	19990810	63.23757	68.97373	37.55985	4.44192	0.0285786	2.7779771	168	34 1888–1999	0.55	M-v 0	Goffin	16004	(272)
(330)	12.6	0.15	19990810	97.58429	259.29580	137.24072	6.75399	0.2517566	2.4686819	68	13 1910–1999	0.54	M-v 0	Goffin	11724	(330)
(366)	8.5	0.15	19990810	280.31083	320.18330	347.10731	10.55901	0.0592016	3.1448063	179	47 1893–1999	0.54	M-v 0	Goffin	16004	(366)
(394)	9.66	0.15	19990810	340.69150	270.19856	67.41562	6.22520	0.2261395	2.7628117	174	38 1894–1999	0.55	M-v 0	Goffin	35405	(394)
(427)	9.8	0.15	19990810	339.57608	10.90942	297.87535	5.11694	0.1133145	2.9737135	122	35 1897–1998	0.55	M-v 0	Goffin	35405	(427)
(440)	11.5	0.15	19990810	165.09081	178.86345	292.41347	1.59789	0.1079484	2.2099336	137	29 1898–1999	0.55	M-v 0	Goffin	15529	(440)
(503)	9.14	0.15	19990810	180.66425	40.49671	69.22779	5.02915	0.1757024	2.7230627	192	47 1903–1999	0.55	M-v 0	Goffin	11725	(503)
(586)	9.21	0.15	19990810	254.28369	243.34221	229.41147	1.61624	0.0676489	3.0432479	246	41 1906–1999	0.55	M-v 0	Goffin	12306	(586)
(696)	9.0	0.15	19990810	302.41867	105.26121	299.68964	13.03717	0.2524512	3.1668166	123	30 1914–1999	0.54	M-v 0	Goffin	13443	(696)
(777)	9.8	0.15	19990810	234.49098	257.00195	283.98226	12.98173	0.0991210	3.2335290	73	20 1914–1999	0.55	M-v 0	Goffin	14759	(777)
(795)	9.7	0.15	19990810	4.94787	189.49941	17.61268	19.02447	0.1003639	2.7514560	108	35 1914–1999	0.55	M-v 0	Goffin	15859	(795)
(852)	9.9	0.15	19990810	265.27686	282.04650	27.56314	23.03994	0.2727601	2.3635115	88	20 1923–1999	0.54	M-v 0	Goffin	13443	(852)
(869)	12.4	0.15	19990810	194.62568	106.21526	155.40702	7.84245	0.2163825	2.6908682	129	24 1917–1999	0.55	M-v 0	Goffin	15529	(869)
(888)	9.51	0.15	19990810	134.89657	297.85125	124.27930	13.85797	0.1926546	2.7101541	115	24 1906–1999	0.55	M-v 0	Goffin	36496	(888)
(901)	11.35	0.15	19990810	149.02793	67.66395	265.44133	3.44776	0.2209764	2.2238687	126	26 1918–1998	0.55	M-v 0	Goffin	15530	(901)
(935)	12.9	0.15	19990810	269.88334	58.07969	346.66070	4.02871	0.1462684	2.2183799	145	14 1920–1999	0.54	M-v 0	Goffin	35405	(935)
(950)	11.6	0.15	19990810	181.76836	347.15384	181.94494	23.48173	0.1592583	2.3719253	163	22 1904–1999	0.54	M-v 0	Goffin	15530	(950)
(975)	10.41	0.15	19990810	163.63826	57.30480	38.98918	2.56223	0.0347372	2.8333611	181	32 1922–1999	0.55	M-v 0	Goffin	35673	(975)
1934 JP	15.6	0.15	19990810	269.72424	16.25862	138.61285	1.57893	0.2276370	2.3066529	38	5 1934–1999	0.70	M-v 3	Williams	36872	1934 JP
1955 RE ₁	14.2	0.15	19990810	357.43172	22.33827	319.77433	7.25302	0.2546045	2.3778262	89	3 1955–1999	0.58	M-v 2	Williams	36872	1955 RE ₁
1971 FB	15.0	0.15	19990810	250.36869	314.61155	185.74129	26.06995	0.2394856	2.4060173	23	4 1971–1999	1.08	M-v 2	Williams	36499	1971 FB
1971 UR	12.9	0.15	19990810	299.06915	52.69515	47.00885	5.90333	0.1033971	3.1581095	92	5 1971–1999	0.66	M-v 2	Williams	36872	1971 UR
1973 QO ₁	13.6	0.15	19990810	34.85150	36.02766	317.73528	7.83133	0.2945487	2.6201434	25	5 1956–1999	0.67	M-v 2	Williams	36499	1973 QO ₁
1973 SX	11.5	0.15	19990810	323.47194	121.03229	353.52942	7.93842	0.0766971	5.1889686	42	5 1973–1999	0.74	M-v 1	Williams	35676	1973 SX
1973 SF ₁	11.4	0.15	19990810	55.75332	338.25103	40.58407	8.44348	0.1509544	5.1613786	49	4 1973–1999	0.77	M-v 1	Williams	35676	1973 SF ₁

1973 SS ₁	11.5	0.15	19990810	352.91422	52.65089	27.97267	9.20230	0.0204287	5.1596691	19	3	1973–1999	0.86	M-v	4	Williams	34280	1973 SS ₁
1973 SB ₂	11.2	0.15	19990810	61.76193	3.98691	15.19376	7.61131	0.0516471	5.1783277	40	6	1973–1999	0.79	M-v	1	Williams	35676	1973 SB ₂
1973 UK ₅	14.5	0.15	19990810	257.51672	44.40767	46.89124	3.01684	0.1573554	2.4187487	44	5	1973–1999	0.70	M-v	2	Williams	36872	1973 UK ₅
1975 SZ ₁	15.8	0.15	19990810	313.14732	248.01023	173.48736	2.93713	0.1725357	2.2729687	70	4	1975–1999	0.55	M-v	1	Williams	36872	1975 SZ ₁
1975 TE	14.4	0.15	19990810	46.77014	325.61177	24.40509	4.34176	0.2175300	2.2441992	33	3	1985–1999	0.81	M-v	2	Williams	36499	1975 TE
1975 TU ₃	13.4	0.15	19990810	318.72300	10.60452	44.90815	8.81300	0.0508760	2.2706821	94	4	1975–1999	0.57	M-v	2	Williams	36872	1975 TU ₃
1975 VW ₅	13.4	0.15	19990810	110.34323	269.97837	68.16381	8.46677	0.1451496	2.4470741	51	4	1975–1999	0.72	M-v	2	Williams	33738	1975 VW ₅
1976 QK ₁	14.2	0.15	19990810	18.78601	123.63747	200.18376	2.44505	0.2017913	2.4432248	107	4	1976–1999	0.65	M-v	2	Williams	36872	1976 QK ₁
1977 DG ₃	14.2	0.15	19990810	273.42321	44.85102	145.39277	6.20246	0.0877892	2.4504409	48	4	1977–1999	0.69	M-v	3	Williams	36872	1977 DG ₃
1977 DA ₄	13.3	0.15	19990810	302.85779	342.24060	68.92026	3.24480	0.0578747	2.8867470	62	3	1977–1999	0.62	M-v	3	Williams	36499	1977 DA ₄
1977 PB	13.4	0.15	19990810	99.28820	110.80753	132.62384	13.50923	0.1342988	2.6483232	66	4	1977–1999	0.70	M-v	2	Williams	36873	1977 PB
1977 QN ₁	12.9	0.15	19990810	103.96417	308.94887	343.61416	12.92255	0.1808115	2.6193217	42	3	1977–1999	0.63	M-v	3	Williams	36873	1977 QN ₁
1977 QO ₃	14.2	0.15	19990810	3.51970	91.63534	276.32069	1.11944	0.2365597	2.3606885	50	2	1977–1999	0.41	M-v	4	Williams	36785	1977 QO ₃
1977 TQ ₆	13.2	0.15	19990810	17.92356	297.75607	53.46559	13.05480	0.1924634	2.6731084	90	4	1977–1999	0.55	M-v	2	Williams	36873	1977 TQ ₆
1978 NC	13.6	0.15	19990810	48.23674	190.94145	114.65957	27.56677	0.1964037	2.5606339	23	5	1978–1999	0.64	M-v	1	Williams	36873	1978 NC
1978 NF	14.2	0.15	19990810	56.10298	194.11584	111.79324	14.35659	0.1653360	2.5539214	59	3	1978–1999	0.57	M-v	2	Williams	36873	1978 NF
1978 QF ₁	14.7	0.15	19990810	317.48842	199.87137	187.18915	4.97458	0.2144065	2.3102171	70	4	1978–1999	0.64	M-v	2	Williams	36873	1978 QF ₁
1978 RD ₂	14.3	0.15	19990810	4.42118	328.95384	34.48950	4.76584	0.2309085	2.5869343	90	3	1978–1999	0.56	M-v	3	Williams	36873	1978 RD ₂
1978 RQ ₉	14.3	0.15	19990810	96.41486	231.94432	350.02456	6.74723	0.0588257	2.3108739	90	5	1978–1999	0.59	M-v	2	Williams	36873	1978 RQ ₉
1978 SF ₅	15.0	0.15	19990810	49.54346	307.72459	32.34632	6.49038	0.1986678	2.2767122	28	3	1978–1999	0.71	M-v	2	Williams	36873	1978 SF ₅
1978 SD ₇	14.5	0.15	19990810	137.18826	97.27408	216.94491	3.73706	0.2005864	2.2275359	86	4	1988–1999	0.76	M-v	2	Williams	33738	1978 SD ₇
1978 SJ ₇	13.5	0.15	19990810	90.50942	329.19312	1.39967	14.56439	0.1405297	2.9267901	58	4	1978–1999	0.67	M-v	3	Williams	34280	1978 SJ ₇
1978 ST ₇	13.8	0.15	19990810	278.12963	136.62673	322.16826	5.65224	0.1266366	2.3043144	80	5	1978–1999	0.64	M-v	2	Williams	36873	1978 ST ₇
1978 VO ₂	13.6	0.15	19990810	288.94061	212.48266	244.08527	6.99843	0.1004489	2.6195963	63	2	1978–1999	0.58	M-v	4	Williams	36785	1978 VO ₂
1978 VB ₃	12.6	0.15	19990810	355.24021	296.03270	58.15379	13.19265	0.0831673	3.0922994	36	3	1978–1999	0.55	M-v	3	Williams	36873	1978 VB ₃
1978 VX ₄	14.9	0.15	19990810	9.03013	269.70162	66.06004	4.27193	0.1470589	2.3310387	73	4	1978–1999	0.72	M-v	3	Williams	36873	1978 VX ₄
1978 VH ₅	13.4	0.15	19990810	323.16056	194.85668	249.06021	8.93607	0.0146615	3.0272929	52	3	1978–1999	0.67	M-v	4	Williams	36873	1978 VH ₅
1978 VP ₉	15.1	0.15	19990810	24.62538	83.77101	237.50224	6.36547	0.1345787	2.3332411	67	3	1978–1999	0.73	M-v	2	Williams	36873	1978 VP ₉
1978 VQ ₉	13.8	0.15	19990810	105.45651	250.58834	67.95511	13.26973	0.2087735	2.5608848	33	3	1978–1999	0.79	M-v	4	Williams	36873	1978 VQ ₉
1978 VM ₁₁	14.6	0.15	19990810	290.95541	94.06040	74.36355	5.61407	0.2110865	2.5705264	26	4	1978–1999	0.61	M-v	2	Williams	36873	1978 VM ₁₁
1979 MP ₁	14.8	0.15	19990810	71.06004	164.14939	166.07069	1.68184	0.1212338	2.4372937	40	5	1978–1999	0.74	M-v	1	Williams	32298	1979 MP ₁
1979 MO ₂	15.6	0.15	19990810	86.03541	66.64576	226.42412	4.04206	0.1828250	2.1808407	39	3	1979–1999	0.66	M-v	4	Williams	36873	1979 MO ₂
1979 MM ₃	13.6	0.15	19990810	343.15350	254.41632	120.05936	17.68969	0.1163825	2.8664759	37	4	1979–1999	0.83	M-v	2	Williams	36873	1979 MM ₃
1979 MU ₄	14.9	0.15	19990810	150.22591	107.17195	150.54905	2.25537	0.1497038	2.4179079	29	3	1979–1999	0.84	M-v	4	Williams	36500	1979 MU ₄
1979 MD ₈	13.7	0.15	19990810	303.27626	231.32007	257.55948	7.67284	0.1025270	2.7616308	58	4	1979–1999	0.74	M-v	3	Williams	36873	1979 MD ₈
1979 OH ₁	12.6	0.15	19990810	229.22069	114.92111	137.40905	12.29356	0.0662258	3.1834679	39	4	1979–1999	0.70	M-v	2	Williams	36873	1979 OH ₁
1979 QF ₂	13.4	0.15	19990810	22.52439	212.19232	158.87429	2.46645	0.0807879	2.8441247	39	3	1979–1999	0.56	M-v	4	Williams	36873	1979 QF ₂
1980 RC	14.2	0.15	19990810	313.55578	240.82512	170.75371	11.03240	0.2652225	2.4289975	69	2	1980–1999	0.69	M-v	4	Williams	36873	1980 RC
1980 TZ ₅	12.1	0.15	19990810	333.23560	0.74341	13.28994	13.34544	0.1535930	2.8463837	43	3	1980–1999	0.61	M-v	2	Williams	36873	1980 TZ ₅
1980 UW ₁	14.7	0.15	19990810	52.93163	39.62962	309.91730	1.66545	0.1952962	2.3970835	18	4	1980–1999	0.50	M-v	2	Williams	36500	1980 UW ₁
1981 DF ₁	13.7	0.15	19990810	125.44730	340.83933	318.13536	11.51598	0.0600554	2.9369677	30	3	1981–1999	0.81	M-v	3	Williams	32917	1981 DF ₁
1981 DN ₁	13.8	0.15	19990810	5.63475	53.19341	307.41577	9.92247	0.2061771	2.5572430	63	2	1981–1999	0.70	M-v	3	Williams	36500	1981 DN ₁
1981 DM ₂	14.2	0.15	19990810	19.40968	78.68557	320.83341	10.17909	0.1043291	2.9300279	46	4	1981–1999	0.78	M-v	1	Williams	32739	1981 DM ₂
1981 DS ₂	14.0	0.15	19990810	21.99342	28.62224	290.87156	10.33582	0.0758802	2.5860241	62	2	1981–1999	0.59	M-v	4	Williams	36873	1981 DS ₂
1981 DY ₂	14.5	0.15	19990810	287.52243	97.30434	336.94777	21.85809	0.1326018	2.5452437	57	2	1981–1999	0.67	M-v	4	Williams	36500	1981 DY ₂
1981 DN ₃	15.4	0.15	19990810	28.56341	72.88297	254.60473	5.21907	0.2193338	2.2556466	81	3	1981–1999	0.59	M-v	3	Williams	36873	1981 DN ₃
1981 DR ₃	15.0	0.15	19990810	312.72158	106.66238	287.04599	8.11045	0.1855491	2.5584791	34	2	1981–1999	0.73	M-v	4	Williams	35907	1981 DR ₃
1981 EF ₂	13.6	0.15	19990810	216.91582	325.33631	300.46579	6.49530	0.0316095	2.4274897	65	8	1973–1999	0.81	M-v	1	Williams	33739	1981 EF ₂
1981 EO ₂	13.3	0.15	19990810	132.40100	15.64864	237.31399	8.39264	0.0297022	2.9895646	110	3	1981–1999	0.65	M-v	3	Williams	36873	1981 EO ₂
1981 EP ₂	13.0	0.15	19990810	16.76119	125.77412	214.95317	15.27693	0.1175178	3.0302804	86	3	1981–1999	0.70	M-v	2	Williams	36873	1981 EP ₂
1981 EN ₃	15.1	0.15	19990810	259.23451	309.33547	208.26518	12.30020	0.1966026	2.4921741	23	3	1981–1999	0.83	M-v	3	Williams	36873	1981 EN ₃
1981 ER ₄	13.8	0.15	19990810	304.16610	240.82341	211.91849	10.06244	0.1160553	2.9492823	59	3	1981–1999	0.75	M-v	3	Williams	36785	1981 ER ₄
1981 EU ₄	12.6	0.15	19990810	99.31068	31.32021	261.37188	9.00247	0.0738088	2.9879331	69	3	1981–1999	0.66	M-v	3	Williams	36873	1981 EU ₄

1981 EC ₅	15.6	0.15	19990810	87.93832	74.39761	273.29310	6.13634	0.0590369	2.1815959	24	4	1953–1999	0.95	M-v	2	Williams	32440	1981 EC ₅
1981 EN ₅	14.9	0.15	19990810	310.03807	230.15770	245.02078	5.15920	0.0950512	2.4811255	24	4	1979–1999	0.88	M-v	2	Williams	26558	1981 EN ₅
1981 ET ₅	14.7	0.15	19990810	341.36966	143.71566	213.26413	10.79750	0.0541048	2.5754997	51	3	1981–1999	0.74	M-v	3	Williams	36873	1981 ET ₅
1981 EW ₅	13.9	0.15	19990810	293.66987	189.36846	223.84767	12.62116	0.1508311	2.5520943	85	3	1981–1999	0.68	M-v	3	Williams	36874	1981 EW ₅
1981 EM ₆	14.1	0.15	19990810	346.69858	131.82746	214.76591	13.08296	0.1278449	2.5906900	67	3	1981–1999	0.73	M-v	3	Williams	36874	1981 EM ₆
1981 EN ₇	13.7	0.15	19990810	21.42357	27.83259	329.07140	9.29326	0.0997405	2.9889493	57	3	1981–1999	0.85	M-v	2	Marsden	36874	1981 EN ₇
1981 EB ₈	15.0	0.15	19990810	0.86587	113.60217	319.78737	7.63969	0.1614827	2.4606533	32	3	1981–1999	0.91	M-v	3	Williams	36874	1981 EB ₈
1981 EU ₉	15.0	0.15	19990810	57.34999	87.92931	214.17738	4.49115	0.1836477	2.2498985	130	3	1981–1999	0.68	M-v	2	Williams	36874	1981 EU ₉
1981 EE ₁₀	15.6	0.15	19990810	73.45045	3.48619	297.17817	2.96602	0.1203157	2.2340324	63	3	1981–1999	0.69	M-v	3	Williams	36874	1981 EE ₁₀
1981 EE ₁₁	15.5	0.15	19990810	104.75403	316.17612	320.16998	2.90512	0.1579061	2.2339359	54	5	1979–1999	0.76	M-v	2	Williams	36874	1981 EE ₁₁
1981 EN ₁₃	14.8	0.15	19990810	205.99701	270.65124	261.20341	4.36060	0.0814883	2.2240512	57	2	1981–1999	0.64	M-v	4	Williams	36874	1981 EN ₁₃
1981 EP ₁₄	14.7	0.15	19990810	143.13686	19.40703	228.26918	5.21043	0.1293784	2.2252196	42	2	1981–1999	0.69	M-v	4	Williams	36785	1981 EP ₁₄
1981 EF ₁₆	14.5	0.15	19990810	317.04910	217.05921	197.35607	10.85788	0.1995773	2.5277071	84	3	1981–1999	0.59	M-v	2	Williams	36874	1981 EF ₁₆
1981 EL ₁₈	14.9	0.15	19990810	155.85223	25.02352	210.14606	3.34283	0.1452417	2.5347812	53	4	1981–1999	0.83	M-v	2	Williams	36874	1981 EL ₁₈
1981 EA ₁₉	14.6	0.15	19990810	322.82148	44.90901	7.51018	2.60847	0.1587264	2.5192110	97	4	1981–1999	0.59	M-v	3	Williams	36874	1981 EA ₁₉
1981 EZ ₁₉	15.2	0.15	19990810	80.36906	316.51376	342.48198	3.67859	0.0893095	2.5428571	39	3	1981–1999	0.69	M-v	3	Williams	36874	1981 EZ ₁₉
1981 EN ₂₁	14.0	0.15	19990810	193.02835	54.12233	187.61308	1.79721	0.0144763	2.9047224	75	6	1981–1999	0.80	M-v	1	Williams	34002	1981 EN ₂₁
1981 EN ₂₂	15.4	0.15	19990810	223.68857	193.61549	341.30117	4.41376	0.0603340	2.5159019	30	4	1981–1999	0.85	M-v	4	Williams	31224	1981 EN ₂₂
1981 ET ₂₃	15.3	0.15	19990810	347.43360	356.61046	6.42821	6.23416	0.1980699	2.2393217	106	4	1981–1999	0.66	M-v	2	Williams	36874	1981 ET ₂₃
1981 ER ₂₄	15.1	0.15	19990810	105.78069	81.93522	205.93419	1.76288	0.0940669	2.2186766	25	3	1978–1999	0.81	M-v	4	Williams	36874	1981 ER ₂₄
1981 EP ₂₅	14.3	0.15	19990810	288.66889	277.11967	233.12403	1.49380	0.0905012	2.8946205	26	5	1978–1999	0.90	M-v	2	Williams	32739	1981 EP ₂₅
1981 EK ₂₇	14.6	0.15	19990810	296.66777	73.78592	354.26160	5.39871	0.0843027	2.2267803	109	3	1981–1999	0.75	M-v	3	Williams	36874	1981 EK ₂₇
1981 EP ₂₇	14.1	0.15	19990810	102.51040	156.86446	186.00190	12.49478	0.0415317	2.8964791	39	5	1978–1999	0.86	M-v	2	Williams	34482	1981 EP ₂₇
1981 ET ₂₇	14.2	0.15	19990810	160.34188	85.72565	167.84648	2.21359	0.0298733	2.9461613	31	5	1979–1999	0.76	M-v	2	Williams	36874	1981 ET ₂₇
1981 EY ₂₇	13.9	0.15	19990810	100.10790	301.65668	5.88167	11.78310	0.1838293	2.5264192	55	5	1981–1999	0.76	M-v	2	Williams	33540	1981 EY ₂₇
1981 EQ ₃₀	14.0	0.15	19990810	30.95603	316.98600	1.71000	12.65949	0.2644133	2.5916432	58	3	1981–1999	0.66	M-v	2	Williams	36874	1981 EQ ₃₀
1981 EA ₃₂	15.0	0.15	19990810	340.03064	161.70081	236.74405	10.25419	0.1121953	2.9895505	17	2	1981–1999	0.58	M-v	4	Williams	36786	1981 EA ₃₂
1981 ES ₃₃	14.8	0.15	19990810	35.14913	14.12457	319.93503	6.50625	0.1639061	2.5544881	19	2	1981–1999	0.69	M-v	4	Williams	36502	1981 ES ₃₃
1981 EV ₃₅	14.3	0.15	19990810	97.74032	316.11957	356.22308	17.01986	0.2039858	2.9649934	24	3	1981–1999	0.74	M-v	4	Williams	35678	1981 EV ₃₅
1981 EB ₃₆	15.3	0.15	19990810	326.80373	108.81056	3.95510	2.12842	0.1623922	2.4583068	39	3	1977–1999	0.89	M-v	4	Williams	36874	1981 EB ₃₆
1981 EP ₃₆	14.3	0.15	19990810	44.71276	104.46396	248.65825	8.72306	0.1071275	2.9649025	24	2	1981–1999	0.75	M-v	4	Williams	36786	1981 EP ₃₆
1981 EU ₃₈	14.6	0.15	19990810	107.95358	43.59151	204.24803	3.17116	0.1338652	2.2521175	108	3	1981–1999	0.69	M-v	3	Williams	36874	1981 EU ₃₈
1981 EB ₄₃	15.5	0.15	19990810	147.95063	243.50186	9.21299	1.98303	0.0521297	2.5224716	25	4	1981–1999	0.73	M-v	4	Williams	36874	1981 EB ₄₃
1981 ER ₄₇	14.1	0.15	19990810	14.03137	343.81656	36.19081	2.48129	0.1758944	2.5152373	49	6	1951–1999	0.64	M-v	3	Williams	36874	1981 ER ₄₇
1981 QJ ₂	14.1	0.15	19990810	71.19769	210.67156	152.46252	5.76520	0.1888855	2.2730140	42	4	1957–1999	0.92	M-v	2	Williams	36874	1981 QJ ₂
1981 QK ₃	14.3	0.15	19990810	64.55628	9.79289	344.79036	12.28385	0.1162905	2.6294327	87	5	1981–1999	0.74	M-v	2	Williams	32739	1981 QK ₃
1981 QD ₄	12.8	0.15	19990810	193.44483	281.24309	328.79870	13.70699	0.0552215	2.5805139	15	4	1981–1999	0.30	M-v	1	Williams	33220	1981 QD ₄
1981 RR ₁	15.5	0.15	19990810	352.26877	193.45899	159.75106	10.48069	0.3095608	2.7220655	66	3	1981–1999	0.82	M-v	3	Williams	36325	1981 RR ₁
1981 SE ₇	12.8	0.15	19990810	60.24701	270.68563	67.54477	6.55242	0.1196240	2.6743116	19	3	1981–1999	0.57	M-v	4	Williams	36874	1981 SE ₇
1981 UQ ₂₂	14.6	0.15	19990810	82.50047	166.70497	130.83349	3.64761	0.0845818	2.3427135	26	3	1981–1999	0.73	M-v	4	Williams	32441	1981 UQ ₂₂
1981 UB ₂₃	13.4	0.15	19990810	358.08596	264.25295	129.74370	3.12048	0.1926165	2.7138077	41	4	1963–1999	0.50	M-v	4	Williams	36874	1981 UB ₂₃
1981 UZ ₂₄	14.4	0.15	19990810	101.85888	269.43100	45.51779	8.35842	0.1270578	2.3006517	28	4	1981–1999	0.78	M-v	3	Williams	20630	1981 UZ ₂₄
1982 RR	13.9	0.15	19990810	19.16197	186.66380	174.11161	14.26613	0.3018245	2.5872119	46	5	1982–1999	0.82	M-v	1	Williams	36874	1982 RR
1982 SQ ₇	12.6	0.15	19990810	105.29990	303.72978	353.03070	12.41455	0.1743988	3.0473194	57	4	1982–1999	0.71	M-v	1	Williams	36874	1982 SQ ₇
1982 ST ₇	14.5	0.15	19990810	17.56402	57.20158	332.42171	3.99887	0.2902913	2.5700664	26	4	1982–1999	0.62	M-v	2	Williams	36874	1982 ST ₇
1982 UA ₆	15.1	0.15	19990810	344.33257	35.53710	341.10921	3.91719	0.2932647	2.6316517	64	3	1982–1999	0.55	M-v	2	Williams	36874	1982 UA ₆
1982 UH ₉	14.2	0.15	19990810	5.68286	343.86544	9.36907	7.88318	0.3413213	2.6221384	63	3	1982–1999	0.58	M-v	2	Williams	36874	1982 UH ₉
1982 UE ₁₂	13.4	0.15	19990810	44.95155	84.51335	328.66406	9.79380	0.0210402	2.5166693	89	8	1982–1999	0.71	M-v	2	Williams	36874	1982 UE ₁₂
1982 VU ₂	12.7	0.15	19990810	108.50873	209.24900	54.99750	14.30584	0.1405221	2.6361050	78	3	1982–1999	0.48	M-v	4	Williams	36874	1982 VU ₂
1982 VY ₃	13.7	0.15	19990810	76.36042	198.04334	67.41884	6.53242	0.1354067	2.2913781	61	3	1982–1999	0.59	M-v	2	Williams	36874	1982 VY ₃
1982 VG ₄	15.1	0.15	19990810	221.16098	300.42041	209.15018	3.57036	0.1134986	2.2858776	27	3	1982–1999	0.61	M-v	2	Williams	36786	1982 VG ₄
1983 AA	13.8	0.15	19990810	260.51439	202.52326	295.61281	24.18666	0.2416549	2.2975896	37	3	1983–1999	0.85	M-v	3	Williams	36874	1983 AA
1983 RL	14.7	0.15	19990810	335.26552	29.01974	339.93533	19.07149	0.1177799	1.9192634	140	4	1983–1999	0.58	M-v	2	Williams	36875	1983 RL

1983 RL ₃	14.7	0.15	19990810	337.59486	67.28589	295.14467	3.06729	0.1426988	2.1698527	133	4	1976–1999	0.68	M-v	2	Williams	36875	1983 RL ₃
1983 XE	14.2	0.15	19990810	327.39825	192.52324	237.56104	6.24282	0.1813400	2.5251574	98	6	1951–1999	0.63	M-v	3	Williams	36875	1983 XE
1983 YK	12.7	0.15	19990810	190.52143	355.97623	161.14775	9.92072	0.0331575	3.2369323	53	3	1983–1999	0.62	M-v	3	Williams	36502	1983 YK
1984 CE	14.4	0.15	19990810	352.41368	292.76910	107.33694	13.31196	0.2440182	2.5662602	31	3	1984–1999	0.59	M-v	3	Williams	36875	1984 CE
1984 EQ	12.6	0.15	19990810	10.32463	96.36207	346.58568	13.66753	0.1857230	3.0717605	28	4	1984–1999	0.75	M-v	2	Williams	36875	1984 EQ
1984 SZ ₅	14.6	0.15	19990810	140.62823	273.74188	13.34402	8.22419	0.2399712	2.3027570	112	5	1984–1999	0.69	M-v	2	Williams	33333	1984 SZ ₅
1984 UR	13.6	0.15	19990810	75.75339	306.80613	48.62695	7.23968	0.1835760	2.3330522	32	5	1984–1999	0.86	M-v	2	Williams	33740	1984 UR
1985 CD ₂	13.7	0.15	19990810	218.76202	284.31216	281.27760	0.56184	0.1930966	3.0456140	56	3	1985–1999	0.50	M-v	4	Williams	32918	1985 CD ₂
1985 PC	13.9	0.15	19990810	104.33296	86.86277	184.73225	3.22509	0.1102834	2.2429379	104	3	1985–1999	0.56	M-v	3	Williams	36875	1985 PC
1985 PH	13.8	0.15	19990810	349.30691	67.86749	316.67959	12.49717	0.2820947	2.7496431	40	3	1985–1999	0.59	M-v	3	Williams	36875	1985 PH
1985 PB ₂	13.0	0.15	19990810	110.19167	213.13150	145.61945	14.10090	0.2003839	2.5937619	32	5	1983–1999	0.70	M-v	2	Williams	34003	1985 PB ₂
1985 RP	14.6	0.15	19990810	337.61881	226.03031	166.92811	8.00975	0.2301077	2.2930603	55	5	1978–1999	0.70	M-v	3	Williams	36875	1985 RP
1985 RF ₃	14.1	0.15	19990810	86.72670	213.65023	122.72856	6.03251	0.2496327	2.6461091	49	5	1985–1999	0.70	M-v	2	Williams	35679	1985 RF ₃
1985 TS	14.3	0.15	19990810	4.77993	359.49008	5.41006	3.78908	0.1247816	2.2945706	94	5	1978–1999	0.58	M-v	3	Williams	36875	1985 TS
1985 UJ ₃	14.4	0.15	19990810	4.30584	222.22746	107.86197	1.26900	0.2413372	2.3174507	139	5	1978–1999	0.71	M-v	2	Williams	36875	1985 UJ ₃
1986 PY	14.9	0.15	19990810	353.52720	195.44642	146.20016	7.97703	0.2470695	2.1886924	110	3	1986–1999	0.66	M-v	2	Williams	36875	1986 PY
1986 PL ₁	12.8	0.15	19990810	100.26276	183.64704	128.33551	6.30126	0.1515197	3.2112888	68	3	1986–1999	0.80	M-v	4	Williams	36875	1986 PL ₁
1986 QY ₂	13.3	0.15	19990810	352.93166	190.91736	147.92169	15.42815	0.2258133	2.6577557	114	3	1986–1999	0.59	M-v	2	Williams	36503	1986 QY ₂
1986 TR	13.7	0.15	19990810	357.64047	89.67776	251.54508	9.76457	0.3055697	2.6712550	119	3	1986–1999	0.51	M-v	2	Williams	36875	1986 TR
1986 TG ₁	13.4	0.15	19990810	67.40002	357.39168	359.09461	14.94007	0.1265522	2.5644115	50	5	1986–1999	0.56	M-v	2	Williams	33541	1986 TG ₁
1986 TV ₆	13.5	0.15	19990810	106.59093	355.96996	325.85398	7.44341	0.1904710	2.5568729	85	4	1986–1999	0.67	M-v	2	Marsden	36875	1986 TV ₆
1986 WZ	13.8	0.15	19990810	346.02897	129.50840	256.16637	2.66058	0.1174539	2.6928258	43	3	1986–1999	0.80	M-v	4	Williams	36875	1986 WZ
1987 BF	14.3	0.15	19990810	139.01733	301.74499	293.41502	5.06860	0.1280215	2.2803127	43	3	1987–1999	0.84	M-v	4	Williams	36875	1987 BF
1987 CH	14.4	0.15	19990810	309.06827	351.67398	147.31697	5.43018	0.0747061	2.2030182	60	3	1987–1999	0.76	M-v	3	Williams	36875	1987 CH
1987 QS ₅	13.5	0.15	19990810	58.60851	29.10098	333.54353	10.52997	0.1368077	3.0800506	88	4	1987–1999	0.70	M-v	2	Williams	35679	1987 QS ₅
1987 RR	13.1	0.15	19990810	48.93716	208.82481	156.61041	12.88198	0.1882876	3.1054449	99	3	1987–1999	0.70	M-v	2	Williams	36503	1987 RR
1987 RG ₁	13.5	0.15	19990810	54.21023	347.85524	348.81740	1.22940	0.1859685	2.4367871	49	5	1987–1999	0.70	M-v	1	Williams	32300	1987 RG ₁
1987 SJ ₂	14.4	0.15	19990810	108.52815	171.18140	140.00975	2.70037	0.1770673	2.3990923	69	4	1972–1999	0.69	M-v	2	Williams	33541	1987 SJ ₂
1987 SL ₃	12.4	0.15	19990810	349.46877	88.10238	317.85681	9.96404	0.0923300	3.1711105	67	4	1982–1999	0.61	M-v	2	Williams	36875	1987 SL ₃
1987 SO ₅	12.7	0.15	19990810	77.16704	31.17606	354.88109	8.36057	0.0157114	3.0319966	25	4	1982–1999	0.64	M-v	2	Williams	34004	1987 SO ₅
1987 VG	14.2	0.15	19990810	19.40806	27.12678	350.29370	5.10112	0.1986323	2.4842083	14	5	1977–1999	1.09	M-v	3	Williams	30447	1987 VG
1987 XC	13.7	0.15	19990810	359.54350	285.18121	55.51570	16.52253	0.2655360	2.5576050	67	6	1987–1999	0.77	M-v	2	Williams	36875	1987 XC
1988 BG	12.3	0.15	19990810	301.89931	126.61792	293.38885	12.35309	0.1612216	2.6233828	48	2	1988–1999	0.80	M-v	4	Williams	36786	1988 BG
1988 BO ₃	14.0	0.15	19990810	297.06080	263.77661	195.05976	8.30588	0.1260730	2.5775441	52	2	1988–1999	0.62	M-v	4	Williams	36875	1988 BO ₃
1988 BY ₃	14.1	0.15	19990810	342.45767	297.84366	164.22023	6.98962	0.1095603	2.5156116	69	7	1978–1999	0.71	M-v	3	Williams	36875	1988 BY ₃
1988 BM ₄	14.2	0.15	19990810	294.97250	182.23425	249.46061	4.10023	0.2034628	2.6195406	75	2	1988–1999	0.52	M-v	4	Williams	36875	1988 BM ₄
1988 BF ₅	14.1	0.15	19990810	186.94873	329.87769	243.99391	10.68599	0.1356669	2.6654290	54	3	1988–1999	0.71	M-v	2	Williams	36875	1988 BF ₅
1988 BG ₅	14.2	0.15	19990810	127.42495	36.00494	240.70380	12.56493	0.1460332	2.6678298	40	3	1988–1999	0.66	M-v	3	Williams	36875	1988 BG ₅
1988 BH ₅	13.4	0.15	19990810	265.57704	268.38322	264.91490	11.61752	0.1161100	2.5801277	46	7	1984–1999	0.78	M-v	2	Williams	36875	1988 BH ₅
1988 BJ ₅	13.4	0.15	19990810	217.10146	226.38071	281.20211	12.04088	0.0643180	2.7122392	52	2	1988–1999	0.53	M-v	3	Williams	36875	1988 BJ ₅
1988 CF	14.2	0.15	19990810	279.14623	149.62503	356.74270	5.38329	0.2271953	2.5775031	40	4	1988–1999	0.96	M-v	3	Williams	36503	1988 CF
1988 CO ₇	15.3	0.15	19990810	1.82283	288.63639	88.73422	1.06177	0.0672418	2.1212774	108	4	1988–1999	0.60	M-v	3	Williams	36875	1988 CO ₇
1988 DE	13.2	0.15	19990810	263.99042	174.10235	352.92404	13.27897	0.0968303	2.5814482	65	4	1988–1999	0.72	M-v	2	Williams	36875	1988 DE
1988 FM	13.4	0.15	19990810	258.96498	183.28314	15.19410	13.72550	0.1146548	2.5618937	76	8	1951–1999	0.74	M-v	2	Williams	34283	1988 FM
1988 FD ₃	14.4	0.15	19990810	139.58999	269.33999	327.94375	4.22231	0.0989770	2.1924709	73	3	1988–1999	0.64	M-v	3	Williams	36875	1988 FD ₃
1988 GF	12.7	0.15	19990810	196.90693	49.83904	227.23732	13.34171	0.1767991	2.5940816	42	5	1988–1999	0.71	M-v	2	Williams	34283	1988 GF
1988 GQ	13.2	0.15	19990810	226.61093	102.84212	121.81113	11.71467	0.2397572	2.6059822	27	4	1988–1999	0.67	M-v	3	Williams	33067	1988 GQ
1988 PE	14.3	0.15	19990810	52.41139	321.53527	388.36929	9.18917	0.2643961	2.3149261	66	3	1988–1999	0.64	M-v	2	Williams	36503	1988 PE
1988 PV ₁	14.5	0.15	19990810	33.81645	80.07070	289.26002	4.57433	0.1674796	2.2912933	21	3	1988–1999	0.78	M-v	5	Williams	22079	1988 PV ₁
1988 PW ₂	13.9	0.15	19990810	117.72848	80.65744	176.17572	10.59270	0.0302619	2.9927992	39	3	1988–1999	0.70	M-v	3	Williams	36875	1988 PW ₂
1988 QF	15.2	0.15	19990810	314.42913	229.59749	156.71036	23.87579	0.0945994	1.9615378	96	3	1988–1999	0.49	M-v	2	Williams	36875	1988 QF
1988 QZ	15.4	0.15	19990810	349.04874	9.00024	336.06946	12.54660	0.3403449	2.3867978	78	2	1988–1999	0.54	M-v	2	Williams	36875	1988 QZ
1988 RT ₃	15.6	0.15	19990810	333.13458	11.20527	7.67278	2.46072	0.2304321	2.3836281	65	3	1988–1999	0.69	M-v	2	Williams	36875	1988 RT ₃

1988 RY ₃	14.2	0.15	19990810	350.24429	174.45872	172.04220	1.37607	0.1945257	3.1472668	63	2	1988–1999	0.56	M-v	4	Williams	36326	1988 RY ₃
1988 RF ₄	14.8	0.15	19990810	79.18719	336.61392	341.95611	4.72180	0.1748126	2.2736773	39	4	1988–1999	0.91	M-v	3	Williams	29656	1988 RF ₄
1988 RP ₄	13.8	0.15	19990810	285.42243	96.16044	333.91482	5.20566	0.1213812	2.3661739	100	3	1988–1999	0.72	M-v	3	Williams	36875	1988 RP ₄
1988 RZ ₅	14.3	0.15	19990810	2.29642	166.15756	170.80287	3.37013	0.1137761	2.3636679	170	4	1988–1999	0.70	M-v	2	Williams	36875	1988 RZ ₅
1988 RH ₆	14.4	0.15	19990810	63.39856	52.24221	318.79409	7.00631	0.1305934	2.2449402	32	2	1998–1999	0.54	M-v	4	Williams	36875	1988 RH ₆
1988 RO ₆	14.2	0.15	19990810	327.25797	32.53150	350.02265	6.21093	0.1343944	2.3586115	130	2	1988–1999	0.54	M-v	3	Williams	36875	1988 RO ₆
1988 RL ₉	13.6	0.15	19990810	62.17284	62.90589	328.11859	5.11882	0.1061850	2.2132048	83	4	1988–1999	0.73	M-v	2	Williams	34284	1988 RL ₉
1988 RU ₉	13.2	0.15	19990810	297.58500	244.49743	167.69699	15.62353	0.0880770	3.1112161	75	2	1988–1999	0.53	M-v	4	Williams	36875	1988 RU ₉
1988 RL ₁₂	14.4	0.15	19990810	336.43973	195.97534	203.62655	0.38233	0.1820584	3.0765961	61	2	1988–1999	0.65	M-v	4	Williams	36876	1988 RL ₁₂
1988 RF ₁₃	14.2	0.15	19990810	172.52428	270.81067	31.42468	17.12129	0.1442744	2.7534205	38	5	1988–1999	0.56	M-v	2	Williams	34005	1988 RF ₁₃
1988 TR ₂	13.0	0.15	19990810	350.29679	38.30317	26.47826	15.61096	0.2706025	3.0456269	56	3	1988–1999	0.81	M-v	2	Williams	36876	1988 TR ₂
1988 UF	12.6	0.15	19990810	49.28014	325.62963	24.70484	11.02345	0.1196136	3.0313105	41	4	1988–1999	0.95	M-v	3	Williams	36504	1988 UF
1988 VA	14.2	0.15	19990810	301.27502	182.33321	219.03229	11.83425	0.1966811	2.4309300	62	3	1988–1999	0.73	M-v	3	Williams	36876	1988 VA
1988 VV	14.5	0.15	19990810	355.81683	177.95762	225.20435	4.17937	0.1469103	2.3477703	59	3	1988–1999	0.81	M-v	2	Williams	36876	1988 VV
1988 VC ₂	13.3	0.15	19990810	343.84064	341.51497	46.56073	6.06345	0.1818243	3.1542670	106	3	1988–1999	0.66	M-v	3	Williams	36876	1988 VC ₂
1988 VH ₂	13.7	0.15	19990810	343.90052	289.88415	75.51095	9.55977	0.2157618	2.4161967	56	3	1988–1999	0.73	M-v	3	Williams	36876	1988 VH ₂
1988 VL ₂	13.1	0.15	19990810	268.75584	222.04850	236.29527	10.45066	0.0962836	2.4236167	99	4	1988–1999	0.74	M-v	2	Williams	36876	1988 VL ₂
1988 VX ₂	12.4	0.15	19990810	51.47739	87.59563	223.15120	14.17705	0.0819036	3.1700415	82	4	1988–1999	0.59	M-v	2	Williams	36876	1988 VX ₂
1988 VA ₅	14.8	0.15	19990810	43.93850	324.98108	35.16080	1.93941	0.2222034	2.3262913	49	4	1977–1999	0.80	M-v	2	Williams	26579	1988 VA ₅
1988 XT ₁	12.5	0.15	19990810	19.28520	6.77394	41.76541	18.03089	0.3018195	3.0511944	35	4	1988–1999	0.71	M-v	1	Williams	36876	1988 XT ₁
1988 XV ₁	12.1	0.15	19990810	20.45176	301.29600	73.14743	19.34656	0.2389698	3.1118403	23	2	1988–1999	0.70	M-v	4	Williams	36786	1988 XV ₁
1988 XY ₄	12.6	0.15	19990810	78.02176	296.04620	65.63021	10.36955	0.0935227	2.9851702	28	3	1988–1999	0.43	M-v	3	Williams	36504	1988 XY ₄
1989 AN ₅	13.8	0.15	19990810	49.79951	281.41147	129.24973	9.94013	0.1165369	3.0687299	36	4	1989–1999	0.65	M-v	1	Williams	33542	1989 AN ₅
1989 AJ ₆	14.0	0.15	19990810	196.41385	285.47746	318.08599	5.71277	0.1009334	2.3964204	82	4	1989–1999	0.76	M-v	1	Williams	33334	1989 AJ ₆
1989 BZ	12.9	0.15	19990810	96.70972	232.27356	330.40880	12.20412	0.0997176	2.6450867	72	4	1987–1999	0.73	M-v	2	Williams	36504	1989 BZ
1989 CP ₂	13.9	0.15	19990810	114.86076	336.81972	273.66807	8.77711	0.1609377	2.5486908	53	3	1989–1999	0.61	M-v	4	Williams	36876	1989 CP ₂
1989 DB	13.7	0.15	19990810	288.02742	150.81118	35.40408	3.33376	0.1737542	2.3727264	68	4	1978–1999	0.83	M-v	3	Williams	36876	1989 DB
1989 GM ₁	13.1	0.15	19990810	31.82905	130.47693	219.54172	11.78287	0.2088143	2.6109356	32	3	1989–1999	0.70	M-v	2	Williams	36787	1989 GM ₁
1989 GN ₃	13.3	0.15	19990810	332.44566	306.32539	186.86121	12.13720	0.1859637	3.1936033	33	3	1989–1999	0.83	M-v	3	Williams	34005	1989 GN ₃
1989 GJ ₄	13.8	0.15	19990810	217.33783	286.21450	237.23842	3.74668	0.1140929	2.5565624	109	4	1989–1999	0.60	M-v	1	Williams	36876	1989 GJ ₄
1989 RX	12.7	0.15	19990810	68.65383	131.51748	237.14782	7.16978	0.2003487	2.6889590	60	3	1989–1999	0.68	M-v	2	Williams	36876	1989 RX
1989 SR	12.8	0.15	19990810	326.31548	130.50822	240.15854	8.88496	0.0985024	2.9874347	88	4	1989–1999	0.70	M-v	3	Williams	36876	1989 SR
1989 SB ₁	14.1	0.15	19990810	251.74571	120.34751	355.40033	6.40039	0.0910769	2.2419110	89	2	1989–1999	0.64	M-v	4	Williams	36876	1989 SB ₁
1989 SM ₁	14.6	0.15	19990810	357.70125	238.73225	135.77244	3.53934	0.1695465	2.9034916	26	2	1989–1999	0.67	M-v	5	Williams	36787	1989 SM ₁
1989 SZ ₄	14.4	0.15	19990810	327.19450	22.80959	55.25604	3.70825	0.0710011	2.1834996	36	3	1989–1999	0.58	M-v	2	Williams	36876	1989 SZ ₄
1989 SQ ₅	16.6	0.15	19990810	351.62782	189.70718	174.46580	5.57185	0.1878915	2.2334744	30	2	1989–1999	0.80	M-v	4	Williams	36787	1989 SQ ₅
1989 TH ₁	13.1	0.15	19990810	68.02084	45.64200	344.10070	8.20857	0.2917918	2.7164427	78	5	1962–1999	0.86	M-v	2	Williams	34284	1989 TH ₁
1989 TR ₂	12.2	0.15	19990810	313.53451	29.03502	51.95904	13.83843	0.1298237	2.9053201	68	2	1989–1999	0.45	M-v	3	Williams	36876	1989 TR ₂
1989 TU ₃	13.9	0.15	19990810	0.16863	279.43178	172.25693	4.87287	0.0408866	2.7245604	46	4	1989–1999	0.66	M-v	1	Williams	34284	1989 TU ₃
1989 TB ₅	13.8	0.15	19990810	188.13941	112.23869	164.93185	6.51114	0.0409240	2.6747075	48	5	1989–1999	1.01	M-v	1	Williams	35681	1989 TB ₅
1989 TN ₁₅	15.3	0.15	19990810	327.08409	32.62082	345.78700	2.98535	0.1538289	2.2470082	74	3	1989–1999	0.58	M-v	2	Williams	36876	1989 TN ₁₅
1989 TN ₁₆	14.6	0.15	19990810	211.12528	325.50111	190.63825	2.28683	0.0812571	2.2228038	100	4	1989–1999	0.53	M-v	1	Williams	36876	1989 TN ₁₆
1989 UN	14.0	0.15	19990810	38.51279	6.31898	13.12556	3.48008	0.1241389	2.1634950	42	3	1989–1999	0.79	M-v	4	Williams	36876	1989 UN
1989 UA ₁	14.6	0.15	19990810	9.39131	0.51074	4.44131	5.26804	0.1863470	2.2075618	38	3	1989–1999	0.77	M-v	3	Williams	36876	1989 UA ₁
1989 WA ₁	13.7	0.15	19990810	252.09714	59.74229	69.74195	9.87661	0.0638260	2.2560885	23	4	1967–1999	0.68	M-v	3	Williams	36787	1989 WA ₁
1989 WB ₃	13.4	0.15	19990810	29.71039	279.93384	67.99299	10.45726	0.0564956	2.9925504	77	4	1989–1999	0.65	M-v	3	Williams	36876	1989 WB ₃
1989 XW ₁	13.8	0.15	19990810	296.79643	242.56170	169.43870	9.90639	0.1093761	3.0379675	63	2	1989–1999	0.82	M-v	4	Williams	36505	1989 XW ₁
1989 YO ₃	14.4	0.15	19990810	152.22806	150.71251	72.47064	1.35541	0.0658274	2.3375550	27	2	1989–1999	0.55	M-v	5	Williams	36787	1989 YO ₃
1989 YA ₅	12.6	0.15	19990810	201.88825	234.32920	300.80981	19.63830	0.1399390	3.1296884	38	5	1989–1999	0.71	M-v	1	Williams	36505	1989 YA ₅
1989 YC ₆	15.0	0.15	19990810	348.02925	223.24977	160.34751	5.65431	0.1711108	2.2804434	62	4	1989–1999	0.59	M-v	2	Williams	36876	1989 YC ₆
1989 YE ₆	14.2	0.15	19990810	315.38038	193.29941	256.27828	7.36982	0.0778168	2.2563209	51	3	1989–1999	0.68	M-v	3	Williams	36876	1989 YE ₆
1990 BO	11.5	0.15	19990810	329.48462	89.57569	305.17766	15.69731	0.1055716	3.1853391	111	3	1990–1999	0.59	M-v	3	Williams	36876	1990 BO
1990 BA ₂	12.7	0.15	19990810	291.30592	189.92491	302.24017	10.52439	0.1464562	3.0441381	55	3	1990–1999	0.75	M-v	3	Williams	36876	1990 BA ₂

1990 BC ₂	13.8	0.15	19990810	159.87913	313.70530	203.80615	5.98111	0.0693160	2.4280035	114	4	1990–1999	0.62	M-v	2	Williams	36876	1990 BC ₂
1990 CE	14.9	0.15	19990810	274.85882	334.78601	160.27023	5.38008	0.0952227	2.2795641	26	4	1990–1999	0.60	M-v	2	Williams	36876	1990 CE
1990 DW	12.7	0.15	19990810	285.44496	98.48413	331.71508	6.39504	0.0589545	2.3895565	68	2	1990–1999	0.62	M-v	4	Williams	36876	1990 DW
1990 DZ	13.1	0.15	19990810	290.59228	218.78493	338.00449	9.58979	0.1723214	2.9374061	22	4	1990–1999	0.60	M-v	3	Williams	36876	1990 DZ
1990 DU ₄	14.4	0.15	19990810	287.30355	269.63383	186.80626	2.63703	0.1443045	2.3390122	22	3	1990–1999	0.71	M-v	3	Williams	36876	1990 DU ₄
1990 EJ	12.5	0.15	19990810	236.27359	213.17823	345.77806	8.84890	0.1544967	3.1062423	51	3	1990–1999	0.75	M-v	3	Williams	36505	1990 EJ
1990 EV ₁	14.0	0.15	19990810	231.40688	329.58881	189.06205	9.16691	0.1325075	2.3488546	33	2	1990–1999	0.64	M-v	4	Williams	36787	1990 EV ₁
1990 EN ₃	14.7	0.15	19990810	210.78172	38.78992	210.16679	5.16109	0.0882504	2.2577882	43	5	1990–1999	0.84	M-v	2	Williams	35681	1990 EN ₃
1990 EN ₄	13.4	0.15	19990810	341.95018	147.64229	337.36622	7.98127	0.0338041	2.9818453	37	5	1990–1999	0.71	M-v	2	Williams	36876	1990 EN ₄
1990 FD ₃	12.1	0.15	19990810	155.30674	99.11747	158.50325	15.67729	0.0357237	3.1467396	49	3	1990–1999	0.71	M-v	3	Williams	36876	1990 FD ₃
1990 GD	14.3	0.15	19990810	102.50984	252.96138	351.20791	7.49758	0.1042061	2.4492288	71	3	1990–1999	0.49	M-v	2	Williams	36877	1990 GD
1990 GN	14.8	0.15	19990810	230.10992	174.40471	357.57039	1.70880	0.1619123	2.3358172	81	6	1976–1999	0.64	M-v	3	Williams	36877	1990 GN
1990 HE	14.3	0.15	19990810	86.18135	255.90018	35.61339	24.80316	0.1150770	1.9412337	45	3	1990–1999	0.70	M-v	2	Williams	36877	1990 HE
1990 HP	14.9	0.15	19990810	157.40232	188.07476	32.22902	21.55670	0.0504844	1.9410854	92	5	1980–1999	0.59	M-v	2	Williams	36877	1990 HP
1990 OZ	14.0	0.15	19990810	43.58131	94.12207	182.22407	12.81912	0.1584623	2.6804306	96	3	1990–1999	0.65	M-v	2	Williams	36877	1990 OZ
1990 OB ₄	13.7	0.15	19990810	11.91819	84.95995	271.66038	11.47735	0.2474735	2.6478369	55	4	1990–1999	0.63	M-v	1	Williams	36877	1990 OB ₄
1990 OG ₄	14.0	0.15	19990810	346.84967	84.34633	266.85041	11.05322	0.2850691	2.6965402	104	2	1990–1999	0.61	M-v	2	Williams	36877	1990 OG ₄
1990 OS ₄	13.2	0.15	19990810	236.28881	235.05240	269.45400	14.03691	0.0540272	2.5605486	55	4	1989–1999	0.58	M-v	1	Williams	36877	1990 OS ₄
1990 OB ₅	13.1	0.15	19990810	0.39819	66.96773	259.68989	11.75733	0.1884791	2.6872376	104	3	1990–1999	0.49	M-v	2	Williams	36877	1990 OB ₅
1990 QE	13.8	0.15	19990810	50.78910	48.97668	308.11091	16.74700	0.2423048	2.5659664	28	5	1990–1999	0.76	M-v	2	Williams	32512	1990 QE
1990 QY ₅	13.9	0.15	19990810	358.45621	26.27629	332.80607	12.53902	0.1883041	2.6826382	69	2	1990–1999	0.62	M-v	3	Williams	36877	1990 QY ₅
1990 QE ₇	14.2	0.15	19990810	333.43983	319.38919	142.95766	2.13641	0.1209933	2.5343338	87	5	1990–1999	0.70	M-v	2	Williams	36877	1990 QE ₇
1990 QO ₈	14.3	0.15	19990810	351.78827	96.91646	341.71572	12.17445	0.1434327	2.5388874	58	5	1980–1999	0.81	M-v	2	Williams	34490	1990 QO ₈
1990 QP ₈	14.4	0.15	19990810	3.52207	75.20320	335.04649	0.65737	0.0948651	2.5623517	38	4	1978–1999	0.44	M-v	2	Williams	36877	1990 QP ₈
1990 QW ₉	14.0	0.15	19990810	91.91582	104.28575	171.18539	11.28793	0.2835481	2.5985730	52	4	1990–1999	0.72	M-v	2	Williams	36505	1990 QW ₉
1990 QB ₁₉	15.0	0.15	19990810	86.90967	10.83125	314.08538	2.96460	0.2654344	2.5487744	40	4	1990–1999	0.82	M-v	2	Williams	32742	1990 QB ₁₉
1990 RT ₂	13.2	0.15	19990810	352.61327	15.42430	356.85341	12.02703	0.1724202	2.7001425	83	5	1981–1999	0.53	M-v	2	Williams	36877	1990 RT ₂
1990 RO ₇	14.7	0.15	19990810	65.18210	190.39903	162.08943	3.26187	0.0455387	2.5536519	53	4	1990–1999	0.69	M-v	3	Williams	33335	1990 RO ₇
1990 RN ₈	14.4	0.15	19990810	323.62840	220.70420	168.38587	3.09443	0.0898457	2.7099489	75	3	1990–1999	0.60	M-v	2	Williams	36877	1990 RN ₈
1990 RF ₁₇	13.3	0.15	19990810	12.89234	225.87568	193.21244	13.44720	0.1607155	2.5745407	50	4	1986–1999	0.68	M-v	2	Williams	36877	1990 RF ₁₇
1990 SY	13.3	0.15	19990810	86.78712	337.63311	330.98869	8.41444	0.1861732	2.5935804	45	5	1990–1999	0.92	M-v	2	Williams	36506	1990 SY
1990 SE ₁	14.2	0.15	19990810	124.70457	304.58357	346.58082	13.02820	0.1736136	2.5470483	27	3	1990–1999	0.68	M-v	3	Williams	35682	1990 SE ₁
1990 SS ₃	13.6	0.15	19990810	353.98935	34.80241	2.56462	11.36505	0.3119887	2.6762807	31	4	1933–1999	0.58	M-v	1	Williams	36877	1990 SS ₃
1990 SX ₃	13.4	0.15	19990810	49.34732	60.17956	308.31475	12.31876	0.2180978	2.5849565	47	3	1990–1999	0.51	M-v	2	Williams	36877	1990 SX ₃
1990 SY ₃	13.3	0.15	19990810	19.90092	85.58602	275.20010	11.10189	0.2007895	2.6675627	28	3	1990–1999	0.45	M-v	3	Williams	36877	1990 SY ₃
1990 SE ₄	13.4	0.15	19990810	238.04472	278.28621	213.55666	1.23911	0.0071875	2.7028757	59	3	1990–1999	0.56	M-v	4	Williams	36788	1990 SE ₄
1990 SE ₅	12.8	0.15	19990810	55.74221	291.54994	52.37165	4.49225	0.1751166	3.9920085	51	3	1990–1999	0.60	M-v	4	Williams	36877	1990 SE ₅
1990 SX ₆	14.9	0.15	19990810	119.14198	214.34705	94.85595	4.53228	0.1361105	2.5248749	45	3	1990–1999	0.79	M-v	4	Williams	35682	1990 SX ₆
1990 SN ₈	13.4	0.15	19990810	177.44569	143.07024	59.94454	4.13580	0.0380749	2.6519833	51	3	1990–1999	0.45	M-v	3	Williams	36877	1990 SN ₈
1990 SO ₈	15.2	0.15	19990810	322.45254	275.48685	129.79241	5.09109	0.2382326	2.7241123	37	2	1990–1999	0.58	M-v	5	Williams	36506	1990 SO ₈
1990 SQ ₈	15.0	0.15	19990810	6.58754	305.96247	116.94614	5.43129	0.2913380	2.6000403	32	5	1990–1999	0.57	M-v	1	Williams	36877	1990 SQ ₈
1990 SW ₈	13.8	0.15	19990810	321.20717	206.02237	160.69068	12.06225	0.1358811	2.7885336	66	3	1990–1999	0.64	M-v	3	Williams	36877	1990 SW ₈
1990 SX ₈	12.8	0.15	19990810	256.45623	282.20050	168.51674	17.26184	0.1058839	2.7696084	73	4	1985–1999	0.62	M-v	2	Williams	36877	1990 SX ₈
1990 ST ₁₅	13.4	0.15	19990810	225.66015	309.06736	311.99698	6.22007	0.0879161	2.3741932	41	5	1989–1999	0.69	M-v	1	Williams	33544	1990 ST ₁₅
1990 SU ₁₅	14.1	0.15	19990810	13.29332	142.56289	179.14589	12.52227	0.2194809	2.7031128	115	3	1990–1999	0.68	M-v	2	Williams	36877	1990 SU ₁₅
1990 TT	13.5	0.15	19990810	319.64466	24.00958	12.46618	8.50878	0.0587370	2.7678483	67	4	1986–1999	0.63	M-v	2	Williams	36877	1990 TT
1990 TZ ₁	13.7	0.15	19990810	350.87562	95.65021	279.28748	2.27813	0.0884213	2.7219754	115	3	1990–1999	0.53	M-v	3	Williams	36877	1990 TZ ₁
1990 TG ₂	14.1	0.15	19990810	325.75217	27.20605	9.79131	12.90120	0.1933590	2.7473046	21	2	1990–1999	0.33	M-v	3	Williams	36788	1990 TG ₂
1990 TF ₆	14.6	0.15	19990810	319.64663	87.48709	328.59605	8.79178	0.3429766	2.7201756	35	2	1990–1999	0.53	M-v	3	Williams	36877	1990 TF ₆
1990 TD ₁₂	14.5	0.15	19990810	329.81837	172.03622	252.29271	2.89956	0.1998827	2.6846134	77	4	1985–1999	0.45	M-v	1	Williams	36877	1990 TD ₁₂
1990 TW ₁₂	13.8	0.15	19990810	357.26906	15.87502	39.08260	13.73563	0.1721726	2.6876844	25	4	1990–1999	0.75	M-v	2	Williams	36877	1990 TW ₁₂
1990 TJ ₁₅	13.3	0.15	19990810	332.89809	69.93354	307.65988	8.07904	0.1776721	2.7749541	69	2	1990–1999	0.64	M-v	4	Williams	36877	1990 TJ ₁₅
1990 UM	13.9	0.15	19990810	335.61710	305.74635	70.65156	10.93788	0.3163970	2.7596512	40	3	1990–1999	0.80	M-v	2	Williams	36788	1990 UM

1990 UA ₁	12.3	0.15	19990810	321.07040	220.26210	236.76152	12.07919	0.1276710	2.6735317	65	3	1990–1999	0.61	M-v	3	Williams	36877	1990 UA ₁
1990 UO ₄	14.0	0.15	19990810	24.52232	133.79249	188.79664	12.08768	0.1420553	2.7745020	86	3	1990–1999	0.64	M-v	2	Williams	36877	1990 UO ₄
1990 UG ₅	15.2	0.15	19990810	331.42476	205.62281	184.17840	8.70398	0.1571500	2.7742522	69	4	1990–1999	0.66	M-v	2	Williams	36506	1990 UG ₅
1990 UK ₅	14.7	0.15	19990810	25.74838	301.42235	112.73338	6.01934	0.2290234	2.5983072	23	3	1990–1999	0.81	M-v	3	Williams	34286	1990 UK ₅
1990 VE	12.9	0.15	19990810	326.00469	345.25467	70.57481	6.92942	0.1813185	2.7635032	68	2	1990–1999	0.58	M-v	4	Williams	36877	1990 VE
1990 VN ₁	13.5	0.15	19990810	37.30892	346.29356	46.02173	8.73637	0.1159253	2.6233448	35	5	1977–1999	0.88	M-v	2	Williams	33336	1990 VN ₁
1990 VM ₂	13.8	0.15	19990810	19.27435	285.14801	103.09295	4.65062	0.1979268	2.6707296	45	3	1990–1999	0.62	M-v	2	Williams	36506	1990 VM ₂
1990 VV ₂	12.9	0.15	19990810	327.77126	176.57521	227.13677	8.60421	0.1586968	2.7681251	38	2	1990–1999	0.69	M-v	4	Williams	36788	1990 VV ₂
1990 VM ₃	14.1	0.15	19990810	56.43437	291.43166	78.23075	18.01901	0.2984788	2.5997694	38	5	1990–1999	0.59	M-v	1	Williams	35682	1990 VM ₃
1990 VD ₈	14.1	0.15	19990810	11.16321	85.47092	290.16560	3.43159	0.2822701	2.6851374	19	2	1990–1999	0.70	M-v	4	Williams	36788	1990 VD ₈
1990 VF ₈	13.6	0.15	19990810	11.57628	328.22306	25.08179	8.33248	0.1813203	2.7376895	91	4	1990–1999	0.52	M-v	1	Williams	36877	1990 VF ₈
1990 VU ₈	13.3	0.15	19990810	27.99677	188.29874	131.18466	9.85455	0.1442483	2.7919702	63	3	1990–1999	0.57	M-v	2	Williams	36506	1990 VU ₈
1990 WZ	13.9	0.15	19990810	296.20547	244.90338	190.63205	8.91563	0.0579211	2.7934117	80	4	1990–1999	0.49	M-v	3	Williams	36877	1990 WZ
1990 WP ₁	14.3	0.15	19990810	353.63894	255.15391	101.25815	10.19859	0.1700679	2.7982664	39	3	1990–1999	0.83	M-v	3	Williams	36877	1990 WP ₁
1990 WS ₁	13.3	0.15	19990810	253.02414	324.43852	206.18452	12.48812	0.1185559	2.6855853	53	3	1990–1999	0.61	M-v	3	Williams	36877	1990 WS ₁
1990 WU ₁	14.4	0.15	19990810	335.82833	193.74663	183.36707	8.45027	0.2335614	2.7941616	80	3	1990–1999	0.43	M-v	2	Williams	36877	1990 WU ₁
1990 YP	14.2	0.15	19990810	319.40552	175.29129	303.02082	13.31192	0.2645675	2.7553505	30	3	1990–1999	0.70	M-v	3	Williams	32446	1990 YP
1991 BZ	13.8	0.15	19990810	335.05664	126.78870	289.00209	5.99173	0.2459003	2.8088931	69	3	1980–1999	0.63	M-v	2	Williams	36878	1991 BZ
1991 CL	12.4	0.15	19990810	277.22007	50.38231	128.66241	13.92915	0.1573643	2.7648920	40	5	1989–1999	0.72	M-v	2	Williams	36878	1991 CL
1991 EF ₂	14.1	0.15	19990810	184.40116	17.96970	175.93265	5.42428	0.0559735	2.1977432	92	3	1991–1999	0.53	M-v	3	Williams	36878	1991 EF ₂
1991 EX ₂	14.9	0.15	19990810	242.23683	103.87844	345.73086	8.04386	0.0056525	2.2640289	85	3	1991–1999	0.63	M-v	1	Williams	36506	1991 EX ₂
1991 EK ₄	14.9	0.15	19990810	188.69453	37.70557	185.89019	2.83464	0.0797432	2.1489333	36	3	1991–1999	0.63	M-v	3	Williams	36878	1991 EK ₄
1991 EO ₅	13.4	0.15	19990810	328.62455	222.36422	167.75550	10.46813	0.1127711	3.0541428	28	4	1991–1999	0.76	M-v	1	Williams	36789	1991 EO ₅
1991 GW ₁	13.7	0.15	19990810	169.26057	335.13476	219.57619	24.54999	0.1929992	2.2733398	55	4	1987–1999	0.80	M-v	3	Williams	36878	1991 GW ₁
1991 GP ₃	13.0	0.15	19990810	147.25273	60.18887	214.27404	2.35878	0.2117246	3.0560783	64	4	1989–1999	0.82	M-v	2	Williams	33743	1991 GP ₃
1991 GV ₃	14.7	0.15	19990810	69.58370	270.30310	32.32932	5.64119	0.1724799	2.2772486	76	3	1991–1999	0.63	M-v	3	Williams	36878	1991 GV ₃
1991 GT ₄	14.5	0.15	19990810	43.12565	135.00660	190.67750	4.97401	0.1968994	2.2867071	64	3	1991–1999	0.58	M-v	2	Williams	36878	1991 GT ₄
1991 GU ₄	13.2	0.15	19990810	255.69959	122.97267	16.52251	9.15880	0.0774066	3.0628822	93	3	1991–1999	0.70	M-v	3	Williams	36878	1991 GU ₄
1991 GS ₆	14.0	0.15	19990810	287.86891	44.84149	23.57793	9.84016	0.0963278	2.2622099	43	3	1991–1999	0.87	M-v	4	Williams	32223	1991 GS ₆
1991 GR ₇	14.3	0.15	19990810	209.11517	282.91457	230.98926	5.00856	0.0689410	2.2578115	84	3	1991–1999	0.60	M-v	3	Williams	36878	1991 GR ₇
1991 JC	14.7	0.15	19990810	80.24935	193.14006	70.44286	3.46735	0.1902839	2.3459873	73	3	1991–1999	0.67	M-v	3	Williams	36878	1991 JC
1991 JD	14.5	0.15	19990810	68.00260	239.92373	39.26370	2.93181	0.2067830	2.3512314	94	3	1991–1999	0.51	M-v	3	Williams	36878	1991 JD
1991 LB	14.7	0.15	19990810	90.49656	121.53323	218.85647	4.82934	0.1949511	2.2254144	49	4	1991–1999	0.54	M-v	1	Williams	33545	1991 LB
1991 LR	14.1	0.15	19990810	47.25563	189.29704	116.22052	14.96077	0.2327414	2.3816197	69	3	1991–1999	0.70	M-v	2	Williams	36878	1991 LR
1991 NB ₁	13.9	0.15	19990810	20.90445	71.50417	238.05080	7.65386	0.2440217	2.4725472	93	3	1991–1999	0.57	M-v	2	Williams	36878	1991 NB ₁
1991 NG ₅	14.8	0.15	19990810	71.63243	359.00675	292.84756	4.34245	0.2259906	2.3827166	54	3	1991–1999	0.69	M-v	3	Williams	36878	1991 NG ₅
1991 PG ₁	14.6	0.15	19990810	39.67761	194.51456	127.72957	12.44519	0.2754437	2.4295064	58	3	1991–1999	0.80	M-v	2	Williams	36878	1991 PG ₁
1991 PY ₁	14.9	0.15	19990810	51.84339	175.45556	119.18219	7.40324	0.1280008	2.4347052	52	3	1991–1999	0.73	M-v	2	Williams	36507	1991 PY ₁
1991 PE ₂	15.6	0.15	19990810	23.97264	328.16673	12.77963	2.04988	0.2342909	2.4283828	64	5	1991–1999	0.67	M-v	2	Williams	36878	1991 PE ₂
1991 PX ₅	14.1	0.15	19990810	71.92760	342.42575	340.77891	5.68656	0.0416668	2.3604010	24	3	1991–1999	0.77	M-v	4	Williams	29299	1991 PX ₅
1991 PX ₆	15.1	0.15	19990810	81.94990	250.62300	41.47374	1.85530	0.1830313	2.3855913	56	3	1991–1999	0.70	M-v	4	Williams	36878	1991 PX ₆
1991 PG ₇	11.7	0.15	19990810	295.79534	65.94101	345.39298	9.27229	0.2095004	3.9998987	44	2	1991–1999	0.63	M-v	3	Williams	36878	1991 PG ₇
1991 PT ₉	13.8	0.15	19990810	127.12935	357.55329	286.97021	24.76361	0.2185114	2.2858991	48	3	1991–1999	0.56	M-v	2	Williams	33069	1991 PT ₉
1991 PD ₁₁	14.4	0.15	19990810	193.54575	135.14257	141.62335	6.34506	0.1991309	2.2072700	37	3	1991–1999	0.84	M-v	3	Williams	34287	1991 PD ₁₁
1991 PW ₁₁	14.0	0.15	19990810	65.07672	101.32776	187.72397	7.26706	0.1866274	2.4385075	65	3	1991–1999	0.66	M-v	2	Williams	36878	1991 PW ₁₁
1991 PJ ₁₅	14.8	0.15	19990810	142.29033	167.42484	118.82882	3.04494	0.1438810	2.2943957	57	4	1981–1999	0.61	M-v	2	Williams	33069	1991 PJ ₁₅
1991 PH ₁₈	14.2	0.15	19990810	52.29493	150.35371	156.20252	12.35727	0.2138068	2.4426316	55	3	1991–1999	0.63	M-v	1	Williams	36878	1991 PH ₁₈
1991 RA	14.8	0.15	19990810	95.98677	310.59512	356.88438	21.12322	0.0410754	1.8534523	30	3	1991–1999	0.60	M-v	3	Williams	36878	1991 RA
1991 RL ₁	14.4	0.15	19990810	144.21278	101.55173	193.17362	11.66022	0.1698884	2.2761666	80	4	1991–1999	0.59	M-v	2	Williams	35683	1991 RL ₁
1991 RC ₂	14.2	0.15	19990810	30.27414	82.91845	333.26444	7.38271	0.1267615	2.3197616	49	3	1991–1999	0.65	M-v	2	Williams	36878	1991 RC ₂
1991 RV ₂	14.2	0.15	19990810	16.24334	10.18054	276.57445	3.87322	0.2542741	2.5762245	73	3	1991–1999	0.58	M-v	2	Williams	36878	1991 RV ₂
1991 RY ₂	15.2	0.15	19990810	23.32361	61.48248	280.08442	3.83536	0.1377017	2.4814384	37	2	1991–1999	0.46	M-v	4	Williams	36789	1991 RY ₂
1991 RF ₄	15.0	0.15	19990810	75.94342	48.92355	258.76414	2.22766	0.1805210	2.4222321	50	6	1979–1999	0.61	M-v	2	Williams	36879	1991 RF ₄

1991 RG ₄	15.7	0.15	19990810	53.68313	57.81110	279.50769	1.51393	0.2253240	2.4159458	31	5	1987–1999	0.71	M-v	1	Williams	35062	1991 RG ₄
1991 RQ ₄	14.2	0.15	19990810	301.87700	119.23349	318.63316	3.83418	0.0666434	2.4895475	24	3	1991–1999	0.91	M-v	3	Williams	36879	1991 RQ ₄
1991 RQ ₅	14.4	0.15	19990810	112.32107	231.67054	24.85157	6.49138	0.1008528	2.4601201	35	2	1991–1999	0.51	M-v	5	Williams	36789	1991 RQ ₅
1991 RT ₅	14.0	0.15	19990810	77.93018	313.06464	33.19302	7.38966	0.1393569	2.3543678	37	4	1982–1999	0.71	M-v	2	Williams	33545	1991 RT ₅
1991 RC ₆	14.1	0.15	19990810	337.64390	339.41990	20.79929	13.66211	0.1953417	2.5556106	44	3	1991–1999	0.68	M-v	3	Williams	36879	1991 RC ₆
1991 RG ₇	14.3	0.15	19990810	357.54925	149.22577	262.30986	3.73793	0.1793792	2.4538178	38	6	1983–1999	0.69	M-v	2	Williams	35062	1991 RG ₇
1991 RQ ₉	14.7	0.15	19990810	60.17364	4.36050	314.84941	1.66291	0.2230758	2.4207793	44	3	1991–1999	0.61	M-v	3	Williams	36879	1991 RQ ₉
1991 RH ₁₄	14.5	0.15	19990810	352.89193	121.09177	326.35929	6.56201	0.0735067	2.3386469	46	3	1991–1999	0.71	M-v	3	Williams	36879	1991 RH ₁₄
1991 RK ₁₅	14.0	0.15	19990810	101.20879	334.52420	3.86146	5.18474	0.1560898	2.3107977	77	7	1963–1999	0.76	M-v	2	Williams	36879	1991 RK ₁₅
1991 RR ₁₆	12.5	0.15	19990810	134.34475	288.97024	23.77333	8.06338	0.0818048	3.4000183	25	4	1985–1999	0.65	M-v	2	Williams	36508	1991 RR ₁₆
1991 RW ₁₇	14.6	0.15	19990810	141.46140	121.25832	195.85769	3.20572	0.0765370	2.2681238	82	3	1991–1999	0.64	M-v	3	Williams	33744	1991 RW ₁₇
1991 RX ₁₇	14.1	0.15	19990810	104.89642	148.20083	177.73833	4.36075	0.1438272	2.3168526	75	3	1991–1999	0.82	M-v	3	Williams	36879	1991 RX ₁₇
1991 RQ ₁₉	15.6	0.15	19990810	47.16105	30.68314	306.13569	3.40168	0.2469485	2.4165846	20	4	1991–1999	0.54	M-v	2	Williams	32048	1991 RQ ₁₉
1991 RJ ₂₀	15.0	0.15	19990810	36.66377	228.74589	131.84705	3.05574	0.2284493	2.4095493	25	4	1991–1999	0.58	M-v	3	Williams	26758	1991 RJ ₂₀
1991 RW ₂₁	14.4	0.15	19990810	353.61521	71.45267	341.13173	9.86988	0.2553045	2.4236298	30	3	1991–1999	0.51	M-v	3	Williams	36879	1991 RW ₂₁
1991 RN ₂₇	12.7	0.15	19990810	190.16758	176.41437	339.02374	14.28777	0.0336847	2.5812009	103	5	1985–1999	0.54	M-v	2	Williams	36508	1991 RN ₂₇
1991 RM ₂₉	13.4	0.15	19990810	281.43219	166.56524	266.60835	12.23499	0.2400217	2.6009042	46	2	1991–1999	0.63	M-v	4	Williams	36879	1991 RM ₂₉
1991 SB	13.6	0.15	19990810	9.60928	179.71163	216.63340	2.48475	0.1331722	2.4214633	46	4	1984–1999	0.67	M-v	2	Williams	36879	1991 SB
1991 TK	14.1	0.15	19990810	267.91483	46.32340	107.83718	5.12387	0.0629392	2.3924839	68	4	1991–1999	0.72	M-v	3	Williams	36879	1991 TK
1991 TS	14.2	0.15	19990810	74.47213	192.80358	130.54390	6.33889	0.1061803	2.4156603	23	3	1991–1999	0.66	M-v	3	Williams	32225	1991 TS
1991 TX	13.9	0.15	19990810	43.58107	284.42962	76.97322	24.16901	0.2821158	2.4065022	29	3	1991–1999	0.67	M-v	2	Williams	36879	1991 TX
1991 TC ₂	14.8	0.15	19990810	277.45397	55.26529	26.93596	24.97689	0.1199937	1.9211361	54	3	1991–1999	0.56	M-v	2	Williams	36879	1991 TC ₂
1991 TQ ₂	15.0	0.15	19990810	349.43621	164.74509	270.63702	2.76140	0.2187638	2.4179104	56	4	1991–1999	0.59	M-v	2	Williams	36879	1991 TQ ₂
1991 TK ₈	14.8	0.15	19990810	37.48705	257.29265	151.69190	6.07092	0.1304718	2.3400988	52	3	1991–1999	0.69	M-v	3	Williams	32744	1991 TK ₈
1991 TF ₁₄	14.2	0.15	19990810	279.53286	47.13434	25.70508	5.51978	0.1175801	2.5494907	82	4	1977–1999	0.56	M-v	1	Williams	36879	1991 TF ₁₄
1991 UN ₁	14.2	0.15	19990810	42.75906	83.88179	312.99268	5.75812	0.1212067	2.3711973	51	4	1989–1999	0.65	M-v	2	Williams	36879	1991 UN ₁
1991 UE ₂	13.6	0.15	19990810	271.14838	52.77397	47.25615	3.67264	0.0883090	2.5595366	109	4	1987–1999	0.51	M-v	2	Williams	36879	1991 UE ₂
1991 UD ₃	14.2	0.15	19990810	303.59291	226.39195	209.48835	7.13594	0.2390826	2.5551543	118	6	1983–1999	0.58	M-v	2	Williams	36879	1991 UD ₃
1991 US ₃	12.9	0.15	19990810	5.54693	273.55419	65.07960	15.56660	0.1624949	2.5789019	77	3	1991–1999	0.53	M-v	2	Williams	36879	1991 US ₃
1991 VY	13.5	0.15	19990810	351.13315	356.98005	68.48104	5.85309	0.0925244	2.4539905	45	4	1991–1999	0.60	M-v	3	Williams	36879	1991 VY
1991 VD ₁	13.7	0.15	19990810	339.65895	3.59992	32.44938	16.03698	0.0938716	2.5323749	119	5	1987–1999	0.49	M-v	2	Williams	36879	1991 VD ₁
1991 VJ ₁	15.0	0.15	19990810	325.69858	275.49307	107.87394	2.42941	0.3157767	2.5665368	96	4	1991–1999	0.62	M-v	2	Williams	36879	1991 VJ ₁
1991 VE ₂	13.0	0.15	19990810	306.63974	210.21961	228.37915	14.70684	0.0997546	2.5510491	106	4	1991–1999	0.52	M-v	3	Williams	36879	1991 VE ₂
1991 VA ₃	12.9	0.15	19990810	337.52532	115.01140	254.41602	11.44980	0.2168097	2.6006727	115	3	1991–1999	0.54	M-v	2	Williams	36879	1991 VA ₃
1991 VE ₃	14.4	0.15	19990810	328.61293	296.89013	118.52031	4.52547	0.2892163	2.5436238	74	3	1991–1999	0.51	M-v	3	Williams	36879	1991 VE ₃
1991 VN ₃	14.7	0.15	19990810	309.70734	358.69011	57.43262	6.81799	0.3232217	2.5877446	32	2	1991–1999	0.74	M-v	3	Williams	36879	1991 VN ₃
1991 VT ₃	13.2	0.15	19990810	0.57195	114.65298	238.09781	12.68731	0.1851098	2.5767346	113	5	1983–1999	0.63	M-v	2	Williams	36879	1991 VT ₃
1991 VY ₄	13.8	0.15	19990810	345.25484	334.11019	98.59280	3.73412	0.1505052	2.4603557	43	3	1991–1999	0.53	M-v	3	Williams	36879	1991 VY ₄
1991 VM ₅	13.8	0.15	19990810	112.85652	267.28006	70.06903	6.34642	0.2114603	2.3237077	64	4	1977–1999	0.73	M-v	3	Williams	36880	1991 VM ₅
1991 VT ₅	14.6	0.15	19990810	356.49468	205.94307	155.22768	6.79192	0.0708257	2.5843866	61	3	1991–1999	0.83	M-v	3	Williams	36880	1991 VT ₅
1991 VH ₆	14.2	0.15	19990810	37.19141	187.42534	172.28096	7.80756	0.1573696	2.4761899	40	4	1991–1999	0.79	M-v	1	Williams	36880	1991 VH ₆
1991 VP ₁₂	14.9	0.15	19990810	61.49426	239.31182	73.54554	5.50283	0.1256628	2.5493863	87	3	1991–1999	0.60	M-v	3	Williams	36880	1991 VP ₁₂
1991 XD	14.1	0.15	19990810	308.42605	11.34942	65.45071	22.70783	0.1015302	1.9376264	113	3	1991–1999	0.62	M-v	2	Williams	36880	1991 XD
1991 YC	13.5	0.15	19990810	285.88217	24.57219	109.17271	14.93450	0.2110741	2.5797758	52	5	1988–1999	0.66	M-v	2	Williams	36880	1991 YC
1991 YT	13.6	0.15	19990810	298.24755	140.21801	266.16539	11.68896	0.1785272	2.6990584	58	5	1988–1999	0.61	M-v	2	Williams	36880	1991 YT
1992 AJ ₁	13.2	0.15	19990810	236.15926	306.34564	272.81487	5.06672	0.1069302	2.5215611	60	4	1992–1999	0.71	M-v	3	Williams	36880	1992 AJ ₁
1992 AV ₁	14.1	0.15	19990810	310.61473	328.96386	110.66211	24.76602	0.0734798	1.9467114	39	3	1992–1999	0.58	M-v	2	Williams	36880	1992 AV ₁
1992 AT ₂	13.9	0.15	19990810	178.92053	330.95141	293.21553	3.72335	0.1848826	2.5394900	40	4	1984–1999	0.72	M-v	4	Williams	33337	1992 AT ₂
1992 BD	15.0	0.15	19990810	304.48806	21.08406	79.16976	28.98654	0.0652203	1.8968754	56	4	1975–1999	0.49	M-v	2	Williams	36880	1992 BD
1992 BP ₂	14.6	0.15	19990810	352.62009	244.22077	217.12092	5.53778	0.0866945	2.4765724	43	4	1992–1999	0.66	M-v	2	Williams	36880	1992 BP ₂
1992 BQ ₂	13.8	0.15	19990810	297.30687	283.51334	236.52848	4.34721	0.0640803	2.4887694	24	4	1992–1999	0.59	M-v	3	Williams	36880	1992 BQ ₂
1992 BT ₂	12.6	0.15	19990810	293.56392	305.45814	146.73399	13.87643	0.1374122	2.6494221	76	3	1992–1999	0.64	M-v	3	Williams	36880	1992 BT ₂
1992 CH	13.2	0.15	19990810	302.03378	168.52698	311.82369	12.62005	0.1099636	2.6310953	62	5	1992–1999	0.64	M-v	2	Williams	36880	1992 CH

1992 CS ₂	14.1	0.15	19990810	213.39088	331.96182	261.31222	4.55740	0.0666354	2.5192748	49	4	1992–1999	0.74	M-v	3	Williams	36509	1992 CS ₂
1992 DZ ₅	15.2	0.15	19990810	317.70393	313.06155	147.48817	3.48049	0.1953543	2.6165157	17	4	1971–1999	0.57	M-v	2	Williams	30687	1992 DZ ₅
1992 DZ ₆	14.0	0.15	19990810	181.43145	250.02974	351.80392	11.77819	0.1390702	2.6948895	19	3	1992–1999	0.69	M-v	3	Williams	32927	1992 DZ ₆
1992 DC ₇	14.0	0.15	19990810	20.94402	207.58824	121.29616	3.15100	0.0690885	2.8973287	35	2	1992–1999	0.49	M-v	4	Williams	36329	1992 DC ₇
1992 DU ₇	13.7	0.15	19990810	25.50002	270.82948	42.44953	2.43923	0.0885453	2.9516459	54	3	1992–1999	0.57	M-v	2	Williams	36880	1992 DU ₇
1992 EO	12.4	0.15	19990810	66.21909	252.13912	10.34779	14.30157	0.2719766	3.0944355	96	4	1976–1999	0.60	M-v	1	Williams	36880	1992 EO
1992 EX	13.8	0.15	19990810	260.00996	25.36954	136.87445	10.23380	0.0890107	2.6594168	34	3	1992–1999	0.73	M-v	3	Williams	36509	1992 EX
1992 EB ₄	13.7	0.15	19990810	319.47233	318.98978	138.87463	10.44059	0.0811358	2.6262234	23	3	1992–1999	0.76	M-v	4	Williams	34840	1992 EB ₄
1992 ES ₆	14.3	0.15	19990810	326.95945	302.94311	113.26588	7.04397	0.2147438	2.6954109	56	4	1992–1999	0.51	M-v	3	Williams	36880	1992 ES ₆
1992 EZ ₇	14.4	0.15	19990810	330.32837	274.24780	163.11981	12.33823	0.1991151	2.6213853	36	4	1988–1999	0.45	M-v	1	Williams	36880	1992 EZ ₇
1992 EY ₁₀	13.9	0.15	19990810	67.30530	351.26751	344.52194	14.23449	0.1569852	2.7039578	20	4	1985–1999	0.82	M-v	2	Williams	35422	1992 EY ₁₀
1992 EZ ₁₁	13.6	0.15	19990810	81.42766	191.56412	133.44048	5.49758	0.1412402	2.7073045	52	3	1992–1999	0.71	M-v	3	Williams	36880	1992 EZ ₁₁
1992 EN ₁₂	14.2	0.15	19990810	325.27511	28.84429	97.89986	3.08568	0.0726661	2.5553992	47	3	1992–1999	0.80	M-v	3	Williams	36880	1992 EN ₁₂
1992 EQ ₁₃	14.5	0.15	19990810	13.87559	97.14320	280.38095	4.14424	0.0850031	2.7282325	19	3	1992–1999	0.72	M-v	5	Williams	32453	1992 EQ ₁₃
1992 ET ₁₄	14.1	0.15	19990810	315.31539	200.84636	223.61661	2.76250	0.0874018	2.7598028	52	4	1992–1999	0.50	M-v	1	Williams	36880	1992 ET ₁₄
1992 EW ₁₆	13.4	0.15	19990810	161.31418	333.19603	327.24389	4.06569	0.1217660	2.5817831	30	4	1992–1999	0.77	M-v	3	Williams	36880	1992 EW ₁₆
1992 EW ₁₇	14.2	0.15	19990810	202.26369	74.62274	179.51414	13.90018	0.1232964	2.5814986	13	3	1992–1999	0.78	M-v	3	Williams	32928	1992 EW ₁₇
1992 EA ₂₆	14.7	0.15	19990810	300.03958	157.32883	346.90323	10.50044	0.1538934	2.5776149	28	3	1992–1999	0.77	M-v	4	Williams	36880	1992 EA ₂₆
1992 ES ₂₈	14.0	0.15	19990810	18.71071	302.00083	21.41741	2.62757	0.0175059	2.9113472	35	5	1977–1999	0.76	M-v	4	Williams	36329	1992 ES ₂₈
1992 EE ₃₂	14.7	0.15	19990810	288.82082	310.99874	193.61246	4.34390	0.1888340	2.6019088	26	5	1982–1999	0.69	M-v	2	Williams	36880	1992 EE ₃₂
1992 EV ₃₂	14.2	0.15	19990810	332.90591	194.47672	209.35403	3.42997	0.1105161	2.7589627	29	3	1992–1999	0.61	M-v	4	Williams	36880	1992 EV ₃₂
1992 GM ₂	14.8	0.15	19990810	60.16043	343.62980	301.52145	0.98389	0.0933835	2.1302762	116	3	1992–1999	0.52	M-v	2	Williams	36880	1992 GM ₂
1992 HA ₄	13.9	0.15	19990810	168.98687	346.00708	275.28384	0.19134	0.0828375	2.7518541	56	4	1992–1999	0.80	M-v	1	Williams	33070	1992 HA ₄
1992 HS ₄	13.3	0.15	19990810	161.44863	179.43553	100.23865	9.44866	0.1912758	2.7996304	48	5	1989–1999	0.71	M-v	1	Williams	35064	1992 HS ₄
1992 JU ₂	14.8	0.15	19990810	7.90617	125.64615	211.71530	1.59176	0.2300404	2.858186	124	3	1992–1999	0.71	M-v	2	Williams	36880	1992 JU ₂
1992 OB	13.1	0.15	19990810	122.58197	232.60502	49.44336	17.69741	0.2045122	3.0947799	23	3	1992–1999	0.60	M-v	2	Williams	35602	1992 OB
1992 OJ ₁	13.5	0.15	19990810	50.47579	305.50579	320.44589	23.56071	0.1801308	2.2812432	111	3	1992–1999	0.59	M-v	2	Williams	36880	1992 OJ ₁
1992 OL ₃	13.9	0.15	19990810	74.58309	167.88768	153.30908	2.14313	0.1436250	3.2183374	46	3	1992–1999	0.70	M-v	4	Williams	36880	1992 OL ₃
1992 OM ₆	15.3	0.15	19990810	54.82945	136.92390	160.89129	3.63545	0.1349502	2.2300962	56	3	1992–1999	0.70	M-v	3	Williams	36880	1992 OM ₆
1992 OV ₆	13.2	0.15	19990810	38.45932	245.83390	199.11298	1.50337	0.0326017	2.8758111	52	7	1990–1999	0.81	M-v	1	Williams	33547	1992 OV ₆
1992 OY ₇	13.4	0.15	19990810	140.56341	50.77357	278.49590	8.75566	0.2707369	2.8724079	56	4	1992–1999	0.80	M-v	2	Williams	34009	1992 OY ₇
1992 PF	14.8	0.15	19990810	38.37780	135.78438	181.35087	2.34559	0.2044328	2.2277565	115	3	1992–1999	0.58	M-v	3	Williams	36880	1992 PF
1992 PB ₁	13.0	0.15	19990810	50.34284	220.84426	149.49618	8.02211	0.1162317	3.1462863	62	4	1992–1999	0.73	M-v	2	Williams	36510	1992 PB ₁
1992 PK ₁	15.3	0.15	19990810	322.65576	66.14130	314.30515	6.74265	0.1468475	2.2831654	55	2	1992–1999	0.67	M-v	4	Williams	36880	1992 PK ₁
1992 PU ₁	13.8	0.15	19990810	150.47254	74.53595	170.74061	4.01626	0.1280603	3.1585494	25	3	1992–1999	0.75	M-v	4	Williams	27445	1992 PU ₁
1992 PA ₂	15.2	0.15	19990810	0.49692	42.19770	307.23010	5.67730	0.2170615	2.2614876	72	3	1992–1999	0.61	M-v	3	Williams	36880	1992 PA ₂
1992 PB ₂	13.3	0.15	19990810	80.68027	83.83756	248.11931	5.49086	0.1540360	3.1552223	77	3	1992–1999	0.56	M-v	4	Williams	33071	1992 PB ₂
1992 PK ₂	13.2	0.15	19990810	161.67089	6.04130	235.94561	5.88176	0.1455689	3.1149362	87	3	1992–1999	0.66	M-v	3	Williams	36880	1992 PK ₂
1992 PM ₂	15.4	0.15	19990810	14.02391	72.47730	244.12620	4.70555	0.1870476	2.2816304	64	3	1992–1999	0.63	M-v	2	Williams	36880	1992 PM ₂
1992 PO ₂	14.4	0.15	19990810	341.45394	149.19034	209.00217	6.10384	0.1429573	2.2932869	129	3	1992–1999	0.58	M-v	2	Williams	36880	1992 PO ₂
1992 PC ₃	12.2	0.15	19990810	108.40918	61.50517	273.48626	11.60760	0.1613579	3.0482444	56	3	1992–1999	0.75	M-v	3	Williams	36880	1992 PC ₃
1992 PE ₃	14.7	0.15	19990810	8.63223	112.56991	238.93686	5.51929	0.1960366	2.2504627	113	3	1992–1999	0.53	M-v	3	Williams	36880	1992 PE ₃
1992 RN	13.4	0.15	19990810	24.72261	299.27180	338.20085	8.15483	0.2311712	2.3421031	79	4	1980–1999	0.67	M-v	2	Williams	36881	1992 RN
1992 RW ₂	15.0	0.15	19990810	17.20757	0.12267	328.68185	6.06610	0.1409140	2.2759936	72	3	1992–1999	0.61	M-v	3	Williams	36881	1992 RW ₂
1992 SO	14.3	0.15	19990810	18.80923	79.20221	244.52913	5.75451	0.1645879	2.3198062	102	3	1992–1999	0.60	M-v	2	Williams	36881	1992 SO
1992 SY ₁₂	14.2	0.15	19990810	326.11872	24.64831	5.17935	9.83438	0.2103400	2.3222563	97	3	1992–1999	0.47	M-v	2	Williams	36881	1992 SY ₁₂
1992 SB ₁₃	13.7	0.15	19990810	250.75980	84.65680	47.09685	3.57590	0.0942656	2.2858181	81	3	1992–1999	0.51	M-v	3	Williams	36881	1992 SB ₁₃
1992 SG ₁₃	14.8	0.15	19990810	337.79963	355.57471	18.52342	5.66396	0.2541354	2.3377655	105	3	1992–1999	0.51	M-v	2	Williams	36881	1992 SG ₁₃
1992 SW ₁₄	14.0	0.15	19990810	327.75615	31.46462	345.13633	25.58375	0.2501326	2.3420938	79	2	1992–1999	0.47	M-v	3	Williams	36881	1992 SW ₁₄
1992 SA ₁₇	15.1	0.15	19990810	256.21270	249.93204	223.77540	0.68921	0.0787819	2.2786343	86	2	1992–1999	0.51	M-v	4	Williams	36881	1992 SA ₁₇
1992 SY ₁₇	14.2	0.15	19990810	28.04855	71.51978	239.91609	8.41626	0.2806699	2.2897582	80	4	1985–1999	0.62	M-v	3	Williams	36881	1992 SY ₁₇
1992 SQ ₂₃	14.6	0.15	19990810	21.02566	101.50856	219.98874	7.82354	0.3102960	2.3073163	125	4	1981–1999	0.51	M-v	2	Williams	36881	1992 SQ ₂₃
1992 SQ ₂₄	12.5	0.15	19990810	323.63823	309.32595	204.03535	10.11941	0.0517361	2.9883406	47	6	1987–1999	0.66	M-v	1	Williams	34009	1992 SQ ₂₄

1992 SM ₂₆	15.1	0.15	19990810	337.61498	349.76887	41.90933	7.21294	0.1219201	2.3055197	33	2	1992–1999	0.56	M-v	4	Williams	36881	1992 SM ₂₆
1992 UH ₁	14.7	0.15	19990810	351.07028	61.08466	0.55260	3.56754	0.1607640	2.2391185	29	4	1972–1999	0.52	M-v	2	Williams	36881	1992 UH ₁
1992 US ₁	14.5	0.15	19990810	6.69984	317.54790	46.88468	7.81803	0.1346608	2.2857559	134	4	1964–1999	0.57	M-v	2	Williams	36881	1992 US ₁
1992 UR ₂	13.7	0.15	19990810	282.35506	49.13324	46.82257	23.22322	0.2466166	2.3222858	42	2	1992–1999	0.60	M-v	3	Williams	36881	1992 UR ₂
1992 UT ₂	14.2	0.15	19990810	26.99468	260.25428	71.52134	6.92884	0.2106235	2.2767164	98	4	1978–1999	0.58	M-v	2	Williams	36881	1992 UT ₂
1992 UW ₂	14.3	0.15	19990810	23.64883	284.84787	54.05699	5.93469	0.2153507	2.2812039	116	3	1992–1999	0.56	M-v	2	Williams	36881	1992 UW ₂
1992 UH ₃	14.5	0.15	19990810	16.26211	41.26929	13.00686	5.98697	0.1106946	2.1866970	38	6	1979–1999	0.77	M-v	1	Williams	32515	1992 UH ₃
1992 UU ₅	14.3	0.15	19990810	322.57371	346.79644	71.33926	3.24560	0.2280795	2.3176977	85	3	1985–1999	0.69	M-v	3	Williams	36881	1992 UU ₅
1992 UA ₆	14.2	0.15	19990810	327.84415	102.61945	282.74645	2.76993	0.1103514	2.3672884	84	3	1992–1999	0.66	M-v	3	Williams	36881	1992 UA ₆
1992 UE ₆	13.9	0.15	19990810	356.40035	354.06228	64.12730	8.01720	0.1403497	2.2510024	51	3	1992–1999	0.80	M-v	3	Williams	36881	1992 UE ₆
1992 UK ₈	14.6	0.15	19990810	355.55546	133.07433	239.95775	3.84970	0.1638073	2.3014866	98	6	1964–1999	0.57	M-v	2	Williams	36881	1992 UK ₈
1992 UR ₈	13.8	0.15	19990810	160.20842	186.73346	22.71631	7.60322	0.0675969	2.3296559	56	4	1985–1999	0.37	M-v	3	Williams	36790	1992 UR ₈
1992 VN	13.9	0.15	19990810	352.17031	152.57791	259.43030	7.66031	0.1250274	2.2569386	18	3	1992–1999	0.62	M-v	4	Williams	28849	1992 VN
1992 WR	14.7	0.15	19990810	303.41765	33.84192	56.00650	5.65945	0.1365916	2.3109464	89	3	1978–1999	0.39	M-v	3	Williams	36881	1992 WR
1992 WD ₁	15.1	0.15	19990810	309.18485	304.01531	100.36298	3.15052	0.1915144	2.3741278	54	4	1981–1999	0.59	M-v	2	Williams	36881	1992 WD ₁
1992 WY ₁	14.3	0.15	19990810	294.23387	95.57220	0.59196	3.28492	0.0868021	2.3113769	79	5	1988–1999	0.55	M-v	1	Williams	36881	1992 WY ₁
1992 WC ₉	13.9	0.15	19990810	290.19822	32.14495	56.45133	7.25100	0.0900229	2.3386996	72	3	1992–1999	0.49	M-v	1	Williams	36881	1992 WC ₉
1992 XK	14.5	0.15	19990810	311.59036	118.10014	283.24339	1.16659	0.2112816	2.3995269	87	3	1992–1999	0.67	M-v	3	Williams	36881	1992 XK
1992 YK	13.3	0.15	19990810	297.73637	81.87417	9.89752	6.94142	0.0671321	2.3703243	56	2	1992–1999	0.50	M-v	4	Williams	36881	1992 YK
1992 YR ₂	14.5	0.15	19990810	151.77573	170.54546	69.32500	5.14394	0.0597674	2.3762579	53	3	1992–1999	0.71	M-v	4	Williams	36881	1992 YR ₂
1993 BJ ₂	13.2	0.15	19990810	128.34865	159.23518	122.64620	6.98207	0.1367751	2.4064776	41	3	1993–1999	0.62	M-v	3	Williams	33548	1993 BJ ₂
1993 BU ₇	15.0	0.15	19990810	35.06807	179.85324	214.27371	2.58288	0.0154134	2.3379523	39	4	1993–1999	0.72	M-v	1	Williams	32745	1993 BU ₇
1993 BT ₁₄	14.8	0.15	19990810	271.06820	314.02596	230.11027	2.55351	0.1235315	2.3105814	25	4	1991–1999	0.73	M-v	3	Williams	35686	1993 BT ₁₄
1993 DM	14.2	0.15	19990810	176.18026	273.03899	277.75611	4.19616	0.0750227	2.5656435	59	3	1993–1999	0.59	M-v	3	Williams	36881	1993 DM
1993 DE ₁	13.2	0.15	19990810	131.05309	266.11187	301.15637	10.40868	0.1410649	2.6719273	47	3	1993–1999	0.72	M-v	3	Williams	36511	1993 DE ₁
1993 DX ₂	14.8	0.15	19990810	96.54712	196.00541	130.79807	7.51338	0.1354715	2.3540576	33	3	1993–1999	0.73	M-v	3	Williams	32663	1993 DX ₂
1993 FN	14.8	0.15	19990810	251.75969	117.91519	6.53468	10.72731	0.2147345	2.5341884	78	5	1991–1999	0.54	M-v	2	Williams	36511	1993 FN
1993 FR ₅	14.6	0.15	19990810	7.34747	275.93478	75.16885	2.78340	0.0384094	2.6478375	41	2	1993–1999	0.53	M-v	3	Williams	36881	1993 FR ₅
1993 FO ₇	13.8	0.15	19990810	333.24809	11.51710	77.58762	3.43984	0.1712289	2.3968235	39	4	1956–1999	0.61	M-v	3	Williams	36881	1993 FO ₇
1993 FU ₁₁	13.8	0.15	19990810	99.41452	155.05956	123.89989	3.99098	0.0779287	2.6167156	28	3	1990–1999	0.60	M-v	2	Williams	36881	1993 FU ₁₁
1993 FV ₁₁	13.9	0.15	19990810	285.49578	334.77021	100.80880	3.65915	0.1707287	2.5818301	51	4	1958–1999	0.51	M-v	1	Williams	36881	1993 FV ₁₁
1993 FE ₁₂	14.6	0.15	19990810	322.15806	345.14988	101.02243	3.66894	0.1534758	2.4500070	48	4	1991–1999	0.55	M-v	3	Williams	36882	1993 FE ₁₂
1993 FR ₁₂	14.4	0.15	19990810	263.34656	49.68930	99.44149	3.58792	0.1304667	2.4642459	49	4	1993–1999	0.47	M-v	1	Williams	36882	1993 FR ₁₂
1993 FS ₁₂	14.9	0.15	19990810	354.53598	322.13708	117.29070	3.30877	0.1742075	2.3782215	18	3	1993–1999	0.67	M-v	4	Williams	30080	1993 FS ₁₂
1993 FY ₁₂	12.8	0.15	19990810	80.36819	66.87928	164.74085	9.45751	0.0747522	2.8468775	101	4	1990–1999	0.66	M-v	2	Williams	36882	1993 FY ₁₂
1993 FR ₁₃	15.1	0.15	19990810	334.51115	46.57565	50.66833	6.16014	0.1201704	2.3926426	23	3	1993–1999	0.63	M-v	4	Williams	36882	1993 FR ₁₃
1993 FV ₁₃	13.9	0.15	19990810	13.76370	330.58329	23.72078	15.21128	0.1491641	2.6274722	51	2	1993–1999	0.45	M-v	4	Williams	36790	1993 FV ₁₃
1993 FL ₁₄	14.0	0.15	19990810	118.09310	172.36557	108.77032	4.57991	0.0812617	2.5503589	46	3	1993–1999	0.60	M-v	4	Williams	36882	1993 FL ₁₄
1993 FA ₁₅	14.2	0.15	19990810	79.62683	314.60609	50.60023	7.71947	0.1279358	2.3981395	21	4	1993–1999	0.61	M-v	2	Williams	35687	1993 FA ₁₅
1993 FF ₁₉	13.7	0.15	19990810	242.56867	304.52748	147.90512	9.41139	0.0940059	2.7071507	46	4	1993–1999	0.67	M-v	1	Williams	36511	1993 FF ₁₉
1993 FQ ₂₀	14.2	0.15	19990810	283.08099	317.51147	134.75898	4.21370	0.1877101	2.5406673	51	2	1993–1999	0.67	M-v	4	Williams	36882	1993 FQ ₂₀
1993 FX ₂₁	14.6	0.15	19990810	110.03154	81.55812	200.46605	3.06772	0.0403583	2.5777277	27	3	1993–1999	0.79	M-v	4	Williams	36069	1993 FX ₂₁
1993 FS ₂₂	14.8	0.15	19990810	294.19598	197.45375	242.75766	2.73710	0.1201877	2.5767738	76	4	1993–1999	0.57	M-v	2	Williams	36882	1993 FS ₂₂
1993 FV ₂₄	15.4	0.15	19990810	186.72782	350.03865	269.29045	1.42957	0.1740946	2.4468953	40	5	1993–1999	0.63	M-v	1	Williams	33071	1993 FV ₂₄
1993 FJ ₂₆	14.1	0.15	19990810	85.40967	329.54899	311.69116	4.25825	0.1895660	2.7087480	15	2	1993–1999	0.56	M-v	5	Williams	36790	1993 FJ ₂₆
1993 FS ₂₆	13.7	0.15	19990810	237.14459	287.99170	285.80458	2.60511	0.0852657	2.3973190	64	4	1993–1999	0.75	M-v	3	Williams	36882	1993 FS ₂₆
1993 FO ₂₇	15.5	0.15	19990810	316.06362	232.82094	241.98548	2.82390	0.1388296	2.3948095	32	4	1993–1999	0.65	M-v	1	Williams	35687	1993 FO ₂₇
1993 FM ₂₈	15.3	0.15	19990810	293.69830	179.67282	293.52196	1.68316	0.1522519	2.4585647	62	3	1993–1999	0.59	M-v	4	Williams	36882	1993 FM ₂₈
1993 FK ₂₉	14.6	0.15	19990810	310.73999	199.65529	200.86417	14.27275	0.1199366	2.6430724	39	3	1993–1999	0.64	M-v	3	Williams	36882	1993 FK ₂₉
1993 FP ₂₉	12.9	0.15	19990810	178.19922	3.46396	202.52431	13.18216	0.1136117	2.5811426	38	2	1993–1999	0.52	M-v	4	Williams	36882	1993 FP ₂₉
1993 FS ₃₁	14.4	0.15	19990810	161.17876	240.77032	51.88197	4.62328	0.0747312	2.4050221	52	3	1993–1999	0.77	M-v	3	Williams	33548	1993 FS ₃₁
1993 FJ ₃₃	13.9	0.15	19990810	33.18001	308.76851	48.04031	4.15900	0.1122560	2.5783226	20	2	1993–1999	0.27	M-v	4	Williams	36791	1993 FJ ₃₃
1993 FD ₃₇	14.0	0.15	19990810	285.41663	290.78815	173.52599	2.99210	0.1071118	2.5287465	25	3	1993–1999	0.62	M-v	3	Williams	32515	1993 FD ₃₇

1993 FP ₄₀	15.8	0.15	19990810	315.24121	58.07433	45.69517	2.65919	0.1773741	2.4173242	17	3	1993–1999	0.46	M-v	4	Williams	32230	1993 FP ₄₀
1993 FY ₄₁	15.1	0.15	19990810	339.73216	67.61386	15.55531	1.90380	0.1189832	2.4226024	21	5	1993–1999	0.73	M-v	2	Williams	32515	1993 FY ₄₁
1993 FZ ₄₁	14.2	0.15	19990810	229.97669	129.09258	6.97034	14.00167	0.1095487	2.6012580	106	3	1993–1999	0.62	M-v	3	Williams	36882	1993 FZ ₄₁
1993 FN ₄₉	14.6	0.15	19990810	153.97011	234.13143	6.21968	0.96381	0.0614814	2.5537709	26	2	1993–1999	0.56	M-v	5	Williams	36791	1993 FN ₄₉
1993 FU ₄₉	14.6	0.15	19990810	285.00565	209.31253	237.33701	1.56507	0.0671528	2.5784016	48	2	1993–1999	0.49	M-v	4	Williams	36882	1993 FU ₄₉
1993 FX ₅₀	14.3	0.15	19990810	72.89802	69.74039	197.64966	4.99211	0.1258289	2.7630810	92	4	1993–1999	0.61	M-v	2	Williams	36512	1993 FX ₅₀
1993 FD ₈₂	14.4	0.15	19990810	151.31945	91.60650	160.11592	3.92818	0.1314844	2.5467434	23	4	1993–1999	0.74	M-v	1	Williams	34501	1993 FD ₈₂
1993 GB	13.6	0.15	19990810	241.77840	171.90907	25.37579	9.83672	0.1906267	2.4411879	42	3	1993–1999	0.85	M-v	4	Williams	35687	1993 GB
1993 GC	13.2	0.15	19990810	139.73261	20.28070	200.46687	12.30231	0.1078646	2.6939093	60	2	1993–1999	0.57	M-v	3	Williams	36882	1993 GC
1993 GK ₁	14.9	0.15	19990810	270.38766	211.28193	324.74469	1.93572	0.1619675	2.4015070	44	4	1993–1999	0.81	M-v	3	Williams	36882	1993 GK ₁
1993 HX	13.7	0.15	19990810	182.17860	145.34000	133.71021	3.05100	0.0458751	2.4076949	57	3	1993–1999	0.78	M-v	2	Williams	36882	1993 HX
1993 HY ₅	15.0	0.15	19990810	41.31738	128.95918	170.76810	23.93617	0.0354529	1.9325902	48	3	1993–1999	0.49	M-v	2	Williams	36882	1993 HY ₅
1993 HZ ₅	15.2	0.15	19990810	249.66314	67.93424	68.12971	26.22848	0.1015885	1.8524037	69	3	1993–1999	0.72	M-v	2	Williams	36882	1993 HZ ₅
1993 JB ₁	14.4	0.15	19990810	312.64921	274.54154	233.14460	6.13427	0.1779919	2.4146579	48	6	1970–1999	0.83	M-v	1	Williams	33071	1993 JB ₁
1993 KW ₁	15.1	0.15	19990810	98.98346	41.07112	210.87414	20.68588	0.0455996	1.9468333	71	3	1993–1999	0.53	M-v	2	Williams	36882	1993 KW ₁
1993 LO ₁	13.7	0.15	19990810	156.97531	291.23253	312.60249	10.69524	0.2633435	2.6242967	34	3	1993–1999	0.70	M-v	3	Williams	36882	1993 LO ₁
1993 LS ₁	13.5	0.15	19990810	111.74316	24.35062	301.39670	12.82318	0.1777627	2.5467114	38	5	1982–1999	0.70	M-v	1	Williams	36882	1993 LS ₁
1993 MK	13.8	0.15	19990810	43.32903	236.85872	112.44914	24.49411	0.0922730	1.9441307	31	4	1992–1999	0.54	M-v	1	Williams	36512	1993 MK
1993 MZ	13.9	0.15	19990810	59.90686	352.27827	345.89840	13.00925	0.1913070	2.6932982	26	5	1985–1999	0.72	M-v	1	Williams	36882	1993 MZ
1993 ME ₁	15.5	0.15	19990810	159.19792	359.59607	252.14917	23.05175	0.4858498	2.6352638	47	1	85 days	0.65	M-v	5	Williams	35688	1993 ME ₁
1993 NS ₁	14.0	0.15	19990810	338.72009	271.83366	117.42472	8.68501	0.2749206	3.0849512	24	3	1989–1999	0.77	M-v	3	Williams	36512	1993 NS ₁
1993 NW ₁	13.8	0.15	19990810	80.41225	80.43318	215.50878	1.52360	0.0375799	2.9016095	26	2	1993–1999	0.71	M-v	5	Williams	36791	1993 NW ₁
1993 NZ ₁	12.8	0.15	19990810	300.58181	118.72097	292.93501	9.19569	0.1310065	3.0749528	88	3	1993–1999	0.58	M-v	2	Williams	36882	1993 NZ ₁
1993 OM ₈	13.7	0.15	19990810	12.96421	136.44904	203.19869	1.90022	0.1261674	3.0575559	66	2	1993–1999	0.60	M-v	4	Williams	36882	1993 OM ₈
1993 OY ₉	13.3	0.15	19990810	300.14764	126.46417	300.20484	9.24603	0.0953322	2.9868546	58	3	1993–1999	0.51	M-v	3	Williams	36882	1993 OY ₉
1993 PV ₅	12.9	0.15	19990810	14.73057	48.24072	317.72377	9.71095	0.1245855	3.0698910	60	4	1988–1999	0.51	M-v	1	Williams	36882	1993 PV ₅
1993 QN ₃	13.4	0.15	19990810	167.80290	133.82958	159.88496	4.82789	0.0577162	2.6989509	34	3	1993–1999	0.82	M-v	3	Williams	36882	1993 QN ₃
1993 QP ₃	14.1	0.15	19990810	28.78774	203.20160	177.92033	2.02396	0.1629189	2.9858135	43	3	1993–1999	0.70	M-v	3	Williams	36882	1993 QP ₃
1993 QO ₄	13.7	0.15	19990810	23.08463	211.97167	149.78520	1.78837	0.2205302	3.0961042	32	3	1993–1999	0.85	M-v	3	Williams	35688	1993 QO ₄
1993 QV ₄	13.9	0.15	19990810	354.96364	63.22262	14.33652	1.85705	0.0207650	2.8564968	60	5	1988–1999	0.63	M-v	1	Williams	36512	1993 QV ₄
1993 QH ₈	13.8	0.15	19990810	69.17102	193.91167	82.20551	2.74132	0.1262714	3.2073292	50	4	1992–1999	0.55	M-v	1	Williams	36882	1993 QH ₈
1993 QS ₉	14.2	0.15	19990810	60.24399	190.15967	154.86554	11.48700	0.1060747	2.9660411	35	3	1993–1999	0.83	M-v	3	Williams	32746	1993 QS ₉
1993 RJ ₃	15.1	0.15	19990810	261.52940	127.78409	242.79383	6.47772	0.1587690	2.2515859	23	4	1986–1999	0.96	M-v	2	Williams	35688	1993 RJ ₃
1993 RQ ₅	14.3	0.15	19990810	0.57235	301.86675	183.36266	7.06362	0.0504806	2.7000070	59	6	1979–1999	0.71	M-v	1	Williams	33549	1993 RQ ₅
1993 RA ₈	12.6	0.15	19990810	3.80599	155.81136	192.05811	8.07769	0.0256036	3.3489166	127	4	1993–1999	0.53	M-v	1	Williams	36882	1993 RA ₈
1993 SU ₄	13.5	0.15	19990810	105.18354	342.70356	354.37808	12.08586	0.0379556	2.7933539	32	4	1977–1999	0.77	M-v	2	Williams	35688	1993 SU ₄
1993 ST ₅	15.1	0.15	19990810	20.13956	94.54715	193.97984	1.60757	0.1489137	2.1316300	68	6	1971–1999	0.68	M-v	2	Williams	36882	1993 ST ₅
1993 SA ₆	13.8	0.15	19990810	304.15721	322.59442	151.88510	1.80522	0.1320274	3.0589702	20	3	1993–1999	0.66	M-v	4	Williams	34010	1993 SA ₆
1993 SU ₆	13.8	0.15	19990810	230.82842	268.20614	350.02984	0.43931	0.0910676	2.6436117	34	6	1976–1999	0.77	M-v	1	Williams	33549	1993 SU ₆
1993 TJ	13.0	0.15	19990810	242.42496	315.51833	205.83843	9.65534	0.0481355	3.0232383	84	3	1993–1999	0.61	M-v	3	Williams	36882	1993 TJ
1993 TJ ₂	13.4	0.15	19990810	1.80820	0.32657	35.50403	2.59966	0.1972589	3.1925910	27	3	1993–1999	0.56	M-v	4	Williams	32456	1993 TJ ₂
1993 TX ₁₄	14.9	0.15	19990810	22.56229	221.39357	142.06508	1.41374	0.1852156	3.1668118	37	3	1993–1999	0.70	M-v	4	Williams	27106	1993 TX ₁₄
1993 TU ₁₅	14.0	0.15	19990810	324.24399	255.34122	197.77057	1.33599	0.1239657	3.1016585	26	3	1993–1999	0.65	M-v	5	Williams	31537	1993 TU ₁₅
1993 TN ₁₈	13.4	0.15	19990810	206.35150	211.82895	61.57272	3.40932	0.0338960	2.7306329	39	5	1993–1999	0.86	M-v	1	Williams	34581	1993 TN ₁₈
1993 TV ₁₉	13.1	0.15	19990810	146.08888	213.75972	84.10352	3.43909	0.0182448	2.8896519	51	3	1993–1999	0.69	M-v	3	Williams	36513	1993 TV ₁₉
1993 TO ₂₀	14.5	0.15	19990810	33.56943	194.16288	163.44351	4.28057	0.1430460	3.1445409	28	4	1993–1999	0.78	M-v	1	Williams	35689	1993 TO ₂₀
1993 TG ₂₆	12.9	0.15	19990810	311.94646	85.05098	36.31294	10.49541	0.0496885	2.9896721	76	4	1993–1999	0.74	M-v	1	Williams	33072	1993 TG ₂₆
1993 TD ₂₈	14.0	0.15	19990810	88.89728	147.61809	173.61180	3.90021	0.0625185	3.0560469	27	4	1992–1999	0.83	M-v	1	Williams	32746	1993 TD ₂₈
1993 TJ ₃₁	13.7	0.15	19990810	47.35696	250.17290	115.51034	5.19477	0.0528926	3.0673200	38	3	1993–1999	0.61	M-v	3	Williams	36883	1993 TJ ₃₁
1993 TD ₃₇	13.5	0.15	19990810	1.70680	231.71668	163.15225	8.26953	0.0403371	3.1933302	30	3	1993–1999	0.76	M-v	3	Williams	36883	1993 TD ₃₇
1993 TK ₃₇	14.1	0.15	19990810	37.03381	211.65444	181.04616	11.49143	0.1463320	3.0123529	38	4	1972–1999	0.78	M-v	2	Williams	33072	1993 TK ₃₇
1993 TX ₃₈	13.6	0.15	19990810	95.46436	212.63108	105.95944	6.99374	0.0561918	3.0609491	23	3	1993–1999	0.66	M-v	4	Williams	36883	1993 TX ₃₈
1993 UK	12.8	0.15	19990810	124.04506	254.90155	80.70369	3.32559	0.0669581	2.8530806	65	3	1993–1999	0.72	M-v	3	Williams	36883	1993 UK

1993 UW ₆	13.4	0.15	19990810	90.44010	234.56888	97.88562	6.16925	0.1141366	3.0058772	30	3	1993–1999	0.50	M-v	4	Williams	33339	1993 UW ₆
1993 UZ ₇	13.1	0.15	19990810	1.08856	264.45018	144.18064	7.32428	0.1425150	3.1629009	65	3	1993–1999	0.74	M-v	2	Williams	36883	1993 UZ ₇
1993 VD ₄	13.1	0.15	19990810	102.55896	292.49981	49.70771	14.07425	0.0918307	2.9605611	42	4	1981–1999	0.57	M-v	2	Williams	33747	1993 VD ₄
1994 AC	14.4	0.15	19990810	302.84192	160.73819	255.34768	3.15341	0.0931660	2.1782593	114	4	1991–1999	0.53	M-v	2	Williams	36883	1994 AC
1994 AN ₂	14.7	0.15	19990810	125.18230	270.85270	305.70296	6.59481	0.0635929	2.3005292	61	3	1994–1999	0.62	M-v	3	Williams	36513	1994 AN ₂
1994 AC ₃	13.7	0.15	19990810	355.24191	82.82870	31.23184	0.57948	0.1189308	3.2237721	56	4	1977–1999	0.71	M-v	1	Williams	34011	1994 AC ₃
1994 AV ₁₀	15.2	0.15	19990810	297.63419	67.22151	341.24499	4.32118	0.1334306	2.2444713	35	3	1994–1999	0.73	M-v	3	Williams	36883	1994 AV ₁₀
1994 AY ₁₀	15.5	0.15	19990810	91.62683	234.63360	45.40950	3.13921	0.2073217	2.2538863	62	3	1994–1999	0.58	M-v	3	Williams	36883	1994 AY ₁₀
1994 BX	15.1	0.15	19990810	144.59476	122.57922	75.31573	7.54578	0.0966988	2.3346226	59	4	1994–1999	0.54	M-v	2	Williams	36513	1994 BX
1994 BC ₁	12.5	0.15	19990810	247.36058	300.47837	314.09896	12.41252	0.1852520	3.1790717	34	5	1994–1999	0.75	M-v	1	Williams	34504	1994 BC ₁
1994 BD ₁	15.0	0.15	19990810	315.33502	45.25569	7.66581	6.47081	0.1454433	2.1985359	56	2	1994–1999	0.68	M-v	4	Williams	36883	1994 BD ₁
1994 BD ₄	13.2	0.15	19990810	10.22624	306.12160	157.21798	5.95658	0.0877588	3.1537369	26	4	1981–1999	0.45	M-v	1	Williams	33550	1994 BD ₄
1994 CY ₁	13.9	0.15	19990810	112.54151	299.85712	300.84005	7.97361	0.0848956	2.3296409	59	3	1988–1999	0.58	M-v	2	Williams	36883	1994 CY ₁
1994 CU ₁₀	14.9	0.15	19990810	266.65170	323.70527	127.75710	6.31060	0.0300884	2.2957525	52	3	1994–1999	0.63	M-v	3	Williams	36883	1994 CU ₁₀
1994 CG ₁₂	14.5	0.15	19990810	62.17418	215.61639	58.84781	3.28183	0.1528488	2.4168552	75	4	1992–1999	0.73	M-v	2	Williams	36883	1994 CG ₁₂
1994 CX ₁₂	14.3	0.15	19990810	152.47316	145.34303	40.04366	4.02108	0.0650047	2.3745285	87	4	1987–1999	0.73	M-v	2	Williams	36513	1994 CX ₁₂
1994 CD ₁₈	14.4	0.15	19990810	11.42823	20.63075	358.39315	8.13674	0.1917417	2.1927753	24	3	1989–1999	0.79	M-v	4	Williams	36883	1994 CD ₁₈
1994 ET	15.8	0.15	19990810	337.80895	59.02087	328.26814	7.56883	0.1358155	2.2199926	53	2	1994–1999	0.65	M-v	3	Williams	36883	1994 ET
1994 EL ₁	13.7	0.15	19990810	339.06844	317.13730	112.79542	4.93082	0.1383990	2.1890861	47	3	1994–1999	0.68	M-v	2	Williams	36513	1994 EL ₁
1994 EC ₂	13.6	0.15	19990810	302.24981	39.16580	13.67601	25.24274	0.2550711	2.2913817	26	3	1968–1999	0.75	M-v	2	Williams	36883	1994 EC ₂
1994 EC ₅	14.5	0.15	19990810	16.32356	328.86616	345.76000	6.14287	0.0602120	2.4145560	106	3	1994–1999	0.67	M-v	3	Williams	36883	1994 EC ₅
1994 ER ₅	15.1	0.15	19990810	188.86576	159.16162	35.52309	3.83613	0.1212474	2.2663117	32	2	1994–1999	0.62	M-v	4	Williams	36791	1994 ER ₅
1994 EJ ₆	15.3	0.15	19990810	319.77720	353.70988	74.39847	4.96649	0.0476443	2.2250814	44	2	1994–1999	0.65	M-v	5	Williams	36792	1994 EJ ₆
1994 EZ ₆	14.6	0.15	19990810	50.23875	222.57825	97.18666	5.96003	0.1521360	2.3112049	79	3	1994–1999	0.56	M-v	2	Williams	36883	1994 EZ ₆
1994 FB	15.0	0.15	19990810	293.31582	258.89272	193.59046	2.28039	0.0510000	2.2444526	97	5	1991–1999	0.65	M-v	2	Williams	36883	1994 FB
1994 FY	13.9	0.15	19990810	185.53164	136.64974	41.50269	12.04938	0.1076515	2.3654650	48	4	1976–1999	0.62	M-v	2	Williams	36883	1994 FY
1994 GN	14.2	0.15	19990810	131.29042	203.54885	71.99102	5.54890	0.1404350	2.2689605	44	4	1994–1999	0.72	M-v	3	Williams	36883	1994 GN
1994 GK ₉	14.4	0.15	19990810	200.65805	337.18101	226.79900	5.86131	0.1296435	2.2563406	26	2	1994–1999	0.58	M-v	4	Williams	36792	1994 GK ₉
1994 GU ₉	13.6	0.15	19990810	135.40160	124.37539	125.74258	21.95869	0.1215261	2.3012207	41	4	1990–1999	0.59	M-v	2	Williams	36883	1994 GU ₉
1994 JB	14.8	0.15	19990810	51.02790	222.93411	65.95213	3.15938	0.1881482	2.5473825	43	3	1994–1999	0.58	M-v	2	Williams	32307	1994 JB
1994 JY	13.2	0.15	19990810	339.46897	140.91081	94.14535	3.89864	0.1232853	3.0363531	51	4	1986–1999	0.67	M-v	3	Williams	35426	1994 JY
1994 JU ₈	13.6	0.15	19990810	60.41439	58.49878	231.28326	15.78311	0.1222881	2.5232452	92	3	1994–1999	0.69	M-v	2	Williams	36883	1994 JU ₈
1994 KA	12.4	0.15	19990810	83.94008	251.47079	69.11060	23.31566	0.2722858	2.3583895	36	4	1994–1999	0.69	M-v	1	Williams	32307	1994 KA
1994 NA	14.6	0.15	19990810	136.10734	154.87838	113.34969	7.20238	0.1095839	2.4479753	51	3	1994–1999	0.61	M-v	3	Williams	36883	1994 NA
1994 PS	13.7	0.15	19990810	286.22730	32.16740	154.47973	11.21377	0.1075844	2.3482595	39	5	1994–1999	0.65	M-v	1	Williams	36883	1994 PS
1994 PN ₁	13.2	0.15	19990810	336.00976	307.38411	108.98371	24.64987	0.1967599	2.7934488	24	3	1994–1999	0.60	M-v	3	Williams	32235	1994 PN ₁
1994 PN ₅	14.5	0.15	19990810	311.18765	275.72808	150.56044	2.86621	0.0713644	2.7303586	41	3	1994–1999	0.70	M-v	4	Williams	36884	1994 PN ₅
1994 PC ₉	14.6	0.15	19990810	350.05705	214.33417	190.77408	0.27920	0.0753975	2.6554944	52	2	1994–1999	0.65	M-v	4	Williams	36792	1994 PC ₉
1994 PC ₁₃	15.0	0.15	19990810	92.36566	90.38791	238.38145	1.32819	0.0905136	2.5199333	29	4	1978–1999	0.77	M-v	4	Williams	35690	1994 PC ₁₃
1994 PK ₁₄	15.1	0.15	19990810	16.21979	63.14422	319.52739	7.02828	0.1827505	2.6755148	24	3	1994–1999	0.76	M-v	4	Williams	27448	1994 PK ₁₄
1994 PT ₁₆	14.8	0.15	19990810	166.73347	344.95939	263.99566	2.24906	0.0735982	2.5219375	41	4	1994–1999	0.90	M-v	1	Williams	32747	1994 PT ₁₆
1994 PK ₂₀	13.8	0.15	19990810	215.61103	330.43310	169.60915	2.05316	0.0286285	2.8370774	91	3	1994–1999	0.61	M-v	3	Williams	36514	1994 PK ₂₀
1994 PL ₂₀	15.3	0.15	19990810	329.06033	328.59142	166.38404	2.50298	0.1125440	2.4066023	28	4	1994–1999	0.73	M-v	2	Williams	35691	1994 PL ₂₀
1994 PL ₂₃	14.6	0.15	19990810	344.20857	59.41531	36.24060	1.22694	0.1489143	2.5363999	48	5	1988–1999	0.87	M-v	2	Williams	36884	1994 PL ₂₃
1994 PN ₂₅	14.7	0.15	19990810	216.99985	119.13165	101.47732	2.22755	0.1338269	2.3966389	47	5	1991–1999	0.87	M-v	2	Williams	34193	1994 PN ₂₅
1994 PY ₂₅	14.8	0.15	19990810	70.59394	212.47775	118.86169	1.32151	0.1068173	2.5834837	23	4	1994–1999	0.59	M-v	2	Williams	32517	1994 PY ₂₅
1994 PU ₂₆	15.1	0.15	19990810	83.14441	189.02371	121.19724	2.87211	0.1800215	2.5915626	39	4	1993–1999	0.74	M-v	1	Williams	32517	1994 PU ₂₆
1994 PS ₂₈	14.5	0.15	19990810	213.66887	90.42400	134.88284	6.02333	0.1740121	2.3824262	25	4	1982–1999	0.72	M-v	2	Williams	33243	1994 PS ₂₈
1994 PC ₂₉	14.2	0.15	19990810	66.21710	160.64017	134.82579	8.00622	0.0955463	2.7383459	60	4	1993–1999	0.70	M-v	1	Williams	36884	1994 PC ₂₉
1994 PH ₂₉	14.0	0.15	19990810	114.28815	159.33056	93.48832	3.22389	0.0415864	2.7219275	38	2	1994–1999	0.67	M-v	5	Williams	36884	1994 PH ₂₉
1994 PW ₂₉	13.9	0.15	19990810	310.06559	210.93774	184.09476	10.55976	0.1326657	2.9299673	64	3	1994–1999	0.64	M-v	3	Williams	36884	1994 PW ₂₉
1994 PO ₃₀	14.1	0.15	19990810	355.64258	151.88063	204.84675	4.59360	0.1233337	2.8506684	81	3	1994–1999	0.60	M-v	3	Williams	36514	1994 PO ₃₀
1994 PW ₃₁	13.7	0.15	19990810	171.20549	78.19318	175.58223	7.82437	0.1677178	2.4463018	76	5	1990–1999	0.76	M-v	1	Williams	33551	1994 PW ₃₁

1994 PL ₃₂	15.0	0.15	19990810	6.64965	207.93378	218.44880	3.43808	0.1905475	2.5724486	20	5	1978–1999	0.84	M-v	2	Williams	32517	1994 PL ₃₂
1994 PO ₃₂	13.8	0.15	19990810	296.52119	223.90060	304.41438	5.93482	0.0751608	2.3752767	29	5	1979–1999	0.59	M-v	2	Williams	34507	1994 PO ₃₂
1994 PL ₃₄	14.6	0.15	19990810	338.51463	202.93731	216.58357	3.12979	0.1197909	2.6489031	40	4	1977–1999	0.67	M-v	1	Williams	36884	1994 PL ₃₄
1994 PV ₃₇	14.6	0.15	19990810	145.96319	118.96844	172.15466	2.35861	0.1832653	2.4053860	67	5	1979–1999	0.73	M-v	2	Williams	35691	1994 PV ₃₇
1994 QQ	13.3	0.15	19990810	87.28755	265.96173	342.13693	9.94492	0.0956548	2.8754828	81	3	1994–1999	0.61	M-v	2	Williams	36515	1994 QQ
1994 QV	13.1	0.15	19990810	42.98971	6.23637	354.02732	13.66736	0.2891754	2.6442121	46	5	1971–1999	0.66	M-v	2	Williams	29945	1994 QV
1994 QX	14.3	0.15	19990810	25.62087	78.24351	315.67308	14.10150	0.1245040	2.6333840	43	4	1994–1999	0.68	M-v	1	Williams	32748	1994 QX
1994 RL ₁	14.4	0.15	19990810	88.33522	153.75357	188.39326	12.94266	0.2087388	2.5438035	77	5	1986–1999	0.64	M-v	2	Williams	34291	1994 RL ₁
1994 RL ₇	14.1	0.15	19990810	273.48067	169.80308	323.02347	1.87573	0.2053093	2.7628016	104	3	1994–1999	0.47	M-v	3	Williams	36884	1994 RL ₇
1994 RR ₁₁	14.0	0.15	19990810	359.79641	157.59875	238.79422	7.62561	0.1662420	2.7382627	67	5	1983–1999	0.65	M-v	1	Williams	36884	1994 RR ₁₁
1994 SH ₉	13.8	0.15	19990810	92.85172	231.16739	27.64415	2.32189	0.0483036	2.9345630	75	2	1994–1999	0.57	M-v	4	Williams	36884	1994 SH ₉
1994 TZ	13.0	0.15	19990810	252.77089	281.79103	176.25037	10.02864	0.0688819	3.0602211	58	3	1994–1999	0.53	M-v	3	Williams	36884	1994 TZ
1994 TH ₁	13.2	0.15	19990810	358.88634	322.78646	42.26627	13.28592	0.1163315	2.9344546	42	3	1979–1999	0.60	M-v	3	Williams	36792	1994 TH ₁
1994 TO ₂	12.8	0.15	19990810	38.87878	319.82808	31.62571	9.64539	0.1633567	2.7578862	21	3	1994–1999	0.68	M-v	4	Williams	36515	1994 TO ₂
1994 TB ₃	14.0	0.15	19990810	53.33611	12.34649	14.62276	14.60118	0.1502771	2.6000594	51	3	1994–1999	0.72	M-v	2	Williams	35691	1994 TB ₃
1994 TK ₁₁	14.2	0.15	19990810	123.58842	95.06778	235.80762	2.15280	0.0712148	2.4707335	95	5	1977–1999	0.61	M-v	2	Williams	35691	1994 TK ₁₁
1994 TO ₁₅	13.9	0.15	19990810	234.33698	204.16806	22.61763	8.31783	0.2455244	2.4410519	37	6	1989–1999	0.70	M-v	2	Williams	33341	1994 TO ₁₅
1994 UQ	13.2	0.15	19990810	181.08595	197.32581	61.52964	13.77926	0.1290052	2.6782061	36	3	1994–1999	0.59	M-v	3	Williams	36515	1994 UQ
1994 UJ ₁	14.1	0.15	19990810	78.83354	19.61275	348.00354	3.11084	0.1819777	2.5728183	83	5	1992–1999	0.61	M-v	2	Williams	33748	1994 UJ ₁
1994 UT ₁	13.0	0.15	19990810	41.92042	330.83235	45.02695	14.62306	0.1882166	2.7112273	46	4	1994–1999	0.62	M-v	1	Williams	33551	1994 UT ₁
1994 UZ ₁	12.7	0.15	19990810	313.55536	28.57232	51.32754	13.27998	0.0761124	2.9080331	86	3	1989–1999	0.65	M-v	4	Williams	36884	1994 UZ ₁
1994 UA ₃	14.2	0.15	19990810	3.97663	200.01578	241.82474	1.18264	0.1761051	2.6703950	53	4	1981–1999	0.74	M-v	2	Williams	35692	1994 UA ₃
1994 VA	13.3	0.15	19990810	115.79962	90.13354	232.35811	11.97718	0.2530880	2.5398834	50	4	1981–1999	0.74	M-v	2	Williams	35692	1994 VA
1994 VR	13.6	0.15	19990810	45.36189	315.61023	45.92708	11.19816	0.1865541	2.8035470	24	5	1975–1999	0.50	M-v	1	Williams	24585	1994 VR
1994 VH ₁	13.5	0.15	19990810	317.64035	54.23002	87.12659	4.10974	0.0595404	2.6344151	89	3	1994–1999	0.59	M-v	3	Williams	34291	1994 VH ₁
1994 VM ₁	13.8	0.15	19990810	315.31128	239.76204	180.70695	4.69274	0.1970271	3.0616877	90	3	1994–1999	0.59	M-v	3	Williams	36884	1994 VM ₁
1994 VS ₁	14.1	0.15	19990810	319.00511	19.15587	39.13154	5.03227	0.1783809	3.0783256	88	2	1994–1999	0.57	M-v	4	Williams	36884	1994 VS ₁
1994 VX ₁	13.8	0.15	19990810	357.67882	274.71942	98.47067	3.52151	0.0760195	2.9922443	58	2	1994–1999	0.51	M-v	4	Williams	36884	1994 VX ₁
1994 VD ₂	13.7	0.15	19990810	23.31963	352.00246	59.32450	8.83750	0.2197844	2.7414485	59	4	1994–1999	0.52	M-v	1	Williams	33552	1994 VD ₂
1994 VU ₆	13.7	0.15	19990810	73.89289	144.25680	209.77651	13.05119	0.2124887	2.6356631	58	3	1994–1999	0.78	M-v	2	Williams	33552	1994 VU ₆
1994 VD ₇	12.4	0.15	19990810	39.84558	72.58524	234.96712	20.76799	0.1059542	3.1657793	55	3	1994–1999	0.67	M-v	2	Williams	36884	1994 VD ₇
1994 WO	14.2	0.15	19990810	10.77797	313.00784	48.80975	7.27092	0.2593224	2.9766587	38	2	1994–1999	0.41	M-v	4	Williams	36793	1994 WO
1994 WF ₁	13.8	0.15	19990810	38.88803	97.26410	268.16565	0.96401	0.0930640	2.9006867	47	3	1994–1999	0.58	M-v	3	Williams	36884	1994 WF ₁
1994 WS ₁	13.8	0.15	19990810	328.90336	154.84586	281.43413	8.88107	0.1619039	3.0162628	16	3	1989–1999	0.66	M-v	4	Williams	24574	1994 WS ₁
1994 WB ₃	13.9	0.15	19990810	314.89443	305.56793	110.66986	2.38376	0.1932804	3.1068385	60	3	1994–1999	0.70	M-v	3	Williams	36515	1994 WB ₃
1994 WE ₄	12.5	0.15	19990810	54.90862	268.89456	66.01313	11.08520	0.1144773	3.0041849	42	3	1978–1999	0.47	M-v	4	Williams	36793	1994 WE ₄
1994 XM	14.2	0.15	19990810	309.72670	21.69073	41.74334	1.23969	0.1811044	3.1270386	70	3	1994–1999	0.53	M-v	4	Williams	36884	1994 XM
1994 YG	14.5	0.15	19990810	320.64880	34.72402	31.40382	0.98498	0.2485493	3.0518068	87	3	1978–1999	0.59	M-v	2	Williams	36884	1994 YG
1994 YU	13.6	0.15	19990810	69.22580	59.46344	286.95067	9.79939	0.1222042	2.9788645	33	3	1994–1999	0.73	M-v	3	Williams	36515	1994 YU
1995 AF	12.5	0.15	19990810	140.77081	27.94658	294.33515	11.53383	0.1681219	2.6653004	71	5	1989–1999	0.71	M-v	2	Williams	36884	1995 AF
1995 BD	12.0	0.15	19990810	98.44537	182.56125	91.91581	10.01858	0.1128575	3.4230925	66	4	1995–1999	0.57	M-v	1	Williams	36884	1995 BD
1995 BL	14.5	0.15	19990810	244.58827	177.67815	309.68948	17.98548	0.0657038	1.9452619	40	2	1995–1999	0.62	M-v	4	Williams	36884	1995 BL
1995 BX	13.6	0.15	19990810	2.59122	19.29843	34.29186	1.47811	0.1930609	3.0620163	52	3	1995–1999	0.68	M-v	2	Williams	36884	1995 BX
1995 BQ ₂	13.4	0.15	19990810	304.47856	239.80719	226.64311	25.48208	0.2008758	3.1475106	41	2	1995–1999	0.39	M-v	2	Williams	36793	1995 BQ ₂
1995 CJ	13.2	0.15	19990810	236.17778	115.16002	126.75997	14.50886	0.2140044	3.0528868	21	5	1991–1999	0.59	M-v	2	Williams	33553	1995 CJ
1995 DZ ₁	13.1	0.15	19990810	172.32357	202.14793	79.12097	7.32004	0.1251216	3.0953729	76	5	1995–1999	0.69	M-v	1	Williams	36515	1995 DZ ₁
1995 DR ₂	12.7	0.15	19990810	227.72342	149.54018	73.99778	8.92567	0.0864628	3.1855140	25	4	1995–1999	0.91	M-v	2	Williams	34583	1995 DR ₂
1995 DX ₂	16.5	0.15	19990810	218.20245	302.47229	239.91238	19.07668	0.0532985	1.9266179	32	3	1995–1999	0.66	M-v	2	Williams	32749	1995 DX ₂
1995 DA ₃	15.7	0.15	19990810	124.85321	42.07302	227.35256	20.44207	0.0403861	1.9463196	36	3	1995–1999	0.67	M-v	3	Williams	36884	1995 DA ₃
1995 DZ ₁₁	13.3	0.15	19990810	12.49487	311.86354	140.87336	2.83733	0.0362230	2.9419159	48	5	1990–1999	0.69	M-v	1	Williams	36884	1995 DZ ₁₁
1995 EF	13.1	0.15	19990810	302.91146	56.38486	127.79535	8.50057	0.1614985	2.7969320	38	4	1994–1999	0.59	M-v	2	Williams	33342	1995 EF
1995 EF ₈	13.7	0.15	19990810	337.32338	350.74447	111.06556	3.09027	0.1382111	3.1302399	42	5	1982–1999	0.69	M-v	1	Williams	36516	1995 EF ₈
1995 FS	13.1	0.15	19990810	284.41786	154.60858	357.23264	17.27417	0.1452625	3.1241232	69	4	1993–1999	0.65	M-v	2	Williams	36885	1995 FS

1995 FM ₁₁	15.8	0.15	19990810	51.70858	104.56395	184.66536	3.75718	0.1381494	2.1550137	64	4	1992–1999	0.52	M-v	3	Williams	36885	1995 FM ₁₁
1995 GW ₂	15.3	0.15	19990810	303.64983	138.91389	29.19160	14.20138	0.2186232	3.0908247	24	3	1995–1999	0.33	M-v	2	Williams	35693	1995 GW ₂
1995 HY ₂	13.7	0.15	19990810	5.51897	328.68370	128.89260	3.24718	0.1724849	3.2127693	35	4	1995–1999	0.55	M-v	1	Williams	35693	1995 HY ₂
1995 KM ₁	15.4	0.15	19990810	38.62828	182.52656	117.85715	4.00292	0.2212551	2.3043634	96	3	1995–1999	0.60	M-v	3	Williams	36885	1995 KM ₁
1995 MB	12.5	0.15	19990810	29.91853	11.00076	280.07123	26.26834	0.2207111	2.4128175	93	2	1995–1999	0.54	M-v	2	Williams	36885	1995 MB
1995 OB	15.1	0.15	19990810	60.34303	37.89053	260.80661	4.83429	0.1795753	2.2910112	77	3	1995–1999	0.63	M-v	2	Williams	36885	1995 OB
1995 OF	16.0	0.15	19990810	36.62324	68.81601	264.34482	6.09694	0.1341831	2.3034854	58	3	1995–1999	0.75	M-v	3	Williams	36885	1995 OF
1995 OH	14.8	0.15	19990810	37.77944	48.11599	248.61066	4.45000	0.2101544	2.3140936	31	2	1995–1999	0.73	M-v	3	Williams	36793	1995 OH
1995 OR	14.9	0.15	19990810	41.91422	268.59402	63.61898	4.82535	0.2230428	2.2876822	49	3	1995–1999	0.53	M-v	3	Williams	36885	1995 OR
1995 PA	15.8	0.15	19990810	1.81624	316.28751	59.91464	3.50821	0.2050903	2.3391663	87	2	1995–1999	0.54	M-v	3	Williams	36793	1995 PA
1995 QK	15.2	0.15	19990810	22.19824	132.72053	231.18220	3.31171	0.1721866	2.3153829	40	5	1988–1999	0.69	M-v	1	Williams	36885	1995 QK
1995 QS	14.5	0.15	19990810	102.69054	213.84403	59.21636	5.18090	0.1584701	2.2508459	138	3	1995–1999	0.58	M-v	3	Williams	36885	1995 QS
1995 QN ₂	14.9	0.15	19990810	339.48357	254.03465	150.64804	6.78525	0.1005496	2.3282517	62	3	1995–1999	0.55	M-v	3	Williams	36885	1995 QN ₂
1995 QC ₃	15.2	0.15	19990810	29.75044	345.04828	337.01738	5.66154	0.3702722	2.4145082	35	4	1980–1999	0.78	M-v	2	Williams	36516	1995 QC ₃
1995 QY ₃	14.4	0.15	19990810	70.88311	18.06969	243.26896	4.96354	0.1299215	2.4732477	76	3	1995–1999	0.71	M-v	2	Williams	36516	1995 QY ₃
1995 RC	14.2	0.15	19990810	50.11488	58.49361	331.82312	5.52630	0.1672325	2.2091065	105	4	1995–1999	0.59	M-v	1	Williams	36885	1995 RC
1995 SR	14.3	0.15	19990810	10.82452	70.70103	217.39160	26.52427	0.3098411	2.5886086	45	2	1995–1999	0.48	M-v	2	Williams	36885	1995 SR
1995 SB ₁	14.3	0.15	19990810	352.26908	167.71230	231.79603	24.33297	0.2543243	2.3953088	44	4	1995–1999	0.62	M-v	2	Williams	36885	1995 SB ₁
1995 SH ₁	16.3	0.15	19990810	52.09408	33.93629	303.11928	5.77756	0.1379915	2.2910875	27	3	1995–1999	0.43	M-v	3	Williams	35693	1995 SH ₁
1995 SJ ₁	15.0	0.15	19990810	322.01478	62.54408	351.86784	4.07381	0.2009158	2.4807206	128	3	1995–1999	0.47	M-v	2	Williams	36885	1995 SJ ₁
1995 SQ ₁	13.8	0.15	19990810	331.19707	121.86772	313.79468	23.71420	0.2224801	2.3679878	33	3	1991–1999	0.61	M-v	3	Williams	36885	1995 SQ ₁
1995 SK ₂	15.1	0.15	19990810	9.22814	355.64003	349.62485	3.12359	0.1953113	2.4324208	116	3	1995–1999	0.65	M-v	3	Williams	36885	1995 SK ₂
1995 SO ₂	15.8	0.15	19990810	6.90427	83.02173	232.97634	4.11427	0.2934080	2.5724240	75	2	1995–1999	0.52	M-v	3	Williams	36885	1995 SO ₂
1995 SX ₂	14.2	0.15	19990810	33.23045	280.76826	42.10340	3.50822	0.1922277	2.4251952	114	3	1995–1999	0.62	M-v	2	Williams	36885	1995 SX ₂
1995 SK ₃	14.6	0.15	19990810	74.39083	178.00074	94.66260	3.56732	0.1632370	2.4621821	72	4	1991–1999	0.55	M-v	3	Williams	36885	1995 SK ₃
1995 SP ₃	15.0	0.15	19990810	99.39957	66.93037	251.35236	5.38696	0.2014441	2.1922299	35	4	1982–1999	0.66	M-v	2	Williams	32309	1995 SP ₃
1995 SU ₃	13.5	0.15	19990810	109.89150	317.10928	329.87139	6.62649	0.1908573	2.2486697	26	4	1981–1999	0.60	M-v	3	Williams	36517	1995 SU ₃
1995 SG ₄	15.0	0.15	19990810	51.24063	41.78723	312.74237	21.69941	0.2269132	2.2853487	22	3	1995–1999	0.69	M-v	3	Williams	29623	1995 SG ₄
1995 SO ₅	13.9	0.15	19990810	10.08142	257.05068	54.66307	14.06959	0.1987049	2.5324968	33	4	1987–1999	0.67	M-v	2	Williams	36885	1995 SO ₅
1995 SM ₂₁	15.4	0.15	19990810	31.69161	7.64436	350.88180	7.08803	0.1305644	2.3017334	27	3	1988–1999	0.61	M-v	2	Williams	29664	1995 SM ₂₁
1995 SH ₂₆	14.8	0.15	19990810	41.51945	311.12795	354.22950	1.74758	0.1283761	2.5309820	91	4	1991–1999	0.62	M-v	2	Williams	36885	1995 SH ₂₆
1995 SB ₃₁	14.9	0.15	19990810	139.05384	253.90159	356.86376	5.52971	0.1093111	2.2480476	35	4	1974–1999	0.40	M-v	2	Williams	36517	1995 SB ₃₁
1995 SV ₅₀	15.9	0.15	19990810	10.49067	41.05570	350.96710	2.07199	0.2026539	2.3645514	26	3	1995–1999	0.60	M-v	4	Williams	31241	1995 SV ₅₀
1995 SD ₅₃	15.3	0.15	19990810	349.52766	206.56422	178.97386	5.42035	0.1506817	2.4192596	24	3	1995–1999	0.62	M-v	4	Williams	30093	1995 SD ₅₃
1995 ST ₅₃	13.8	0.15	19990810	32.80453	261.73171	40.99321	13.61722	0.2939792	2.6195452	51	2	1995–1999	0.39	M-v	3	Williams	36885	1995 ST ₅₃
1995 SO ₅₄	14.6	0.15	19990810	22.65928	268.93520	127.65068	3.43676	0.1751231	2.2924810	21	4	1988–1999	0.61	M-v	3	Williams	36885	1995 SO ₅₄
1995 TB	16.0	0.15	19990810	331.94001	78.69806	2.57113	4.75679	0.1858453	2.3483545	46	3	1995–1999	0.54	M-v	3	Williams	29624	1995 TB
1995 TR	13.9	0.15	19990810	88.18637	84.39484	219.02874	5.48683	0.1155915	2.3800108	48	5	1983–1999	0.54	M-v	1	Williams	36885	1995 TR
1995 TZ	15.0	0.15	19990810	125.55796	251.73051	36.40072	2.15949	0.1952161	2.2314008	40	3	1995–1999	0.58	M-v	3	Williams	33074	1995 TZ
1995 TA ₁	15.1	0.15	19990810	210.48597	4.51304	177.37451	1.84710	0.0678304	2.4222038	59	3	1995–1999	0.55	M-v	3	Williams	36885	1995 TA ₁
1995 TQ ₆	14.2	0.15	19990810	299.25945	135.33788	19.53258	3.33499	0.0461008	2.2175561	41	4	1995–1999	0.48	M-v	1	Williams	36885	1995 TQ ₆
1995 TN ₇	16.2	0.15	19990810	337.42203	139.62831	280.46965	1.25046	0.1787762	2.4588894	35	2	1995–1999	0.29	M-v	3	Williams	36794	1995 TN ₇
1995 TB ₈	14.1	0.15	19990810	166.83092	303.16237	257.81611	1.55696	0.0607641	2.5888579	94	4	1989–1999	0.55	M-v	4	Williams	36885	1995 TB ₈
1995 TE ₈	14.3	0.15	19990810	53.27583	171.35213	178.99321	7.52899	0.2186114	2.3122779	44	3	1995–1999	0.63	M-v	2	Williams	36517	1995 TE ₈
1995 UE	15.0	0.15	19990810	236.15734	214.12208	344.25384	5.90978	0.0680192	2.2362965	64	4	1995–1999	0.80	M-v	2	Williams	32749	1995 UE
1995 UK	16.1	0.15	19990810	342.46187	131.50294	238.93276	4.15063	0.3042647	2.5651783	72	2	1995–1999	0.57	M-v	3	Williams	36885	1995 UK
1995 UM	16.2	0.15	19990810	321.95155	192.45514	231.95027	5.39811	0.1174629	2.4641156	27	2	1995–1999	0.69	M-v	5	Williams	36794	1995 UM
1995 UW ₂	14.7	0.15	19990810	357.76186	130.84436	261.02331	1.48798	0.1961440	2.4412517	96	4	1991–1999	0.43	M-v	2	Williams	36885	1995 UW ₂
1995 UM ₃	14.6	0.15	19990810	313.02974	20.64566	8.68139	5.87470	0.1127705	2.7316106	37	2	1995–1999	0.78	M-v	4	Williams	36517	1995 UM ₃
1995 UQ ₃	14.2	0.15	19990810	199.29695	12.10706	242.95149	2.14677	0.0729739	2.1821028	85	3	1995–1999	0.59	M-v	2	Williams	36885	1995 UQ ₃
1995 UX ₃	14.0	0.15	19990810	23.13864	356.25549	18.28540	6.65956	0.1291521	2.4079806	20	3	1991–1999	0.56	M-v	4	Williams	36517	1995 UX ₃
1995 UG ₆	14.6	0.15	19990810	354.61048	14.83318	7.85887	2.72680	0.1681929	2.5207549	77	3	1995–1999	0.59	M-v	3	Williams	36886	1995 UG ₆
1995 UK ₆	13.9	0.15	19990810	26.20492	29.95932	341.66230	1.89746	0.2040377	2.4017492	31	5	1980–1999	0.63	M-v	2	Williams	36517	1995 UK ₆

1995 UL ₇	13.8	0.15	19990810	28.80358	341.47830	25.19498	2.39612	0.2195092	2.4038152	25	3	1991–1999	0.51	M-v	3	Williams	36517	1995 UL ₇
1995 UP ₇	13.5	0.15	19990810	317.05745	250.11559	175.85053	5.49048	0.1150134	2.5616674	60	4	1993–1999	0.51	M-v	3	Williams	36886	1995 UP ₇
1995 UL ₈	15.3	0.15	19990810	345.69872	43.99747	41.97824	2.82972	0.1719542	2.3572366	45	3	1995–1999	0.59	M-v	4	Williams	36886	1995 UL ₈
1995 UN ₈	14.5	0.15	19990810	92.23524	290.43875	28.58328	6.79938	0.2078985	2.2994934	28	3	1995–1999	0.53	M-v	4	Williams	30666	1995 UN ₈
1995 UR ₈	16.1	0.15	19990810	16.20372	288.15420	32.73185	4.71448	0.2355137	2.5592697	73	4	1991–1999	0.65	M-v	3	Williams	36886	1995 UR ₈
1995 UV ₈	14.1	0.15	19990810	313.44979	7.14813	68.55646	3.09255	0.2543626	2.5593726	66	2	1995–1999	0.61	M-v	3	Williams	36886	1995 UV ₈
1995 UY ₈	14.9	0.15	19990810	323.61098	7.60627	64.76028	4.34417	0.1618349	2.4663074	44	2	1995–1999	0.43	M-v	4	Williams	36794	1995 UY ₈
1995 UQ ₁₁	14.0	0.15	19990810	70.02467	258.00418	10.24192	14.75908	0.0810763	2.5691493	57	3	1995–1999	0.44	M-v	2	Williams	36886	1995 UQ ₁₁
1995 UU ₁₄	15.9	0.15	19990810	247.22158	221.97770	309.54549	1.54799	0.1348989	2.3862661	39	3	1995–1999	0.53	M-v	4	Williams	36886	1995 UU ₁₄
1995 UB ₂₁	14.4	0.15	19990810	96.04437	58.99771	208.60414	7.59721	0.1503934	2.4613189	98	4	1991–1999	0.57	M-v	3	Williams	36886	1995 UB ₂₁
1995 UK ₂₈	14.2	0.15	19990810	31.46284	294.05001	40.50197	5.70434	0.1430327	2.4468154	126	3	1995–1999	0.56	M-v	2	Williams	36886	1995 UK ₂₈
1995 UK ₄₄	14.1	0.15	19990810	49.54628	92.93029	255.08256	5.76768	0.1467164	2.3548202	42	5	1976–1999	0.56	M-v	2	Williams	36886	1995 UK ₄₄
1995 UQ ₄₄	13.7	0.15	19990810	21.52534	303.74351	17.29318	12.98517	0.1690665	2.5781192	114	3	1995–1999	0.61	M-v	2	Williams	36886	1995 UQ ₄₄
1995 UY ₄₄	14.7	0.15	19990810	11.67646	332.55783	34.97109	10.02602	0.2068250	2.4890359	91	4	1991–1999	0.53	M-v	3	Williams	36886	1995 UY ₄₄
1995 UC ₄₅	13.5	0.15	19990810	87.66891	303.85355	41.85585	10.58177	0.0701041	2.2822334	25	4	1980–1999	0.77	M-v	2	Williams	36794	1995 UC ₄₅
1995 UC ₄₇	14.6	0.15	19990810	331.30636	355.98548	30.32064	5.64243	0.3056685	2.5894298	72	3	1993–1999	0.58	M-v	2	Williams	36886	1995 UC ₄₇
1995 VJ	14.7	0.15	19990810	290.12598	52.45072	42.57190	3.07111	0.1331723	2.5771848	68	3	1995–1999	0.58	M-v	3	Williams	36886	1995 VJ
1995 VN	15.2	0.15	19990810	17.20972	197.66469	179.93241	2.15933	0.2118134	2.4397895	25	4	1991–1999	0.54	M-v	3	Williams	36886	1995 VN
1995 VC ₁	13.6	0.15	19990810	307.44445	12.69351	36.19873	12.86826	0.2288272	2.6695461	36	4	1973–1999	0.57	M-v	1	Williams	36886	1995 VC ₁
1995 VE ₁	14.9	0.15	19990810	342.19288	270.50130	104.73873	3.01555	0.0994736	2.6774103	46	2	1995–1999	0.66	M-v	3	Williams	36340	1995 VE ₁
1995 VK ₁	13.9	0.15	19990810	274.98749	101.98722	335.77338	1.80072	0.0731108	2.7277414	89	3	1991–1999	0.48	M-v	3	Williams	36518	1995 VK ₁
1995 VH ₂	14.8	0.15	19990810	34.14757	220.04770	149.62623	2.89346	0.2180695	2.3897620	44	4	1980–1999	0.56	M-v	1	Williams	36518	1995 VH ₂
1995 VJ ₂	14.1	0.15	19990810	357.91119	334.21226	67.47531	15.38182	0.1150860	2.4703487	76	3	1995–1999	0.61	M-v	3	Williams	36886	1995 VJ ₂
1995 WQ	14.7	0.15	19990810	333.53466	27.82931	26.30980	3.26625	0.2286419	2.5611296	78	3	1995–1999	0.54	M-v	3	Williams	36886	1995 WQ
1995 WK ₁	14.1	0.15	19990810	291.98389	53.27146	43.39919	4.87922	0.1336272	2.6231171	62	2	1995–1999	0.50	M-v	4	Williams	36886	1995 WK ₁
1995 WQ ₁	14.5	0.15	19990810	6.91601	132.14766	264.91880	3.77141	0.2331209	2.5392220	43	2	1995–1999	0.48	M-v	4	Williams	36795	1995 WQ ₁
1995 WU ₁	12.4	0.15	19990810	308.13597	68.43586	44.07196	11.69500	0.0614589	2.4249427	38	5	1976–1999	0.79	M-v	1	Williams	33553	1995 WU ₁
1995 WG ₂	13.6	0.15	19990810	244.57641	257.82905	247.67104	10.67092	0.1092698	2.6681481	60	5	1985–1999	0.56	M-v	2	Williams	36886	1995 WG ₂
1995 WE ₃	14.6	0.15	19990810	202.60463	131.44953	65.68988	4.39332	0.0930154	2.5426030	40	2	1995–1999	0.48	M-v	5	Williams	36795	1995 WE ₃
1995 WF ₃	14.0	0.15	19990810	266.97255	68.84622	57.53022	11.53352	0.2281346	2.6589496	31	4	1992–1999	0.60	M-v	2	Williams	36886	1995 WF ₃
1995 WS ₃	15.3	0.15	19990810	347.03372	68.68809	296.73824	2.91447	0.2550666	2.5766597	113	3	1995–1999	0.53	M-v	2	Williams	36886	1995 WS ₃
1995 WM ₄	14.0	0.15	19990810	34.00432	236.28507	100.24091	4.26635	0.1583709	2.5902022	80	3	1995–1999	0.47	M-v	2	Williams	36886	1995 WM ₄
1995 WN ₄	15.5	0.15	19990810	338.19611	284.74475	114.52869	4.49640	0.1814416	2.6005198	46	2	1995–1999	0.66	M-v	3	Williams	36886	1995 WN ₄
1995 WB ₅	14.2	0.15	19990810	12.27371	96.80135	253.78256	12.78434	0.1553376	2.6330228	79	3	1995–1999	0.61	M-v	3	Williams	36886	1995 WB ₅
1995 WC ₅	14.0	0.15	19990810	277.18604	232.48813	226.04160	3.35222	0.0707400	2.6830721	82	5	1986–1999	0.51	M-v	1	Williams	36886	1995 WC ₅
1995 WF ₅	13.8	0.15	19990810	294.58719	287.39206	149.92656	4.37807	0.1539398	2.6469753	60	4	1991–1999	0.61	M-v	2	Williams	36886	1995 WF ₅
1995 WG ₅	14.2	0.15	19990810	342.30824	242.96492	198.52685	5.74287	0.0803958	2.3799247	26	3	1991–1999	0.46	M-v	3	Williams	36518	1995 WG ₅
1995 WK ₅	14.6	0.15	19990810	59.69702	341.44897	42.41750	3.45809	0.1238472	2.3109543	67	3	1995–1999	0.62	M-v	3	Williams	33074	1995 WK ₅
1995 WE ₆	14.9	0.15	19990810	353.59963	15.89558	21.98023	2.25290	0.2086109	2.3968463	81	4	1991–1999	0.55	M-v	2	Williams	36886	1995 WE ₆
1995 WT ₇	13.3	0.15	19990810	226.34946	94.98255	75.26170	12.67468	0.1448987	2.6759697	26	3	1988–1999	0.63	M-v	3	Williams	36795	1995 WT ₇
1995 WV ₇	13.1	0.15	19990810	304.59682	31.26552	73.93338	11.43121	0.1083269	2.5429478	60	3	1991–1999	0.51	M-v	3	Williams	36886	1995 WV ₇
1995 WL ₈	18.1	0.15	19990810	21.95974	131.07094	248.41422	17.71728	0.4823509	2.3671486	54	1	95 days	0.76	M-v	5	Williams	36073	1995 WL ₈
1995 WB ₉	13.5	0.15	19990810	282.67730	244.10306	228.93541	26.32008	0.1353272	2.6292220	105	2	1995–1999	0.45	M-v	3	Williams	36887	1995 WB ₉
1995 WL ₁₃	13.7	0.15	19990810	352.30630	274.99410	134.92746	4.15823	0.0787679	2.4667654	44	3	1995–1999	0.49	M-v	3	Williams	36887	1995 WL ₁₃
1995 WP ₁₇	14.9	0.15	19990810	5.17955	317.43239	18.06723	3.97749	0.2979816	2.5719773	101	3	1995–1999	0.48	M-v	2	Williams	36887	1995 WP ₁₇
1995 WP ₂₂	15.0	0.15	19990810	104.85165	13.07851	253.84873	1.66225	0.1951213	2.4180876	39	3	1995–1999	0.58	M-v	5	Williams	36795	1995 WP ₂₂
1995 WN ₃₃	14.0	0.15	19990810	256.28107	270.08861	208.00978	12.58521	0.1214129	2.5996182	81	4	1991–1999	0.52	M-v	2	Williams	36887	1995 WN ₃₃
1995 WZ ₄₁	13.6	0.15	19990810	37.37673	148.95385	237.10544	23.42376	0.2821120	2.3398659	33	3	1995–1999	0.86	M-v	2	Williams	36887	1995 WZ ₄₁
1995 WL ₄₂	14.0	0.15	19990810	221.24203	46.28273	137.33103	1.06653	0.1222373	2.8990315	58	3	1995–1999	0.65	M-v	3	Williams	36887	1995 WL ₄₂
1995 WX ₄₂	13.4	0.15	19990810	338.04656	316.07192	97.21453	14.68592	0.1379012	2.5582744	27	4	1987–1999	0.59	M-v	3	Williams	36887	1995 WX ₄₂
1995 XJ	14.3	0.15	19990810	294.37883	344.79412	81.69381	10.40438	0.1384964	2.8034766	66	3	1995–1999	0.55	M-v	2	Williams	36518	1995 XJ
1995 XK ₁	14.2	0.15	19990810	347.53366	116.41465	270.85148	11.59522	0.1882835	2.6365804	49	2	1995–1999	0.75	M-v	3	Williams	36887	1995 XK ₁
1995 XT ₁	15.2	0.15	19990810	328.18249	163.70146	277.72313	3.91716	0.2403187	2.5747128	38	2	1995–1999	0.50	M-v	4	Williams	36795	1995 XT ₁

1995 XU ₁	14.8	0.15	19990810	24.30922	126.69795	186.78832	1.99738	0.1900247	2.4253683	107	3	1995–1999	0.55	M-v	2	Williams	36887	1995 XU ₁
1995 XC ₅	15.2	0.15	19990810	348.61037	186.04811	180.89087	3.55034	0.1596671	2.6611552	73	3	1993–1999	0.55	M-v	3	Williams	36887	1995 XC ₅
1995 YB	13.8	0.15	19990810	25.41110	239.41432	96.95148	13.05473	0.2367830	2.6510211	74	3	1995–1999	0.54	M-v	2	Williams	36887	1995 YB
1995 YH	12.8	0.15	19990810	338.74682	94.63912	252.58937	8.82763	0.1268599	2.9851550	87	3	1995–1999	0.57	M-v	2	Williams	36887	1995 YH
1995 YL	14.4	0.15	19990810	283.49982	178.42592	275.20792	7.18547	0.1897632	2.7932726	55	2	1995–1999	0.66	M-v	4	Williams	36887	1995 YL
1995 YY	14.3	0.15	19990810	186.67294	171.97872	109.12194	5.70576	0.0662764	2.2703445	29	3	1995–1999	0.66	M-v	4	Williams	33251	1995 YY
1995 YF ₁	13.4	0.15	19990810	128.86680	356.58615	267.92272	8.16135	0.1133803	2.7836189	49	3	1995–1999	0.61	M-v	3	Williams	36887	1995 YF ₁
1995 YJ ₁	13.4	0.15	19990810	357.37733	236.01723	128.96337	2.96043	0.0890121	2.8945947	64	5	1977–1999	0.61	M-v	2	Williams	36887	1995 YJ ₁
1995 YP ₁	13.2	0.15	19990810	110.17408	12.31924	265.34495	5.50632	0.0174401	2.7973076	73	3	1995–1999	0.61	M-v	3	Williams	36887	1995 YP ₁
1995 YX ₃	13.9	0.15	19990810	7.60302	253.94930	106.11106	13.48243	0.1480855	2.7866332	27	2	1995–1999	0.50	M-v	4	Williams	36795	1995 YX ₃
1995 YO ₇	14.5	0.15	19990810	332.24323	174.87928	237.51226	12.52093	0.1588952	2.5728364	40	2	1995–1999	0.34	M-v	4	Williams	36796	1995 YO ₇
1995 YS ₂₁	13.4	0.15	19990810	43.20711	240.02434	107.48862	4.83051	0.1029600	2.7345012	47	4	1992–1999	0.69	M-v	3	Williams	36887	1995 YS ₂₁
1996 AO	14.3	0.15	19990810	36.89234	97.01297	302.73293	10.73475	0.1901837	2.4247539	47	4	1987–1999	0.73	M-v	2	Williams	32750	1996 AO
1996 AP	13.7	0.15	19990810	8.17293	288.60952	109.44116	13.48665	0.1731657	2.5931686	44	3	1996–1999	0.58	M-v	2	Williams	36519	1996 AP
1996 AX ₁	16.1	0.15	19990810	345.74097	149.22903	268.49591	10.66660	0.4318828	2.4594515	73	2	1996–1999	0.63	M-v	2	Marsden	36887	1996 AX ₁
1996 AJ ₂	14.5	0.15	19990810	322.30477	36.18186	114.24626	3.42016	0.1274199	2.4022860	46	4	1996–1999	0.64	M-v	1	Williams	33342	1996 AJ ₂
1996 AR ₂	13.5	0.15	19990810	15.42829	67.17148	315.31390	12.00285	0.2061811	2.6920488	21	3	1994–1999	0.61	M-v	4	Williams	36887	1996 AR ₂
1996 AP ₃	13.4	0.15	19990810	111.02440	65.72417	273.59828	6.82878	0.1933738	2.2869268	68	4	1988–1999	0.53	M-v	2	Williams	36887	1996 AP ₃
1996 AU ₆	14.6	0.15	19990810	347.00645	349.68834	65.80528	3.47722	0.0684279	2.7203431	39	3	1996–1999	0.40	M-v	4	Williams	36887	1996 AU ₆
1996 AH ₉	14.4	0.15	19990810	225.69656	317.73802	120.04991	1.67006	0.1047129	2.7644898	53	5	1992–1999	0.48	M-v	1	Williams	36887	1996 AH ₉
1996 BZ	14.7	0.15	19990810	311.37040	26.90939	129.95369	6.42785	0.1377981	2.4438633	44	3	1996–1999	0.69	M-v	3	Williams	33075	1996 BZ
1996 BB ₁	14.5	0.15	19990810	10.47747	164.39167	236.48189	3.81006	0.1847971	2.5598367	56	3	1996–1999	0.59	M-v	2	Williams	36887	1996 BB ₁
1996 BE ₁	13.9	0.15	19990810	290.77723	5.49782	80.52094	4.96427	0.1327646	2.8510510	45	4	1992–1999	0.67	M-v	2	Williams	36519	1996 BE ₁
1996 BO ₁	13.1	0.15	19990810	41.15539	9.14665	310.30971	8.50994	0.0771327	3.0738731	53	3	1996–1999	0.51	M-v	2	Williams	36887	1996 BO ₁
1996 BH ₂	13.3	0.15	19990810	14.72042	105.80419	320.84098	8.36206	0.0369837	2.5971761	66	3	1996–1999	0.62	M-v	2	Williams	36887	1996 BH ₂
1996 BJ ₂	12.7	0.15	19990810	267.76103	145.71048	301.64575	9.08387	0.0563633	3.0528654	66	3	1996–1999	0.58	M-v	3	Williams	36887	1996 BJ ₂
1996 BY ₂	14.0	0.15	19990810	356.98044	287.47501	158.19748	4.09997	0.1914884	2.4795265	71	3	1996–1999	0.69	M-v	3	Williams	36887	1996 BY ₂
1996 BP ₃	13.4	0.15	19990810	302.77025	84.33185	349.70137	9.65184	0.0996535	3.0052351	59	3	1994–1999	0.53	M-v	3	Williams	36887	1996 BP ₃
1996 BM ₁₇	14.5	0.15	19990810	345.35497	50.06126	43.76689	4.92830	0.1307665	2.5207266	53	3	1996–1999	0.67	M-v	2	Williams	36887	1996 BM ₁₇
1996 CK ₁	13.9	0.15	19990810	323.52640	67.61740	25.60586	5.11137	0.1714064	2.7167473	30	3	1992–1999	0.67	M-v	3	Williams	36888	1996 CK ₁
1996 CO ₂	12.7	0.15	19990810	97.45651	164.90354	128.12181	10.84521	0.0661623	2.9981523	58	3	1996–1999	0.62	M-v	3	Williams	36888	1996 CO ₂
1996 CP ₂	13.8	0.15	19990810	247.71849	169.91278	32.81598	9.58445	0.2097912	2.7421750	21	3	1996–1999	0.68	M-v	3	Williams	32948	1996 CP ₂
1996 CE ₃	13.2	0.15	19990810	8.51151	79.76453	358.35971	21.91909	0.0536784	2.6683877	94	3	1996–1999	0.62	M-v	2	Williams	34584	1996 CE ₃
1996 CW ₃	13.9	0.15	19990810	4.10015	110.12251	317.12587	11.18802	0.0165404	2.6462080	49	3	1996–1999	0.59	M-v	2	Williams	33554	1996 CW ₃
1996 CT ₈	14.2	0.15	19990810	0.55840	291.62673	137.09257	15.15784	0.1045017	2.6526066	46	4	1996–1999	0.71	M-v	1	Williams	32750	1996 CT ₈
1996 DT	13.2	0.15	19990810	173.89151	83.90769	151.75539	10.62445	0.0519103	2.9956932	49	3	1996–1999	0.81	M-v	3	Williams	36888	1996 DT
1996 DD ₁	14.7	0.15	19990810	307.09708	343.56303	115.46745	22.79276	0.0660458	2.6752802	49	3	1996–1999	0.46	M-v	2	Williams	36888	1996 DD ₁
1996 DE ₁	14.5	0.15	19990810	336.54914	281.48002	161.50969	3.03493	0.1424659	2.6792572	23	3	1996–1999	0.72	M-v	3	Williams	36519	1996 DE ₁
1996 DL ₁	15.3	0.15	19990810	323.84268	168.26786	317.37072	4.63040	0.1547800	2.5316980	73	4	1994–1999	0.62	M-v	2	Williams	35695	1996 DL ₁
1996 DQ ₁	13.5	0.15	19990810	252.25716	116.06197	359.41726	6.26932	0.1787598	3.0805480	79	3	1991–1999	0.55	M-v	3	Williams	36888	1996 DQ ₁
1996 DM ₂	13.8	0.15	19990810	221.20442	117.52484	106.41075	5.81567	0.0524810	2.7372061	54	3	1996–1999	0.67	M-v	3	Williams	36888	1996 DM ₂
1996 DQ ₂	13.7	0.15	19990810	238.71673	145.17041	97.82187	5.14144	0.0509398	2.5245252	49	5	1980–1999	0.56	M-v	3	Williams	33554	1996 DQ ₂
1996 DY ₂	13.3	0.15	19990810	5.13651	333.10105	70.42855	3.07635	0.0738952	2.8877697	59	3	1996–1999	0.62	M-v	3	Williams	36888	1996 DY ₂
1996 DB ₃	14.3	0.15	19990810	268.75835	198.93171	320.89203	13.88456	0.0780185	2.5828516	46	3	1996–1999	0.71	M-v	3	Williams	36888	1996 DB ₃
1996 EB	13.5	0.15	19990810	6.84403	345.90198	73.47541	14.73377	0.1463281	2.6025968	38	4	1996–1999	0.81	M-v	2	Williams	36519	1996 EB
1996 EG	13.5	0.15	19990810	340.93610	175.23645	205.92232	9.42520	0.1055276	3.1724448	109	2	1996–1999	0.57	M-v	3	Williams	36888	1996 EG
1996 EB ₂	14.1	0.15	19990810	356.35836	71.65744	354.10951	8.19548	0.1436670	2.8002116	41	4	1977–1999	0.70	M-v	1	Williams	35695	1996 EB ₂
1996 ED ₄	13.4	0.15	19990810	82.76342	325.82154	359.29984	10.11237	0.0720601	3.0326559	47	3	1996–1999	0.49	M-v	3	Williams	36520	1996 ED ₄
1996 EJ ₁₄	13.8	0.15	19990810	40.73727	2.19534	349.16366	15.79415	0.0969051	3.0299066	28	3	1993–1999	0.45	M-v	4	Williams	36888	1996 EJ ₁₄
1996 GP ₁	13.6	0.15	19990810	2.55261	73.70978	3.19746	22.14194	0.0432043	2.6546079	72	3	1996–1999	0.54	M-v	2	Williams	35695	1996 GP ₁
1996 GE ₆	13.6	0.15	19990810	329.48038	13.81978	62.53588	6.70271	0.1457704	3.0676466	46	3	1979–1999	0.36	M-v	3	Williams	36796	1996 GE ₆
1996 GT ₁₉	13.4	0.15	19990810	344.05844	248.84365	196.67386	9.06302	0.0637460	3.0645709	55	3	1996–1999	0.89	M-v	3	Williams	36520	1996 GT ₁₉
1996 HE ₁	12.3	0.15	19990810	229.72505	128.06185	57.44725	18.68108	0.1293710	3.2062856	101	3	1996–1999	0.50	M-v	3	Williams	36888	1996 HE ₁

1996 HA ₂	13.4	0.15	19990810	211.11727	48.63197	180.94339	8.38069	0.2384383	3.1429724	49	3	1996–1999	0.58	M-v	3	Williams	33254	1996 HA ₂
1996 HM ₂	13.9	0.15	19990810	314.28360	99.99557	48.91761	2.68371	0.1415377	2.6788493	32	3	1996–1999	0.62	M-v	4	Williams	35695	1996 HM ₂
1996 HY ₁₀	13.8	0.15	19990810	211.59775	186.29785	40.96684	9.99066	0.0388906	3.0681634	26	3	1996–1999	0.68	M-v	3	Williams	33751	1996 HY ₁₀
1996 HS ₁₁	13.4	0.15	19990810	148.34532	290.32315	26.94427	2.35689	0.0678728	2.9085312	45	4	1988–1999	0.74	M-v	1	Williams	36888	1996 HS ₁₁
1996 HB ₁₂	12.2	0.15	19990810	173.47101	248.13232	41.31389	13.64288	0.1407046	2.9860975	42	3	1996–1999	0.76	M-v	3	Williams	33751	1996 HB ₁₂
1996 HT ₁₅	13.4	0.15	19990810	35.72660	255.21314	161.53296	2.21254	0.0782219	2.9403945	29	3	1996–1999	0.87	M-v	4	Williams	34294	1996 HT ₁₅
1996 HX ₁₆	14.3	0.15	19990810	48.02474	345.15485	63.41367	2.79148	0.0999814	2.9245369	43	3	1996–1999	0.61	M-v	3	Williams	34294	1996 HX ₁₆
1996 HF ₁₈	13.4	0.15	19990810	308.27448	245.18546	225.45394	3.43416	0.1508933	3.1341689	45	3	1977–1999	0.54	M-v	4	Williams	36888	1996 HF ₁₈
1996 HU ₁₈	13.8	0.15	19990810	215.20651	53.92103	168.40096	1.22900	0.1203248	3.1086212	46	5	1976–1999	0.76	M-v	1	Williams	35696	1996 HU ₁₈
1996 HV ₁₉	13.3	0.15	19990810	345.90933	218.84675	217.78319	6.99587	0.1177110	3.1957063	35	4	1976–1999	0.76	M-v	1	Williams	36888	1996 HV ₁₉
1996 HL ₂₀	13.4	0.15	19990810	253.77197	89.86628	70.37573	2.46617	0.1157995	3.2315390	45	2	1996–1999	0.79	M-v	4	Williams	36796	1996 HL ₂₀
1996 HZ ₂₁	14.7	0.15	19990810	289.74513	142.92143	37.82900	14.98662	0.0876152	2.6239309	29	3	1996–1999	0.59	M-v	4	Williams	36520	1996 HZ ₂₁
1996 JJ ₁	13.4	0.15	19990810	167.64051	120.54916	176.98266	9.33839	0.0471964	2.9629923	39	6	1972–1999	0.63	M-v	1	Williams	34294	1996 JJ ₁
1996 KA	12.9	0.15	19990810	274.05575	265.85113	241.51191	11.75391	0.2342977	3.2019650	110	3	1996–1999	0.54	M-v	3	Williams	36888	1996 KA
1996 LF	12.9	0.15	19990810	240.75217	97.51208	77.53006	16.34064	0.1352405	3.1819171	48	3	1990–1999	0.55	M-v	3	Williams	36796	1996 LF
1996 OJ ₂	14.5	0.15	19990810	246.13088	78.89127	295.75412	9.96855	0.2559634	2.4301572	73	5	1977–1998	0.57	M-v	1	Williams	31588	1996 OJ ₂
1996 PF ₃	15.6	0.15	19990810	287.03499	305.87319	146.99944	23.08941	0.0949708	1.9290570	42	3	1996–1999	0.58	M-v	2	Williams	36796	1996 PF ₃
1996 PM ₄	12.9	0.15	19990810	305.04463	165.37604	34.47883	1.46984	0.1326744	3.1890836	45	5	1988–1999	0.74	M-v	1	Williams	33751	1996 PM ₄
1996 RD ₁₂	12.4	0.15	19990810	1.78740	77.27339	3.72031	9.55697	0.0816504	5.2373122	30	3	1996–1999	0.39	M-v	3	Williams	31009	1996 RD ₁₂
1996 RS ₂₈	12.1	0.15	19990810	333.98835	102.29055	11.00349	2.54855	0.1378154	5.2033348	14	4	1978–1999	0.31	M-v	1	Williams	36797	1996 RS ₂₈
1996 RA ₃₃	11.0	0.15	19990810	265.17281	144.18692	29.55445	9.35033	0.0127745	5.2032282	23	4	1996–1999	0.82	M-v	3	Williams	35696	1996 RA ₃₃
1996 SJ ₇	16.1	0.15	19990810	352.66626	293.54793	39.32186	1.15416	0.1845967	2.1758019	54	4	1992–1999	0.63	M-v	2	Williams	36520	1996 SJ ₇
1996 SO ₈	10.5	0.15	19990810	72.14473	64.10926	303.17797	5.06709	0.1122197	5.2584773	33	4	1996–1999	0.72	M-v	2	Williams	33555	1996 SO ₈
1996 TF	15.8	0.15	19990810	11.77974	49.25104	272.48895	2.91797	0.1372757	2.1389175	81	3	1996–1999	0.58	M-v	3	Williams	36888	1996 TF
1996 TW	10.8	0.15	19990810	128.60670	314.36288	8.02598	17.97994	0.0894600	5.1888979	47	5	1992–1999	0.57	M-v	1	Williams	35696	1996 TW
1996 TS ₅	13.5	0.15	19990810	182.67631	216.38627	297.63000	23.62124	0.1891700	2.2744373	53	3	1991–1999	0.54	M-v	2	Williams	36888	1996 TS ₅
1996 TS ₁₀	14.7	0.15	19990810	300.12787	356.91527	38.83549	5.67318	0.1420415	2.2015961	70	3	1996–1999	0.76	M-v	3	Williams	36888	1996 TS ₁₀
1996 TL ₁₁	15.5	0.15	19990810	23.38580	267.81898	32.72358	4.51467	0.1392703	2.1888454	39	4	1995–1999	0.52	M-v	2	Williams	36888	1996 TL ₁₁
1996 TT ₁₄	14.5	0.15	19990810	332.04215	239.01270	121.46439	3.39098	0.1955026	2.1876222	99	3	1996–1999	0.66	M-v	2	Williams	36888	1996 TT ₁₄
1996 TD ₁₅	13.3	0.15	19990810	252.23531	258.86471	200.81881	21.87470	0.2069685	2.3025240	66	3	1996–1999	0.45	M-v	2	Williams	36888	1996 TD ₁₅
1996 TS ₄₉	10.9	0.15	19990810	124.27880	98.43524	227.46860	4.52068	0.0484580	5.1329814	44	5	1992–1999	0.73	M-v	1	Williams	35608	1996 TS ₄₉
1996 TO ₆₆	4.3	0.15	19990810	112.65862	242.98170	355.20174	27.34031	0.1136620	43.5809488	105	4	1996–1999	0.64	M-v	4	Williams	36888	1996 TO ₆₆
1996 UZ	14.4	0.15	19990810	237.17062	249.71484	219.31184	3.91423	0.1095848	2.2962057	91	3	1996–1999	0.75	M-v	3	Williams	36888	1996 UZ
1996 UB ₁	14.6	0.15	19990810	315.38999	354.64900	45.44674	6.01417	0.1396422	2.1827063	92	3	1996–1999	0.64	M-v	3	Williams	36888	1996 UB ₁
1996 UK ₄	16.4	0.15	19990810	8.35820	281.59030	43.89133	3.21575	0.1187249	2.1576567	61	2	1996–1999	0.53	M-v	4	Williams	36520	1996 UK ₄
1996 VO ₄	14.9	0.15	19990810	72.51762	289.08401	52.59404	23.07999	0.0873336	1.9272473	43	3	1996–1999	0.53	M-v	2	Williams	31976	1996 VO ₄
1996 VN ₆	13.9	0.15	19990810	23.43767	359.93923	346.94939	15.49445	0.1476249	2.5250507	41	3	1996–1999	0.52	M-v	2	Williams	36888	1996 VN ₆
1996 VG ₉	15.4	0.15	19990810	104.76814	271.10472	46.18275	22.71843	0.1559171	1.8761926	38	3	1996–1999	0.58	M-v	3	Williams	34868	1996 VG ₉
1996 VX ₂₉	14.3	0.15	19990810	214.99131	79.82935	60.76721	6.18758	0.0357740	2.1785902	69	3	1996–1999	0.73	M-v	2	Williams	36888	1996 VX ₂₉
1996 VL ₃₀	15.2	0.15	19990810	320.79242	150.86175	240.05266	5.84792	0.1872918	2.1867136	71	3	1996–1999	0.57	M-v	3	Williams	36888	1996 VL ₃₀
1996 WE ₃	14.7	0.15	19990810	102.18375	11.96722	238.85549	5.37675	0.0902982	2.2861668	126	3	1996–1999	0.62	M-v	3	Williams	36888	1996 WE ₃
1996 XK	15.9	0.15	19990810	29.39090	287.46367	8.21453	6.42458	0.2135038	2.2304963	79	3	1995–1999	0.54	M-v	2	Williams	36888	1996 XK
1996 XJ ₁	14.3	0.15	19990810	358.17703	249.94641	79.10706	3.61712	0.1898187	2.4497117	51	3	1996–1999	0.57	M-v	2	Williams	36889	1996 XJ ₁
1996 XL ₁	14.1	0.15	19990810	294.91873	337.50636	88.01885	7.64845	0.0753059	2.3273057	60	3	1996–1999	0.65	M-v	3	Williams	36521	1996 XL ₁
1996 XO ₁	14.5	0.15	19990810	234.96386	192.31424	284.70486	5.16663	0.0812670	2.4262621	55	2	1996–1999	0.59	M-v	4	Williams	36521	1996 XO ₁
1996 XM ₂	14.3	0.15	19990810	24.37314	248.98886	82.75307	5.00979	0.2404856	2.2124028	118	3	1996–1999	0.45	M-v	2	Williams	36889	1996 XM ₂
1996 XD ₃	14.9	0.15	19990810	174.18790	76.85136	131.15517	2.21667	0.0662886	2.2711641	67	4	1991–1999	0.57	M-v	2	Williams	36889	1996 XD ₃
1996 XM ₅	14.0	0.15	19990810	162.00838	291.57258	293.06155	3.89681	0.1091733	2.2646243	61	3	1996–1999	0.50	M-v	4	Williams	36889	1996 XM ₅
1996 XQ ₅	14.6	0.15	19990810	273.53301	39.24215	75.42409	2.68100	0.1005336	2.2019581	89	3	1991–1999	0.51	M-v	4	Williams	36889	1996 XQ ₅
1996 XC ₉	15.3	0.15	19990810	275.52100	337.14120	100.46752	6.59610	0.0954857	2.2262435	37	4	1994–1999	0.72	M-v	3	Williams	36344	1996 XC ₉
1996 XF ₁₄	14.9	0.15	19990810	109.55016	76.45817	204.05488	1.73831	0.2184133	2.3286817	40	4	1995–1999	0.44	M-v	1	Williams	36889	1996 XF ₁₄
1996 XY ₁₄	14.3	0.15	19990810	123.86589	344.13916	285.94488	5.57815	0.1639415	2.2096566	30	3	1996–1999	0.48	M-v	4	Williams	36889	1996 XY ₁₄
1996 XC ₁₅	14.2	0.15	19990810	235.76242	78.69275	69.32268	0.90214	0.1141815	2.2865924	74	3	1987–1999	0.50	M-v	4	Williams	36889	1996 XC ₁₅

1996 XY ₁₇	14.8	0.15	19990810	299.12624	164.25032	252.23350	5.71255	0.1004407	2.2142603	87	3	1996–1999	0.54	M-v	3	Williams	36889	1996 XY ₁₇
1996 XD ₁₉	14.0	0.15	19990810	195.68378	296.83463	222.59279	4.23139	0.1273701	2.4517969	56	3	1996–1999	0.64	M-v	3	Williams	36521	1996 XD ₁₉
1996 XG ₁₉	14.6	0.15	19990810	245.88090	345.42144	153.28139	3.31492	0.1073013	2.2488136	59	4	1992–1999	0.47	M-v	2	Williams	36889	1996 XG ₁₉
1996 XT ₁₉	14.9	0.15	19990810	245.84511	260.66470	244.44971	2.04670	0.0550541	2.1985369	82	3	1992–1999	0.59	M-v	4	Williams	36889	1996 XT ₁₉
1996 XU ₂₆	14.6	0.15	19990810	277.58068	75.70990	334.03331	7.23044	0.0880311	2.2301183	78	3	1996–1999	0.61	M-v	2	Williams	36889	1996 XU ₂₆
1996 XZ ₃₀	14.1	0.15	19990810	304.07631	122.21346	269.98269	5.47224	0.1437372	2.4407314	68	3	1996–1999	0.59	M-v	3	Williams	36889	1996 XZ ₃₀
1996 XE ₃₁	14.4	0.15	19990810	156.82573	303.53649	272.14259	10.87888	0.1273475	2.4194939	46	3	1996–1999	0.66	M-v	3	Williams	36889	1996 XE ₃₁
1996 XX ₃₁	13.5	0.15	19990810	68.67130	296.41913	349.67637	12.33567	0.1439511	2.3783966	65	4	1995–1999	0.47	M-v	1	Williams	36889	1996 XX ₃₁
1996 XZ ₃₁	14.7	0.15	19990810	164.11927	137.06416	91.03994	7.11708	0.0899172	2.2215388	31	3	1996–1999	0.65	M-v	4	Williams	36889	1996 XZ ₃₁
1996 YR	15.3	0.15	19990810	333.18985	298.07600	100.29163	7.05136	0.1678154	2.2382449	56	4	1989–1999	0.55	M-v	2	Williams	36889	1996 YR
1996 YX	14.2	0.15	19990810	306.56288	148.09824	276.15176	6.99374	0.0808384	2.3105226	70	2	1996–1999	0.55	M-v	3	Williams	36889	1996 YX
1996 YG ₁	14.7	0.15	19990810	87.89335	189.38169	77.19441	12.85255	0.1195437	2.4860929	113	3	1996–1999	0.61	M-v	2	Williams	36889	1996 YG ₁
1996 YL ₂	14.3	0.15	19990810	146.00853	94.71492	97.10266	7.14305	0.0639865	2.4024058	73	3	1996–1999	0.60	M-v	3	Williams	36889	1996 YL ₂
1997 AE	13.3	0.15	19990810	7.00768	356.60408	311.79992	7.46061	0.1233027	2.7186347	96	3	1997–1999	0.53	M-v	2	Williams	36889	1997 AE
1997 AG	14.7	0.15	19990810	313.21051	99.23250	315.81698	3.98161	0.0785959	2.3188409	77	3	1989–1999	0.47	M-v	2	Williams	36889	1997 AG
1997 AQ	15.0	0.15	19990810	322.33903	300.27589	118.38197	7.92154	0.1232661	2.2571112	57	3	1996–1999	0.52	M-v	3	Williams	36889	1997 AQ
1997 AS	14.2	0.15	19990810	79.28600	174.86123	114.25334	5.68266	0.1923281	2.4486337	84	3	1997–1999	0.59	M-v	3	Williams	36889	1997 AS
1997 AT	13.2	0.15	19990810	335.93934	250.07742	110.06718	8.56161	0.2358903	2.4532834	68	3	1997–1999	0.60	M-v	2	Williams	36889	1997 AT
1997 AV	14.8	0.15	19990810	296.63959	126.64430	319.29573	3.93493	0.1241912	2.2707874	66	2	1997–1999	0.62	M-v	4	Williams	36889	1997 AV
1997 AA ₂	13.5	0.15	19990810	177.38626	133.13179	28.77767	2.82873	0.1426669	2.6820946	71	4	1984–1999	0.65	M-v	2	Williams	36889	1997 AA ₂
1997 AD ₂	14.2	0.15	19990810	124.08268	225.26701	33.97929	5.10629	0.0624933	2.3270005	33	2	1997–1999	0.43	M-v	4	Williams	36797	1997 AD ₂
1997 AZ ₂	14.3	0.15	19990810	338.76971	38.97429	330.01531	9.29188	0.2335609	2.3611886	96	2	1997–1999	0.47	M-v	3	Williams	36889	1997 AZ ₂
1997 AB ₄	15.2	0.15	19990810	316.79181	76.90800	321.35799	2.68051	0.2138363	2.3705394	63	2	1997–1999	0.54	M-v	3	Williams	36889	1997 AB ₄
1997 AJ ₄	14.2	0.15	19990810	190.10185	307.20825	279.68985	5.94646	0.1206754	2.2185110	68	3	1996–1999	0.59	M-v	2	Williams	36889	1997 AJ ₄
1997 AN ₄	15.2	0.15	19990810	175.40237	311.40958	286.22930	0.97000	0.1376984	2.2683811	46	5	1991–1999	0.73	M-v	1	Williams	32751	1997 AN ₄
1997 AP ₄	13.9	0.15	19990810	227.34143	308.63121	198.55394	1.50235	0.1530463	2.4274477	95	4	1988–1999	0.52	M-v	2	Williams	36889	1997 AP ₄
1997 AV ₄	13.4	0.15	19990810	114.65050	83.62794	132.87097	7.55321	0.0571954	2.7906748	66	3	1997–1999	0.65	M-v	3	Williams	36522	1997 AV ₄
1997 AE ₅	14.1	0.15	19990810	339.67392	54.22478	310.32326	13.20754	0.1468395	2.4605749	48	2	1997–1999	0.51	M-v	3	Williams	36889	1997 AE ₅
1997 AH ₅	15.0	0.15	19990810	233.10028	224.61200	335.05089	1.90748	0.0860767	2.1941621	42	4	1995–1999	0.60	M-v	2	Williams	33076	1997 AH ₅
1997 AN ₅	14.7	0.15	19990810	332.47720	349.93784	62.12712	5.65089	0.1266435	2.2556293	36	2	1997–1999	0.31	M-v	4	Williams	36797	1997 AN ₅
1997 AQ ₅	13.3	0.15	19990810	163.19050	97.38891	63.04673	6.62823	0.0250272	2.8321532	51	3	1997–1999	0.64	M-v	3	Williams	36522	1997 AQ ₅
1997 AX ₅	15.5	0.15	19990810	321.53380	121.17471	299.91491	5.27669	0.1781424	2.2463970	57	2	1997–1999	0.48	M-v	3	Williams	36889	1997 AX ₅
1997 AZ ₅	15.0	0.15	19990810	271.29179	157.73948	275.35541	5.70341	0.0943918	2.2876967	52	2	1996–1999	0.45	M-v	4	Williams	36889	1997 AZ ₅
1997 AO ₆	16.1	0.15	19990810	266.26017	38.01321	90.10626	3.95953	0.1274278	2.2086296	36	2	1996–1999	0.66	M-v	4	Williams	36798	1997 AO ₆
1997 AR ₆	15.1	0.15	19990810	269.65949	197.00886	271.07560	7.85766	0.1187703	2.1992322	42	3	1986–1999	0.71	M-v	3	Williams	36889	1997 AR ₆
1997 AW ₆	14.3	0.15	19990810	20.62896	330.39691	355.49306	4.45841	0.0951554	2.5831217	98	3	1997–1999	0.55	M-v	2	Williams	36889	1997 AW ₆
1997 AB ₇	15.0	0.15	19990810	185.48111	94.87223	107.69066	2.77807	0.0963421	2.4093509	52	3	1997–1999	0.84	M-v	3	Williams	36889	1997 AB ₇
1997 AM ₇	15.5	0.15	19990810	226.18636	208.70979	328.61844	3.46740	0.0921716	2.2916523	29	3	1989–1999	0.65	M-v	4	Williams	36890	1997 AM ₇
1997 AN ₇	14.4	0.15	19990810	266.97611	263.41717	223.10282	2.44884	0.1209087	2.2882519	54	2	1996–1999	0.41	M-v	3	Williams	36798	1997 AN ₇
1997 AG ₈	14.4	0.15	19990810	156.33751	332.73102	279.83051	3.66429	0.1170810	2.2691983	41	3	1997–1999	0.59	M-v	3	Williams	36890	1997 AG ₈
1997 AP ₁₀	17.0	0.15	19990810	19.55753	356.02634	293.23847	6.65060	0.6431643	1.4429190	101	3	1997–1999	0.69	M-v	3	Williams	36890	1997 AP ₁₀
1997 AU ₁₀	14.6	0.15	19990810	187.09010	233.69733	334.73082	6.70549	0.0697697	2.3138816	29	3	1997–1999	0.61	M-v	2	Williams	36522	1997 AU ₁₀
1997 AM ₁₁	16.4	0.15	19990810	322.03350	149.98500	251.06211	1.28127	0.2035905	2.3383035	36	2	1997–1999	0.51	M-v	4	Williams	36890	1997 AM ₁₁
1997 AU ₁₂	14.4	0.15	19990810	286.89471	135.49440	323.22276	6.17703	0.0403062	2.3032734	35	2	1997–1999	0.43	M-v	4	Williams	36798	1997 AU ₁₂
1997 AC ₁₃	14.7	0.15	19990810	290.72734	147.67743	293.95716	3.03729	0.1228336	2.2881292	76	2	1997–1999	0.55	M-v	3	Williams	36890	1997 AC ₁₃
1997 AD ₁₃	13.0	0.15	19990810	155.18287	124.35757	93.83556	12.09467	0.2489903	2.5986161	42	4	1977–1999	0.74	M-v	2	Williams	36890	1997 AD ₁₃
1997 AF ₁₃	14.0	0.15	19990810	166.92005	148.64761	94.42558	10.39958	0.1782963	2.2918491	27	4	1980–1999	0.61	M-v	2	Williams	36890	1997 AF ₁₃
1997 AG ₁₃	14.5	0.15	19990810	247.15462	66.29943	69.36971	6.50985	0.1210744	2.3503930	59	2	1997–1999	0.53	M-v	4	Williams	36890	1997 AG ₁₃
1997 AJ ₁₃	14.4	0.15	19990810	295.82900	76.87879	349.01013	8.22088	0.0896860	2.4146937	91	4	1969–1999	0.51	M-v	1	Williams	36890	1997 AJ ₁₃
1997 AM ₁₃	14.5	0.15	19990810	223.18919	104.12268	54.62870	7.17563	0.0419367	2.3632282	34	2	1997–1999	0.51	M-v	4	Williams	36798	1997 AM ₁₃
1997 AP ₁₅	14.9	0.15	19990810	158.41022	271.54128	318.42930	7.24425	0.1746633	2.3838058	40	5	1979–1999	0.54	M-v	1	Williams	36522	1997 AP ₁₅
1997 AQ ₁₅	15.0	0.15	19990810	18.12951	286.99790	67.27466	3.99159	0.2107804	2.2364229	84	3	1996–1999	0.62	M-v	3	Williams	36890	1997 AQ ₁₅
1997 AR ₁₆	12.7	0.15	19990810	155.62692	192.27644	359.27819	18.31026	0.1550095	2.9882328	186	3	1997–1999	0.69	M-v	2	Williams	36890	1997 AR ₁₆

1997 AA ₁₇	15.5	0.15	19990810	88.65657	129.74660	185.42503	0.65640	0.1511975	2.1528080	25	3	1997-1999	0.57	M-v	5	Williams	32955	1997 AA ₁₇
1997 AR ₁₇	15.1	0.15	19990810	174.80846	321.18436	262.05821	1.92380	0.1220757	2.2603572	57	3	1997-1999	0.62	M-v	3	Williams	36890	1997 AR ₁₇
1997 AW ₁₇	15.5	0.15	19990810	200.19207	111.60451	78.27844	2.13843	0.1259824	2.3976693	62	3	1997-1999	0.45	M-v	3	Williams	36890	1997 AW ₁₇
1997 AY ₁₇	15.5	0.15	19990810	295.85904	54.22997	21.63769	3.19248	0.2269209	2.3179993	59	2	1997-1999	0.64	M-v	4	Williams	36890	1997 AY ₁₇
1997 AZ ₁₇	14.0	0.15	19990810	264.00788	77.53705	55.49660	2.98735	0.1072234	2.2931916	122	3	1997-1999	0.50	M-v	3	Williams	36890	1997 AZ ₁₇
1997 AB ₁₈	14.1	0.15	19990810	291.44867	93.88461	350.73125	6.59596	0.0758388	2.3927042	56	2	1997-1999	0.49	M-v	4	Williams	36890	1997 AB ₁₈
1997 AR ₂₂	14.5	0.15	19990810	342.57175	5.49797	33.28388	5.51697	0.1241933	2.2906953	80	4	1985-1999	0.54	M-v	3	Williams	36890	1997 AR ₂₂
1997 BG	14.7	0.15	19990810	136.49197	190.06131	132.06520	32.39631	0.1616873	1.9927934	69	3	1997-1999	0.41	M-v	2	Williams	32519	1997 BG
1997 BZ	13.5	0.15	19990810	95.21166	307.72905	299.36821	10.46973	0.1603139	2.6642582	52	2	1996-1999	0.48	M-v	3	Williams	36890	1997 BZ
1997 BJ ₂	15.3	0.15	19990810	161.03221	120.26418	121.33600	6.50494	0.0835938	2.3028844	30	3	1997-1999	0.65	M-v	3	Williams	32519	1997 BJ ₂
1997 BA ₃	14.8	0.15	19990810	285.55073	104.36744	336.30404	1.62941	0.1837638	2.4032026	98	3	1973-1999	0.63	M-v	2	Williams	36890	1997 BA ₃
1997 BC ₃	14.4	0.15	19990810	211.05177	189.56916	351.55151	6.45368	0.0440377	2.3662690	41	3	1991-1999	0.65	M-v	4	Williams	36890	1997 BC ₃
1997 BK ₃	15.4	0.15	19990810	229.13606	120.35107	50.72734	1.40432	0.1489182	2.3349110	52	2	1997-1999	0.61	M-v	5	Williams	36798	1997 BK ₃
1997 BO ₃	13.5	0.15	19990810	240.17889	44.15956	83.14911	3.64169	0.0782442	2.5287190	59	4	1989-1999	0.43	M-v	3	Williams	36890	1997 BO ₃
1997 BP ₃	14.2	0.15	19990810	291.51123	339.18506	138.13609	7.04969	0.0552333	2.2931550	29	4	1976-1999	0.79	M-v	2	Williams	36890	1997 BP ₃
1997 BV ₃	14.8	0.15	19990810	231.23171	89.65770	108.54419	4.27711	0.1078161	2.2376199	37	3	1997-1999	0.59	M-v	3	Williams	36523	1997 BV ₃
1997 BU ₅	15.2	0.15	19990810	182.47371	275.38171	324.14206	0.66775	0.1433442	2.2879948	75	4	1978-1999	0.68	M-v	1	Marsden	32751	1997 BU ₅
1997 BN ₉	13.9	0.15	19990810	293.83819	215.48483	201.80302	9.67724	0.0820286	2.9730225	79	3	1997-1999	0.57	M-v	3	Williams	36890	1997 BN ₉
1997 CS	12.7	0.15	19990810	109.08053	235.96122	349.04390	10.06543	0.0898126	3.0033418	72	3	1992-1999	0.54	M-v	2	Williams	36523	1997 CS
1997 CA ₁	14.7	0.15	19990810	154.94165	293.85896	323.22616	7.18515	0.0821048	2.2956587	48	5	1976-1999	0.59	M-v	1	Williams	32751	1997 CA ₁
1997 CG ₁	14.0	0.15	19990810	303.53156	311.61399	95.83605	6.16813	0.1431765	2.5873088	47	3	1997-1999	0.54	M-v	4	Williams	36890	1997 CG ₁
1997 CH ₁	13.7	0.15	19990810	127.22720	278.07692	306.66355	4.80895	0.0462002	2.7254351	69	2	1997-1999	0.58	M-v	3	Williams	36890	1997 CH ₁
1997 CL ₁	14.8	0.15	19990810	269.16822	22.58236	80.47457	3.54429	0.1601006	2.4517984	32	3	1995-1999	0.61	M-v	3	Williams	36523	1997 CL ₁
1997 CW ₁	14.7	0.15	19990810	232.84773	31.50394	114.20486	7.97939	0.0832976	2.4254043	45	2	1997-1999	0.42	M-v	4	Williams	36890	1997 CW ₁
1997 CX ₂	14.1	0.15	19990810	314.58752	39.68163	354.10350	5.83983	0.0422985	2.7242068	73	2	1997-1999	0.47	M-v	3	Williams	36890	1997 CX ₂
1997 CM ₄	15.4	0.15	19990810	355.36481	39.21713	359.27145	4.90828	0.1054814	2.2470192	39	2	1997-1999	0.36	M-v	4	Williams	36798	1997 CM ₄
1997 CV ₄	15.2	0.15	19990810	303.35158	91.47049	316.98566	13.24325	0.2033457	2.4344597	39	2	1997-1999	0.48	M-v	4	Williams	36890	1997 CV ₄
1997 CT ₅	14.4	0.15	19990810	290.94491	130.74918	325.17750	6.95708	0.0556949	2.2736111	60	2	1997-1999	0.28	M-v	2	Williams	36890	1997 CT ₅
1997 CE ₈	13.8	0.15	19990810	28.34927	203.26057	153.92272	5.97645	0.1384936	2.3030037	32	4	1981-1999	0.70	M-v	2	Williams	36890	1997 CE ₈
1997 CF ₉	15.0	0.15	19990810	315.13813	70.12250	333.65017	6.55160	0.2357632	2.4292945	77	2	1997-1999	0.47	M-v	3	Williams	36890	1997 CF ₉
1997 CL ₁₃	14.6	0.15	19990810	267.45644	321.96966	138.84992	8.50479	0.1480871	2.5556437	32	2	1997-1999	0.63	M-v	4	Williams	36346	1997 CL ₁₃
1997 CZ ₁₄	16.0	0.15	19990810	3.14208	335.18256	36.30732	2.72795	0.2331609	2.2747577	49	5	1992-1999	0.33	M-v	1	Williams	36890	1997 CZ ₁₄
1997 CP ₁₉	13.6	0.15	19990810	277.64902	293.04170	139.14488	13.24502	0.1594805	2.5577250	65	3	1997-1999	0.59	M-v	3	Williams	36890	1997 CP ₁₉
1997 CV ₁₉	14.0	0.15	19990810	149.01477	133.71405	126.98317	6.69307	0.0913561	2.3909727	44	3	1997-1999	0.60	M-v	3	Williams	36890	1997 CV ₁₉
1997 CF ₂₂	13.9	0.15	19990810	15.60647	173.67642	158.95243	5.70180	0.0304868	2.7911959	123	3	1997-1999	0.58	M-v	2	Williams	36524	1997 CF ₂₂
1997 CB ₂₆	14.1	0.15	19990810	315.79666	112.20613	321.07421	5.94920	0.0681483	2.3543465	48	2	1997-1999	0.48	M-v	4	Williams	36891	1997 CB ₂₆
1997 CG ₂₆	14.8	0.15	19990810	222.73964	132.87941	46.93837	4.72857	0.1082878	2.3956138	39	2	1997-1999	0.66	M-v	4	Williams	36799	1997 CG ₂₆
1997 CK ₂₆	14.3	0.15	19990810	203.10461	139.78936	62.98518	6.45980	0.0544434	2.3719713	43	3	1995-1999	0.41	M-v	3	Williams	36891	1997 CK ₂₆
1997 CS ₂₈	14.7	0.15	19990810	339.09349	292.95061	80.54550	3.67076	0.0722775	2.6107684	50	3	1997-1999	0.60	M-v	4	Williams	36524	1997 CS ₂₈
1997 CK ₂₉	14.9	0.15	19990810	294.39744	123.60218	332.03825	1.17690	0.2069767	2.3034540	77	4	1990-1999	0.61	M-v	2	Williams	36891	1997 CK ₂₉
1997 CS ₂₉	5.2	0.15	19990810	352.09593	180.88717	304.34627	2.24417	0.0069553	43.9064320	59	4	1997-1999	0.41	M-v	4	Williams	35431	1997 CS ₂₉
1997 DC	14.1	0.15	19990810	179.35773	86.07422	158.58478	2.53768	0.1677606	2.3905783	94	4	1993-1999	0.67	M-v	1	Williams	33076	1997 DC
1997 DL	15.6	0.15	19990810	279.69149	157.62593	326.87084	4.96734	0.1588204	2.2562855	53	3	1997-1999	0.46	M-v	3	Williams	36891	1997 DL
1997 DT	14.9	0.15	19990810	206.04799	86.17607	130.38938	3.68274	0.0720937	2.2842547	30	4	1991-1999	0.91	M-v	2	Williams	35698	1997 DT
1997 EF	14.1	0.15	19990810	203.06379	127.67664	72.64094	3.90297	0.1359043	2.4446332	47	2	1997-1999	0.48	M-v	4	Williams	36799	1997 EF
1997 EJ	12.8	0.15	19990810	161.85399	166.32884	8.45084	10.02374	0.0371849	3.0063013	75	2	1997-1999	0.56	M-v	3	Williams	36891	1997 EJ
1997 EK	13.0	0.15	19990810	174.68977	159.24092	9.90014	12.73584	0.0801515	2.9094304	60	4	1992-1999	0.59	M-v	3	Williams	36891	1997 EK
1997 EL	12.2	0.15	19990810	330.34244	215.54699	148.49644	10.95878	0.1209798	3.0019135	123	3	1997-1999	0.55	M-v	3	Williams	36891	1997 EL
1997 EM	14.3	0.15	19990810	107.01412	198.12360	71.04990	3.75389	0.1450634	2.7356177	43	3	1990-1999	0.63	M-v	4	Williams	36799	1997 EM
1997 EV	15.4	0.15	19990810	298.20809	66.28509	18.48209	23.52976	0.2391899	2.3420714	81	2	1997-1999	0.58	M-v	3	Williams	36891	1997 EV
1997 EB ₁	15.3	0.15	19990810	145.02893	347.82630	277.27942	6.00763	0.0848092	2.3559712	33	4	1973-1999	0.76	M-v	1	Williams	32520	1997 EB ₁
1997 EQ ₂	14.6	0.15	19990810	12.37122	277.98993	127.41866	5.95261	0.1063054	2.3014616	35	3	1997-1999	0.66	M-v	2	Williams	36891	1997 EQ ₂
1997 EY ₂	15.0	0.15	19990810	291.30768	30.04062	118.67733	3.20102	0.0656833	2.1898041	30	3	1997-1999	0.62	M-v	4	Williams	32752	1997 EY ₂

1997 EN ₄	14.4	0.15	19990810	65.94025	328.17068	2.39702	12.08936	0.1987225	2.6358164	28	3	1997–1999	0.38	M-v	3	Williams	36891	1997 EN ₄
1997 ED ₇	15.7	0.15	19990810	338.78782	139.65641	257.81591	5.59568	0.1235789	2.4369626	39	2	1997–1999	0.40	M-v	4	Williams	36799	1997 ED ₇
1997 EO ₇	13.0	0.15	19990810	28.91998	321.22677	330.21504	9.20808	0.1709605	3.1608293	107	3	1997–1999	0.67	M-v	2	Williams	36891	1997 EO ₇
1997 EX ₇	14.6	0.15	19990810	325.71688	50.67390	352.76078	3.93385	0.1414125	2.5520591	99	2	1997–1999	0.58	M-v	4	Williams	36891	1997 EX ₇
1997 EL ₁₁	13.1	0.15	19990810	65.68129	270.81237	55.29764	15.43867	0.1496409	2.6116581	60	3	1986–1999	0.59	M-v	2	Williams	36891	1997 EL ₁₁
1997 EX ₁₃	15.2	0.15	19990810	335.56738	96.99962	308.53748	2.14441	0.1591652	2.3764312	80	2	1997–1999	0.56	M-v	4	Williams	36891	1997 EX ₁₃
1997 EO ₁₇	14.2	0.15	19990810	38.12184	320.26280	63.69827	7.47795	0.1671720	2.2814864	27	3	1997–1999	0.69	M-v	2	Williams	36524	1997 EO ₁₇
1997 ES ₁₇	14.2	0.15	19990810	116.42767	5.93673	292.87205	3.74794	0.2354789	2.4341188	66	3	1997–1999	0.67	M-v	2	Williams	34296	1997 ES ₁₇
1997 EE ₂₃	13.7	0.15	19990810	316.38845	0.40201	99.36233	7.82294	0.0731827	2.3921371	63	3	1997–1999	0.51	M-v	3	Williams	36891	1997 EE ₂₃
1997 EP ₂₅	14.6	0.15	19990810	286.20750	121.05402	352.18990	2.24078	0.0893567	2.2718185	30	2	1997–1999	0.38	M-v	4	Williams	36800	1997 EP ₂₅
1997 ER ₂₆	14.0	0.15	19990810	342.87459	194.41216	167.42761	1.88439	0.2073731	3.0571568	71	4	1994–1999	0.56	M-v	2	Williams	36891	1997 ER ₂₆
1997 EL ₂₈	15.0	0.15	19990810	330.69052	23.44715	4.21003	9.43310	0.1913194	2.7726102	92	2	1997–1999	0.58	M-v	3	Williams	36891	1997 EL ₂₈
1997 EE ₂₉	15.1	0.15	19990810	234.58048	227.71072	304.10604	0.49785	0.1240020	2.4272521	45	2	1997–1999	0.57	M-v	4	Williams	36800	1997 EE ₂₉
1997 EQ ₃₀	13.8	0.15	19990810	154.18241	111.39734	103.11168	11.51329	0.1440621	2.6903673	66	3	1997–1999	0.72	M-v	3	Williams	36891	1997 EQ ₃₀
1997 ER ₃₁	13.9	0.15	19990810	52.66537	271.65752	24.86831	0.96159	0.1526555	3.2243662	78	3	1993–1999	0.63	M-v	3	Williams	36891	1997 ER ₃₁
1997 EN ₃₂	14.6	0.15	19990810	290.09824	68.66813	6.44429	4.04513	0.0916222	2.7217471	76	3	1992–1999	0.58	M-v	3	Williams	36891	1997 EN ₃₂
1997 EM ₃₆	15.3	0.15	19990810	281.43013	318.49706	148.56988	6.02216	0.1856531	2.2914326	45	2	1997–1999	0.73	M-v	4	Williams	36891	1997 EM ₃₆
1997 EQ ₄₀	15.1	0.15	19990810	146.57309	103.07075	150.54659	10.99808	0.0980051	2.5550542	50	4	1994–1999	0.70	M-v	1	Williams	32520	1997 EQ ₄₀
1997 EK ₄₁	15.4	0.15	19990810	179.48565	8.77502	239.90791	3.36329	0.1208023	2.2542726	23	5	1994–1999	0.79	M-v	1	Williams	34872	1997 EK ₄₁
1997 EY ₄₅	14.4	0.15	19990810	281.31951	43.42907	81.84088	3.24439	0.1521145	2.3887239	54	3	1995–1999	0.46	M-v	2	Williams	36891	1997 EY ₄₅
1997 EH ₄₆	14.2	0.15	19990810	352.33891	25.44083	326.40240	12.56371	0.3205273	2.5988282	89	2	1997–1999	0.41	M-v	2	Williams	36891	1997 EH ₄₆
1997 EU ₄₆	14.5	0.15	19990810	172.55808	9.21517	247.04746	1.53523	0.1474491	2.4673322	36	3	1997–1999	0.79	M-v	4	Williams	33257	1997 EU ₄₆
1997 EK ₅₄	13.1	0.15	19990810	69.24030	241.03064	36.29023	1.63358	0.0758242	3.2134578	55	3	1991–1999	0.65	M-v	2	Williams	36524	1997 EK ₅₄
1997 FC ₁	14.7	0.15	19990810	249.30042	51.11102	127.18419	7.14433	0.0920032	2.3454635	37	3	1997–1999	0.57	M-v	4	Williams	35699	1997 FC ₁
1997 FN ₁	14.8	0.15	19990810	203.65953	9.27117	231.39125	4.23402	0.2329982	2.3410966	29	3	1997–1999	0.39	M-v	3	Williams	32958	1997 FN ₁
1997 FT ₁	14.3	0.15	19990810	0.89363	287.43136	114.67607	12.43884	0.1505886	2.6244200	25	3	1995–1999	0.31	M-v	3	Williams	36524	1997 FT ₁
1997 FY ₁	14.3	0.15	19990810	104.06757	289.08345	12.44594	13.25797	0.2020162	2.7292625	30	3	1997–1999	0.78	M-v	3	Williams	32958	1997 FY ₁
1997 FU ₂	12.9	0.15	19990810	20.55523	341.50528	358.85871	10.78033	0.0971117	3.0497184	42	3	1988–1999	0.73	M-v	3	Williams	36891	1997 FU ₂
1997 FC ₃	14.0	0.15	19990810	349.20014	155.60373	218.24264	0.85881	0.1344365	2.9298981	86	4	1992–1999	0.62	M-v	3	Williams	36891	1997 FC ₃
1997 FG ₃	14.5	0.15	19990810	299.66784	247.44664	187.85960	4.91570	0.0758046	2.7154162	51	2	1997–1999	0.70	M-v	4	Williams	36891	1997 FG ₃
1997 FK ₃	14.8	0.15	19990810	347.07017	201.89468	185.86558	12.15361	0.1135127	2.7539643	49	4	1992–1999	0.58	M-v	2	Williams	36891	1997 FK ₃
1997 FC ₄	13.7	0.15	19990810	265.44597	260.04557	185.03448	10.13688	0.0886980	2.9624960	42	4	1994–1999	0.63	M-v	1	Williams	36350	1997 FC ₄
1997 FD ₄	15.4	0.15	19990810	13.57882	244.97555	180.96798	6.49375	0.0491659	2.2510543	33	3	1997–1999	0.75	M-v	3	Williams	36350	1997 FD ₄
1997 FG ₄	14.4	0.15	19990810	54.22456	139.34949	195.95629	4.52556	0.0326121	2.6858624	61	3	1997–1999	0.68	M-v	3	Williams	36800	1997 FG ₄
1997 FP ₄	15.1	0.15	19990810	175.39177	291.31903	307.93809	2.15123	0.1368019	2.5378671	26	3	1997–1999	0.68	M-v	4	Williams	35699	1997 FP ₄
1997 FC ₅	14.1	0.15	19990810	13.53061	194.48385	175.32217	6.15332	0.0662253	2.7089395	23	3	1994–1999	0.75	M-v	4	Williams	36891	1997 FC ₅
1997 GB	15.2	0.15	19990810	261.32377	127.47164	29.12911	6.50825	0.0831587	2.3663082	40	3	1997–1999	0.68	M-v	3	Williams	32678	1997 GB
1997 GH ₁	14.8	0.15	19990810	31.15167	179.50529	181.32012	2.98577	0.1835959	2.5828479	26	3	1993–1999	0.35	M-v	4	Williams	36891	1997 GH ₁
1997 GT ₁	15.6	0.15	19990810	7.04063	177.70621	202.41255	1.64448	0.0703102	2.5753157	30	2	1997–1999	0.55	M-v	5	Williams	36800	1997 GT ₁
1997 GV ₃	15.3	0.15	19990810	242.75563	171.01388	26.46552	7.37304	0.0651081	2.2925292	27	3	1997–1999	0.73	M-v	4	Williams	32678	1997 GV ₃
1997 GW ₆	14.2	0.15	19990810	67.12972	128.45124	218.26384	16.92900	0.1416080	2.7500140	53	3	1997–1999	0.66	M-v	3	Williams	36525	1997 GW ₆
1997 GQ ₇	12.5	0.15	19990810	344.08774	2.53093	46.35233	15.94379	0.1592892	2.7748071	93	3	1996–1999	0.53	M-v	2	Williams	36891	1997 GQ ₇
1997 GZ ₇	13.8	0.15	19990810	28.27261	298.70807	41.40308	13.85088	0.0262880	3.1692955	46	3	1988–1999	0.71	M-v	3	Williams	36891	1997 GZ ₇
1997 GP ₁₃	14.9	0.15	19990810	215.36381	11.10148	205.22679	3.54253	0.0502768	2.3518186	32	3	1997–1999	0.70	M-v	4	Williams	35699	1997 GP ₁₃
1997 GX ₁₄	14.6	0.15	19990810	114.07024	298.56808	6.40458	11.45171	0.2006366	2.6179769	63	3	1997–1999	0.65	M-v	3	Williams	33077	1997 GX ₁₄
1997 GK ₁₆	14.0	0.15	19990810	35.68214	225.41687	120.73907	1.50391	0.2072336	2.8882723	50	4	1989–1999	0.48	M-v	1	Williams	36892	1997 GK ₁₆
1997 GS ₁₆	13.4	0.15	19990810	243.20179	307.08962	172.18788	1.97508	0.0221617	2.9311542	36	2	1997–1999	0.66	M-v	4	Williams	36801	1997 GS ₁₆
1997 GD ₁₇	15.0	0.15	19990810	339.07915	148.97025	276.18798	1.74029	0.1860177	2.4185902	29	4	1980–1999	0.75	M-v	2	Williams	36525	1997 GD ₁₇
1997 GF ₁₇	14.4	0.15	19990810	230.14128	9.14803	213.87070	5.24227	0.1349883	2.2492159	47	3	1997–1999	0.54	M-v	3	Williams	36892	1997 GF ₁₇
1997 GK ₁₇	15.2	0.15	19990810	0.15444	118.71483	330.55897	2.23017	0.0925993	2.1798523	44	5	1987–1999	0.73	M-v	1	Williams	32752	1997 GK ₁₇
1997 GL ₁₇	14.6	0.15	19990810	228.28010	219.55508	331.34446	2.01097	0.1457052	2.4219877	51	3	1997–1999	0.71	M-v	4	Williams	36892	1997 GL ₁₇
1997 GB ₁₉	14.0	0.15	19990810	191.87459	46.35856	214.25017	7.20584	0.1174057	2.2869515	57	4	1980–1999	0.53	M-v	1	Williams	33556	1997 GB ₁₉
1997 GE ₂₀	13.9	0.15	19990810	267.62510	281.09391	169.16639	2.27070	0.0634865	2.9334259	43	3	1992–1999	0.61	M-v	2	Williams	36892	1997 GE ₂₀

1997 GL ₂₁	13.9	0.15	19990810	299.87696	81.62894	359.09630	1.48642	0.0236098	2.9500438	72	3	1997-1999	0.58	M-v	3	Williams	36892	1997 GL ₂₁
1997 GS ₂₁	14.6	0.15	19990810	108.19328	292.22694	44.01467	8.00762	0.1305161	2.4727955	49	4	1990-1999	0.51	M-v	1	Williams	33344	1997 GS ₂₁
1997 GX ₂₁	13.3	0.15	19990810	30.21360	262.33926	99.15979	3.65472	0.0743886	2.8997023	52	3	1997-1999	0.56	M-v	3	Williams	36892	1997 GX ₂₁
1997 GC ₂₂	14.4	0.15	19990810	14.94793	216.90541	163.61627	2.03734	0.1019081	2.8480023	44	3	1960-1999	0.62	M-v	4	Williams	36892	1997 GC ₂₂
1997 GL ₂₂	14.2	0.15	19990810	58.84518	312.63799	25.74700	3.35737	0.2286354	3.0950747	53	3	1997-1999	0.67	M-v	3	Williams	36892	1997 GL ₂₂
1997 GQ ₂₂	13.2	0.15	19990810	28.69731	131.54508	218.29015	12.91479	0.1470527	3.2114106	94	4	1987-1999	0.52	M-v	2	Williams	36892	1997 GQ ₂₂
1997 GS ₂₂	14.6	0.15	19990810	245.79870	101.22814	48.11843	3.74661	0.0235961	2.7826360	52	2	1997-1999	0.49	M-v	4	Williams	36801	1997 GS ₂₂
1997 GT ₂₂	13.2	0.15	19990810	105.47973	240.40540	40.99255	10.78320	0.0725875	2.9894411	90	2	1997-1999	0.46	M-v	3	Williams	36892	1997 GT ₂₂
1997 GB ₂₃	14.9	0.15	19990810	283.45807	39.79677	67.75570	4.74521	0.2233524	2.5973805	68	3	1995-1999	0.55	M-v	3	Williams	36892	1997 GB ₂₃
1997 GJ ₂₃	14.5	0.15	19990810	128.12478	265.05862	42.37373	13.14281	0.1754025	2.6043777	65	3	1997-1999	0.54	M-v	2	Williams	33752	1997 GJ ₂₃
1997 GK ₂₃	14.6	0.15	19990810	109.99216	102.87859	176.35745	2.09118	0.0250553	2.9054503	34	3	1992-1999	0.64	M-v	4	Williams	30094	1997 GK ₂₃
1997 GP ₂₃	14.5	0.15	19990810	119.12363	278.57157	17.44761	5.24706	0.1462141	2.7666529	60	3	1997-1999	0.65	M-v	3	Williams	35699	1997 GP ₂₃
1997 GP ₂₄	14.2	0.15	19990810	81.42217	254.36502	50.39896	10.68130	0.0604195	2.9929549	44	2	1997-1999	0.61	M-v	3	Williams	36801	1997 GP ₂₄
1997 GR ₂₄	13.8	0.15	19990810	111.78916	126.28305	195.27110	12.18649	0.1922972	2.6904352	94	3	1997-1999	0.51	M-v	2	Williams	36892	1997 GR ₂₄
1997 GZ ₂₅	15.0	0.15	19990810	250.42199	57.75214	150.15812	4.91187	0.0792108	2.2886363	52	4	1993-1999	0.75	M-v	2	Williams	35699	1997 GZ ₂₅
1997 GA ₂₆	14.5	0.15	19990810	221.37276	191.62589	51.68358	7.19800	0.1559756	2.2351996	104	3	1997-1999	0.55	M-v	3	Williams	33752	1997 GA ₂₆
1997 GK ₃₃	13.2	0.15	19990810	297.82342	214.01962	199.71580	7.98068	0.0912122	3.0329079	97	3	1997-1999	0.69	M-v	3	Williams	36892	1997 GK ₃₃
1997 GP ₃₃	14.5	0.15	19990810	301.62157	254.40392	185.64186	2.88754	0.0702877	2.6896744	63	3	1994-1999	0.62	M-v	3	Williams	36892	1997 GP ₃₃
1997 GH ₃₆	13.6	0.15	19990810	257.14917	102.01500	37.59563	13.65693	0.1032599	2.6954622	55	2	1997-1999	0.61	M-v	4	Williams	36801	1997 GH ₃₆
1997 GP ₃₆	13.1	0.15	19990810	218.61212	323.34042	215.93625	12.25268	0.2108615	2.6521304	96	3	1997-1999	0.53	M-v	3	Williams	36892	1997 GP ₃₆
1997 GT ₃₇	14.6	0.15	19990810	36.82005	193.61338	195.67902	2.31936	0.1772506	2.3695443	23	3	1991-1999	0.79	M-v	5	Williams	29936	1997 GT ₃₇
1997 GD ₄₂	14.5	0.15	19990810	257.97537	357.13232	177.09387	5.77130	0.0767815	2.3961615	40	3	1997-1999	0.81	M-v	4	Williams	36525	1997 GD ₄₂
1997 HQ	14.0	0.15	19990810	353.84357	217.01560	210.86689	5.93305	0.0938829	2.4643716	33	3	1997-1999	0.49	M-v	2	Williams	36892	1997 HQ
1997 HO ₁	15.1	0.15	19990810	310.70434	194.72092	231.54227	1.10431	0.1539468	2.6155347	78	3	1995-1999	0.62	M-v	4	Williams	36892	1997 HO ₁
1997 HP ₂	15.2	0.15	19990810	178.70752	82.94674	174.92550	1.19108	0.1101098	2.5315880	49	3	1997-1999	0.77	M-v	4	Marsden	33077	1997 HP ₂
1997 HY ₆	13.3	0.15	19990810	92.49738	226.15868	52.79180	10.17152	0.0226354	3.0895589	48	2	1997-1999	0.54	M-v	3	Williams	36892	1997 HY ₆
1997 HW ₇	14.7	0.15	19990810	55.37771	121.71644	240.42071	2.44532	0.1897235	2.7271019	51	5	1992-1999	0.62	M-v	1	Williams	35700	1997 HW ₇
1997 HP ₈	14.9	0.15	19990810	2.15722	217.26722	187.80568	3.71867	0.0963147	2.6615378	45	4	1992-1999	0.64	M-v	1	Williams	36892	1997 HP ₈
1997 HD ₉	15.7	0.15	19990810	156.12897	13.96336	266.97344	1.74937	0.1590799	2.5474798	31	3	1997-1999	0.50	M-v	3	Williams	32964	1997 HD ₉
1997 HA ₁₀	15.0	0.15	19990810	90.08998	251.70391	81.77058	3.78265	0.1904322	2.7247834	41	3	1997-1999	0.56	M-v	3	Williams	35700	1997 HA ₁₀
1997 HS ₁₂	14.5	0.15	19990810	208.18396	314.92704	235.63276	1.16521	0.1399081	2.7005572	44	2	1997-1999	0.52	M-v	4	Williams	36801	1997 HS ₁₂
1997 HK ₁₆	13.7	0.15	19990810	346.07188	16.73177	356.73237	1.23678	0.1110427	2.9523679	83	3	1992-1999	0.56	M-v	3	Williams	36892	1997 HK ₁₆
1997 JU ₃	15.0	0.15	19990810	185.57212	154.65781	56.52254	8.92756	0.1500906	2.8168103	45	3	1997-1999	0.68	M-v	3	Williams	36892	1997 JU ₃
1997 JH ₆	13.7	0.15	19990810	103.85643	207.91579	103.50188	5.40021	0.1568951	2.8760984	64	4	1996-1999	0.68	M-v	1	Williams	35700	1997 JH ₆
1997 JV ₇	14.7	0.15	19990810	316.06846	330.80131	169.61125	6.69307	0.0885270	2.2986893	58	3	1997-1999	0.65	M-v	4	Williams	35700	1997 JV ₇
1997 JN ₁₂	12.5	0.15	19990810	108.33439	221.86507	55.73186	10.73178	0.0615971	3.0192479	90	2	1997-1999	0.50	M-v	3	Williams	36892	1997 JN ₁₂
1997 JH ₁₃	14.4	0.15	19990810	133.48757	229.46765	51.05160	9.26145	0.1230012	2.7677808	31	4	1989-1999	0.82	M-v	1	Williams	33949	1997 JH ₁₃
1997 JL ₁₃	14.1	0.15	19990810	189.01302	58.65451	195.20119	3.28391	0.1554412	2.4739024	52	5	1989-1999	0.75	M-v	2	Williams	33344	1997 JL ₁₃
1997 JB ₁₅	14.3	0.15	19990810	288.20032	93.14189	80.35097	3.72693	0.0910725	2.2498227	57	4	1995-1999	0.76	M-v	2	Williams	36892	1997 JB ₁₅
1997 JT ₁₅	12.8	0.15	19990810	73.25343	208.72259	116.05935	3.09807	0.0351120	2.9178965	81	3	1997-1999	0.49	M-v	3	Williams	36892	1997 JT ₁₅
1997 JJ ₁₆	14.1	0.15	19990810	215.93766	52.86042	168.49078	2.30197	0.1217570	2.4763233	72	5	1977-1999	0.66	M-v	1	Williams	33077	1997 JJ ₁₆
1997 JT ₁₆	13.1	0.15	19990810	30.67089	269.61376	97.60451	10.98304	0.1456323	3.0823290	38	4	1994-1999	0.39	M-v	1	Williams	36892	1997 JT ₁₆
1997 KC	13.9	0.15	19990810	204.04598	140.50494	97.99012	14.46071	0.2015996	2.4407303	75	3	1997-1999	0.67	M-v	2	Williams	36525	1997 KC
1997 KG	13.9	0.15	19990810	37.01571	280.89513	95.48752	3.32806	0.0872854	2.8878123	75	3	1997-1999	0.61	M-v	3	Williams	32753	1997 KG
1997 KU ₂	13.7	0.15	19990810	261.55620	27.34521	130.58790	13.79901	0.1106928	2.5987720	48	3	1997-1999	0.66	M-v	4	Williams	36892	1997 KU ₂
1997 KH ₄	13.8	0.15	19990810	290.35668	73.23789	103.47018	6.32249	0.0793298	2.2602833	34	3	1997-1999	0.49	M-v	3	Williams	36892	1997 KH ₄
1997 LC	14.7	0.15	19990810	83.86743	156.53154	186.51050	1.75921	0.0964803	2.8643337	46	4	1993-1999	0.61	M-v	1	Marsden	35700	1997 LC
1997 LU ₁	13.2	0.15	19990810	207.51643	344.14092	199.55663	12.78640	0.0515863	3.0041962	60	3	1997-1999	0.51	M-v	3	Williams	36892	1997 LU ₁
1997 LE ₄	13.3	0.15	19990810	38.21681	103.30263	237.66014	21.10425	0.0789836	3.2322333	37	2	1997-1999	0.51	M-v	3	Williams	36802	1997 LE ₄
1997 MG ₁	13.0	0.15	19990810	7.64502	206.74471	189.86941	10.56398	0.1116977	3.0013592	49	3	1997-1999	0.42	M-v	3	Williams	36892	1997 MG ₁
1997 ML ₂	14.8	0.15	19990810	356.04396	295.77202	156.71759	3.54862	0.1674454	2.3803863	56	4	1980-1999	0.75	M-v	1	Williams	33345	1997 ML ₂
1997 MB ₉	12.6	0.15	19990810	63.18713	87.71925	302.01847	21.58235	0.1088610	3.1979696	58	4	1994-1999	0.60	M-v	1	Williams	34296	1997 MB ₉
1997 NU ₆	13.6	0.15	19990810	210.09397	355.55203	237.74699	8.37661	0.0931925	2.8052211	60	3	1997-1999	0.67	M-v	3	Williams	33345	1997 NU ₆

1997 OJ	13.5	0.15	19990810	139.45789	229.39494	58.65584	1.26688	0.1670924	3.1708998	65	3	1997–1999	0.60	M-v	3	Williams	34296	1997 OJ
1997 OY	13.8	0.15	19990810	6.81569	149.15496	318.88970	8.21263	0.1434054	2.7337224	63	4	1986–1999	0.57	M-v	1	Williams	33752	1997 OY
1997 OV ₂	13.5	0.15	19990810	276.84993	263.42894	294.92483	9.51516	0.0611571	2.7296353	33	4	1995–1999	0.70	M-v	1	Williams	33345	1997 OV ₂
1997 PE ₂	14.0	0.15	19990810	159.75474	184.42892	143.36658	18.58107	0.3096411	2.6112533	37	4	1993–1999	0.50	M-v	2	Williams	33752	1997 PE ₂
1997 QU ₁	13.8	0.15	19990810	299.27552	7.49720	162.72324	2.46655	0.0642744	2.9166515	42	5	1995–1999	0.61	M-v	1	Williams	36893	1997 QU ₁
1997 SW ₃₀	14.1	0.15	19990810	255.67850	77.33551	171.32388	9.25577	0.1784785	2.5359071	32	4	1996–1999	0.58	M-v	1	Williams	33557	1997 SW ₃₀
1997 SS ₃₁	13.2	0.15	19990810	43.41430	192.29739	238.50515	4.32020	0.1654401	3.1835839	47	3	1997–1999	0.61	M-v	3	Williams	35701	1997 SS ₃₁
1997 TS ₁₈	13.6	0.15	19990810	196.62212	302.77819	334.33620	8.35962	0.1328647	2.7636820	29	3	1997–1999	0.50	M-v	4	Williams	35702	1997 TS ₁₈
1997 UT ₂	12.9	0.15	19990810	174.86246	265.85344	23.26452	16.99637	0.2228704	3.1601530	31	5	1974–1999	0.72	M-v	2	Williams	34876	1997 UT ₂
1997 UC ₂₂	11.9	0.15	19990810	118.92406	51.41149	292.74218	17.63810	0.1539349	3.2069830	49	3	1997–1999	0.65	M-v	3	Williams	36893	1997 UC ₂₂
1997 VG ₁	11.2	0.15	19990810	343.45097	37.17583	53.83493	4.32983	0.0639465	5.0637886	46	3	1997–1999	0.70	M-v	3	Williams	36893	1997 VG ₁
1997 WU ₂₂	15.2	0.15	19990810	188.80644	334.13790	260.90741	15.97973	0.4422653	1.4676152	120	3	1990–1999	0.49	M-v	3	Williams	36893	1997 WU ₂₂
1997 XH	14.5	0.15	19990810	87.12538	272.88184	319.43651	5.62026	0.1424671	2.2278175	67	2	1997–1999	0.62	M-v	4	Williams	36893	1997 XH
1997 XF ₁₁	16.8	0.15	19990810	78.26296	102.48608	214.11718	4.09540	0.4836854	1.4416582	145	4	1990–1999	0.65	M-v	3	Marsden	35703	1997 XF ₁₁
1998 AV ₉	14.8	0.15	19990810	198.92775	209.65252	312.11280	0.50969	0.0650653	2.1729027	109	3	1993–1999	0.53	M-v	2	Williams	36893	1998 AV ₉
1998 BP ₈	14.4	0.15	19990810	12.09449	301.29278	2.15853	5.15250	0.1639993	2.2407217	77	4	1979–1999	0.56	M-v	2	Williams	36893	1998 BP ₈
1998 BH ₂₆	14.1	0.15	19990810	57.43232	277.13169	356.41719	15.71344	0.1889673	2.5300338	142	3	1991–1999	0.62	M-v	1	Williams	36893	1998 BH ₂₆
1998 BQ ₃₃	14.4	0.15	19990810	16.99039	224.01045	79.37194	5.02740	0.1559492	2.3334805	62	2	1998–1999	0.68	M-v	3	Williams	36893	1998 BQ ₃₃
1998 CC ₃	14.8	0.15	19990810	344.85173	1.22973	335.37675	3.66556	0.0667685	2.1495088	87	4	1993–1999	0.73	M-v	3	Williams	36893	1998 CC ₃
1998 DT ₇	14.5	0.15	19990810	80.84799	296.32500	301.27194	3.84099	0.1504451	2.2826897	48	3	1992–1999	0.58	M-v	2	Williams	36893	1998 DT ₇
1998 DV ₉	18.1	0.15	19990810	227.45674	0.57265	130.51386	8.68756	0.4338361	1.7455419	127	2	1998–1999	0.57	M-v	2	Williams	35315	1998 DV ₉
1998 DO ₂₃	15.7	0.15	19990810	314.70358	52.94899	10.37349	19.84371	0.0861831	1.9133403	50	3	1991–1999	0.59	M-v	3	Williams	36527	1998 DO ₂₃
1998 DB ₂₄	14.8	0.15	19990810	100.58990	298.91708	314.16579	17.21629	0.0554338	1.9626063	71	2	1998–1999	0.52	M-v	3	Williams	36893	1998 DB ₂₄
1998 DT ₃₄	14.9	0.15	19990810	18.26240	302.35982	16.22551	5.36882	0.1833460	2.2215083	98	3	1989–1999	0.57	M-v	2	Williams	36893	1998 DT ₃₄
1998 DC ₃₅	14.4	0.15	19990810	157.21826	359.80117	156.30740	4.83077	0.0731533	2.3248229	75	2	1998–1999	0.60	M-v	3	Williams	36893	1998 DC ₃₅
1998 DX ₃₅	13.3	0.15	19990810	31.09795	200.41912	23.74775	1.01495	0.1356345	3.2074368	53	4	1993–1999	0.79	M-v	1	Williams	35318	1998 DX ₃₅
1998 DB ₃₆	14.0	0.15	19990810	35.56642	288.46019	7.24230	11.47436	0.2168899	2.3395618	115	3	1991–1999	0.65	M-v	2	Williams	36893	1998 DB ₃₆
1998 ED	13.8	0.15	19990810	18.43526	266.65003	33.23688	13.44273	0.1851594	2.5548543	48	2	1998–1999	0.74	M-v	3	Williams	36893	1998 ED
1998 EW ₂	14.5	0.15	19990810	35.93881	278.14037	19.45686	9.90602	0.0881532	2.5575174	63	2	1998–1999	0.62	M-v	3	Williams	36893	1998 EW ₂
1998 EP ₃	13.5	0.15	19990810	16.18271	300.65765	6.83400	9.42112	0.1761830	2.6516555	95	3	1996–1999	0.50	M-v	2	Williams	36893	1998 EP ₃
1998 EP ₈	18.2	0.15	19990810	332.45368	221.01063	169.31248	24.52929	0.2726344	1.7514365	60	2	1998–1999	0.61	M-v	3	Williams	36893	1998 EP ₈
1998 EA ₉	14.4	0.15	19990810	67.69783	158.13855	111.74592	9.02894	0.2352077	2.5672519	69	2	1998–1999	0.58	M-v	3	Williams	36893	1998 EA ₉
1998 EC ₉	14.3	0.15	19990810	49.95992	176.02395	86.46825	6.30013	0.2564240	2.5500700	55	3	1991–1999	0.55	M-v	2	Williams	36893	1998 EC ₉
1998 EB ₁₀	14.8	0.15	19990810	16.55978	16.64031	292.37271	4.35295	0.2265154	2.3082072	67	4	1992–1999	0.49	M-v	2	Williams	36893	1998 EB ₁₀
1998 EE ₁₀	14.0	0.15	19990810	52.22291	269.02510	22.71066	4.51377	0.1510952	2.2639310	127	3	1981–1999	0.58	M-v	2	Williams	36893	1998 EE ₁₀
1998 EQ ₁₀	14.2	0.15	19990810	6.93286	249.34655	70.18114	4.45085	0.1837677	2.2966113	31	3	1995–1999	0.61	M-v	4	Williams	32316	1998 EQ ₁₀
1998 EK ₁₁	14.8	0.15	19990810	74.18554	164.80605	92.39164	3.85169	0.1852734	2.3575777	40	2	1998–1999	0.64	M-v	4	Williams	36356	1998 EK ₁₁
1998 ET ₁₁	14.5	0.15	19990810	21.51387	288.08126	23.87191	7.40245	0.2085652	2.2911404	78	2	1998–1999	0.61	M-v	4	Williams	36893	1998 ET ₁₁
1998 EY ₁₁	14.3	0.15	19990810	46.01976	267.46257	17.90039	8.65643	0.1986447	2.3726910	105	2	1998–1999	0.65	M-v	3	Williams	36894	1998 EY ₁₁
1998 ED ₁₂	15.0	0.15	19990810	56.27419	233.20790	38.44873	6.94687	0.1027584	2.2958079	53	2	1998–1999	0.69	M-v	4	Williams	36894	1998 ED ₁₂
1998 EE ₁₂	14.2	0.15	19990810	50.29662	195.94163	84.73203	6.01260	0.1439181	2.3101700	63	2	1998–1999	0.64	M-v	4	Williams	36357	1998 EE ₁₂
1998 EW ₁₂	15.1	0.15	19990810	51.65515	290.54432	3.60639	5.57920	0.1740516	2.2157967	68	2	1998–1999	0.57	M-v	4	Williams	36894	1998 EW ₁₂
1998 FE ₂	14.5	0.15	19990810	63.79460	172.95292	91.39454	3.98914	0.1302204	2.5107479	105	3	1995–1999	0.54	M-v	2	Williams	36527	1998 FE ₂
1998 FB ₅	15.6	0.15	19990810	250.17210	275.85048	196.06121	22.37593	0.0942645	1.9568762	92	2	1998–1999	0.60	M-v	3	Williams	36894	1998 FB ₅
1998 FQ ₅	14.7	0.15	19990810	67.90433	234.97190	41.21802	11.31579	0.2067958	2.4455371	108	2	1998–1999	0.58	M-v	3	Williams	36894	1998 FQ ₅
1998 FM ₈	15.1	0.15	19990810	352.41090	318.37113	28.01889	6.10305	0.2097678	2.2762121	65	2	1998–1999	0.47	M-v	3	Williams	36894	1998 FM ₈
1998 FC ₉	15.2	0.15	19990810	268.06745	267.43830	166.63875	5.43777	0.0857333	2.2038547	73	3	1973–1999	0.72	M-v	3	Williams	36527	1998 FC ₉
1998 FV ₁₀	14.9	0.15	19990810	16.95989	42.44723	277.39196	1.43060	0.1023027	2.3126078	142	2	1998–1999	0.60	M-v	3	Williams	36894	1998 FV ₁₀
1998 FG ₁₁	13.1	0.15	19990810	20.49484	274.17857	34.38801	15.08445	0.1147734	2.5907606	72	4	1987–1999	0.70	M-v	2	Williams	36894	1998 FG ₁₁
1998 FU ₁₁	15.6	0.15	19990810	113.47182	56.30978	165.86593	1.79939	0.0841963	2.2124324	77	2	1998–1999	0.63	M-v	4	Williams	36358	1998 FU ₁₁
1998 FB ₁₂	14.3	0.15	19990810	14.02393	357.10873	334.28235	1.53679	0.1793527	2.1489837	65	2	1998–1999	0.53	M-v	4	Williams	36803	1998 FB ₁₂
1998 FC ₁₂	14.7	0.15	19990810	60.92197	150.72018	157.99167	4.47579	0.2453830	2.0789372	35	3	1980–1999	0.58	M-v	3	Williams	32482	1998 FC ₁₂
1998 FL ₁₂	15.2	0.15	19990810	198.74594	161.81931	21.25381	21.76317	0.0877666	1.9299161	50	2	1998–1999	0.55	M-v	3	Williams	36803	1998 FL ₁₂

1998 FM ₁₂	14.3	0.15	19990810	26.77695	138.76963	159.40259	3.98627	0.2100971	2.5669886	93	3	1995–1999	0.55	M-v	2	Williams	36894	1998 FM ₁₂
1998 FB ₁₄	13.8	0.15	19990810	16.51196	127.79552	167.74540	12.21766	0.2068536	2.7103418	102	3	1990–1999	0.59	M-v	2	Williams	36894	1998 FB ₁₄
1998 FD ₁₅	14.0	0.15	19990810	100.99825	24.36262	215.49877	2.30459	0.1656839	2.3070108	109	5	1977–1999	0.63	M-v	3	Williams	36894	1998 FD ₁₅
1998 FG ₁₅	16.2	0.15	19990810	116.66516	248.19609	14.71282	20.28539	0.0524403	1.9251225	60	2	1998–1999	0.69	M-v	4	Williams	36803	1998 FG ₁₅
1998 FV ₁₅	14.9	0.15	19990810	1.14680	336.51183	5.34260	4.74267	0.1210817	2.2147107	147	3	1996–1999	0.57	M-v	2	Williams	36894	1998 FV ₁₅
1998 FF ₁₆	14.6	0.15	19990810	75.05329	106.46543	161.21178	2.47981	0.1855150	2.3956402	125	3	1995–1999	0.62	M-v	3	Williams	36894	1998 FF ₁₆
1998 FW ₂₀	14.8	0.15	19990810	79.19718	155.72484	95.65787	2.51743	0.1638741	2.3022202	58	2	1998–1999	0.63	M-v	4	Williams	36528	1998 FW ₂₀
1998 FU ₂₂	14.6	0.15	19990810	43.73305	124.31486	166.09857	2.82627	0.1299857	2.2126122	79	2	1998–1999	0.61	M-v	4	Williams	36528	1998 FU ₂₂
1998 FZ ₂₉	14.8	0.15	19990810	85.42517	46.33091	211.37614	4.89035	0.1630943	2.2356675	96	3	1995–1999	0.53	M-v	2	Williams	36894	1998 FZ ₂₉
1998 FR ₃₀	14.3	0.15	19990810	27.31002	91.12713	209.31373	1.91902	0.1872565	2.4078752	121	3	1997–1999	0.60	M-v	2	Williams	36894	1998 FR ₃₀
1998 FK ₃₂	14.5	0.15	19990810	150.64899	312.33207	227.45821	2.28061	0.0412802	2.2077781	88	4	1995–1999	0.58	M-v	2	Williams	36528	1998 FK ₃₂
1998 FO ₃₂	14.1	0.15	19990810	37.26933	299.82055	348.48352	11.02053	0.2648057	2.6143724	88	2	1998–1999	0.53	M-v	3	Williams	36894	1998 FO ₃₂
1998 FF ₃₄	14.3	0.15	19990810	54.10120	340.88852	301.37582	1.58593	0.1981012	2.3848724	97	3	1996–1999	0.49	M-v	2	Williams	36894	1998 FF ₃₄
1998 FY ₃₅	14.6	0.15	19990810	68.65877	269.60418	13.34349	5.80427	0.1800507	2.2006411	117	3	1989–1999	0.52	M-v	1	Williams	36894	1998 FY ₃₅
1998 FY ₄₁	15.2	0.15	19990810	3.91326	353.11746	339.60461	5.26008	0.1886680	2.2724884	93	2	1998–1999	0.58	M-v	3	Williams	36894	1998 FY ₄₁
1998 FN ₄₃	15.1	0.15	19990810	349.96067	352.04666	356.64599	6.78109	0.1927427	2.2116339	97	3	1986–1999	0.60	M-v	2	Williams	36894	1998 FN ₄₃
1998 FK ₄₄	14.3	0.15	19990810	20.04724	285.84419	7.07665	4.27223	0.2751765	2.9048342	61	2	1998–1999	0.69	M-v	4	Williams	36894	1998 FK ₄₄
1998 FL ₄₄	14.0	0.15	19990810	42.32103	269.97358	3.33281	13.49945	0.1562613	2.6170809	63	3	1995–1999	0.56	M-v	2	Williams	36528	1998 FL ₄₄
1998 FK ₄₇	14.6	0.15	19990810	26.16240	315.42551	352.55538	7.37539	0.1261926	2.3299000	106	2	1998–1999	0.57	M-v	3	Williams	36894	1998 FK ₄₇
1998 FX ₄₇	14.4	0.15	19990810	17.42984	110.50730	203.60044	5.73187	0.1945363	2.4259434	122	3	1991–1999	0.55	M-v	2	Williams	36894	1998 FX ₄₇
1998 FR ₄₈	15.3	0.15	19990810	351.77775	95.64065	256.26798	2.14670	0.1776058	2.1698276	47	2	1998–1999	0.68	M-v	4	Williams	36803	1998 FR ₄₈
1998 FE ₄₉	14.8	0.15	19990810	48.20717	100.37499	190.74010	7.74424	0.1972209	2.3969520	72	2	1998–1999	0.64	M-v	4	Williams	36894	1998 FE ₄₉
1998 FL ₄₉	14.6	0.15	19990810	54.46994	312.71954	345.10576	2.01515	0.1466544	2.1959913	132	3	1976–1999	0.46	M-v	2	Williams	36894	1998 FL ₄₉
1998 FM ₄₉	14.3	0.15	19990810	31.37642	109.70951	186.29690	12.52165	0.1942588	2.5519580	77	2	1998–1999	0.55	M-v	3	Williams	36894	1998 FM ₄₉
1998 FQ ₄₉	14.3	0.15	19990810	2.13552	355.70545	332.88197	1.66535	0.2112557	2.4388409	114	3	1976–1999	0.57	M-v	2	Williams	36894	1998 FQ ₄₉
1998 FM ₅₄	14.1	0.15	19990810	14.44770	329.71963	351.22671	5.29647	0.1994525	2.4138531	138	4	1969–1999	0.59	M-v	2	Williams	36894	1998 FM ₅₄
1998 FG ₅₆	14.5	0.15	19990810	25.06325	143.17723	160.53459	7.79003	0.1995044	2.5610195	92	2	1998–1999	0.60	M-v	3	Williams	36529	1998 FG ₅₆
1998 FL ₅₇	16.1	0.15	19990810	81.44130	301.56198	342.72694	0.58531	0.2187337	2.1754993	56	3	1973–1999	0.90	M-v	4	Williams	36894	1998 FL ₅₇
1998 FT ₅₇	14.9	0.15	19990810	21.88002	105.17969	208.68219	7.10922	0.1298679	2.3830035	87	2	1998–1999	0.70	M-v	3	Williams	36894	1998 FT ₅₇
1998 FC ₅₈	15.0	0.15	19990810	43.23962	303.14604	350.87283	2.12168	0.1739265	2.4374710	69	4	1994–1999	0.64	M-v	2	Williams	36894	1998 FC ₅₈
1998 FG ₅₈	14.7	0.15	19990810	23.32030	312.59681	0.93538	7.12127	0.1208503	2.3580785	117	2	1997–1999	0.63	M-v	3	Williams	36894	1998 FG ₅₈
1998 FN ₅₈	15.2	0.15	19990810	43.00546	279.19639	12.41572	3.36147	0.1469116	2.4338153	76	3	1994–1999	0.73	M-v	3	Williams	36894	1998 FN ₅₈
1998 FD ₆₁	14.4	0.15	19990810	118.29897	48.00842	185.99827	4.87439	0.1217011	2.1712699	117	3	1996–1999	0.57	M-v	3	Williams	36895	1998 FD ₆₁
1998 FD ₆₂	14.7	0.15	19990810	64.32220	284.66552	349.06612	6.22848	0.0945406	2.3480829	96	2	1998–1999	0.56	M-v	3	Williams	36529	1998 FD ₆₂
1998 FR ₆₂	15.2	0.15	19990810	56.88873	54.73830	231.47269	1.73515	0.1544070	2.3897830	65	3	1996–1999	0.59	M-v	2	Williams	36895	1998 FR ₆₂
1998 FS ₆₃	14.7	0.15	19990810	343.10746	330.42030	29.58732	7.60937	0.1480804	2.2004787	71	4	1986–1999	0.52	M-v	2	Williams	36895	1998 FS ₆₃
1998 FQ ₆₄	14.2	0.15	19990810	38.74890	289.05557	15.72531	6.45511	0.1237266	2.3212288	132	3	1991–1999	0.54	M-v	2	Williams	36895	1998 FQ ₆₄
1998 FZ ₆₄	14.5	0.15	19990810	88.22239	254.61698	5.61428	7.03130	0.1146411	2.2620222	72	3	1994–1999	0.58	M-v	3	Williams	36895	1998 FZ ₆₄
1998 FH ₆₅	14.7	0.15	19990810	81.75812	46.53280	221.09048	1.74545	0.1293898	2.2809532	138	4	1991–1999	0.60	M-v	2	Williams	36895	1998 FH ₆₅
1998 FK ₆₅	15.1	0.15	19990810	79.73946	64.35649	216.32844	4.83919	0.1774288	2.2301448	82	2	1998–1999	0.58	M-v	4	Williams	36804	1998 FK ₆₅
1998 FS ₆₅	15.3	0.15	19990810	127.58470	317.35035	253.92105	2.35996	0.1090636	2.2875234	109	2	1998–1999	0.64	M-v	3	Williams	36895	1998 FS ₆₅
1998 FT ₆₅	14.9	0.15	19990810	76.14678	288.12831	355.51761	6.27989	0.1517201	2.2104056	103	3	1992–1999	0.64	M-v	2	Williams	36895	1998 FT ₆₅
1998 FC ₆₆	13.6	0.15	19990810	34.20652	121.64891	196.72052	10.32639	0.2222580	2.3583984	127	4	1973–1999	0.55	M-v	2	Williams	36895	1998 FC ₆₆
1998 FF ₆₇	15.3	0.15	19990810	88.25485	119.61164	129.81806	3.30867	0.1511358	2.4008955	77	4	1994–1999	0.60	M-v	1	Williams	36529	1998 FF ₆₇
1998 FJ ₆₇	14.9	0.15	19990810	278.13021	335.35822	89.89937	3.37920	0.0385762	2.1476912	84	3	1995–1999	0.60	M-v	2	Williams	36895	1998 FJ ₆₇
1998 FS ₆₈	14.5	0.15	19990810	65.96367	36.46206	250.13103	3.13360	0.1144015	2.2596047	150	3	1994–1999	0.58	M-v	2	Williams	36895	1998 FS ₆₈
1998 FA ₆₉	14.7	0.15	19990810	67.40903	301.57116	355.10450	2.94450	0.1844167	2.2228538	82	2	1998–1999	0.51	M-v	4	Williams	36804	1998 FA ₆₉
1998 FQ ₆₉	13.9	0.15	19990810	331.70480	179.05355	182.41562	11.82124	0.2513590	2.4142616	109	3	1994–1999	0.61	M-v	2	Williams	36895	1998 FQ ₆₉
1998 FA ₇₀	15.3	0.15	19990810	41.42230	255.13443	63.00977	4.07949	0.2689207	2.3472472	53	2	1998–1999	0.63	M-v	4	Williams	36804	1998 FA ₇₀
1998 FM ₇₀	14.2	0.15	19990810	25.66866	271.54886	50.11353	2.66086	0.2108615	2.4119399	105	3	1969–1999	0.56	M-v	3	Williams	36895	1998 FM ₇₀
1998 FN ₇₀	14.7	0.15	19990810	16.41543	292.72682	30.94278	6.52112	0.1515790	2.4140184	104	3	1984–1999	0.65	M-v	2	Williams	36895	1998 FN ₇₀
1998 FC ₇₁	15.4	0.15	19990810	95.88677	58.02951	199.73998	2.44804	0.1139441	2.2372274	48	2	1998–1999	0.71	M-v	4	Williams	36804	1998 FC ₇₁
1998 FG ₇₁	15.3	0.15	19990810	130.52622	219.12172	354.55090	6.16081	0.1284097	2.2623738	72	3	1992–1999	0.64	M-v	3	Williams	36895	1998 FG ₇₁

1998 FZ ₇₁	15.1	0.15	19990810	60.48867	315.85340	324.09860	2.01363	0.1753948	2.3892166	49	2	1998–1999	0.54	M-v	4	Williams	36895	1998 FZ ₇₁
1998 FQ ₇₂	14.2	0.15	19990810	348.38079	317.52090	30.82592	3.26421	0.1958356	2.4413108	108	3	1980–1999	0.69	M-v	2	Williams	36895	1998 FQ ₇₂
1998 FR ₇₂	15.0	0.15	19990810	51.53437	286.37939	23.57156	2.76622	0.2212782	2.2956982	33	2	1998–1999	0.77	M-v	4	Williams	36805	1998 FR ₇₂
1998 FF ₇₃	15.7	0.15	19990810	6.00551	359.08840	5.30272	19.56764	0.0880214	1.9394408	59	3	1971–1999	0.75	M-v	3	Williams	36895	1998 FF ₇₃
1998 FC ₇₄	14.3	0.15	19990810	321.79785	278.89451	103.82184	3.67520	0.1439594	2.1780875	96	4	1994–1999	0.60	M-v	2	Williams	36895	1998 FC ₇₄
1998 FL ₇₄	15.4	0.15	19990810	37.49003	299.43796	349.56304	5.77654	0.1847294	2.2825767	124	3	1996–1999	0.63	M-v	2	Williams	36895	1998 FL ₇₄
1998 FF ₇₅	13.6	0.15	19990810	287.21475	15.77644	25.77343	7.31675	0.1060112	2.3562728	70	3	1992–1999	0.71	M-v	3	Williams	36530	1998 FF ₇₅
1998 FG ₇₅	15.0	0.15	19990810	28.44115	129.15730	189.98048	6.04470	0.1339506	2.3626725	114	2	1998–1999	0.69	M-v	3	Williams	36895	1998 FG ₇₅
1998 FH ₇₅	14.8	0.15	19990810	324.13543	220.21441	165.35389	2.09874	0.1282800	2.1719868	122	3	1992–1999	0.67	M-v	2	Williams	36895	1998 FH ₇₅
1998 FL ₇₅	14.9	0.15	19990810	45.02569	276.50873	41.26454	3.19771	0.1800256	2.2372422	122	3	1992–1999	0.66	M-v	3	Williams	36895	1998 FL ₇₅
1998 FL ₇₆	14.6	0.15	19990810	95.21898	179.89211	69.63752	5.93507	0.1352986	2.3064418	60	4	1994–1999	0.58	M-v	2	Williams	36895	1998 FL ₇₆
1998 FG ₇₇	14.0	0.15	19990810	23.92403	245.53420	76.46127	6.86960	0.1804032	2.3671364	66	2	1998–1999	0.59	M-v	3	Williams	36895	1998 FG ₇₇
1998 FS ₇₇	14.3	0.15	19990810	63.67337	102.35242	164.51079	8.04327	0.1444237	2.5623052	84	2	1998–1999	0.70	M-v	3	Williams	36895	1998 FS ₇₇
1998 FV ₇₇	14.3	0.15	19990810	9.88111	144.82277	175.98679	13.83271	0.1798396	2.6333467	83	2	1998–1999	0.73	M-v	3	Williams	36895	1998 FV ₇₇
1998 FM ₇₈	15.0	0.15	19990810	46.77940	247.05192	71.05756	4.34772	0.1565761	2.1823176	53	2	1998–1999	0.64	M-v	4	Williams	36805	1998 FM ₇₈
1998 FB ₇₉	14.7	0.15	19990810	22.13333	152.83201	154.40183	13.45408	0.1716286	2.6843050	44	2	1998–1999	0.65	M-v	3	Williams	36530	1998 FB ₇₉
1998 FJ ₇₉	14.8	0.15	19990810	30.70988	151.05322	154.73079	7.30803	0.0536320	2.4159304	80	3	1994–1999	0.61	M-v	3	Williams	36530	1998 FJ ₇₉
1998 FP ₇₉	14.1	0.15	19990810	346.09777	289.63763	59.06188	6.80069	0.1070326	2.4573677	57	2	1998–1999	0.60	M-v	3	Williams	36895	1998 FP ₇₉
1998 FU ₉₀	14.1	0.15	19990810	86.93755	197.03213	24.95069	8.15865	0.1831078	2.5800974	50	2	1998–1999	0.62	M-v	4	Williams	36530	1998 FU ₉₀
1998 FY ₉₉	14.0	0.15	19990810	112.35742	249.77388	325.13204	7.63835	0.0753285	2.3219753	101	3	1980–1999	0.68	M-v	3	Williams	36895	1998 FY ₉₉
1998 FZ ₉₉	14.1	0.15	19990810	72.31687	291.36756	321.98119	7.84245	0.0658367	2.3722343	89	2	1998–1999	0.53	M-v	3	Williams	36895	1998 FZ ₉₉
1998 FU ₁₀₂	14.7	0.15	19990810	105.74529	324.98456	263.23762	5.84086	0.0770997	2.3009110	58	3	1995–1999	0.63	M-v	3	Williams	36895	1998 FU ₁₀₂
1998 FW ₁₀₂	14.2	0.15	19990810	132.06151	306.65537	254.53323	5.11496	0.0907162	2.2662933	86	3	1993–1999	0.59	M-v	3	Williams	36895	1998 FW ₁₀₂
1998 FJ ₁₀₃	14.4	0.15	19990810	45.94816	76.07108	215.72433	7.89458	0.2018835	2.4446952	102	3	1995–1999	0.52	M-v	2	Williams	36895	1998 FJ ₁₀₃
1998 FD ₁₀₄	14.3	0.15	19990810	55.77846	58.23168	207.05377	16.12868	0.2325784	2.7280480	66	3	1971–1999	0.64	M-v	2	Williams	36895	1998 FD ₁₀₄
1998 FK ₁₀₆	14.6	0.15	19990810	70.11829	45.40155	226.32109	6.91599	0.1265265	2.3330325	127	3	1991–1999	0.56	M-v	2	Williams	36895	1998 FK ₁₀₆
1998 FX ₁₀₈	15.1	0.15	19990810	69.46601	30.50460	239.73419	5.28980	0.0835752	2.3114835	58	2	1998–1999	0.68	M-v	4	Williams	36896	1998 FX ₁₀₈
1998 FP ₁₀₉	13.9	0.15	19990810	105.66071	261.24373	332.27124	7.26780	0.0786991	2.2890242	57	4	1992–1999	0.60	M-v	2	Williams	36363	1998 FP ₁₀₉
1998 FT ₁₁₀	14.7	0.15	19990810	9.06668	86.99556	231.34586	10.50543	0.2016327	2.6319343	45	2	1998–1999	0.71	M-v	3	Williams	36896	1998 FT ₁₁₀
1998 FB ₁₁₁	13.1	0.15	19990810	48.22837	328.98388	293.89049	7.15744	0.1874890	3.1076880	72	4	1984–1999	0.52	M-v	1	Williams	36896	1998 FB ₁₁₁
1998 FR ₁₁₃	14.9	0.15	19990810	75.82448	18.43036	248.57353	6.19185	0.1101367	2.3410594	61	3	1978–1999	0.68	M-v	2	Williams	36896	1998 FR ₁₁₃
1998 FA ₁₁₄	13.7	0.15	19990810	98.65311	318.93469	262.43917	5.49438	0.1357605	2.5684593	63	2	1998–1999	0.52	M-v	3	Williams	36896	1998 FA ₁₁₄
1998 FD ₁₁₄	14.3	0.15	19990810	272.82435	140.41921	275.75771	5.94939	0.1062924	2.2918700	94	3	1993–1999	0.56	M-v	3	Williams	36896	1998 FD ₁₁₄
1998 FE ₁₁₅	13.4	0.15	19990810	105.56503	345.05971	225.05154	11.28100	0.1359956	2.6693499	82	2	1998–1999	0.55	M-v	3	Williams	36531	1998 FE ₁₁₅
1998 FK ₁₁₅	14.2	0.15	19990810	337.54844	123.59290	248.08824	5.93137	0.1484213	2.2953182	72	2	1998–1999	0.49	M-v	3	Williams	36896	1998 FK ₁₁₅
1998 FB ₁₁₆	13.5	0.15	19990810	327.01911	123.93783	242.27060	12.99366	0.1917321	2.5981686	62	2	1998–1999	0.55	M-v	3	Williams	36896	1998 FB ₁₁₆
1998 FD ₁₁₆	14.0	0.15	19990810	38.23085	327.93569	331.10276	5.94614	0.1299604	2.4286595	66	2	1998–1999	0.51	M-v	3	Williams	36531	1998 FD ₁₁₆
1998 FN ₁₁₆	14.4	0.15	19990810	334.44301	125.55779	230.63764	5.04411	0.1422402	2.3839916	67	2	1998–1999	0.67	M-v	4	Williams	36531	1998 FN ₁₁₆
1998 FC ₁₁₇	14.6	0.15	19990810	23.43759	92.40040	234.21799	5.68914	0.1339998	2.2927955	118	2	1998–1999	0.67	M-v	3	Williams	36896	1998 FC ₁₁₇
1998 FC ₁₁₈	14.5	0.15	19990810	332.54667	136.53561	240.33172	6.13023	0.1752211	2.2547296	102	4	1987–1999	0.59	M-v	2	Williams	36896	1998 FC ₁₁₈
1998 FU ₁₂₀	15.2	0.15	19990810	24.03383	93.41751	236.17780	1.11889	0.1750158	2.1269455	58	2	1998–1999	0.76	M-v	4	Williams	36806	1998 FU ₁₂₀
1998 FT ₁₂₁	14.9	0.15	19990810	88.07629	76.08227	185.46048	5.02523	0.1475709	2.2631080	61	2	1998–1999	0.68	M-v	4	Williams	36896	1998 FT ₁₂₁
1998 FQ ₁₂₂	14.5	0.15	19990810	30.63069	282.71690	24.10795	10.64439	0.2672315	2.6285494	31	2	1998–1999	0.52	M-v	4	Williams	36806	1998 FQ ₁₂₂
1998 FX ₁₂₅	14.7	0.15	19990810	171.26401	243.88860	278.65401	5.85826	0.0511438	2.2651500	62	3	1991–1999	0.55	M-v	3	Williams	36896	1998 FX ₁₂₅
1998 FN ₁₂₆	14.8	0.15	19990810	73.84400	1.06352	292.76583	2.72627	0.1595624	2.1571940	108	3	1976–1999	0.64	M-v	2	Williams	36806	1998 FN ₁₂₆
1998 FC ₁₂₇	15.0	0.15	19990810	56.65804	220.34179	58.50244	7.29085	0.0921883	2.3142645	75	2	1998–1999	0.66	M-v	4	Williams	36896	1998 FC ₁₂₇
1998 FQ ₁₃₃	15.1	0.15	19990810	353.91521	10.10088	327.44778	4.15048	0.1731094	2.2981181	79	2	1998–1999	0.78	M-v	3	Williams	36896	1998 FQ ₁₃₃
1998 FC ₁₄₄	14.3	0.15	19990810	53.61909	52.62700	238.63136	5.12515	0.1458051	2.4851755	94	3	1991–1999	0.65	M-v	1	Williams	36896	1998 FC ₁₄₄
1998 GF	15.0	0.15	19990810	211.36925	121.72130	35.27012	22.40642	0.0315671	1.9407060	82	3	1990–1999	0.56	M-v	2	Williams	36896	1998 GF
1998 GK	14.9	0.15	19990810	143.53949	211.93778	33.90029	24.78476	0.1584952	1.9333925	59	3	1980–1999	0.57	M-v	2	Williams	36896	1998 GK
1998 GK ₁	13.4	0.15	19990810	29.29077	331.79436	332.01517	8.28363	0.1800280	2.5719704	90	3	1970–1999	0.47	M-v	2	Williams	36531	1998 GK ₁
1998 GO ₁	14.4	0.15	19990810	136.94860	73.10583	146.71083	8.76743	0.1416267	2.2994785	88	2	1998–1999	0.41	M-v	3	Williams	36896	1998 GO ₁
1998 GE ₉	13.5	0.15	19990810	59.57455	118.48576	150.94830	15.18202	0.1157493	2.6290443	73	2	1998–1999	0.57	M-v	3	Williams	36896	1998 GE ₉

1998 GO ₁₀	14.5	0.15	19990810	56.09087	316.88905	325.69474	1.43517	0.1853850	2.5695395	66	3	1995–1999	0.58	M-v	2	Williams	36896	1998 GO ₁₀
1998 HX	13.5	0.15	19990810	38.69989	194.40571	113.35246	4.33234	0.1007564	2.3923200	60	2	1998–1999	0.58	M-v	3	Williams	36807	1998 HX
1998 HX ₂	15.2	0.15	19990810	283.76241	245.14713	202.08425	21.22938	0.1515881	1.9470667	82	2	1998–1999	0.51	M-v	3	Williams	36896	1998 HX ₂
1998 HF ₃	14.0	0.15	19990810	22.80888	112.36746	194.08742	12.98303	0.1579518	3.0488437	85	2	1998–1999	0.54	M-v	3	Williams	36896	1998 HF ₃
1998 HH ₄	15.0	0.15	19990810	8.98907	276.11158	75.42795	7.56475	0.1293400	2.4189064	52	2	1998–1999	0.73	M-v	4	Williams	36896	1998 HH ₄
1998 HO ₅	15.2	0.15	19990810	273.34372	277.97185	162.76830	5.19364	0.1220762	2.2642083	46	2	1998–1999	0.60	M-v	4	Williams	36896	1998 HO ₅
1998 HE ₈	13.9	0.15	19990810	94.21261	36.78045	210.98775	6.80758	0.0734499	2.4417957	109	4	1991–1999	0.63	M-v	2	Williams	36896	1998 HE ₈
1998 HN ₈	14.7	0.15	19990810	73.68616	139.34130	127.01322	3.44992	0.0815298	2.4094769	71	3	1996–1999	0.48	M-v	3	Williams	36532	1998 HN ₈
1998 HY ₈	14.7	0.15	19990810	46.39405	187.82885	104.96378	4.56491	0.1446586	2.5631977	40	2	1998–1999	0.56	M-v	4	Williams	36532	1998 HY ₈
1998 HM ₁₁	14.2	0.15	19990810	150.96006	89.09079	107.27563	7.86936	0.1690377	2.2878721	62	4	1932–1999	0.61	M-v	2	Williams	36532	1998 HM ₁₁
1998 HW ₁₃	13.9	0.15	19990810	23.45819	311.16464	347.81127	13.25746	0.2352931	2.6581253	121	3	1986–1999	0.57	M-v	2	Williams	36896	1998 HW ₁₃
1998 HT ₁₄	15.9	0.15	19990810	8.44456	189.40550	140.78268	3.04945	0.1822478	2.4065155	64	4	1991–1999	0.70	M-v	2	Williams	36532	1998 HT ₁₄
1998 HX ₁₈	15.4	0.15	19990810	87.78939	249.32252	11.96912	7.16085	0.0905487	2.2487133	74	3	1996–1999	0.61	M-v	3	Williams	36896	1998 HX ₁₈
1998 HP ₁₉	14.8	0.15	19990810	17.85806	305.73473	2.97538	11.02274	0.1638754	2.5826032	86	3	1995–1999	0.64	M-v	3	Williams	36532	1998 HP ₁₉
1998 HQ ₁₉	14.6	0.15	19990810	25.80972	113.92626	210.36166	7.41583	0.1745872	2.2699130	134	3	1992–1999	0.56	M-v	2	Williams	36896	1998 HQ ₁₉
1998 HE ₂₀	13.1	0.15	19990810	323.76048	194.92967	176.81767	2.21514	0.1060913	2.9050584	86	3	1992–1999	0.60	M-v	3	Williams	36896	1998 HE ₂₀
1998 HG ₂₃	15.9	0.15	19990810	344.23501	289.20805	77.25858	2.60411	0.0458510	2.1301907	76	3	1996–1999	0.74	M-v	3	Williams	36896	1998 HG ₂₃
1998 HQ ₂₃	15.1	0.15	19990810	73.78190	61.34287	229.97336	22.25628	0.1102309	2.4098093	54	2	1998–1999	0.65	M-v	3	Williams	36896	1998 HQ ₂₃
1998 HS ₂₃	14.8	0.15	19990810	293.65708	320.91477	108.76194	0.69518	0.0722992	2.2793811	87	3	1996–1999	0.51	M-v	3	Williams	36897	1998 HS ₂₃
1998 HT ₂₃	15.2	0.15	19990810	14.73191	313.00185	3.81499	12.73302	0.1863348	2.5481953	62	3	1991–1999	0.65	M-v	3	Williams	36897	1998 HT ₂₃
1998 HO ₂₇	13.4	0.15	19990810	6.24135	256.99195	98.40996	6.10133	0.0774785	2.3795121	52	2	1998–1999	0.44	M-v	3	Williams	36807	1998 HO ₂₇
1998 HQ ₂₇	14.4	0.15	19990810	25.18425	94.14189	234.02002	4.94047	0.2295516	2.2844118	100	3	1992–1999	0.53	M-v	3	Williams	36897	1998 HQ ₂₇
1998 HR ₂₇	15.4	0.15	19990810	1.76304	23.87057	319.55875	3.32870	0.1774048	2.2731333	87	3	1994–1999	0.56	M-v	2	Williams	36897	1998 HR ₂₇
1998 HF ₃₀	15.3	0.15	19990810	26.55373	196.55633	125.75280	3.42149	0.2114992	2.3767292	44	3	1994–1999	0.63	M-v	3	Williams	36897	1998 HF ₃₀
1998 HY ₃₁	15.2	0.15	19990810	80.45800	32.86670	242.34273	2.60934	0.1257991	2.2328858	133	3	1997–1999	0.62	M-v	3	Williams	36897	1998 HY ₃₁
1998 HE ₃₂	14.9	0.15	19990810	72.44940	53.12583	238.82314	1.68895	0.1790203	2.2271282	59	2	1998–1999	0.55	M-v	4	Williams	36807	1998 HE ₃₂
1998 HN ₃₂	15.1	0.15	19990810	48.53021	104.11885	195.38504	6.19428	0.1252697	2.3241921	56	2	1998–1999	0.69	M-v	4	Williams	36807	1998 HN ₃₂
1998 HK ₃₃	15.0	0.15	19990810	29.50764	319.06603	1.00348	6.37981	0.1399641	2.3310880	85	3	1981–1999	0.67	M-v	3	Williams	36897	1998 HK ₃₃
1998 HO ₃₃	14.0	0.15	19990810	25.08733	116.58326	211.22856	23.43090	0.1935043	2.3283846	115	2	1998–1999	0.59	M-v	3	Williams	36897	1998 HO ₃₃
1998 HL ₃₄	15.4	0.15	19990810	47.49086	257.32486	53.02081	4.09143	0.1560403	2.2565999	47	2	1998–1999	0.65	M-v	4	Williams	36808	1998 HL ₃₄
1998 HY ₃₅	14.7	0.15	19990810	71.23410	214.76714	66.66110	2.90506	0.1315312	2.2901645	65	2	1998–1999	0.57	M-v	4	Williams	36897	1998 HY ₃₅
1998 HC ₃₆	15.3	0.15	19990810	1.02607	241.86423	114.23311	2.30373	0.1272366	2.1632002	58	2	1998–1999	0.75	M-v	4	Williams	36808	1998 HC ₃₆
1998 HK ₃₆	14.4	0.15	19990810	19.25324	287.43122	50.16242	4.03052	0.2066348	2.2867987	105	4	1978–1999	0.57	M-v	3	Williams	36897	1998 HK ₃₆
1998 HE ₃₈	14.4	0.15	19990810	69.97720	52.87110	234.81800	3.65928	0.1552433	2.3009648	95	2	1998–1999	0.52	M-v	3	Williams	36897	1998 HE ₃₈
1998 HN ₃₈	14.3	0.15	19990810	103.79458	245.90078	12.83097	2.81679	0.1618942	2.2152635	123	3	1982–1999	0.62	M-v	3	Williams	36897	1998 HN ₃₈
1998 HO ₃₈	15.6	0.15	19990810	53.45405	76.95358	237.70104	1.89357	0.0965999	2.1292023	92	3	1993–1999	0.63	M-v	2	Williams	36897	1998 HO ₃₈
1998 HS ₄₂	13.9	0.15	19990810	71.77830	106.31917	155.04666	8.34554	0.2702232	2.7808843	77	3	1994–1999	0.62	M-v	2	Williams	36897	1998 HS ₄₂
1998 HT ₄₂	14.3	0.15	19990810	73.83295	101.77441	181.60165	4.01477	0.0420282	2.3092607	105	4	1984–1999	0.56	M-v	2	Williams	36897	1998 HT ₄₂
1998 HU ₄₃	13.9	0.15	19990810	284.96948	17.05143	38.00900	7.22537	0.1380102	2.1944330	68	4	1978–1999	0.61	M-v	3	Williams	36897	1998 HU ₄₃
1998 HK ₄₅	14.4	0.15	19990810	48.87228	293.40570	8.60433	9.88797	0.1868207	2.4457737	93	3	1971–1999	0.63	M-v	2	Williams	36897	1998 HK ₄₅
1998 HO ₄₅	13.7	0.15	19990810	41.97721	323.54713	330.35009	4.34656	0.1266808	2.5511403	147	3	1995–1999	0.47	M-v	2	Williams	36533	1998 HO ₄₅
1998 HN ₄₉	15.0	0.15	19990810	113.73533	35.72988	215.77056	3.45999	0.1148290	2.3047101	96	2	1998–1999	0.51	M-v	3	Williams	36897	1998 HN ₄₉
1998 HE ₅₁	15.0	0.15	19990810	64.64152	105.28446	213.40940	3.88956	0.1760920	2.1715073	61	3	1973–1999	0.82	M-v	3	Williams	36897	1998 HE ₅₁
1998 HJ ₅₁	14.1	0.15	19990810	359.15986	251.94486	103.49527	6.59261	0.1443077	2.3844951	79	3	1997–1999	0.58	M-v	3	Williams	36897	1998 HJ ₅₁
1998 HT ₅₁	14.7	0.15	19990810	47.51296	250.71476	65.93600	3.86999	0.1487592	2.2910949	70	3	1996–1999	0.51	M-v	2	Williams	36808	1998 HT ₅₁
1998 HU ₅₁	14.3	0.15	19990810	57.27079	248.85231	59.31010	5.18562	0.2105499	2.3627609	57	2	1998–1999	0.52	M-v	4	Williams	36808	1998 HU ₅₁
1998 HH ₅₂	14.4	0.15	19990810	15.09244	327.28282	35.81165	7.11696	0.2384529	2.1556141	37	3	1983–1999	0.58	M-v	3	Williams	36533	1998 HH ₅₂
1998 HL ₅₂	13.4	0.15	19990810	79.30095	199.27601	62.49118	14.43034	0.0190238	2.5746046	80	3	1992–1999	0.60	M-v	2	Williams	36897	1998 HL ₅₂
1998 HP ₅₂	15.2	0.15	19990810	111.35355	131.60584	123.07118	2.26476	0.2035741	2.2848143	54	4	1993–1999	0.56	M-v	3	Williams	36897	1998 HP ₅₂
1998 HG ₅₃	14.5	0.15	19990810	59.10240	69.17618	229.56970	2.43817	0.2024646	2.3665889	90	2	1998–1999	0.55	M-v	3	Williams	36897	1998 HG ₅₃
1998 HS ₆₀	14.3	0.15	19990810	254.16756	120.54361	330.95726	2.17095	0.0596802	2.2072953	97	3	1983–1999	0.64	M-v	2	Williams	36897	1998 HS ₆₀
1998 HR ₆₇	14.7	0.15	19990810	96.11399	249.93425	20.06134	7.30972	0.1453661	2.2130350	72	2	1998–1999	0.54	M-v	3	Williams	36809	1998 HR ₆₇
1998 HQ ₆₈	14.5	0.15	19990810	331.95445	137.91025	236.66189	6.24911	0.1232752	2.3507943	71	2	1998–1999	0.50	M-v	3	Williams	36897	1998 HQ ₆₈

1998 HX ₇₈	14.7	0.15	19990810	45.42891	52.58983	251.57882	4.89373	0.1091269	2.4232748	87	3	1980–1999	0.57	M-v	2	Williams	36897	1998 HX ₇₈
1998 HH ₈₀	14.2	0.15	19990810	2.48884	339.43171	20.66824	5.88760	0.1889324	2.2943232	98	4	1971–1999	0.49	M-v	2	Williams	36897	1998 HH ₈₀
1998 HR ₈₄	14.3	0.15	19990810	59.87602	69.41875	202.28727	14.49201	0.0687934	2.6180030	60	2	1998–1999	0.69	M-v	3	Williams	36897	1998 HR ₈₄
1998 HL ₈₆	15.3	0.15	19990810	338.56217	342.46459	24.84583	8.17129	0.1009426	2.4056124	48	3	1994–1999	0.63	M-v	3	Williams	36897	1998 HL ₈₆
1998 HH ₈₇	15.1	0.15	19990810	17.07642	89.29860	244.58757	4.98309	0.1473747	2.4730116	57	2	1998–1999	0.62	M-v	4	Williams	36897	1998 HH ₈₇
1998 HB ₈₈	14.5	0.15	19990810	73.81512	55.44247	234.38750	8.27640	0.2523317	2.4522867	93	3	1995–1999	0.54	M-v	2	Williams	36897	1998 HB ₈₈
1998 HH ₈₈	14.9	0.15	19990810	93.72954	49.23265	225.85766	5.72560	0.2016543	2.2856611	88	3	1978–1999	0.58	M-v	3	Williams	36897	1998 HH ₈₈
1998 HX ₉₁	14.4	0.15	19990810	303.97855	228.35197	168.78158	5.09527	0.0774892	2.4166913	64	3	1997–1999	0.60	M-v	3	Williams	36897	1998 HX ₉₁
1998 HZ ₉₂	15.5	0.15	19990810	45.42872	329.09164	343.25446	1.29799	0.0400710	2.2676208	51	2	1998–1999	0.69	M-v	4	Williams	36897	1998 HZ ₉₂
1998 HA ₉₃	14.7	0.15	19990810	23.28289	329.76107	9.34303	2.13658	0.2093164	2.4268572	107	3	1995–1999	0.53	M-v	3	Williams	36897	1998 HA ₉₃
1998 HL ₉₃	14.8	0.15	19990810	78.33075	46.85470	248.63763	3.42564	0.1738204	2.2515205	48	2	1998–1999	0.69	M-v	4	Williams	36809	1998 HL ₉₃
1998 HK ₉₄	14.9	0.15	19990810	9.65489	102.77854	247.64496	1.71406	0.1783682	2.3927244	60	2	1998–1999	0.55	M-v	4	Williams	36898	1998 HK ₉₄
1998 HR ₉₄	13.1	0.15	19990810	61.08536	59.51683	216.89363	12.24112	0.1495433	2.6792089	91	2	1998–1999	0.56	M-v	3	Williams	36898	1998 HR ₉₄
1998 HV ₉₅	15.2	0.15	19990810	17.09763	262.96705	85.87203	5.29847	0.1782114	2.3181043	42	2	1998–1999	0.66	M-v	4	Williams	36809	1998 HV ₉₅
1998 HC ₉₆	14.7	0.15	19990810	278.13565	243.75170	183.64109	8.09769	0.1257547	2.2736782	77	3	1994–1999	0.59	M-v	3	Williams	36898	1998 HC ₉₆
1998 HF ₉₆	14.2	0.15	19990810	40.40069	188.32945	149.24344	5.59857	0.2139542	2.2466080	50	4	1985–1999	0.47	M-v	2	Williams	36898	1998 HF ₉₆
1998 HZ ₉₆	13.8	0.15	19990810	51.22451	236.21576	43.83039	14.97955	0.0473960	2.6386386	50	5	1987–1999	0.65	M-v	2	Williams	36533	1998 HZ ₉₆
1998 HD ₉₇	14.4	0.15	19990810	60.97038	217.67648	55.50427	3.34738	0.1049259	2.6769088	71	3	1997–1999	0.59	M-v	3	Williams	36898	1998 HD ₉₇
1998 HV ₉₇	14.3	0.15	19990810	18.59955	23.52487	316.75847	3.89275	0.2659474	2.6103492	63	3	1997–1999	0.68	M-v	2	Williams	36898	1998 HV ₉₇
1998 HA ₉₈	14.3	0.15	19990810	33.10531	298.45852	19.79195	11.65439	0.1983333	2.6420446	67	2	1998–1999	0.61	M-v	3	Williams	36898	1998 HA ₉₈
1998 HC ₉₈	15.3	0.15	19990810	98.11382	286.89888	3.12105	5.16441	0.2167599	2.1554021	49	4	1989–1999	0.61	M-v	2	Williams	32329	1998 HC ₉₈
1998 HC ₉₉	14.6	0.15	19990810	47.85671	264.36763	65.26776	4.46099	0.1830737	2.2478526	37	2	1998–1999	0.60	M-v	4	Williams	36809	1998 HC ₉₉
1998 HH ₉₉	14.7	0.15	19990810	46.81694	232.81140	90.87980	3.21833	0.1300455	2.2572426	111	3	1996–1999	0.53	M-v	2	Williams	36898	1998 HH ₉₉
1998 HQ ₁₀₀	14.7	0.15	19990810	107.40898	173.20785	85.57751	2.60062	0.0417636	2.1831477	83	3	1973–1999	0.62	M-v	3	Williams	36898	1998 HQ ₁₀₀
1998 HY ₁₀₀	15.3	0.15	19990810	108.34280	203.79141	53.72849	3.20344	0.1172771	2.2454189	33	2	1998–1999	0.52	M-v	4	Williams	36809	1998 HY ₁₀₀
1998 HJ ₁₀₁	15.6	0.15	19990810	53.85491	138.07579	182.61079	3.22228	0.2422701	2.3682501	52	4	1984–1999	0.70	M-v	1	Williams	36898	1998 HJ ₁₀₁
1998 HV ₁₀₁	15.0	0.15	19990810	56.46004	32.84132	265.79690	5.43138	0.1740278	2.6453536	65	3	1973–1999	0.67	M-v	2	Williams	36898	1998 HV ₁₀₁
1998 HW ₁₀₁	14.3	0.15	19990810	151.20358	180.70761	31.62917	6.49343	0.0542686	2.2153605	137	3	1986–1999	0.51	M-v	3	Williams	36898	1998 HW ₁₀₁
1998 HF ₁₀₂	15.2	0.15	19990810	131.49206	330.16872	275.93809	1.69239	0.1197995	2.1483652	49	2	1998–1999	0.65	M-v	4	Williams	36810	1998 HF ₁₀₂
1998 HO ₁₀₂	14.9	0.15	19990810	127.73183	22.86812	216.17466	4.19186	0.1298095	2.2516767	45	3	1994–1999	0.59	M-v	4	Williams	36898	1998 HO ₁₀₂
1998 HS ₁₀₂	14.4	0.15	19990810	21.57158	301.83382	18.24019	2.31225	0.2078376	3.0455576	47	2	1998–1999	0.51	M-v	3	Williams	36898	1998 HS ₁₀₂
1998 HE ₁₀₃	15.1	0.15	19990810	110.23866	230.39066	41.78053	6.64865	0.1818230	2.2028294	43	2	1998–1999	0.66	M-v	4	Williams	36810	1998 HE ₁₀₃
1998 HT ₁₀₇	15.0	0.15	19990810	76.97330	201.27113	72.02831	6.78430	0.0532565	2.2735323	58	3	1996–1999	0.70	M-v	3	Williams	36898	1998 HT ₁₀₇
1998 HH ₁₁₄	14.4	0.15	19990810	78.75108	140.94537	132.73173	6.77814	0.0959647	2.3395701	72	3	1991–1999	0.63	M-v	2	Williams	36898	1998 HH ₁₁₄
1998 HB ₁₁₅	13.0	0.15	19990810	186.01931	345.66609	140.84399	14.71344	0.0906315	2.6253591	60	4	1989–1999	0.63	M-v	3	Williams	36534	1998 HB ₁₁₅
1998 HO ₁₁₇	14.1	0.15	19990810	342.33131	282.88461	93.74696	7.21319	0.1789254	2.2785998	49	3	1992–1999	0.64	M-v	3	Williams	36898	1998 HO ₁₁₇
1998 HC ₁₁₈	13.8	0.15	19990810	21.22181	170.74295	137.99121	10.30747	0.0408910	2.5968988	57	2	1998–1999	0.60	M-v	3	Williams	36898	1998 HC ₁₁₈
1998 HN ₁₁₉	14.4	0.15	19990810	46.29298	112.43330	185.46505	11.62293	0.1610932	2.6369078	86	2	1998–1999	0.59	M-v	3	Williams	36898	1998 HN ₁₁₉
1998 HF ₁₂₁	14.1	0.15	19990810	135.33878	91.66552	122.46316	6.45787	0.0692481	2.3211835	65	3	1987–1999	0.73	M-v	3	Williams	36898	1998 HF ₁₂₁
1998 HC ₁₂₂	12.8	0.15	19990810	27.80799	159.71698	128.22201	11.24889	0.0682210	2.9794330	54	4	1992–1999	0.51	M-v	1	Williams	36083	1998 HC ₁₂₂
1998 HE ₁₂₃	14.7	0.15	19990810	63.70677	213.30252	80.78599	7.84413	0.1142813	2.4033691	42	2	1998–1999	0.56	M-v	4	Williams	36898	1998 HE ₁₂₃
1998 HH ₁₂₃	13.5	0.15	19990810	307.95061	207.39959	181.59853	11.82191	0.0848467	2.6009333	78	3	1995–1999	0.61	M-v	3	Williams	36534	1998 HH ₁₂₃
1998 HK ₁₂₄	14.5	0.15	19990810	352.21037	250.58124	126.99844	6.20676	0.1192233	2.2147034	71	3	1984–1999	0.57	M-v	3	Williams	36898	1998 HK ₁₂₄
1998 HX ₁₂₄	14.4	0.15	19990810	112.88329	70.58866	161.66058	11.87744	0.0590945	2.4477087	58	3	1995–1999	0.70	M-v	3	Williams	36534	1998 HX ₁₂₄
1998 HG ₁₂₅	14.1	0.15	19990810	57.63710	117.25339	177.47733	14.57459	0.1695751	2.6057687	60	2	1998–1999	0.63	M-v	3	Williams	36898	1998 HG ₁₂₅
1998 HV ₁₃₇	15.1	0.15	19990810	9.06204	334.32058	2.29304	6.81849	0.1251832	2.3516209	97	3	1994–1999	0.57	M-v	3	Williams	36534	1998 HV ₁₃₇
1998 HV ₁₄₃	14.6	0.15	19990810	332.28122	344.07537	29.61696	7.52425	0.1209136	2.4109956	60	2	1998–1999	0.61	M-v	3	Williams	36898	1998 HV ₁₄₃
1998 HY ₁₄₇	15.4	0.15	19990810	129.45752	205.26687	45.55578	1.58207	0.1231162	2.1456700	55	2	1998–1999	0.71	M-v	4	Williams	36810	1998 HY ₁₄₇
1998 HD ₁₄₈	13.6	0.15	19990810	277.00978	188.39814	234.65356	12.15209	0.1481865	2.5976318	65	3	1991–1999	0.56	M-v	3	Williams	36534	1998 HD ₁₄₈
1998 HO ₁₄₈	15.2	0.15	19990810	94.21312	263.31480	31.02345	2.29856	0.1047635	2.1381047	52	3	1983–1999	0.63	M-v	3	Williams	36898	1998 HO ₁₄₈
1998 HU ₁₄₈	14.7	0.15	19990810	76.65855	49.46598	240.34479	3.05853	0.2541592	2.5584598	43	2	1998–1999	0.80	M-v	4	Williams	36811	1998 HU ₁₄₈
1998 HV ₁₄₈	14.2	0.15	19990810	15.59692	289.16415	39.99018	3.07895	0.1816158	2.9892881	74	3	1994–1999	0.68	M-v	3	Williams	36898	1998 HV ₁₄₈
1998 HT ₁₄₉	13.9	0.15	19990810	41.84141	264.51734	43.74328	9.43830	0.1499944	2.7761494	47	2	1998–1999	0.57	M-v	3	Williams	36811	1998 HT ₁₄₉

1998 HT ₁₅₀	15.4	0.15	19990810	139.43198	94.22537	121.14832	4.46637	0.0442838	2.1900578	49	3	1973–1999	0.62	M-v	3	Williams	36898	1998 HT ₁₅₀
1998 JE	14.4	0.15	19990810	10.46255	238.42262	99.92896	3.80049	0.0909384	2.3202989	32	2	1998–1999	0.60	M-v	4	Williams	36811	1998 JE
1998 JK	14.1	0.15	19990810	122.34060	132.25391	68.39672	3.23174	0.1448517	2.3980214	83	4	1976–1999	0.63	M-v	2	Williams	36534	1998 JK
1998 JQ	14.1	0.15	19990810	49.50962	306.33729	7.51847	7.44786	0.1421979	2.3218199	70	3	1994–1999	0.53	M-v	2	Williams	36898	1998 JQ
1998 JT	14.5	0.15	19990810	39.03030	86.10352	251.32720	6.11599	0.2205243	2.2548595	72	3	1985–1999	0.52	M-v	2	Williams	36898	1998 JT
1998 JW	14.2	0.15	19990810	40.95655	66.97886	220.21923	11.69377	0.0839762	2.7188895	87	3	1995–1999	0.70	M-v	2	Williams	36898	1998 JW
1998 JX	15.3	0.15	19990810	103.93655	34.62292	225.82668	5.07941	0.1740820	2.2701281	45	2	1998–1999	0.63	M-v	4	Williams	36811	1998 JX
1998 JJ ₁	15.3	0.15	19990810	317.43575	201.27063	229.27837	19.89355	0.0931865	1.9333440	58	2	1998–1999	0.42	M-v	3	Williams	36898	1998 JJ ₁
1998 JQ ₁	14.8	0.15	19990810	139.05186	355.73203	217.16490	9.71600	0.0958501	2.3135655	95	3	1993–1999	0.56	M-v	3	Williams	36898	1998 JQ ₁
1998 JY ₁	13.6	0.15	19990810	328.99665	74.88380	303.35736	6.08763	0.1252822	2.6386707	78	3	1984–1999	0.58	M-v	3	Williams	36898	1998 JY ₁
1998 JA ₂	14.4	0.15	19990810	105.47336	207.40259	42.73686	3.01928	0.1276610	2.4247377	103	4	1979–1999	0.59	M-v	1	Williams	36898	1998 JA ₂
1998 JQ ₂	14.2	0.15	19990810	32.81604	164.95582	154.99811	8.16776	0.1970892	2.6866712	52	3	1990–1999	0.69	M-v	2	Williams	36898	1998 JQ ₂
1998 JF ₃	14.4	0.15	19990810	321.06958	216.45439	171.91839	8.00085	0.0587255	2.4620039	75	2	1998–1999	0.61	M-v	3	Williams	36898	1998 JF ₃
1998 JH ₃	13.4	0.15	19990810	321.83680	295.01431	92.12953	10.01270	0.1331527	2.5235136	42	3	1987–1999	0.68	M-v	3	Williams	36898	1998 JH ₃
1998 JK ₄	14.3	0.15	19990810	83.29078	72.29390	221.27497	3.52578	0.1549411	2.2666201	100	3	1991–1999	0.64	M-v	3	Williams	36899	1998 JK ₄
1998 KB	15.3	0.15	19990810	37.05400	129.40526	194.75614	0.99221	0.1309265	2.5420983	50	2	1998–1999	0.52	M-v	3	Williams	36899	1998 KB
1998 KN	15.2	0.15	19990810	75.64658	206.46804	106.79199	2.84226	0.2516489	2.3329722	75	4	1995–1999	0.46	M-v	1	Williams	36899	1998 KN
1998 KP ₁	14.6	0.15	19990810	45.76979	120.77897	191.63424	1.23027	0.1780345	2.5331489	57	2	1998–1999	0.68	M-v	4	Williams	36811	1998 KP ₁
1998 KR ₁	12.8	0.15	19990810	30.25494	270.97022	51.31036	13.25428	0.2020246	2.6967033	88	3	1968–1999	0.50	M-v	2	Williams	36899	1998 KR ₁
1998 KS ₁	14.8	0.15	19990810	62.20348	83.96363	233.69900	4.71152	0.1713261	2.2277875	76	3	1992–1999	0.61	M-v	3	Williams	36899	1998 KS ₁
1998 KQ ₂	14.1	0.15	19990810	126.17305	359.01791	249.47221	22.92504	0.1086818	2.2703885	50	3	1989–1999	0.75	M-v	3	Williams	36899	1998 KQ ₂
1998 KP ₃	14.8	0.15	19990810	49.46499	104.77063	228.81116	5.81589	0.1370182	2.3573009	51	3	1995–1999	0.51	M-v	2	Williams	36899	1998 KP ₃
1998 KC ₄	12.5	0.15	19990810	38.17091	219.66818	65.15891	10.43549	0.0520894	3.0649019	58	4	1979–1999	0.51	M-v	1	Williams	36899	1998 KC ₄
1998 KJ ₄	14.2	0.15	19990810	9.66989	219.97917	102.96858	3.44238	0.0819489	2.9337419	44	4	1992–1999	0.64	M-v	2	Williams	36372	1998 KJ ₄
1998 KS ₄	14.1	0.15	19990810	352.06928	294.92637	79.25778	7.98353	0.1234805	2.4468300	80	3	1993–1999	0.65	M-v	3	Williams	36899	1998 KS ₄
1998 KU ₄	14.6	0.15	19990810	36.82929	272.55547	75.30649	7.73045	0.1510863	2.2908682	58	2	1998–1999	0.59	M-v	4	Williams	36812	1998 KU ₄
1998 KB ₅	15.7	0.15	19990810	105.09894	31.38645	253.08925	4.99231	0.1492479	2.1706823	72	2	1998–1999	0.50	M-v	4	Williams	36899	1998 KB ₅
1998 KC ₅	13.0	0.15	19990810	319.76755	243.27280	137.74841	2.74614	0.1268202	2.9310865	115	6	1974–1999	0.56	M-v	3	Williams	36899	1998 KC ₅
1998 KD ₅	12.9	0.15	19990810	58.52704	275.45835	42.38267	10.12805	0.0883745	3.0749928	105	3	1997–1999	0.53	M-v	2	Williams	36899	1998 KD ₅
1998 KE ₅	12.6	0.15	19990810	23.16353	183.99967	176.15466	14.75944	0.2133421	3.1441999	46	3	1993–1999	0.55	M-v	1	Williams	36899	1998 KE ₅
1998 KZ ₅	14.3	0.15	19990810	53.54744	132.85551	200.70158	2.55257	0.2620409	3.2322991	39	3	1997–1999	0.65	M-v	3	Williams	36899	1998 KZ ₅
1998 KP ₆	14.1	0.15	19990810	61.87787	66.26142	212.05276	7.29242	0.0815824	2.7314446	74	2	1998–1999	0.60	M-v	3	Williams	36899	1998 KP ₆
1998 KX ₆	15.1	0.15	19990810	56.78765	203.98397	131.85625	2.95007	0.1912195	2.2567770	41	3	1997–1999	0.61	M-v	3	Williams	36899	1998 KX ₆
1998 KC ₈	14.9	0.15	19990810	236.96754	218.33580	261.81094	5.58586	0.0727535	2.3147535	36	3	1978–1999	0.64	M-v	2	Williams	36899	1998 KC ₈
1998 KK ₈	13.5	0.15	19990810	35.93010	90.99975	202.03421	10.31637	0.0750227	2.9994240	78	2	1998–1999	0.57	M-v	3	Williams	36899	1998 KK ₈
1998 KM ₈	13.8	0.15	19990810	58.22926	93.73000	195.33611	8.90976	0.2042598	2.8488404	82	3	1979–1999	0.50	M-v	3	Williams	36899	1998 KM ₈
1998 KP ₈	13.4	0.15	19990810	333.56680	236.27990	140.86975	9.40106	0.1859966	2.7458644	59	3	1988–1999	0.71	M-v	3	Williams	36899	1998 KP ₈
1998 KT ₈	14.3	0.15	19990810	63.27831	163.53546	117.77965	9.13585	0.1892413	2.8012721	51	2	1998–1999	0.52	M-v	3	Williams	36373	1998 KT ₈
1998 KZ ₈	12.9	0.15	19990810	287.17799	321.95769	96.53616	15.90909	0.0706973	2.5503763	45	3	1975–1999	0.63	M-v	3	Williams	36899	1998 KZ ₈
1998 KN ₉	13.7	0.15	19990810	123.88443	31.87212	227.50873	16.15539	0.0700023	2.5710906	80	2	1998–1999	0.62	M-v	3	Williams	36899	1998 KN ₉
1998 KW ₉	13.0	0.15	19990810	14.19613	36.37130	286.35661	9.18725	0.2106398	3.1586369	79	2	1998–1999	0.45	M-v	3	Williams	36899	1998 KW ₉
1998 KF ₁₀	14.3	0.15	19990810	347.76086	172.45682	174.67206	5.19493	0.0555096	2.7153993	89	4	1995–1999	0.68	M-v	1	Williams	36535	1998 KF ₁₀
1998 KZ ₂₆	15.1	0.15	19990810	11.10216	304.71576	43.76459	9.56562	0.1333383	2.5590959	51	3	1995–1999	0.69	M-v	3	Williams	36899	1998 KZ ₂₆
1998 KE ₃₀	14.2	0.15	19990810	31.59280	59.62075	250.43237	6.19968	0.0691317	2.7552681	60	3	1981–1999	0.64	M-v	2	Williams	36899	1998 KE ₃₀
1998 KH ₃₀	14.6	0.15	19990810	175.65392	258.82488	282.71336	7.18705	0.0826552	2.3084087	91	3	1987–1999	0.60	M-v	3	Williams	36899	1998 KH ₃₀
1998 KH ₃₂	14.7	0.15	19990810	30.13715	101.42658	238.92616	1.96939	0.1941333	2.5366699	78	3	1995–1999	0.56	M-v	3	Williams	36899	1998 KH ₃₂
1998 KV ₃₂	14.6	0.15	19990810	84.18464	31.50074	261.95877	6.28710	0.1859190	2.3548824	79	3	1995–1999	0.67	M-v	3	Williams	36899	1998 KV ₃₂
1998 KJ ₃₃	15.7	0.15	19990810	52.88873	78.78181	252.06496	4.87965	0.1636336	2.3210862	41	2	1998–1999	0.55	M-v	4	Williams	36812	1998 KJ ₃₃
1998 KF ₃₅	13.3	0.15	19990810	28.73901	272.09012	71.98406	7.02005	0.1540824	2.4492154	100	4	1989–1999	0.47	M-v	1	Williams	36899	1998 KF ₃₅
1998 KL ₃₅	14.7	0.15	19990810	290.87211	4.01058	70.34087	5.98464	0.1129220	2.2812898	53	3	1982–1999	0.59	M-v	3	Williams	36899	1998 KL ₃₅
1998 KQ ₃₅	15.2	0.15	19990810	65.30998	65.04583	241.58788	5.78394	0.1126859	2.3805274	43	2	1998–1999	0.68	M-v	4	Williams	36812	1998 KQ ₃₅
1998 KS ₃₅	14.5	0.15	19990810	149.20354	107.98198	102.24023	0.75724	0.1458790	2.2972412	69	4	1993–1999	0.55	M-v	3	Williams	36899	1998 KS ₃₅
1998 KF ₃₆	14.0	0.15	19990810	25.67053	19.59351	304.59423	2.53150	0.0966809	2.7522820	36	3	1997–1999	0.84	M-v	3	Williams	36899	1998 KF ₃₆

1998 KT ₃₆	14.5	0.15	19990810	153.34118	315.00470	256.64173	3.69472	0.1041932	2.2711752	87	3	1996–1999	0.61	M-v	4	Williams	36899	1998 KT ₃₆
1998 KE ₃₇	14.4	0.15	19990810	121.19755	41.61753	216.57153	3.57528	0.1189163	2.2041934	74	2	1998–1999	0.68	M-v	4	Williams	36899	1998 KE ₃₇
1998 KL ₃₇	14.1	0.15	19990810	279.42614	239.12049	206.46410	5.91857	0.0703571	2.2905755	101	3	1992–1999	0.56	M-v	2	Williams	36900	1998 KL ₃₇
1998 KX ₃₇	14.1	0.15	19990810	83.41750	168.79392	89.28361	9.25960	0.1459853	2.7707430	52	3	1995–1999	0.62	M-v	3	Williams	36536	1998 KX ₃₇
1998 KG ₃₈	13.5	0.15	19990810	351.92237	182.80680	173.71315	2.87948	0.0999577	2.7900938	104	3	1985–1999	0.63	M-v	3	Williams	36536	1998 KG ₃₈
1998 KK ₃₈	12.5	0.15	19990810	311.34627	145.60763	239.77266	8.74491	0.1006117	2.9929404	40	3	1984–1999	0.56	M-v	3	Williams	36900	1998 KK ₃₈
1998 KZ ₃₈	13.3	0.15	19990810	87.77085	5.97568	261.99188	13.26174	0.1396725	2.5745365	72	2	1998–1999	0.62	M-v	3	Williams	36900	1998 KZ ₃₈
1998 KM ₃₉	15.3	0.15	19990810	121.93158	54.60344	204.65429	0.69392	0.1522400	2.2098391	62	4	1992–1999	0.60	M-v	2	Williams	36900	1998 KM ₃₉
1998 KE ₄₀	14.0	0.15	19990810	295.64694	307.54625	126.55419	4.41360	0.1268397	2.2658975	65	3	1982–1999	0.71	M-v	3	Williams	36900	1998 KE ₄₀
1998 KF ₄₀	12.7	0.15	19990810	201.62477	268.34845	226.03612	12.49027	0.1150226	2.6076790	56	2	1998–1999	0.52	M-v	3	Williams	36900	1998 KF ₄₀
1998 KM ₄₁	14.2	0.15	19990810	217.14850	92.38612	56.92743	7.30305	0.0644565	2.2743634	31	3	1975–1999	0.64	M-v	3	Williams	36900	1998 KM ₄₁
1998 KP ₄₁	15.5	0.15	19990810	148.07853	269.81678	317.61999	3.64227	0.0873735	2.2160872	58	3	1994–1999	0.70	M-v	3	Williams	36900	1998 KP ₄₁
1998 KD ₄₄	14.8	0.15	19990810	125.37566	344.41982	250.10920	5.71092	0.0661596	2.4430149	64	2	1998–1999	0.73	M-v	4	Williams	36900	1998 KD ₄₄
1998 KQ ₄₄	15.0	0.15	19990810	128.39364	13.45808	218.77238	5.51062	0.1026596	2.4026461	50	2	1998–1999	0.66	M-v	4	Williams	36900	1998 KQ ₄₄
1998 KR ₄₄	14.6	0.15	19990810	70.53545	181.88845	131.54386	3.32951	0.2124801	2.4024065	39	4	1991–1999	0.57	M-v	2	Williams	36900	1998 KR ₄₄
1998 KT ₄₄	14.3	0.15	19990810	35.05220	132.47687	199.36066	6.90727	0.1917392	2.6891726	74	4	1992–1999	0.62	M-v	2	Williams	36900	1998 KT ₄₄
1998 KH ₄₅	15.4	0.15	19990810	86.53655	189.47849	96.46031	4.24036	0.1720003	2.4438385	46	3	1995–1999	0.67	M-v	3	Williams	36900	1998 KH ₄₅
1998 KM ₄₆	14.1	0.15	19990810	300.15835	242.97034	190.80897	6.16287	0.0764497	2.2924469	71	4	1992–1999	0.48	M-v	2	Williams	36900	1998 KM ₄₆
1998 KS ₄₆	14.5	0.15	19990810	54.51392	124.63495	216.66187	6.63367	0.1955102	2.3078263	45	3	1991–1999	0.62	M-v	2	Williams	36536	1998 KS ₄₆
1998 KW ₄₆	12.6	0.15	19990810	20.00596	74.30295	245.14267	11.53263	0.0833990	3.1004505	77	3	1978–1999	0.55	M-v	2	Williams	36900	1998 KW ₄₆
1998 KZ ₄₆	12.9	0.15	19990810	326.81055	136.80270	258.77200	13.97429	0.1173658	2.6034329	98	3	1991–1999	0.57	M-v	3	Williams	36900	1998 KZ ₄₆
1998 KD ₄₇	14.9	0.15	19990810	106.63370	50.54063	229.35516	3.98322	0.1469463	2.2466824	39	2	1998–1999	0.64	M-v	4	Williams	36812	1998 KD ₄₇
1998 KE ₄₇	15.1	0.15	19990810	117.69288	31.19887	228.56555	3.22945	0.1410253	2.2947079	49	3	1988–1999	0.59	M-v	4	Williams	36813	1998 KE ₄₇
1998 KR ₄₇	14.3	0.15	19990810	54.09818	101.13268	223.34759	10.05370	0.2733569	2.6765474	43	3	1990–1999	0.72	M-v	3	Williams	36900	1998 KR ₄₇
1998 KV ₄₇	14.1	0.15	19990810	266.40396	238.75463	218.97953	5.05132	0.1009535	2.3857128	97	3	1977–1999	0.67	M-v	3	Williams	36900	1998 KV ₄₇
1998 KW ₄₇	13.1	0.15	19990810	115.85143	33.46207	208.09774	2.75188	0.1386045	2.5249509	104	3	1995–1999	0.54	M-v	3	Williams	36900	1998 KW ₄₇
1998 KX ₄₇	14.1	0.15	19990810	171.89182	123.49735	71.29881	8.66077	0.0538467	2.3638926	56	3	1981–1999	0.72	M-v	4	Williams	36900	1998 KX ₄₇
1998 KZ ₄₇	14.0	0.15	19990810	100.69303	176.21943	107.51867	7.62251	0.1179152	2.2886254	42	4	1995–1999	0.66	M-v	2	Williams	36900	1998 KZ ₄₇
1998 KL ₄₈	14.8	0.15	19990810	33.94993	244.76227	116.48848	7.05451	0.1453061	2.2753940	36	5	1991–1999	0.65	M-v	1	Williams	36536	1998 KL ₄₈
1998 KV ₅₀	14.2	0.15	19990810	78.12534	82.17969	194.25989	13.02586	0.1514256	2.6060795	41	2	1998–1999	0.67	M-v	4	Williams	36900	1998 KV ₅₀
1998 KB ₅₁	13.4	0.15	19990810	112.19468	60.20181	179.00751	8.51656	0.1067230	2.5180761	93	6	1982–1999	0.49	M-v	3	Williams	36900	1998 KB ₅₁
1998 KG ₅₁	14.5	0.15	19990810	33.59844	183.81372	163.03053	6.05199	0.1369083	2.3375959	54	3	1981–1999	0.47	M-v	2	Williams	36900	1998 KG ₅₁
1998 KS ₅₁	14.0	0.15	19990810	52.34249	139.49638	178.71009	10.96584	0.1887723	2.5451019	54	3	1978–1999	0.68	M-v	2	Williams	36900	1998 KS ₅₁
1998 KW ₅₁	13.5	0.15	19990810	328.73858	266.37213	123.47295	13.68220	0.1696290	2.5765799	68	3	1978–1999	0.68	M-v	3	Williams	36900	1998 KW ₅₁
1998 KF ₅₃	13.8	0.15	19990810	115.49238	83.34526	140.40734	11.16700	0.1431115	2.6609701	53	2	1998–1999	0.52	M-v	3	Williams	36536	1998 KF ₅₃
1998 KA ₅₄	13.5	0.15	19990810	174.75641	323.03706	210.83939	13.89740	0.0560513	2.5599552	66	2	1998–1999	0.56	M-v	3	Williams	36900	1998 KA ₅₄
1998 KP ₅₄	13.6	0.15	19990810	28.95278	232.98280	97.67183	13.86962	0.1530672	2.7773183	53	3	1990–1999	0.52	M-v	2	Williams	36900	1998 KP ₅₄
1998 KR ₅₄	14.0	0.15	19990810	341.49210	288.43073	104.47540	14.03919	0.1212119	2.3980099	53	3	1982–1999	0.74	M-v	3	Williams	36900	1998 KR ₅₄
1998 KZ ₅₄	13.2	0.15	19990810	50.34749	112.30176	178.50471	10.59592	0.1148720	3.0393938	87	3	1997–1999	0.63	M-v	3	Williams	36537	1998 KZ ₅₄
1998 KA ₅₅	12.9	0.15	19990810	9.92230	199.08474	135.04994	10.67676	0.0775230	2.9965928	55	3	1992–1999	0.46	M-v	2	Williams	36537	1998 KA ₅₅
1998 KK ₅₅	13.8	0.15	19990810	284.84537	242.15811	182.61655	9.58685	0.0321141	2.7402621	81	3	1997–1999	0.58	M-v	3	Williams	36537	1998 KK ₅₅
1998 KR ₅₅	14.4	0.15	19990810	67.66953	114.11708	160.25522	9.22787	0.0396827	2.9730848	47	4	1988–1999	0.68	M-v	2	Williams	36537	1998 KR ₅₅
1998 KU ₅₅	13.3	0.15	19990810	330.81459	264.07125	138.37899	8.12390	0.1732613	2.5591646	65	4	1983–1999	0.64	M-v	3	Williams	36900	1998 KU ₅₅
1998 KC ₅₆	13.6	0.15	19990810	288.15337	273.92222	172.62205	12.29621	0.1323144	2.3482618	48	2	1998–1999	0.49	M-v	3	Williams	36900	1998 KC ₅₆
1998 KJ ₅₈	15.6	0.15	19990810	274.55772	211.62661	237.85680	4.96552	0.0705767	2.2802353	34	2	1998–1999	0.58	M-v	4	Williams	36813	1998 KJ ₅₈
1998 KF ₆₄	16.1	0.15	19990810	77.61554	122.53585	174.91243	5.75127	0.1325689	2.3595768	27	3	1977–1999	0.91	M-v	3	Williams	32486	1998 KF ₆₄
1998 KG ₆₄	14.8	0.15	19990810	103.88270	127.99426	140.20615	2.26214	0.1488573	2.3332340	44	2	1998–1999	0.62	M-v	4	Williams	36813	1998 KG ₆₄
1998 LN ₂	14.2	0.15	19990810	335.94892	205.74708	174.06987	9.48234	0.1511348	3.1540126	42	2	1998–1999	0.69	M-v	3	Williams	36900	1998 LN ₂
1998 MC	14.3	0.15	19990810	150.43723	156.59313	49.26634	6.12313	0.0939868	2.5879359	51	3	1991–1999	0.49	M-v	3	Williams	36900	1998 MC
1998 MG ₁	14.8	0.15	19990810	51.52301	113.44895	173.88499	4.16398	0.0762391	2.7999986	49	3	1995–1999	0.53	M-v	3	Williams	36537	1998 MG ₁
1998 MH ₃	14.2	0.15	19990810	292.60561	173.74334	236.95419	27.62532	0.0331254	2.6419658	36	3	1978–1999	0.73	M-v	3	Williams	36900	1998 MH ₃
1998 MN ₇	14.3	0.15	19990810	17.03645	337.05798	26.11889	0.64799	0.2145950	3.1538838	54	3	1993–1999	0.54	M-v	3	Williams	36814	1998 MN ₇
1998 MA ₈	13.1	0.15	19990810	82.95240	54.00817	253.15632	15.89518	0.0970047	2.8982525	44	3	1977–1999	0.54	M-v	3	Williams	36900	1998 MA ₈

1998 MD ₉	13.6	0.15	19990810	332.07063	240.33392	154.92430	13.30960	0.1655444	2.6938878	45	2	1998–1999	0.68	M-v	3	Williams	36376	1998 MD ₉
1998 ML ₁₆	14.3	0.15	19990810	248.73736	151.05805	335.30447	1.09485	0.0860157	3.0529658	36	2	1998–1999	0.52	M-v	5	Williams	36814	1998 ML ₁₆
1998 MN ₁₆	13.8	0.15	19990810	27.41177	271.83144	115.30271	14.21275	0.1759763	2.5905755	54	3	1995–1999	0.74	M-v	1	Williams	36900	1998 MN ₁₆
1998 MZ ₂₃	13.5	0.15	19990810	44.79333	79.73580	293.53031	5.55500	0.1495690	2.4681086	57	3	1994–1999	0.61	M-v	2	Williams	36900	1998 MZ ₂₃
1998 MS ₂₄	14.2	0.15	19990810	98.81889	137.59866	145.36925	15.24996	0.3349820	2.6102361	64	3	1997–1999	0.48	M-v	2	Williams	35709	1998 MS ₂₄
1998 MY ₂₉	12.2	0.15	19990810	137.16838	311.70595	272.77492	13.70430	0.1030616	2.8585385	83	3	1996–1999	0.54	M-v	3	Williams	36901	1998 MY ₂₉
1998 MC ₃₂	14.4	0.15	19990810	81.07206	36.86860	298.24053	7.24223	0.2118528	2.3153540	42	3	1995–1999	0.81	M-v	3	Williams	36901	1998 MC ₃₂
1998 MF ₃₂	13.0	0.15	19990810	286.55805	352.44949	98.58027	10.15223	0.0098101	2.7649906	59	3	1995–1999	0.57	M-v	4	Williams	36901	1998 MF ₃₂
1998 MP ₃₂	14.8	0.15	19990810	129.53817	159.05929	116.94521	5.00810	0.1485296	2.2191728	45	4	1994–1999	0.81	M-v	3	Williams	32756	1998 MP ₃₂
1998 MT ₃₂	14.2	0.15	19990810	155.75455	356.04467	243.78606	4.17034	0.0996233	2.2925571	66	3	1994–1999	0.67	M-v	4	Williams	36901	1998 MT ₃₂
1998 MR ₃₃	13.2	0.15	19990810	78.57461	184.24103	96.57858	5.86481	0.1929642	3.1339421	52	3	1992–1999	0.63	M-v	3	Williams	36901	1998 MR ₃₃
1998 MW ₃₄	14.2	0.15	19990810	141.91657	52.86150	203.80736	3.58081	0.1108270	2.3069206	48	5	1980–1999	0.53	M-v	1	Williams	36901	1998 MW ₃₄
1998 MR ₃₅	13.3	0.15	19990810	41.37951	285.52563	54.02025	3.06229	0.0833258	2.8986832	50	3	1989–1999	0.61	M-v	3	Williams	36901	1998 MR ₃₅
1998 MF ₃₇	13.2	0.15	19990810	64.24030	187.27926	133.23702	13.50042	0.1833085	2.8817468	58	3	1995–1999	0.57	M-v	2	Williams	36901	1998 MF ₃₇
1998 MR ₃₇	14.3	0.15	19990810	101.48048	245.23403	64.81905	4.21308	0.2129019	2.3438711	33	4	1991–1999	0.64	M-v	3	Williams	36537	1998 MR ₃₇
1998 MT ₃₇	14.1	0.15	19990810	22.01686	340.72339	47.93830	3.12430	0.2193097	2.7696144	35	4	1992–1999	0.52	M-v	1	Williams	36901	1998 MT ₃₇
1998 MV ₃₇	13.9	0.15	19990810	58.11617	249.05259	103.37594	14.45819	0.1608853	2.4737193	39	3	1994–1999	0.67	M-v	2	Williams	36537	1998 MV ₃₇
1998 MZ ₃₇	15.0	0.15	19990810	90.67374	211.48772	103.92356	6.47975	0.1148874	2.3631627	26	3	1997–1999	0.74	M-v	4	Williams	36901	1998 MZ ₃₇
1998 MB ₃₈	13.5	0.15	19990810	134.96498	318.74396	301.32638	10.73506	0.0587912	2.7288810	57	4	1972–1999	0.63	M-v	3	Williams	36901	1998 MB ₃₈
1998 MZ ₄₁	14.6	0.15	19990810	44.67994	256.35562	83.03661	13.49933	0.1849239	2.6004544	34	2	1998–1999	0.53	M-v	4	Williams	36814	1998 MZ ₄₁
1998 MV ₄₂	14.1	0.15	19990810	314.76310	177.31083	276.21778	4.05017	0.1250555	2.2777321	25	3	1992–1999	0.80	M-v	4	Williams	36814	1998 MV ₄₂
1998 MC ₄₅	13.4	0.15	19990810	343.32257	186.59643	208.48046	13.30662	0.1639518	2.6097752	94	3	1995–1999	0.47	M-v	2	Williams	36901	1998 MC ₄₅
1998 NA	13.2	0.15	19990810	69.26234	37.77434	334.09170	9.18670	0.1774581	2.5776217	94	3	1992–1999	0.68	M-v	2	Williams	36901	1998 NA
1998 NF	14.4	0.15	19990810	130.43604	163.07765	76.16712	3.53952	0.1331625	2.4178851	28	2	1998–1999	0.59	M-v	4	Williams	36814	1998 NF
1998 OJ	15.0	0.15	19990810	174.27631	358.18133	240.24308	3.94918	0.1325679	2.2302700	43	4	1991–1999	0.62	M-v	2	Williams	36901	1998 OJ
1998 OM	13.8	0.15	19990810	112.22841	37.64960	242.46429	13.39843	0.1560213	2.6138096	37	2	1998–1999	0.44	M-v	4	Williams	36815	1998 OM
1998 OP	15.0	0.15	19990810	124.81168	128.87192	161.43672	3.85539	0.1799671	2.1734723	38	5	1950–1999	0.79	M-v	2	Williams	36537	1998 OP
1998 OQ	15.2	0.15	19990810	292.25778	230.84934	235.94928	4.25683	0.1337057	2.5339291	74	4	1993–1999	0.48	M-v	1	Williams	36901	1998 OQ
1998 OR	15.7	0.15	19990810	6.83951	188.12054	233.22208	3.60424	0.1542244	2.2694205	33	4	1995–1999	0.51	M-v	1	Williams	32289	1998 OR
1998 OS	15.5	0.15	19990810	255.97766	222.52833	264.95114	6.09035	0.0719349	2.7638642	30	2	1998–1999	0.47	M-v	4	Williams	36815	1998 OS
1998 ON ₁	14.3	0.15	19990810	45.72548	164.08056	198.13155	7.73842	0.2335900	2.7634811	71	4	1994–1999	0.41	M-v	1	Williams	36901	1998 ON ₁
1998 OQ ₄	15.5	0.15	19990810	146.28621	2.03098	264.88389	1.97137	0.1220134	2.2687174	37	3	1997–1999	0.51	M-v	3	Marsden	32756	1998 OQ ₄
1998 OZ ₄	14.0	0.15	19990810	352.84535	209.60637	206.67164	10.18120	0.1372341	3.1359606	48	3	1993–1999	0.58	M-v	2	Williams	36901	1998 OZ ₄
1998 OW ₅	12.6	0.15	19990810	241.67765	3.62501	142.64746	14.97555	0.1009268	3.1691894	51	2	1998–1999	0.59	M-v	4	Williams	36901	1998 OW ₅
1998 OH ₆	12.7	0.15	19990810	212.98494	353.76705	165.96360	6.27876	0.0991559	3.1640277	100	5	1985–1999	0.71	M-v	2	Williams	36901	1998 OH ₆
1998 OT ₆	15.0	0.15	19990810	135.14801	276.38695	354.88248	1.91378	0.2042779	2.3799509	48	4	1990–1999	0.72	M-v	2	Williams	33346	1998 OT ₆
1998 OE ₇	14.0	0.15	19990810	40.79276	87.21935	310.76640	12.05786	0.2067989	2.5361913	59	4	1986–1999	0.58	M-v	2	Williams	36901	1998 OE ₇
1998 OR ₈	13.5	0.15	19990810	9.77589	180.90623	200.33590	2.31049	0.2526792	3.9622131	65	2	1998–1999	0.69	M-v	3	Williams	36815	1998 OR ₈
1998 OZ ₈	14.4	0.15	19990810	130.16800	338.19948	309.80501	3.56709	0.1401151	2.2689080	37	3	1996–1999	0.53	M-v	3	Williams	36537	1998 OZ ₈
1998 OG ₉	14.2	0.15	19990810	17.63806	228.58674	154.21845	2.46906	0.0513843	2.8947364	32	4	1991–1999	0.77	M-v	1	Williams	34921	1998 OG ₉
1998 ON ₁₁	13.3	0.15	19990810	342.13217	178.99781	237.54987	1.07871	0.0176427	2.9133950	73	2	1998–1999	0.60	M-v	5	Williams	36815	1998 ON ₁₁
1998 OW ₁₁	14.0	0.15	19990810	318.09824	327.35079	93.58927	11.65222	0.0940102	2.9784297	29	2	1998–1999	0.61	M-v	4	Williams	36901	1998 OW ₁₁
1998 OG ₁₂	14.2	0.15	19990810	141.82409	261.63899	343.37741	9.16123	0.0898349	2.6313385	68	4	1986–1999	0.65	M-v	2	Williams	36901	1998 OG ₁₂
1998 OM ₁₂	11.6	0.15	19990810	346.21819	324.44170	27.37478	7.48772	0.0379791	5.3296578	63	2	1998–1999	0.59	M-v	3	Williams	36538	1998 OM ₁₂
1998 OV ₁₂	13.4	0.15	19990810	80.04192	177.98303	145.04762	4.99423	0.0667967	2.7884530	57	3	1995–1999	0.65	M-v	3	Williams	36901	1998 OV ₁₂
1998 OM ₁₃	14.5	0.15	19990810	263.29948	207.69543	316.98427	6.44358	0.1101368	2.2701706	44	4	1990–1999	0.81	M-v	2	Williams	35709	1998 OM ₁₃
1998 ON ₁₃	14.1	0.15	19990810	81.23533	35.71503	318.18529	9.52816	0.0682716	2.2635243	67	3	1981–1999	0.65	M-v	2	Williams	36901	1998 ON ₁₃
1998 OY ₁₃	15.1	0.15	19990810	182.11442	273.19985	319.67589	6.73215	0.1289861	2.2983425	36	4	1976–1999	0.67	M-v	1	Williams	32757	1998 OY ₁₃
1998 OB ₁₄	14.1	0.15	19990810	188.79809	243.00892	326.01633	18.21885	0.0870880	2.7508753	56	5	1983–1999	0.72	M-v	1	Williams	36901	1998 OB ₁₄
1998 OH ₁₄	13.6	0.15	19990810	353.14678	323.80184	131.71139	6.80834	0.2353821	2.3851408	52	6	1936–1999	0.79	M-v	1	Williams	35709	1998 OH ₁₄
1998 OZ ₁₄	13.8	0.15	19990810	54.69598	238.68844	140.46150	12.00072	0.1523789	2.4522842	67	4	1981–1999	0.76	M-v	2	Williams	36901	1998 OZ ₁₄
1998 PH	13.5	0.15	19990810	302.37468	203.04905	278.42866	13.90236	0.1935851	2.6455399	53	3	1995–1999	0.44	M-v	2	Williams	36085	1998 PH
1998 PL	14.9	0.15	19990810	75.55548	213.90862	125.22877	6.95901	0.1697207	2.2743117	45	3	1997–1999	0.56	M-v	2	Williams	36538	1998 PL

1998 PQ	14.0	0.15	19990810	146.64254	79.94523	160.90599	1.16682	0.1293065	3.0901869	50	3	1996–1999	0.61	M-v	3	Williams	36901	1998 PQ
1998 PS	15.4	0.15	19990810	25.44067	229.08660	161.94155	1.30577	0.1904314	3.1266586	23	3	1996–1999	0.47	M-v	3	Marsden	32689	1998 PS
1998 PA ₁	13.6	0.15	19990810	330.67022	196.19154	238.69353	5.63516	0.1293562	3.0477345	97	4	1991–1999	0.55	M-v	1	Williams	36901	1998 PA ₁
1998 PO ₁	13.1	0.15	19990810	307.95755	146.16653	275.46932	13.61081	0.0635568	2.5811165	80	2	1998–1999	0.53	M-v	3	Williams	36901	1998 PO ₁
1998 QF	13.4	0.15	19990810	160.65957	252.59151	337.86558	8.18082	0.0826509	3.1934437	48	2	1998–1999	0.64	M-v	4	Williams	36377	1998 QF
1998 QR	14.7	0.15	19990810	254.14480	340.12255	176.63979	4.17884	0.0988274	2.3334119	37	3	1981–1999	0.55	M-v	4	Williams	36901	1998 QR
1998 QW	13.5	0.15	19990810	87.09806	109.63167	212.38912	14.41394	0.1527082	2.6032925	51	3	1990–1999	0.66	M-v	2	Williams	36901	1998 QW
1998 QN ₁	13.5	0.15	19990810	61.83411	104.04980	232.40370	1.14577	0.1246118	3.0739209	69	3	1993–1999	0.67	M-v	4	Williams	36901	1998 QN ₁
1998 QR ₁	14.4	0.15	19990810	240.20747	290.86306	261.08125	5.50440	0.0871980	2.4565917	59	3	1995–1999	0.60	M-v	3	Williams	36901	1998 QR ₁
1998 QJ ₂	14.6	0.15	19990810	70.09690	239.30315	128.84803	4.69614	0.1297388	2.2135007	36	4	1977–1999	0.66	M-v	2	Williams	32759	1998 QJ ₂
1998 QN ₂	14.8	0.15	19990810	118.90943	40.99766	265.96755	5.75710	0.1984190	2.2277418	45	4	1968–1999	0.79	M-v	3	Williams	33559	1998 QN ₂
1998 QE ₄	13.6	0.15	19990810	75.78109	217.52175	113.37318	10.73703	0.0907745	2.9920273	34	2	1998–1999	0.50	M-v	3	Williams	36815	1998 QE ₄
1998 QO ₄	13.6	0.15	19990810	32.83175	67.82604	301.55615	13.19792	0.0341550	3.1810200	67	3	1995–1999	0.63	M-v	2	Williams	36901	1998 QO ₄
1998 QK ₅	15.4	0.15	19990810	249.62706	300.39543	238.99508	3.70276	0.0762061	2.2945165	32	3	1960–1999	0.57	M-v	4	Williams	32495	1998 QK ₅
1998 QT ₅	13.6	0.15	19990810	326.50571	110.82240	340.69423	9.94275	0.0927301	2.9556662	46	3	1993–1999	0.57	M-v	3	Williams	36901	1998 QT ₅
1998 QN ₇	12.2	0.15	19990810	52.87012	349.55558	324.22324	17.04220	0.1086806	3.4077726	57	3	1996–1999	0.65	M-v	3	Williams	36901	1998 QN ₇
1998 QV ₇	14.3	0.15	19990810	107.88760	146.21713	145.17303	3.11020	0.1669639	2.4701350	44	3	1997–1999	0.69	M-v	3	Williams	36901	1998 QV ₇
1998 QQ ₈	13.1	0.15	19990810	40.23828	232.33427	121.32494	6.86064	0.0745233	2.8016026	38	3	1997–1999	0.58	M-v	3	Williams	36901	1998 QQ ₈
1998 QT ₈	13.3	0.15	19990810	54.32068	283.25438	64.45436	4.81396	0.1177043	2.6883805	26	4	1981–1999	0.59	M-v	1	Williams	36901	1998 QT ₈
1998 QM ₉	14.1	0.15	19990810	49.13538	117.53914	224.17138	4.95682	0.1569733	3.0542949	48	3	1997–1999	0.64	M-v	3	Williams	36901	1998 QM ₉
1998 QV ₉	14.8	0.15	19990810	98.62741	323.42594	332.52001	9.15170	0.1941506	2.5851947	26	3	1994–1999	0.67	M-v	4	Williams	35710	1998 QV ₉
1998 QO ₁₀	15.0	0.15	19990810	100.37652	126.53410	198.84353	4.35920	0.1777997	2.2759982	39	3	1995–1999	0.48	M-v	2	Williams	33080	1998 QO ₁₀
1998 QU ₁₀	13.4	0.15	19990810	89.87622	323.42886	322.12408	5.55345	0.0490174	3.2549739	27	2	1998–1999	0.61	M-v	4	Williams	36815	1998 QU ₁₀
1998 QE ₁₁	12.9	0.15	19990810	62.66397	347.00696	329.89229	22.06375	0.1047107	3.1720155	38	3	1981–1999	0.53	M-v	3	Williams	36816	1998 QE ₁₁
1998 QS ₁₁	14.5	0.15	19990810	269.07549	237.38605	273.27478	4.30857	0.0643238	2.3168283	32	3	1995–1999	0.69	M-v	3	Williams	36901	1998 QS ₁₁
1998 QZ ₁₁	14.1	0.15	19990810	25.96536	105.53006	297.03147	10.77513	0.1848639	2.5701890	39	3	1990–1999	0.54	M-v	1	Williams	36901	1998 QZ ₁₁
1998 QT ₁₂	14.5	0.15	19990810	149.41123	330.65173	290.30049	5.97939	0.0929648	2.3722971	32	5	1980–1999	0.58	M-v	1	Williams	36902	1998 QT ₁₂
1998 QV ₁₂	15.0	0.15	19990810	44.32101	81.56458	298.28499	5.59056	0.0843305	2.4172633	28	4	1983–1999	0.63	M-v	1	Williams	35710	1998 QV ₁₂
1998 QJ ₁₃	13.4	0.15	19990810	116.96129	130.58646	129.19952	7.28910	0.1492942	2.9383821	35	3	1994–1999	0.59	M-v	4	Williams	36538	1998 QJ ₁₃
1998 QU ₁₃	14.6	0.15	19990810	41.69538	78.56362	320.80980	5.83351	0.1406042	2.2671423	34	4	1981–1999	0.66	M-v	2	Williams	36902	1998 QU ₁₃
1998 QY ₁₃	15.6	0.15	19990810	127.22622	96.85435	182.69921	3.25180	0.1432820	2.4151794	26	4	1995–1999	0.75	M-v	2	Williams	35710	1998 QY ₁₃
1998 QW ₁₅	14.3	0.15	19990810	50.64650	138.27710	224.64322	0.97649	0.1477766	2.9858623	51	4	1978–1999	0.85	M-v	2	Williams	33347	1998 QW ₁₅
1998 QK ₁₆	14.3	0.15	19990810	78.48060	26.82263	305.62710	12.80492	0.1781980	2.6407403	38	3	1993–1999	0.52	M-v	3	Williams	32760	1998 QK ₁₆
1998 QM ₁₆	13.8	0.15	19990810	104.48894	112.25072	191.77502	4.42830	0.1502658	2.5287689	31	4	1990–1999	0.51	M-v	1	Williams	36902	1998 QM ₁₆
1998 QP ₁₆	14.0	0.15	19990810	94.19781	129.66778	170.05774	9.52331	0.0458430	2.9666062	36	3	1971–1999	0.68	M-v	4	Williams	36902	1998 QP ₁₆
1998 QC ₁₇	13.7	0.15	19990810	229.79421	59.00425	127.80430	6.91433	0.0531542	2.3932059	35	3	1982–1999	0.74	M-v	3	Williams	36538	1998 QC ₁₇
1998 QF ₁₇	13.8	0.15	19990810	143.51005	146.38819	122.46396	6.32557	0.1022804	2.3773107	52	4	1991–1999	0.50	M-v	2	Williams	36902	1998 QF ₁₇
1998 QL ₁₈	13.8	0.15	19990810	359.42163	68.25393	340.76031	4.38081	0.1660654	3.1570553	41	4	1993–1999	0.57	M-v	1	Williams	36902	1998 QL ₁₈
1998 QT ₁₈	14.3	0.15	19990810	122.09814	63.40919	238.15998	2.85256	0.1489386	2.2858425	46	3	1981–1999	0.63	M-v	3	Williams	36538	1998 QT ₁₈
1998 QK ₁₉	13.7	0.15	19990810	111.61517	181.61112	122.27941	7.71582	0.1135890	2.4180452	38	4	1983–1999	0.54	M-v	2	Williams	36538	1998 QK ₁₉
1998 QL ₁₉	14.2	0.15	19990810	90.72179	277.20746	52.12967	3.39014	0.1831928	2.4297598	45	4	1987–1999	0.71	M-v	2	Williams	33559	1998 QL ₁₉
1998 QV ₁₉	13.9	0.15	19990810	114.87723	127.43396	163.25196	4.95557	0.1135112	2.6006240	54	3	1997–1999	0.65	M-v	3	Williams	36902	1998 QV ₁₉
1998 QY ₁₉	14.7	0.15	19990810	336.89965	302.05875	162.92110	7.84962	0.1292476	2.3058356	29	3	1993–1999	0.84	M-v	3	Williams	36902	1998 QY ₁₉
1998 QM ₂₀	12.5	0.15	19990810	265.55570	324.10320	169.67543	11.66346	0.0600096	3.0311646	83	3	1996–1999	0.50	M-v	3	Williams	36902	1998 QM ₂₀
1998 QV ₂₂	13.3	0.15	19990810	320.39156	66.82205	15.73809	1.94312	0.0870981	3.1132783	96	3	1993–1999	0.63	M-v	4	Williams	36902	1998 QV ₂₂
1998 QW ₂₂	14.4	0.15	19990810	353.65900	70.26443	14.26068	3.87144	0.0903255	2.2999897	49	3	1997–1999	0.70	M-v	3	Williams	36902	1998 QW ₂₂
1998 QD ₂₃	14.0	0.15	19990810	148.63615	249.71172	17.79867	5.68203	0.0603590	2.4219920	48	4	1987–1999	0.64	M-v	1	Williams	36538	1998 QD ₂₃
1998 QE ₂₃	14.2	0.15	19990810	352.04984	30.17343	59.06150	3.26012	0.1696606	2.4038436	39	3	1980–1999	0.84	M-v	3	Williams	36902	1998 QE ₂₃
1998 QL ₂₃	13.9	0.15	19990810	24.39126	33.01553	352.43548	5.17551	0.2000778	3.1423998	61	3	1993–1999	0.59	M-v	1	Williams	36538	1998 QL ₂₃
1998 QP ₂₃	14.6	0.15	19990810	16.09375	75.96310	349.69049	4.30344	0.1275526	2.3480918	49	4	1973–1999	0.79	M-v	2	Williams	36902	1998 QP ₂₃
1998 QN ₂₅	14.1	0.15	19990810	96.86777	335.78356	338.25084	13.40475	0.1479611	2.5648164	43	4	1990–1999	0.53	M-v	3	Williams	36902	1998 QN ₂₅
1998 QZ ₂₅	14.1	0.15	19990810	36.07193	38.20975	15.24069	2.81771	0.1601746	2.4601326	48	4	1983–1999	0.68	M-v	2	Williams	35340	1998 QZ ₂₅
1998 QA ₂₆	13.5	0.15	19990810	42.12882	218.37420	154.66597	5.67823	0.0865887	3.0289182	48	4	1994–1999	0.71	M-v	1	Williams	36902	1998 QA ₂₆

1998 QF ₂₆	14.5	0.15	19990810	164.79659	100.97103	156.94342	2.53937	0.2072249	2.3607552	54	3	1997-1999	0.72	M-v	4	Williams	36902	1998 QF ₂₆
1998 QK ₂₆	14.2	0.15	19990810	14.99064	186.72275	205.96049	0.40879	0.2153682	3.1360959	40	3	1982-1999	0.47	M-v	2	Williams	36902	1998 QK ₂₆
1998 QL ₃₀	14.4	0.15	19990810	76.12525	233.64010	129.92794	4.96773	0.1372101	2.3362001	65	5	1986-1999	0.61	M-v	2	Williams	36902	1998 QL ₃₀
1998 QY ₃₀	13.8	0.15	19990810	65.77485	19.27282	321.49938	1.47118	0.0861506	2.8621145	58	4	1992-1999	0.62	M-v	2	Williams	36902	1998 QY ₃₀
1998 QV ₃₂	13.6	0.15	19990810	53.78718	46.20297	302.65357	3.71523	0.1727486	3.0986268	48	4	1987-1999	0.68	M-v	1	Williams	36902	1998 QV ₃₂
1998 QW ₃₂	13.8	0.15	19990810	49.33680	198.67439	162.12322	11.64328	0.0879608	2.8729331	36	4	1993-1999	0.76	M-v	2	Williams	35710	1998 QW ₃₂
1998 QS ₃₃	13.7	0.15	19990810	22.22753	138.18915	247.23762	5.25849	0.0687791	3.0574247	45	2	1998-1999	0.73	M-v	3	Williams	36816	1998 QS ₃₃
1998 QV ₃₄	14.5	0.15	19990810	187.50646	305.89425	286.49114	5.50414	0.0803836	2.4101499	33	5	1979-1999	0.73	M-v	1	Williams	36902	1998 QV ₃₄
1998 QW ₃₄	13.0	0.15	19990810	94.96132	130.36872	175.59580	14.82980	0.2004087	2.7721431	48	3	1992-1999	0.69	M-v	3	Williams	36902	1998 QW ₃₄
1998 QB ₃₅	14.3	0.15	19990810	312.76570	163.15414	317.42669	13.10357	0.1194166	2.5346779	29	3	1988-1999	0.71	M-v	3	Williams	36902	1998 QB ₃₅
1998 QX ₃₅	14.0	0.15	19990810	311.41386	89.87095	10.32383	2.04701	0.0350249	2.8513972	41	4	1991-1999	0.59	M-v	1	Williams	36902	1998 QX ₃₅
1998 QZ ₃₅	13.9	0.15	19990810	59.18179	21.11270	337.78960	8.31316	0.1588195	2.7486340	42	4	1980-1999	0.61	M-v	2	Williams	35710	1998 QZ ₃₅
1998 QL ₃₆	13.7	0.15	19990810	95.22216	70.84511	242.95194	3.39712	0.0588751	2.8040834	37	3	1992-1999	0.64	M-v	4	Williams	32701	1998 QL ₃₆
1998 QH ₃₇	15.2	0.15	19990810	167.62835	12.38307	237.81262	3.85584	0.1594962	2.3339234	32	5	1980-1999	0.73	M-v	1	Williams	35710	1998 QH ₃₇
1998 QL ₃₇	14.7	0.15	19990810	242.24744	345.60599	206.32158	4.29947	0.0897351	2.2576176	38	4	1978-1999	0.87	M-v	2	Williams	36902	1998 QL ₃₇
1998 QX ₃₇	15.1	0.15	19990810	129.29041	319.38181	335.23681	7.61874	0.0469296	2.4579133	36	5	1989-1999	0.66	M-v	2	Williams	34924	1998 QX ₃₇
1998 QK ₃₈	13.3	0.15	19990810	96.93171	328.41203	324.53204	0.32920	0.1310415	3.1777775	76	4	1988-1999	0.57	M-v	1	Williams	36902	1998 QK ₃₈
1998 QQ ₃₈	14.7	0.15	19990810	164.14972	355.36581	250.76823	2.73707	0.1728366	2.4336583	37	3	1990-1999	0.80	M-v	5	Williams	36902	1998 QQ ₃₈
1998 QA ₃₉	13.9	0.15	19990810	101.06480	349.80947	319.76386	12.87826	0.1662308	2.6715295	35	3	1989-1999	0.74	M-v	3	Williams	33560	1998 QA ₃₉
1998 QE ₃₉	14.2	0.15	19990810	42.45256	352.39730	19.58545	0.46463	0.2136383	3.0793487	47	3	1982-1999	0.63	M-v	3	Williams	36539	1998 QE ₃₉
1998 QR ₃₉	15.0	0.15	19990810	155.40515	263.06712	1.30581	6.15200	0.1091707	2.3667971	33	3	1997-1999	0.85	M-v	3	Williams	35630	1998 QR ₃₉
1998 QT ₃₉	13.8	0.15	19990810	41.61494	255.43240	142.94451	7.69210	0.1934253	2.5523309	57	5	1992-1999	0.60	M-v	1	Williams	36902	1998 QT ₃₉
1998 QZ ₃₉	14.0	0.15	19990810	122.15675	307.03654	334.30874	6.12668	0.1077883	2.7945182	45	3	1996-1999	0.58	M-v	3	Williams	35710	1998 QZ ₃₉
1998 QB ₄₀	14.1	0.15	19990810	75.02332	178.64387	161.60484	10.04214	0.1875372	2.7398753	40	4	1971-1999	0.71	M-v	2	Williams	36539	1998 QB ₄₀
1998 QD ₄₀	14.2	0.15	19990810	122.27353	344.20498	304.02921	3.34637	0.0361183	2.7893666	40	3	1996-1999	0.80	M-v	4	Williams	36902	1998 QD ₄₀
1998 QP ₄₀	13.2	0.15	19990810	329.02308	147.57597	319.88453	12.43192	0.1136427	2.6073227	50	5	1975-1999	0.59	M-v	2	Williams	36902	1998 QP ₄₀
1998 QV ₄₀	12.9	0.15	19990810	68.29336	124.72197	223.97861	4.08799	0.0461256	2.7752752	64	4	1978-1999	0.53	M-v	2	Williams	36902	1998 QV ₄₀
1998 QS ₄₁	13.7	0.15	19990810	131.31709	195.79434	84.79916	1.68151	0.0462800	2.7165586	60	3	1997-1999	0.68	M-v	3	Williams	36902	1998 QS ₄₁
1998 QK ₄₂	14.6	0.15	19990810	137.70304	93.31695	182.70491	2.05247	0.1859263	2.4203597	42	6	1979-1999	0.73	M-v	1	Williams	35711	1998 QK ₄₂
1998 QL ₄₂	14.5	0.15	19990810	20.72147	182.38557	214.93504	1.73801	0.0585786	2.8773634	37	3	1996-1999	0.75	M-v	3	Williams	36902	1998 QL ₄₂
1998 QB ₄₃	14.0	0.15	19990810	336.53166	249.47130	218.34259	7.72726	0.2371517	2.7407870	41	3	1996-1999	0.74	M-v	2	Williams	36539	1998 QB ₄₃
1998 QP ₄₃	12.8	0.15	19990810	301.25647	111.07120	356.86570	16.92654	0.0984145	3.1588421	48	3	1993-1999	0.70	M-v	3	Williams	36902	1998 QP ₄₃
1998 QB ₄₄	13.0	0.15	19990810	89.14206	309.72759	358.93179	10.10066	0.1154387	3.0596675	43	3	1993-1999	0.49	M-v	3	Williams	33560	1998 QB ₄₄
1998 QM ₄₄	15.3	0.15	19990810	195.54645	98.45853	135.13155	4.19011	0.0712451	2.3320365	35	5	1991-1999	0.69	M-v	1	Williams	35711	1998 QM ₄₄
1998 QS ₄₄	13.0	0.15	19990810	200.54375	241.00405	329.68449	6.15302	0.0767272	2.7661533	45	3	1996-1999	0.54	M-v	2	Williams	34301	1998 QS ₄₄
1998 QW ₄₅	15.2	0.15	19990810	176.31247	20.43193	232.65134	2.43751	0.1269128	2.2571477	35	5	1977-1999	0.73	M-v	1	Williams	32711	1998 QW ₄₅
1998 QF ₄₇	15.2	0.15	19990810	262.52293	172.50448	356.06268	13.79704	0.1167896	2.3751599	22	5	1951-1999	0.62	M-v	3	Williams	34926	1998 QF ₄₇
1998 QV ₄₇	14.5	0.15	19990810	90.28203	132.00373	177.58476	7.30053	0.1563282	3.0524471	25	3	1993-1999	0.77	M-v	4	Williams	32712	1998 QV ₄₇
1998 QE ₄₉	13.9	0.15	19990810	34.94079	346.93639	41.22614	1.57730	0.0714735	2.7810307	50	4	1992-1999	0.70	M-v	2	Williams	36539	1998 QE ₄₉
1998 QF ₄₉	13.6	0.15	19990810	22.70767	270.36115	148.24860	8.72031	0.2283892	2.7648289	50	3	1977-1999	0.49	M-v	1	Williams	36902	1998 QF ₄₉
1998 QQ ₄₉	13.9	0.15	19990810	315.93397	332.42945	139.89310	8.51482	0.1149773	2.7565259	41	4	1982-1999	0.68	M-v	1	Williams	36539	1998 QQ ₄₉
1998 QF ₅₀	14.3	0.15	19990810	78.86010	326.79255	8.73656	8.31391	0.1480060	2.7624122	35	3	1989-1999	0.61	M-v	3	Williams	33084	1998 QF ₅₀
1998 QG ₅₀	15.0	0.15	19990810	85.63655	339.04181	353.65310	13.64680	0.2036005	2.6243735	50	4	1992-1999	0.58	M-v	2	Williams	33084	1998 QG ₅₀
1998 QK ₅₀	14.3	0.15	19990810	165.00079	141.25382	118.58786	5.28800	0.1403188	2.2901260	36	4	1983-1999	0.72	M-v	3	Williams	36539	1998 QK ₅₀
1998 QO ₅₀	13.3	0.15	19990810	63.81069	201.39873	145.35108	9.99341	0.0792069	2.9725503	35	3	1997-1999	0.49	M-v	3	Williams	36902	1998 QO ₅₀
1998 QU ₅₀	13.1	0.15	19990810	126.38596	284.95815	348.79541	21.28768	0.0370887	3.2081850	43	5	1979-1999	0.67	M-v	1	Williams	36902	1998 QU ₅₀
1998 QX ₅₀	14.1	0.15	19990810	113.83600	315.83497	353.24452	7.41674	0.1330830	2.4803394	52	4	1977-1999	0.72	M-v	3	Williams	35711	1998 QX ₅₀
1998 QF ₅₁	14.6	0.15	19990810	120.47559	8.09050	295.38257	0.38369	0.1897316	2.4005266	49	5	1991-1999	0.71	M-v	1	Williams	36539	1998 QF ₅₁
1998 QK ₅₂	14.6	0.15	19990810	78.00212	174.03158	187.68535	6.84149	0.1201212	2.4525706	46	4	1991-1999	0.73	M-v	2	Williams	33560	1998 QK ₅₂
1998 QM ₅₂	15.0	0.15	19990810	34.10772	270.75823	143.60020	6.79308	0.0985579	2.3458122	29	3	1991-1999	0.85	M-v	3	Williams	33084	1998 QM ₅₂
1998 QO ₅₄	14.8	0.15	19990810	106.46631	45.07842	269.56328	2.52137	0.2134123	2.6223976	54	4	1996-1999	0.70	M-v	2	Williams	35711	1998 QO ₅₄
1998 QL ₅₇	15.0	0.15	19990810	51.64450	198.92842	200.88211	1.47493	0.0208375	2.2567241	52	3	1996-1999	0.64	M-v	3	Williams	35711	1998 QL ₅₇
1998 QP ₅₇	13.5	0.15	19990810	339.12567	269.39747	185.03934	3.13888	0.1759873	3.1515385	42	3	1993-1999	0.73	M-v	3	Williams	36539	1998 QP ₅₇

1998 QO ₆₀	13.3	0.15	19990810	164.05185	283.56046	7.89123	11.21979	0.1867291	2.6698966	38	2	1998–1999	0.54	M-v	3	Williams	36816	1998 QO ₆₀
1998 QL ₆₆	13.7	0.15	19990810	117.49061	33.93149	247.23411	12.11516	0.1529488	2.6438209	36	2	1998–1999	0.46	M-v	3	Williams	36816	1998 QL ₆₆
1998 QJ ₆₉	13.2	0.15	19990810	160.71218	22.04655	210.58993	15.44001	0.0358541	3.1534454	72	3	1993–1999	0.69	M-v	3	Williams	36903	1998 QJ ₆₉
1998 QP ₆₉	14.4	0.15	19990810	58.56216	125.55317	244.81450	14.13809	0.1454019	2.5914627	33	3	1990–1999	0.79	M-v	2	Williams	33561	1998 QP ₆₉
1998 QR ₆₉	12.9	0.15	19990810	129.33299	18.48429	229.11820	15.48375	0.1986565	3.1585278	67	3	1997–1999	0.54	M-v	3	Williams	36903	1998 QR ₆₉
1998 QZ ₆₉	14.2	0.15	19990810	44.35051	151.73629	211.93939	8.69399	0.0889856	2.9676169	29	3	1997–1999	0.59	M-v	3	Williams	35712	1998 QZ ₆₉
1998 QC ₇₀	13.7	0.15	19990810	353.30790	179.66272	240.25234	10.02398	0.0797053	3.0115827	33	3	1978–1999	0.76	M-v	4	Williams	36903	1998 QC ₇₀
1998 QF ₇₀	12.7	0.15	19990810	316.55305	239.64688	212.89591	15.67524	0.0953366	3.1967555	61	3	1996–1999	0.60	M-v	3	Williams	36903	1998 QF ₇₀
1998 QW ₇₀	13.5	0.15	19990810	72.80627	89.26413	233.69398	10.38487	0.1527083	3.1854195	41	2	1998–1999	0.72	M-v	4	Williams	36817	1998 QW ₇₀
1998 QX ₇₂	14.1	0.15	19990810	63.60790	155.72255	184.18754	15.54671	0.0793017	3.0772826	43	3	1997–1999	0.85	M-v	3	Williams	36903	1998 QX ₇₂
1998 QE ₇₃	12.5	0.15	19990810	99.10252	10.00574	294.65463	8.73542	0.0637156	3.0052712	48	3	1993–1999	0.57	M-v	3	Williams	36085	1998 QE ₇₃
1998 QG ₇₃	12.2	0.15	19990810	309.57440	217.24656	246.96772	8.39379	0.0462276	3.0161701	81	4	1978–1999	0.63	M-v	3	Williams	36903	1998 QG ₇₃
1998 QL ₇₃	13.4	0.15	19990810	316.51262	221.48800	237.12859	9.42346	0.0630042	3.0481051	47	2	1998–1999	0.65	M-v	4	Williams	36817	1998 QL ₇₃
1998 QV ₇₃	13.2	0.15	19990810	327.39434	214.53963	260.51734	14.23812	0.1793425	2.6498517	38	3	1990–1999	0.82	M-v	3	Williams	36903	1998 QV ₇₃
1998 QG ₇₄	13.6	0.15	19990810	28.01058	175.51230	219.09095	8.88683	0.1993945	3.1149496	43	3	1993–1999	0.72	M-v	2	Williams	35712	1998 QG ₇₄
1998 QV ₇₄	14.4	0.15	19990810	182.33860	11.68444	230.66816	14.42116	0.0502991	2.5467882	37	3	1997–1999	0.63	M-v	3	Williams	35712	1998 QV ₇₄
1998 QC ₇₅	13.4	0.15	19990810	91.47437	64.32722	238.14830	9.00918	0.0960006	3.4263847	50	2	1998–1999	0.72	M-v	4	Williams	36817	1998 QC ₇₅
1998 QK ₇₅	12.5	0.15	19990810	27.30134	150.53091	244.60727	9.10564	0.1101212	2.9960034	56	4	1978–1999	0.71	M-v	2	Williams	36903	1998 QK ₇₅
1998 QM ₇₆	12.9	0.15	19990810	253.16443	291.40003	245.04727	9.91930	0.1339241	2.6413302	66	4	1986–1999	0.66	M-v	2	Williams	36903	1998 QM ₇₆
1998 QH ₇₇	12.8	0.15	19990810	32.91664	92.65855	296.03809	13.72423	0.1071070	3.2205498	52	4	1989–1999	0.68	M-v	1	Williams	33561	1998 QH ₇₇
1998 QR ₇₇	13.8	0.15	19990810	260.04202	316.64485	214.41133	12.42570	0.1089368	2.6740024	23	4	1990–1999	0.64	M-v	3	Williams	36539	1998 QR ₇₇
1998 QW ₇₇	12.4	0.15	19990810	163.30691	286.90084	323.94901	11.94407	0.1631577	2.6746538	57	3	1992–1999	0.69	M-v	3	Williams	36903	1998 QW ₇₇
1998 QE ₇₈	13.2	0.15	19990810	172.70563	310.47669	287.43431	11.01268	0.2476204	2.6149154	29	3	1960–1999	0.57	M-v	4	Williams	32983	1998 QE ₇₈
1998 QE ₈₃	14.1	0.15	19990810	70.08408	122.34606	206.32675	14.17082	0.1926711	3.0506351	35	4	1993–1999	0.70	M-v	1	Williams	35712	1998 QE ₈₃
1998 QA ₈₄	14.3	0.15	19990810	79.65365	92.45018	222.14933	16.72772	0.2211685	3.0926147	39	4	1960–1999	0.73	M-v	2	Williams	35712	1998 QA ₈₄
1998 QQ ₈₄	13.5	0.15	19990810	327.59150	214.06195	236.96604	12.98287	0.1286388	3.0926922	54	3	1996–1999	0.73	M-v	3	Williams	36903	1998 QQ ₈₄
1998 QG ₈₆	13.6	0.15	19990810	347.96627	169.38639	286.43373	12.14131	0.1916524	2.7726199	69	3	1997–1999	0.71	M-v	2	Williams	36903	1998 QG ₈₆
1998 QK ₈₆	13.9	0.15	19990810	54.43987	113.98302	246.63107	9.38697	0.1102314	2.9902879	36	3	1978–1999	0.72	M-v	3	Williams	35712	1998 QK ₈₆
1998 QN ₈₆	13.3	0.15	19990810	30.85937	118.43372	286.27374	8.08352	0.1598080	2.7591604	64	3	1989–1999	0.73	M-v	2	Williams	36903	1998 QN ₈₆
1998 QB ₈₇	13.3	0.15	19990810	18.47465	100.91835	303.12435	15.77320	0.1323535	3.1747910	32	3	1989–1999	0.53	M-v	2	Williams	35712	1998 QB ₈₇
1998 QW ₈₉	13.9	0.15	19990810	121.03888	339.41757	322.32873	15.21505	0.1550244	2.5715102	34	4	1982–1999	0.64	M-v	3	Williams	34926	1998 QW ₈₉
1998 QC ₉₅	13.1	0.15	19990810	197.98243	255.86070	304.41318	12.77833	0.2259917	2.6442671	32	2	1998–1999	0.51	M-v	4	Williams	36817	1998 QC ₉₅
1998 QK ₉₅	13.1	0.15	19990810	26.82714	136.06182	254.65017	9.39128	0.1187892	2.9810363	37	2	1998–1999	0.55	M-v	3	Williams	36817	1998 QK ₉₅
1998 QW ₉₅	14.1	0.15	19990810	133.01624	42.72228	222.59805	7.78802	0.1555866	2.7872308	31	3	1994–1999	0.74	M-v	4	Williams	36903	1998 QW ₉₅
1998 QB ₉₆	13.7	0.15	19990810	193.04874	9.29742	207.50715	13.05062	0.1491768	2.6608910	43	3	1997–1999	0.69	M-v	3	Williams	36903	1998 QB ₉₆
1998 QF ₉₆	14.9	0.15	19990810	157.95315	31.65732	229.96429	5.86600	0.1678295	2.3380251	26	4	1991–1999	0.61	M-v	2	Williams	33562	1998 QF ₉₆
1998 QA ₉₈	13.5	0.15	19990810	327.49475	187.31489	310.93289	6.59400	0.1617107	2.4512987	69	3	1997–1999	0.67	M-v	3	Williams	36903	1998 QA ₉₈
1998 QD ₉₉	13.1	0.15	19990810	44.60160	284.09997	93.28069	3.29883	0.0708407	2.9096242	82	3	1989–1999	0.71	M-v	2	Williams	36540	1998 QD ₉₉
1998 QP ₁₀₀	14.5	0.15	19990810	42.31044	332.82985	52.49451	5.12993	0.0795588	2.1021343	33	3	1994–1999	0.77	M-v	4	Williams	33090	1998 QP ₁₀₀
1998 QZ ₁₀₂	13.2	0.15	19990810	106.24052	165.99924	131.35045	6.19477	0.2254612	2.8543388	68	5	1977–1999	0.71	M-v	2	Williams	36903	1998 QZ ₁₀₂
1998 QF ₁₀₄	13.5	0.15	19990810	141.14378	272.36225	13.21852	14.94455	0.1003451	2.5360294	69	5	1978–1999	0.76	M-v	3	Williams	36903	1998 QF ₁₀₄
1998 QO ₁₀₄	14.0	0.15	19990810	311.13557	63.94151	69.65366	5.79672	0.0336123	2.4631173	40	4	1950–1999	0.65	M-v	2	Williams	36903	1998 QO ₁₀₄
1998 QO ₁₀₅	14.1	0.15	19990810	244.70470	148.82789	48.90720	5.74007	0.0982088	2.2574661	66	4	1995–1999	0.59	M-v	1	Williams	36903	1998 QO ₁₀₅
1998 QM ₁₀₆	13.8	0.15	19990810	78.19876	326.15799	14.31487	11.33213	0.1657210	2.7471270	42	3	1989–1999	0.73	M-v	3	Williams	36903	1998 QM ₁₀₆
1998 RM	13.2	0.15	19990810	283.34607	270.89521	207.24392	16.60456	0.0891938	2.8058065	87	3	1992–1999	0.49	M-v	2	Williams	36903	1998 RM
1998 RV	13.5	0.15	19990810	29.29410	4.10920	4.98521	9.84557	0.0969917	2.9877948	60	4	1991–1999	0.53	M-v	1	Williams	36540	1998 RV
1998 RX	12.4	0.15	19990810	35.53292	35.65885	358.39955	10.42107	0.0675200	3.2118681	72	5	1975–1999	0.66	M-v	1	Williams	35713	1998 RX
1998 RE ₂	12.9	0.15	19990810	14.54644	281.38638	133.31142	10.63583	0.0916590	3.0595124	33	3	1995–1999	0.50	M-v	2	Williams	36540	1998 RE ₂
1998 RX ₁₂	13.5	0.15	19990810	244.60751	4.06317	179.43557	0.67397	0.1115876	3.1629231	48	3	1995–1999	0.66	M-v	5	Williams	36903	1998 RX ₁₂
1998 RF ₁₆	13.9	0.15	19990810	147.34164	145.45478	134.41774	5.17583	0.1744368	2.5937148	51	4	1981–1999	0.74	M-v	1	Williams	33093	1998 RF ₁₆
1998 RP ₁₉	14.1	0.15	19990810	36.96128	94.03248	292.10785	1.01630	0.0896241	2.6886772	58	4	1981–1999	0.68	M-v	1	Williams	36540	1998 RP ₁₉
1998 RO ₂₂	15.1	0.15	19990810	323.75091	305.43707	172.20116	3.90525	0.0716632	2.3315989	42	4	1995–1999	0.63	M-v	1	Williams	36085	1998 RO ₂₂
1998 RF ₂₃	14.2	0.15	19990810	34.04560	264.92025	123.57679	6.23798	0.1131439	2.7508964	20	3	1997–1999	0.79	M-v	5	Williams	36818	1998 RF ₂₃

1998 RO ₃₁	14.5	0.15	19990810	320.03762	223.60100	268.12059	4.83429	0.0801873	2.2652731	48	4	1978–1999	0.65	M-v	2	Williams	36903	1998 RO ₃₁
1998 RX ₃₂	14.2	0.15	19990810	11.08872	294.54774	144.35147	2.25002	0.1920405	2.5737590	41	5	1986–1999	0.71	M-v	1	Williams	36903	1998 RX ₃₂
1998 RK ₃₃	14.0	0.15	19990810	153.00799	253.70936	2.24857	13.20887	0.1373326	2.5920949	37	3	1994–1999	0.53	M-v	3	Williams	35714	1998 RK ₃₃
1998 RM ₃₄	14.8	0.15	19990810	270.40811	34.96528	140.05805	7.38448	0.0348260	2.2472719	33	3	1997–1999	0.60	M-v	4	Williams	35714	1998 RM ₃₄
1998 RZ ₃₄	14.9	0.15	19990810	143.10881	146.60668	130.86133	3.05243	0.1663248	2.3949638	25	5	1976–1999	0.69	M-v	2	Williams	33510	1998 RZ ₃₄
1998 RN ₃₅	13.9	0.15	19990810	86.57527	328.43267	359.56305	1.72166	0.0549375	2.8799932	37	4	1993–1999	0.54	M-v	3	Williams	36903	1998 RN ₃₅
1998 RO ₄₀	13.5	0.15	19990810	56.40394	275.20868	75.41619	5.45168	0.0652804	3.1964313	39	2	1998–1999	0.47	M-v	4	Williams	36818	1998 RO ₄₀
1998 RQ ₄₂	14.8	0.15	19990810	112.50525	33.07018	297.81557	4.35955	0.1283749	2.2811730	32	3	1991–1999	0.57	M-v	4	Williams	35714	1998 RQ ₄₂
1998 RO ₄₄	13.1	0.15	19990810	254.92968	96.30477	61.25542	5.93633	0.0997999	3.2108783	67	3	1984–1999	0.59	M-v	3	Williams	36818	1998 RO ₄₄
1998 RP ₄₇	13.2	0.15	19990810	127.60316	317.70346	326.46675	8.77417	0.0673116	3.0548741	54	4	1985–1999	0.73	M-v	1	Williams	35714	1998 RP ₄₇
1998 RS ₄₈	14.2	0.15	19990810	25.95023	178.10343	233.98502	1.84657	0.2144155	2.9650643	41	4	1978–1999	0.83	M-v	3	Williams	35714	1998 RS ₄₈
1998 RT ₅₀	13.9	0.15	19990810	185.02298	251.28604	349.98329	8.11023	0.1680718	2.3779664	42	5	1975–1999	0.54	M-v	1	Williams	35714	1998 RT ₅₀
1998 RW ₅₀	14.5	0.15	19990810	283.17483	214.07455	295.01605	2.40752	0.0217442	2.6855497	36	3	1993–1999	0.76	M-v	5	Williams	35441	1998 RW ₅₀
1998 RD ₅₁	13.5	0.15	19990810	156.03214	36.92057	234.23616	5.10629	0.0562263	2.6495170	71	4	1981–1999	0.58	M-v	2	Williams	36903	1998 RD ₅₁
1998 RZ ₅₂	13.6	0.15	19990810	34.68446	223.42345	162.48343	7.65021	0.0452042	3.0204480	35	3	1977–1999	0.61	M-v	3	Williams	35714	1998 RZ ₅₂
1998 RF ₅₃	13.9	0.15	19990810	129.40127	125.34804	162.93985	2.21059	0.0403011	2.9148489	45	3	1993–1999	0.80	M-v	5	Williams	35714	1998 RF ₅₃
1998 RL ₅₃	13.9	0.15	19990810	359.27928	81.27296	346.79660	9.62530	0.0814917	3.0688053	55	3	1996–1999	0.64	M-v	3	Williams	35441	1998 RL ₅₃
1998 RD ₅₄	14.8	0.15	19990810	160.14972	49.61691	225.80878	4.91375	0.0861796	2.4124381	36	4	1989–1999	0.85	M-v	2	Williams	33565	1998 RD ₅₄
1998 RU ₅₆	13.7	0.15	19990810	314.83310	272.91780	211.74024	3.26314	0.0664701	2.6981195	72	3	1992–1999	0.66	M-v	3	Williams	36818	1998 RU ₅₆
1998 RE ₅₈	13.8	0.15	19990810	99.42588	126.68963	186.60696	12.01788	0.0926538	3.0561336	37	3	1993–1999	0.71	M-v	4	Williams	35715	1998 RE ₅₈
1998 RE ₅₉	13.8	0.15	19990810	117.81837	72.82786	227.37536	2.58715	0.0542616	3.0241273	39	8	1982–1999	0.72	M-v	1	Williams	34927	1998 RE ₅₉
1998 RU ₅₉	14.6	0.15	19990810	144.32096	296.28737	346.75758	11.49934	0.1650709	2.4592519	34	3	1994–1999	0.69	M-v	4	Williams	33351	1998 RU ₅₉
1998 RA ₆₀	13.3	0.15	19990810	284.87157	159.48720	344.10581	9.22025	0.0185635	2.9557983	42	4	1993–1999	0.56	M-v	1	Williams	36085	1998 RA ₆₀
1998 RB ₆₂	13.7	0.15	19990810	61.55049	9.91213	353.52612	9.60469	0.1047694	2.9793809	53	3	1996–1999	0.65	M-v	3	Williams	36003	1998 RB ₆₂
1998 RN ₆₂	13.5	0.15	19990810	156.18090	110.81717	138.02014	1.52015	0.1369095	3.0538389	34	2	1998–1999	0.77	M-v	5	Williams	36818	1998 RN ₆₂
1998 RX ₆₃	13.8	0.15	19990810	85.23855	210.40921	109.59160	3.19640	0.2009298	3.1107223	46	6	1982–1999	0.77	M-v	1	Williams	35715	1998 RX ₆₃
1998 RS ₆₄	14.6	0.15	19990810	255.89111	180.87413	2.39937	15.38186	0.0519408	2.5853047	24	3	1973–1999	0.90	M-v	4	Williams	33002	1998 RS ₆₄
1998 RL ₆₅	14.2	0.15	19990810	49.75765	36.63157	345.66804	1.38086	0.0779600	2.8806386	32	3	1993–1999	0.66	M-v	5	Williams	33351	1998 RL ₆₅
1998 RR ₆₅	14.3	0.15	19990810	302.36684	141.71245	353.65918	5.00923	0.0551340	2.7943619	29	3	1977–1999	0.68	M-v	5	Williams	33352	1998 RR ₆₅
1998 RV ₆₆	14.8	0.15	19990810	145.03576	48.01450	253.05803	3.32178	0.1784916	2.1927440	35	3	1988–1999	0.70	M-v	3	Williams	35715	1998 RV ₆₆
1998 RA ₆₈	12.7	0.15	19990810	91.00559	336.46423	357.38405	10.29738	0.1688244	2.8079084	59	4	1979–1999	0.80	M-v	2	Williams	35715	1998 RA ₆₈
1998 RK ₆₈	13.7	0.15	19990810	346.05440	271.72160	195.30914	4.69339	0.0853110	2.5835651	66	4	1973–1999	0.71	M-v	2	Williams	36904	1998 RK ₆₈
1998 RP ₇₀	12.9	0.15	19990810	226.47684	126.33443	58.87652	7.64404	0.1109915	3.3948809	99	3	1996–1999	0.69	M-v	3	Williams	36904	1998 RP ₇₀
1998 RA ₇₃	13.6	0.15	19990810	303.37818	220.59580	271.15216	0.75740	0.0362611	2.9524782	33	3	1993–1999	0.76	M-v	6	Williams	35715	1998 RA ₇₃
1998 RH ₇₄	12.8	0.15	19990810	95.28844	48.00618	275.99775	3.79788	0.1527743	3.0376270	57	2	1998–1999	0.68	M-v	4	Williams	36818	1998 RH ₇₄
1998 RJ ₇₅	15.0	0.15	19990810	282.47223	120.29487	60.12208	1.86730	0.0829068	2.2472575	41	6	1980–1999	0.69	M-v	1	Williams	35716	1998 RJ ₇₅
1998 RW ₇₅	13.1	0.15	19990810	276.23497	78.40020	80.41171	2.56755	0.1242133	3.0454448	45	3	1996–1999	0.64	M-v	4	Williams	36904	1998 RW ₇₅
1998 RH ₇₆	13.2	0.15	19990810	30.74553	335.79476	68.02779	3.23754	0.1044859	2.9445873	59	3	1989–1999	0.69	M-v	2	Williams	36904	1998 RH ₇₆
1998 RC ₇₇	14.1	0.15	19990810	120.24581	192.17315	106.01509	3.70528	0.1873067	2.6799083	44	4	1984–1999	0.64	M-v	3	Williams	33010	1998 RC ₇₇
1998 RV ₇₇	13.3	0.15	19990810	87.07493	313.03293	21.28148	11.24539	0.1102193	2.9865297	49	5	1991–1999	0.62	M-v	1	Williams	35716	1998 RV ₇₇
1998 RL ₇₉	14.5	0.15	19990810	105.29379	228.97524	115.21194	3.78093	0.1784146	2.3137946	55	6	1980–1999	0.72	M-v	2	Williams	34592	1998 RL ₇₉
1998 RB ₈₀	13.1	0.15	19990810	210.76136	125.63949	95.92410	6.08390	0.1033726	2.7368820	53	3	1989–1999	0.81	M-v	4	Williams	36904	1998 RB ₈₀
1998 SQ	10.8	0.15	19990810	344.19626	253.67586	182.38079	0.90152	0.0951708	5.2482641	80	2	1998–1999	0.62	M-v	3	Williams	36819	1998 SQ
1998 SK ₁	13.5	0.15	19990810	355.97542	36.15527	64.03480	1.60259	0.1372286	3.1365928	52	3	1992–1999	0.67	M-v	2	Williams	36904	1998 SK ₁
1998 SW ₁	12.5	0.15	19990810	292.13903	93.96598	46.51060	10.93675	0.0624141	3.0131490	52	3	1993–1999	0.63	M-v	4	Williams	35341	1998 SW ₁
1998 SK ₂	13.7	0.15	19990810	66.78751	317.47320	30.73873	1.40848	0.2242443	3.1545746	83	4	1995–1999	0.50	M-v	1	Williams	36540	1998 SK ₂
1998 SL ₂	14.0	0.15	19990810	57.19644	67.34446	328.91080	6.11110	0.2693084	2.5462397	96	3	1951–1999	0.73	M-v	2	Williams	35716	1998 SL ₂
1998 SS ₂	13.2	0.15	19990810	121.81044	57.46832	259.25133	12.34435	0.1822836	2.5754145	69	2	1998–1999	0.57	M-v	3	Williams	36819	1998 SS ₂
1998 SH ₄	13.5	0.15	19990810	149.60340	107.87546	137.44062	2.17644	0.1232021	3.1877450	49	3	1996–1999	0.55	M-v	3	Williams	36904	1998 SH ₄
1998 SX ₄	13.4	0.15	19990810	60.71565	192.66861	174.04131	11.87520	0.1180570	3.1792620	46	3	1992–1999	0.56	M-v	3	Williams	35716	1998 SX ₄
1998 SQ ₆	14.6	0.15	19990810	92.61331	134.21805	177.44159	1.97724	0.0655575	2.9150125	41	3	1993–1999	0.71	M-v	5	Williams	36904	1998 SQ ₆
1998 SP ₇	15.5	0.15	19990810	182.33285	58.85396	172.77672	2.03174	0.1948038	2.5509380	31	3	1997–1999	0.69	M-v	5	Williams	33015	1998 SP ₇
1998 SG ₁₀	13.7	0.15	19990810	276.85996	118.81425	60.64153	6.62295	0.1399670	2.3173984	73	4	1977–1999	0.72	M-v	2	Williams	36904	1998 SG ₁₀

1998 SH ₁₀	13.5	0.15	19990810	45.65651	351.63539	60.32138	0.95123	0.0637171	2.7898710	55	4	1991–1999	0.61	M-v	2	Williams	35716	1998 SH ₁₀
1998 SL ₁₂	13.7	0.15	19990810	130.99795	146.09308	153.74707	2.29889	0.0729304	2.8410937	52	4	1993–1999	0.62	M-v	2	Williams	35716	1998 SL ₁₂
1998 SF ₁₃	13.3	0.15	19990810	65.20022	240.32779	112.30410	5.34452	0.0915566	3.2008662	50	3	1993–1999	0.67	M-v	4	Williams	36904	1998 SF ₁₃
1998 SV ₁₄	14.0	0.15	19990810	226.33850	147.05696	93.73045	4.90004	0.0784938	2.2211239	69	4	1991–1999	0.64	M-v	2	Williams	36904	1998 SV ₁₄
1998 SN ₂₂	13.5	0.15	19990810	309.13301	309.68255	191.44913	13.05721	0.0992318	2.6852627	66	4	1992–1999	0.61	M-v	3	Williams	36904	1998 SN ₂₂
1998 SH ₂₃	13.0	0.15	19990810	88.84187	168.65081	142.74149	5.68965	0.2108150	3.1460331	122	4	1981–1999	0.65	M-v	2	Williams	36904	1998 SH ₂₃
1998 SW ₂₃	15.0	0.15	19990810	312.96323	94.00913	44.24962	7.72144	0.0389682	2.3839937	27	3	1993–1999	0.64	M-v	4	Williams	34022	1998 SW ₂₃
1998 SC ₂₄	14.0	0.15	19990810	36.06690	304.06166	85.30946	3.19648	0.1711084	3.0894642	58	4	1960–1999	0.63	M-v	1	Williams	35717	1998 SC ₂₄
1998 SJ ₂₄	13.5	0.15	19990810	50.15166	296.71239	76.99719	3.76397	0.0649313	2.8743887	44	2	1998–1999	0.60	M-v	3	Williams	36540	1998 SJ ₂₄
1998 SP ₂₄	13.9	0.15	19990810	13.37459	278.70250	136.68629	4.30551	0.1161607	3.0256403	63	5	1993–1999	0.69	M-v	1	Williams	35717	1998 SP ₂₄
1998 SH ₂₅	13.0	0.15	19990810	166.35220	207.99583	71.88540	6.33506	0.0210632	2.7412574	87	3	1997–1999	0.63	M-v	3	Williams	36904	1998 SH ₂₅
1998 SN ₂₅	13.7	0.15	19990810	353.70796	319.51885	140.00374	5.51583	0.0781724	2.7816784	48	3	1993–1999	0.66	M-v	3	Williams	36904	1998 SN ₂₅
1998 SN ₂₇	12.9	0.15	19990810	229.32830	296.70424	281.60806	27.11817	0.0984845	2.6511697	42	3	1987–1999	0.54	M-v	3	Williams	36819	1998 SN ₂₇
1998 SB ₃₂	13.3	0.15	19990810	98.39127	140.81058	187.08698	6.45733	0.0831027	2.9588899	62	4	1993–1999	0.57	M-v	1	Williams	36540	1998 SB ₃₂
1998 SG ₄₃	13.8	0.15	19990810	85.63766	288.53817	84.01953	3.60977	0.0293907	2.3244363	60	4	1991–1999	0.65	M-v	2	Williams	36904	1998 SG ₄₃
1998 SW ₄₃	12.7	0.15	19990810	28.08793	137.64992	240.75822	5.25806	0.1759353	3.9522391	80	3	1990–1999	0.59	M-v	3	Williams	36904	1998 SW ₄₃
1998 SM ₄₆	12.9	0.15	19990810	101.13149	25.20792	299.67356	0.26485	0.1750928	3.1040654	65	6	1976–1999	0.72	M-v	1	Williams	34592	1998 SM ₄₆
1998 SH ₄₉	14.3	0.15	19990810	128.50268	102.85298	201.80139	12.74945	0.1886837	2.5568041	57	3	1990–1999	0.51	M-v	3	Williams	33567	1998 SH ₄₉
1998 SP ₅₁	17.6	0.15	19981014	0.64940	47.21065	338.18639	1.74500	0.1975833	2.3276370	14	1	32 days	0.70		D	Doppler		1998 SP ₅₁
1998 SQ ₅₃	14.5	0.15	19990810	53.82321	22.34103	342.77616	13.01480	0.1935840	3.0852760	36	3	1960–1999	0.63	M-v	3	Williams	36003	1998 SQ ₅₃
1998 SA ₅₅	14.3	0.15	19990810	76.34225	181.04726	169.71746	2.34687	0.0821084	2.8293289	33	3	1996–1999	0.70	M-v	5	Williams	33029	1998 SA ₅₅
1998 SS ₅₅	15.1	0.15	19990810	284.58887	4.25950	166.52123	6.54733	0.0744988	2.2509784	41	4	1990–1999	0.86	M-v	2	Williams	33029	1998 SS ₅₅
1998 SD ₅₈	12.7	0.15	19990810	331.87164	278.50090	178.79540	9.68796	0.0442940	3.0181506	81	3	1993–1999	0.64	M-v	3	Williams	36904	1998 SD ₅₈
1998 SE ₅₈	13.6	0.15	19990810	200.92908	227.38179	358.15080	2.19991	0.1273924	2.6586916	57	3	1990–1999	0.66	M-v	3	Williams	36904	1998 SE ₅₈
1998 SM ₅₈	14.2	0.15	19990810	31.89186	239.14222	164.73992	2.25085	0.0594730	2.8391755	68	4	1993–1999	0.62	M-v	1	Williams	36540	1998 SM ₅₈
1998 SG ₆₀	13.2	0.15	19990810	8.82731	333.27416	94.39501	2.52483	0.1677586	3.1991985	34	2	1998–1999	0.50	M-v	4	Williams	36904	1998 SG ₆₀
1998 SX ₆₀	14.1	0.15	19990810	43.92626	11.16000	14.58737	10.73610	0.1172567	2.9695768	49	4	1993–1999	0.68	M-v	1	Williams	36085	1998 SX ₆₀
1998 SF ₆₁	14.1	0.15	19990810	29.75704	116.97348	319.59054	6.35678	0.0735962	2.3337714	32	5	1984–1999	0.73	M-v	1	Williams	33567	1998 SF ₆₁
1998 SK ₆₁	13.5	0.15	19990810	59.38360	42.62861	344.54770	11.75395	0.1344434	2.7234903	54	5	1980–1999	0.74	M-v	2	Williams	36904	1998 SK ₆₁
1998 SO ₆₁	13.5	0.15	19990810	147.89256	12.21179	274.80360	3.25999	0.0366428	2.7849199	58	3	1994–1999	0.72	M-v	3	Williams	36540	1998 SO ₆₁
1998 SM ₆₃	14.1	0.15	19990810	17.39433	116.70989	324.53751	5.68018	0.0617860	2.3037173	66	3	1991–1999	0.63	M-v	2	Williams	36904	1998 SM ₆₃
1998 SR ₆₃	14.2	0.15	19990810	85.00546	224.48433	105.78899	1.97533	0.2535214	3.0382466	51	3	1976–1999	0.60	M-v	3	Williams	35718	1998 SR ₆₃
1998 SV ₆₅	13.4	0.15	19990810	250.90856	25.46085	187.20949	12.43301	0.1306731	2.4370771	47	4	1985–1999	0.66	M-v	3	Williams	36904	1998 SV ₆₅
1998 SR ₇₀	13.9	0.15	19990810	67.29913	337.86372	30.16525	9.39861	0.0942038	3.0862663	45	4	1987–1999	0.72	M-v	1	Williams	35718	1998 SR ₇₀
1998 SZ ₇₂	13.2	0.15	19990810	104.64044	213.39825	107.48071	2.67771	0.1466675	3.1159915	39	5	1981–1999	0.67	M-v	1	Williams	35718	1998 SZ ₇₂
1998 SM ₇₃	14.1	0.15	19990810	355.88150	301.62731	165.12977	5.39122	0.1208902	2.7226778	44	3	1989–1999	0.98	M-v	4	Williams	33358	1998 SM ₇₃
1998 SK ₇₅	14.0	0.15	19990810	274.48722	57.32530	131.97842	4.96449	0.0739536	2.4570148	47	3	1996–1999	0.73	M-v	4	Williams	36904	1998 SK ₇₅
1998 SH ₇₉	14.3	0.15	19990810	110.47163	254.80845	76.60891	4.73197	0.1517238	2.2884245	41	3	1991–1999	0.67	M-v	3	Williams	36904	1998 SH ₇₉
1998 SZ ₁₀₆	14.2	0.15	19990810	9.49733	239.41802	199.42400	2.75166	0.0601502	2.7078972	40	4	1993–1999	0.66	M-v	2	Williams	35719	1998 SZ ₁₀₆
1998 SN ₁₀₈	13.4	0.15	19990810	39.65515	180.98699	211.45093	7.79253	0.0947992	3.2057017	40	3	1996–1999	0.71	M-v	3	Williams	36540	1998 SN ₁₀₈
1998 SM ₁₁₅	13.6	0.15	19990810	4.66614	110.71948	335.78564	0.39286	0.1870629	3.1391331	52	4	1976–1999	0.62	M-v	2	Williams	36904	1998 SM ₁₁₅
1998 SP ₁₁₅	13.5	0.15	19990810	72.64864	68.19846	283.31265	1.47423	0.2301493	3.0542333	58	4	1993–1999	0.54	M-v	2	Williams	35635	1998 SP ₁₁₅
1998 SY ₁₁₅	14.0	0.15	19990810	186.30777	242.33388	10.39843	13.44793	0.1466896	2.5283814	29	4	1990–1999	0.67	M-v	3	Williams	35719	1998 SY ₁₁₅
1998 SK ₁₁₉	13.0	0.15	19990810	353.83539	78.71448	22.42991	9.34893	0.1179817	2.7747603	56	5	1989–1999	0.76	M-v	1	Williams	36904	1998 SK ₁₁₉
1998 SK ₁₂₁	13.0	0.15	19990810	256.56972	318.14200	227.69072	9.22600	0.1034523	3.0415480	52	3	1996–1999	0.60	M-v	4	Williams	36540	1998 SK ₁₂₁
1998 SZ ₁₂₂	13.8	0.15	19990810	107.10368	293.88187	11.34235	1.31257	0.1981594	3.1703126	39	3	1992–1999	0.70	M-v	4	Williams	33361	1998 SZ ₁₂₂
1998 SF ₁₂₃	13.6	0.15	19990810	107.88893	307.62651	14.39677	10.37801	0.1030105	2.9625464	49	4	1993–1999	0.60	M-v	1	Williams	35635	1998 SF ₁₂₃
1998 SF ₁₂₇	13.0	0.15	19990810	321.91870	72.25619	39.84643	12.27899	0.0245824	3.1273953	47	5	1976–1999	0.49	M-v	1	Williams	34929	1998 SF ₁₂₇
1998 SA ₁₃₀	14.5	0.15	19990810	289.87373	9.53120	167.74996	2.52151	0.1187434	2.4123859	34	5	1974–1999	0.77	M-v	2	Williams	35719	1998 SA ₁₃₀
1998 SD ₁₃₀	13.7	0.15	19990810	114.11882	131.90601	192.05915	1.76707	0.0564863	2.8557121	62	4	1993–1999	0.64	M-v	2	Williams	33290	1998 SD ₁₃₀
1998 SN ₁₃₀	13.5	0.15	19990810	97.47244	86.65238	234.66570	0.79496	0.1921762	3.1211043	54	3	1992–1999	0.77	M-v	3	Williams	35719	1998 SN ₁₃₀
1998 SE ₁₃₂	12.5	0.15	19990810	137.51761	80.99695	219.94079	12.46215	0.0698100	2.8485920	72	3	1992–1999	0.66	M-v	3	Williams	36541	1998 SE ₁₃₂
1998 SG ₁₃₂	13.9	0.15	19990810	230.19226	255.58858	338.89594	5.42452	0.1293868	2.2469637	55	4	1990–1999	0.58	M-v	3	Williams	36904	1998 SG ₁₃₂

1998 SK ₁₃₂	13.8	0.15	19990810	294.82606	215.32101	315.74067	4.24352	0.0949164	2.5233845	50	3	1992-1999	0.81	M-v	4	Williams	36904	1998 SK ₁₃₂
1998 SW ₁₃₂	13.0	0.15	19990810	41.41933	184.61534	217.72934	9.51522	0.1077625	3.0696944	70	4	1991-1999	0.85	M-v	2	Williams	36541	1998 SW ₁₃₂
1998 SP ₁₃₃	14.6	0.15	19990810	168.57633	44.08378	229.53093	1.37107	0.1841682	2.3851976	47	4	1994-1999	0.65	M-v	1	Williams	35719	1998 SP ₁₃₃
1998 SV ₁₃₄	12.8	0.15	19990810	76.85486	226.94639	117.08953	1.78377	0.2185629	3.1788627	58	3	1992-1999	0.55	M-v	3	Williams	36541	1998 SV ₁₃₄
1998 SF ₁₃₆	15.1	0.15	19990810	160.97765	184.81673	90.53817	3.62302	0.2321499	2.3298197	53	6	1973-1999	0.78	M-v	1	Williams	35720	1998 SF ₁₃₆
1998 SF ₁₃₈	12.5	0.15	19990810	156.65275	233.48846	32.90892	1.23620	0.1385089	3.1573605	61	4	1995-1999	0.62	M-v	1	Williams	36905	1998 SF ₁₃₈
1998 SQ ₁₄₅	13.4	0.15	19990810	253.27329	17.49367	201.28451	6.37985	0.1206751	2.2490799	46	6	1981-1999	0.75	M-v	2	Williams	36905	1998 SQ ₁₄₅
1998 SE ₁₄₇	13.7	0.15	19990810	13.08017	9.27231	73.51995	1.40949	0.1294655	3.0850636	36	3	1989-1999	0.92	M-v	2	Williams	36905	1998 SE ₁₄₇
1998 SK ₁₅₇	13.6	0.15	19990810	151.43186	132.79713	131.26908	2.57047	0.1579428	3.0900918	30	3	1997-1999	0.66	M-v	4	Williams	36905	1998 SK ₁₅₇
1998 SR ₁₆₂	13.2	0.15	19990810	184.29596	26.12459	227.34293	8.88535	0.1606281	2.7797794	55	3	1992-1999	0.78	M-v	3	Williams	34305	1998 SR ₁₆₂
1998 SV ₁₆₃	12.8	0.15	19990810	266.97784	121.07893	62.78080	11.06612	0.0324939	3.0208569	47	4	1951-1999	0.77	M-v	3	Williams	36541	1998 SV ₁₆₃
1998 SK ₁₆₄	13.1	0.15	19990810	283.73753	83.32393	104.07907	7.54821	0.1446003	2.6632369	49	3	1994-1999	0.69	M-v	3	Williams	36905	1998 SK ₁₆₄
1998 SM ₁₆₅	5.7	0.15	19990810	25.76133	129.45021	183.10684	13.45962	0.4024669	49.3697103	29	2	1998-1999	0.45	M-v	5	Williams	36905	1998 SM ₁₆₅
1998 TX ₅	13.0	0.15	19990810	143.75582	26.17365	269.02020	1.89567	0.1265556	2.7844234	76	3	1993-1999	0.66	M-v	3	Williams	36541	1998 TX ₅
1998 TH ₆	14.2	0.15	19990810	33.66306	8.21972	35.61681	19.29805	0.1081531	3.0477923	29	3	1992-1999	0.50	M-v	2	Williams	33302	1998 TH ₆
1998 TU ₁₂	11.4	0.15	19990810	325.45900	73.80653	41.95741	15.44538	0.1356870	5.1651006	44	5	1951-1999	0.58	M-v	1	Williams	36541	1998 TU ₁₂
1998 TP ₁₇	11.6	0.15	19990810	133.68431	186.38861	117.75150	10.92309	0.0797789	3.0420992	69	6	1987-1999	0.59	M-v	1	Williams	36541	1998 TP ₁₇
1998 TY ₁₇	13.5	0.15	19990810	283.56925	30.99746	162.93113	3.96442	0.1218884	2.5814468	26	4	1994-1999	0.45	M-v	1	Williams	35721	1998 TY ₁₇
1998 TD ₁₈	13.2	0.15	19990810	112.92443	65.97298	230.39299	13.28901	0.2460601	3.1538221	41	4	1986-1999	0.64	M-v	1	Williams	34930	1998 TD ₁₈
1998 TX ₂₈	13.9	0.15	19990810	3.82103	60.40858	32.43559	7.34582	0.1038145	3.1991538	34	6	1955-1999	0.71	M-v	1	Williams	35721	1998 TX ₂₈
1998 TH ₂₉	13.7	0.15	19990810	9.90215	92.41746	355.12078	1.51795	0.0501727	2.9368625	34	4	1990-1999	0.59	M-v	2	Williams	35721	1998 TH ₂₉
1998 TW ₃₀	13.4	0.15	19990810	50.51534	24.78014	18.11497	9.30275	0.0989600	3.0086789	27	4	1976-1999	0.72	M-v	2	Williams	35342	1998 TW ₃₀
1998 TW ₃₄	13.2	0.15	19990810	142.08741	101.94353	193.90071	10.12344	0.0952517	2.9733030	31	3	1996-1999	0.66	M-v	3	Williams	36541	1998 TW ₃₄
1998 UL	13.5	0.15	19990810	162.39734	329.60185	284.16838	9.32425	0.0681842	2.9661564	37	2	1998-1999	0.55	M-v	3	Williams	36905	1998 UL
1998 UO ₂	14.3	0.15	19990810	172.51684	242.90105	26.71394	12.99822	0.1588987	2.7404227	29	3	1992-1999	0.57	M-v	3	Williams	34536	1998 UO ₂
1998 UC ₄	13.3	0.15	19990810	176.65014	66.44799	209.34023	12.24901	0.1681457	2.6254006	42	5	1972-1999	0.61	M-v	1	Williams	33572	1998 UC ₄
1998 UM ₈	13.9	0.15	19990810	215.61197	174.31439	95.32994	4.67793	0.1748782	2.2471894	50	5	1950-1999	0.59	M-v	2	Williams	35722	1998 UM ₈
1998 UQ ₁₅	13.1	0.15	19990810	54.74609	324.78493	86.98750	3.55297	0.0753489	2.7798739	27	3	1979-1999	0.55	M-v	3	Williams	33761	1998 UQ ₁₅
1998 UR ₁₆	12.8	0.15	19990810	155.07576	204.68940	81.81252	2.68666	0.1424837	3.1173536	55	4	1995-1999	0.71	M-v	1	Williams	36541	1998 UR ₁₆
1998 UK ₂₀	12.3	0.15	19990810	207.35688	230.30144	21.24413	15.13481	0.1135310	2.7325376	30	5	1975-1999	0.69	M-v	2	Williams	35722	1998 UK ₂₀
1998 UL ₂₀	12.4	0.15	19990810	133.35202	79.21785	244.12554	8.90036	0.1106358	3.0205548	61	4	1982-1999	0.78	M-v	2	Williams	36541	1998 UL ₂₀
1998 UM ₂₀	13.7	0.15	19990810	23.71754	336.99922	91.43644	2.61806	0.1737540	3.2228122	44	3	1977-1999	0.73	M-v	2	Williams	34223	1998 UM ₂₀
1998 UN ₂₃	13.0	0.15	19990810	37.17235	330.40718	99.93692	2.12534	0.1371362	3.1975850	62	5	1975-1999	0.67	M-v	1	Williams	36905	1998 UN ₂₃
1998 US ₂₄	11.0	0.15	19990810	353.11041	354.03247	96.30767	6.63661	0.1060215	5.2280356	43	3	1996-1999	0.60	M-v	3	Williams	35723	1998 US ₂₄
1998 UT ₂₄	13.0	0.15	19990810	119.16511	267.88739	63.51722	16.21778	0.0799045	3.1924332	57	6	1980-1999	0.74	M-v	1	Williams	34930	1998 UT ₂₄
1998 UV ₂₄	13.7	0.15	19990810	67.51509	331.45756	54.43261	2.79783	0.0804591	2.9476568	52	4	1978-1999	0.54	M-v	1	Williams	35723	1998 UV ₂₄
1998 UA ₂₇	14.0	0.15	19990810	233.02680	133.81748	110.84044	4.65981	0.1413176	2.2261951	30	3	1991-1999	0.87	M-v	4	Williams	36905	1998 UA ₂₇
1998 UF ₃₇	13.3	0.15	19990810	139.63786	250.97905	33.32437	1.34606	0.1475857	3.1229852	46	4	1984-1999	0.68	M-v	1	Williams	35723	1998 UF ₃₇
1998 VG	13.3	0.15	19990810	40.98690	354.37116	56.28155	3.82613	0.1918824	3.1546008	67	5	1981-1999	0.59	M-v	1	Williams	35723	1998 VG
1998 VD ₅	13.0	0.15	19990810	28.48458	3.56177	78.10799	2.62879	0.1531540	3.1539188	70	5	1981-1999	0.65	M-v	1	Williams	35723	1998 VD ₅
1998 VJ ₅	13.3	0.15	19990810	128.42246	287.27820	22.10058	11.48996	0.2408881	2.8617802	44	3	1993-1999	0.65	M-v	4	Williams	35723	1998 VJ ₅
1998 VU ₆	10.6	0.15	19990810	51.53648	303.90292	96.67456	7.31168	0.0486600	5.2059952	53	4	1996-1999	0.72	M-v	2	Williams	36541	1998 VU ₆
1998 VN ₁₁	14.5	0.15	19990810	184.65276	176.87753	108.10012	1.98330	0.1446894	2.1397217	21	3	1979-1999	0.58	M-v	4	Williams	36820	1998 VN ₁₁
1998 VP ₂₀	13.0	0.15	19990810	216.10783	86.01863	146.29116	2.16098	0.1370769	3.1730594	35	4	1991-1999	0.71	M-v	2	Williams	36541	1998 VP ₂₀
1998 VL ₂₇	11.6	0.15	19990810	11.36657	130.07784	291.05577	3.35233	0.0523150	5.0945235	24	3	1996-1999	0.66	M-v	3	Williams	36905	1998 VL ₂₇
1998 VY ₂₉	10.6	0.15	19990810	20.42295	163.34702	258.43867	12.03366	0.2040786	5.1709608	53	3	1986-1999	0.75	M-v	3	Williams	36541	1998 VY ₂₉
1998 VD ₃₀	10.5	0.15	19990810	345.85255	233.54777	225.43184	24.92405	0.1008904	5.2229928	38	3	1986-1999	0.73	M-v	3	Williams	36905	1998 VD ₃₀
1998 VO ₃₂	12.9	0.15	19990810	157.58928	3.50457	304.82571	9.55470	0.1470887	2.6443807	52	6	1970-1999	0.43	M-v	1	Williams	36905	1998 VO ₃₂
1998 VF ₃₅	11.9	0.15	19990810	340.58032	301.18756	188.20110	10.12619	0.0518976	3.0118876	45	5	1985-1999	0.70	M-v	1	Williams	35725	1998 VF ₃₅
1998 VL ₃₇	14.1	0.15	19990810	161.59852	260.75574	27.96335	13.49549	0.1507518	2.6217897	26	3	1971-1999	0.69	M-v	3	Williams	34538	1998 VL ₃₇
1998 WX ₄	9.3	0.15	19990810	45.41251	284.41164	120.55439	28.75223	0.0236384	5.2895885	30	3	1992-1999	0.56	M-v	2	Williams	36541	1998 WX ₄
1998 WU ₁₀	13.9	0.15	19990810	190.81285	42.79289	235.20705	1.92958	0.2272431	2.3552900	49	5	1986-1999	0.71	M-v	2	Williams	35726	1998 WU ₁₀
1998 WQ ₁₁	14.2	0.15	19990810	229.42087	85.37900	173.05228	3.23589	0.1553395	2.2157466	41	5	1988-1999	0.76	M-v	2	Williams	35726	1998 WQ ₁₁

1998 WA ₁₅	11.1	0.15	19990810	13.98272	209.47933	218.88626	11.21412	0.1180181	5.2034153	54	4	1990–1999	0.72	M-v	1	Williams	36541	1998 WA ₁₅
1998 WS ₁₆	13.5	0.15	19990810	166.30899	242.95936	59.36984	2.82017	0.0493189	2.8567293	45	3	1996–1999	0.70	M-v	3	Williams	36905	1998 WS ₁₆
1998 WJ ₁₇	12.3	0.15	19990810	112.07408	83.12949	234.18446	4.20946	0.2151117	3.9850130	39	5	1986–1999	0.72	M-v	1	Williams	35726	1998 WJ ₁₇
1998 WA ₁₈	13.1	0.15	19990810	46.65049	129.25567	293.72633	4.90313	0.0682047	3.1075539	32	4	1992–1999	0.74	M-v	1	Williams	36905	1998 WA ₁₈
1998 WR ₂₁	10.0	0.15	19990810	55.96125	135.66938	241.65704	14.99503	0.0691073	5.2315824	59	3	1986–1999	0.74	M-v	3	Williams	35727	1998 WR ₂₁
1998 WH ₂₄	4.8	0.15	19990810	328.70427	45.20616	49.95456	12.00335	0.0933846	45.9577668	62	2	1998–1999	0.40	M-v	6	Williams	36821	1998 WH ₂₄
1998 XC ₄	13.2	0.15	19990810	73.97385	127.63263	283.23464	0.97261	0.0670191	2.8423744	55	6	1978–1999	0.64	M-v	1	Williams	34311	1998 XC ₄
1998 XS ₁₆	16.3	0.15	19990810	5.28654	358.16927	273.06891	26.54916	0.4965344	1.2123574	156	3	1998–1999	0.55	M-v	3	Williams	36905	1998 XS ₁₆
1998 XS ₃₁	11.1	0.15	19990810	34.71931	160.60002	252.20770	6.40927	0.0659133	5.1175515	39	5	1951–1999	0.71	M-v	1	Williams	36541	1998 XS ₃₁
1998 XA ₃₃	12.9	0.15	19990810	95.61685	18.48894	359.73408	9.76702	0.1133789	2.9828471	27	5	1982–1999	0.72	M-v	1	Williams	35728	1998 XA ₃₃
1998 XD ₅₁	11.8	0.15	19990810	347.49527	196.68051	318.52793	7.76386	0.1301043	3.9625132	34	4	1992–1999	0.76	M-v	1	Williams	34598	1998 XD ₅₁
1998 XS ₇₃	12.2	0.15	19990810	11.53241	174.27760	308.29816	7.68568	0.1536085	4.0023607	28	3	1996–1999	0.64	M-v	3	Williams	36005	1998 XS ₇₃
1998 XO ₇₉	10.0	0.15	19990810	125.37917	166.57034	157.13764	13.97619	0.0445561	5.2113663	27	4	1996–1999	0.72	M-v	3	Williams	36541	1998 XO ₇₉
1998 XG ₈₀	12.6	0.15	19990810	112.17085	232.21472	117.33541	15.55634	0.1523594	3.1619129	41	4	1991–1999	0.52	M-v	1	Williams	36905	1998 XG ₈₀
1998 YW ₃	17.9	0.15	19990810	350.04157	194.75924	94.34238	28.79558	0.4625051	1.1000271	63	2	1998–1999	0.60	M-v	4	Williams	36379	1998 YW ₃
1998 YW ₆	12.0	0.15	19990810	63.64988	19.07247	356.07001	7.24097	0.0956069	5.2317940	28	4	1996–1999	0.43	M-v	2	Williams	35729	1998 YW ₆
1998 YF ₇	12.4	0.15	19990810	132.32755	118.34277	228.18067	12.61057	0.1991798	3.1993375	50	6	1968–1999	0.67	M-v	2	Williams	35729	1998 YF ₇
1999 AF ₂₄	12.9	0.15	19990810	321.41149	80.74001	115.43479	11.51423	0.1166752	2.6429524	45	3	1955–1999	0.83	M-v	2	Williams	35731	1999 AF ₂₄
1999 CU ₃	16.9	0.15	19990810	356.40722	305.46246	339.28193	11.39989	0.5240961	1.5766090	148	2	1999–1999	0.53	M-v	3	Williams	36905	1999 CU ₃
1999 FQ ₃	13.0	0.15	19990810	84.97062	250.32109	148.73831	13.26945	0.1753808	2.5813975	50	4	1981–1999	0.62	M-v	2	Williams	36905	1999 FQ ₃
1999 JD ₁₃	16.6	0.15	19990810	38.85424	53.72897	220.24729	5.67917	0.2662621	2.1918884	39	1	209 days	0.41	M-v	4	Williams	36542	1999 JD ₁₃
1999 JN ₁₇	14.1	0.15	19990810	10.76768	79.14528	216.08425	4.27103	0.2080552	2.2359905	77	1	207 days	0.64	M-v	3	Williams	36906	1999 JN ₁₇
1999 JL ₈₁	14.0	0.15	19990810	337.91712	111.84720	247.51492	10.57442	0.3395573	2.5527200	79	3	1979–1999	0.64	M-v	2	Williams	36906	1999 JL ₈₁
1999 JM ₈₁	13.3	0.15	19990810	336.33769	70.02230	282.99904	12.22644	0.1911470	2.5937667	63	3	1987–1999	0.66	M-v	3	Williams	36906	1999 JM ₈₁
1999 KG ₄	14.1	0.15	19990810	10.38624	152.37593	146.26647	7.90577	0.2330262	2.3515762	85	3	1981–1999	0.69	M-v	2	Williams	36906	1999 KG ₄
1999 KQ ₄	13.4	0.15	19990810	350.54996	82.22524	261.43465	28.23781	0.3838189	2.7822497	94	1	202 days	0.55	M-v	2	Williams	36906	1999 KQ ₄
1999 KR ₄	14.3	0.15	19990810	0.04700	114.87138	209.51861	8.69848	0.2598116	2.3952018	93	5	1988–1999	0.54	M-v	1	Williams	36906	1999 KR ₄
1999 KK ₆	13.7	0.15	19990810	326.23496	134.92239	220.00207	23.86565	0.0620056	1.8921546	74	4	1991–1999	0.53	M-v	2	Williams	36906	1999 KK ₆
1999 KK ₁₅	14.2	0.15	19990810	3.76431	145.16529	167.99575	13.95877	0.1688746	2.5939158	91	4	1991–1999	0.63	M-v	2	Williams	36543	1999 KK ₁₅
1999 KM ₁₅	13.1	0.15	19990810	52.72638	5.26367	248.74125	11.03019	0.1173870	2.6056023	77	4	1985–1999	0.59	M-v	1	Williams	36906	1999 KM ₁₅
1999 LF ₆	18.1	0.15	19990810	340.53179	140.61569	208.64258	18.93147	0.2804244	1.4086988	331	2	1979–1999	0.52	M-v	0	Williams	36906	1999 LF ₆
1999 LO ₇	14.5	0.15	19990810	335.59893	208.09976	140.99219	4.82766	0.2314866	2.2900634	70	2	1998–1999	0.71	M-v	3	Williams	36906	1999 LO ₇
1999 ML	17.6	0.15	19990810	2.68571	110.95165	211.78140	2.50798	0.4540116	2.2660334	247	1	141 days	0.56	M-v	3	Williams	36906	1999 ML
1999 ML ₁	13.9	0.15	19990810	3.52188	11.18785	302.11320	12.89762	0.3112407	2.5806153	66	1	169 days	0.52	M-v	3	Williams	36906	1999 ML ₁
1999 MM ₁	15.0	0.15	19990810	15.82287	215.62706	80.79825	2.25998	0.1852323	2.3935372	33	2	1991–1999	0.61	M-v	4	Williams	36544	1999 MM ₁
1999 MN ₁	15.0	0.15	19990810	348.11218	346.84647	353.06861	2.72515	0.2218061	2.4135714	79	1	141 days	0.54	M-v	4	Williams	36906	1999 MN ₁
1999 MV ₁	16.3	0.15	19990810	348.93246	254.83272	89.86851	1.44227	0.3003407	2.1777959	85	1	170 days	0.54	M-v	4	Williams	36906	1999 MV ₁
1999 NT	13.7	0.15	19990810	344.21643	35.78349	302.82579	8.43825	0.1973640	2.3946271	82	2	1998–1999	0.64	M-v	3	Williams	36906	1999 NT
1999 NW ₁	14.2	0.15	19990810	359.72944	23.43103	308.52227	24.56254	0.2328972	2.3486883	29	1	149 days	0.41	M-v	3	Williams	36906	1999 NW ₁
1999 NN ₂	14.0	0.15	19990810	324.17239	133.14949	261.00052	15.67166	0.2316908	3.1071494	43	1	146 days	0.51	M-v	4	Williams	36906	1999 NN ₂
1999 NP ₂	14.8	0.15	19990810	3.70324	124.56092	200.44822	5.23305	0.1809687	2.2536933	92	2	1998–1999	0.66	M-v	3	Williams	36906	1999 NP ₂
1999 NS ₄	14.9	0.15	19990810	26.54556	148.56832	148.47339	2.86830	0.1801188	2.4444176	85	2	1998–1999	0.68	M-v	3	Williams	36906	1999 NS ₄
1999 NT ₄	14.3	0.15	19990810	270.15293	97.07471	338.43640	2.20555	0.0794181	2.3762684	201	3	1976–1999	0.52	M-v	2	Williams	36906	1999 NT ₄
1999 ND ₉	13.7	0.15	19990810	260.27873	299.09400	118.31575	4.97213	0.0076228	2.3278206	49	4	1985–1999	0.71	M-v	2	Williams	36906	1999 ND ₉
1999 NH ₉	14.4	0.15	19990810	314.39955	250.01145	127.78168	6.75766	0.1572938	2.4090664	43	2	1998–1999	0.58	M-v	3	Williams	36545	1999 NH ₉
1999 NJ ₉	14.2	0.15	19990810	24.51786	327.88639	307.48039	6.49428	0.2691415	2.7740104	64	2	1998–1999	0.55	M-v	3	Williams	36545	1999 NJ ₉
1999 NS ₉	13.2	0.15	19990810	69.98669	92.94150	145.23155	9.63230	0.1008875	2.7936054	64	3	1993–1999	0.62	M-v	2	Williams	36906	1999 NS ₉
1999 NA ₁₁	13.5	0.15	19990810	287.07423	91.32546	320.91657	11.78729	0.1680910	2.6373068	61	1	118 days	0.60	M-v	4	Williams	36907	1999 NA ₁₁
1999 NR ₁₁	14.3	0.15	19990810	354.37495	37.72261	295.64846	5.91898	0.2821329	2.3833555	51	1	147 days	0.48	M-v	3	Williams	36907	1999 NR ₁₁
1999 NS ₁₁	15.1	0.15	19990810	330.13005	232.59911	147.00074	7.09061	0.3080222	2.3000266	64	4	1978–1999	0.62	M-v	2	Williams	36907	1999 NS ₁₁
1999 NV ₁₁	15.3	0.15	19990810	341.61886	52.55271	302.75887	4.50687	0.2641479	2.2948310	71	2	1992–1999	0.59	M-v	3	Williams	36907	1999 NV ₁₁
1999 NB ₃₈	10.6	0.15	19990810	357.69155	356.45012	317.99889	25.25166	0.0827646	5.1560312	35	1	120 days	0.49	M-v	4	Williams	36907	1999 NB ₃₈
1999 NJ ₄₁	13.9	0.15	19990810	311.72681	55.75637	330.00310	13.51879	0.1852799	2.6318086	76	1	119 days	0.54	M-v	4	Williams	36907	1999 NJ ₄₁

1999 NK ₄₁	14.6	0.15	19990810	336.63170	14.06423	337.17483	7.93486	0.1743354	2.3088724	65	5	1978–1999	0.81	M-v	3	Williams	36907	1999 NK ₄₁
1999 NV ₄₁	12.8	0.15	19990810	232.24281	104.69916	356.50869	7.78112	0.1394760	2.5333449	52	1	122 days	0.58	M-v	4	Williams	36907	1999 NV ₄₁
1999 NC ₄₃	15.9	0.15	19990810	292.72685	120.27537	312.04139	7.11422	0.5795654	1.7592445	64	1	175 days	0.49	M-v	4	Williams	36907	1999 NC ₄₃
1999 ND ₄₃	19.1	0.15	19990810	326.39916	51.70683	332.34114	5.56070	0.3144558	1.5236392	415	1	151 days	0.53	M-v	4	Williams	36907	1999 ND ₄₃
1999 NG ₅₃	14.1	0.15	19990810	4.48863	57.57439	250.99290	12.46752	0.1824939	2.5927587	41	1	171 days	0.58	M-v	3	Williams	36907	1999 NG ₅₃
1999 NN ₅₃	15.4	0.15	19990810	339.44636	124.47062	228.97417	10.81716	0.2866982	2.5709387	34	1	91 days	0.52	M-v	4	Williams	36546	1999 NN ₅₃
1999 NC ₅₅	12.7	0.15	19990810	354.10106	89.88792	241.71664	13.15283	0.1684040	3.2026830	68	2	1998–1999	0.59	M-v	3	Williams	36907	1999 NC ₅₅
1999 NF ₅₅	13.5	0.15	19990810	309.58648	128.31326	259.00042	14.06129	0.1327612	2.5273363	45	3	1989–1999	0.46	M-v	2	Williams	36907	1999 NF ₅₅
1999 ND ₅₆	13.6	0.15	19990810	22.34448	69.52806	224.61062	15.47820	0.1989999	3.0452702	48	2	1998–1999	0.59	M-v	3	Williams	36907	1999 ND ₅₆
1999 NK ₅₆	12.5	0.15	19990810	47.99854	2.51648	264.70319	12.06225	0.1336537	2.6398755	76	3	1989–1999	0.61	M-v	1	Williams	36907	1999 NK ₅₆
1999 NM ₅₆	14.3	0.15	19990810	324.67303	118.15200	265.05905	12.36495	0.2175251	2.7155372	47	1	147 days	0.53	M-v	4	Williams	36907	1999 NM ₅₆
1999 NS ₅₆	13.6	0.15	19990810	337.92002	119.03674	243.00561	13.77348	0.1316433	2.6136513	50	1	147 days	0.50	M-v	3	Williams	36907	1999 NS ₅₆
1999 NU ₅₆	13.8	0.15	19990810	25.03232	56.49729	244.21723	12.10210	0.1380597	2.6641902	52	3	1978–1999	0.63	M-v	2	Williams	36907	1999 NU ₅₆
1999 NW ₅₆	14.6	0.15	19990810	318.83837	114.55564	276.24524	11.11138	0.1872314	2.6483398	37	1	147 days	0.53	M-v	4	Williams	36907	1999 NW ₅₆
1999 NZ ₅₆	14.6	0.15	19990810	355.01062	132.34334	209.40911	14.43829	0.2180852	2.6406795	43	1	148 days	0.56	M-v	3	Williams	36908	1999 NZ ₅₆
1999 NC ₅₇	12.6	0.15	19990810	324.34165	116.83692	262.89867	10.35897	0.1056928	3.0313220	73	3	1984–1999	0.73	M-v	3	Williams	36908	1999 NC ₅₇
1999 ND ₅₇	13.7	0.15	19990810	338.31306	116.00064	244.60426	10.74159	0.0329763	2.6788105	67	3	1976–1999	0.64	M-v	3	Williams	36908	1999 ND ₅₇
1999 NF ₅₇	14.1	0.15	19990810	59.41683	14.93429	240.69222	11.32775	0.2055528	2.6650858	73	2	1998–1999	0.63	M-v	3	Williams	36908	1999 NF ₅₇
1999 NN ₅₉	15.1	0.15	19990810	345.41285	135.51171	209.46348	8.10357	0.2851995	2.7583018	42	2	1990–1999	0.60	M-v	3	Williams	36547	1999 NN ₅₉
1999 NW ₆₃	15.1	0.15	19990810	349.65888	340.70654	347.90308	5.46270	0.2165152	2.2254026	37	2	1998–1999	0.73	M-v	3	Williams	36547	1999 NW ₆₃
1999 OB	14.5	0.15	19990810	330.97371	189.82367	164.86953	4.41216	0.1364907	2.2823560	106	2	1998–1999	0.69	M-v	3	Williams	36908	1999 OB
1999 OC	14.2	0.15	19990810	340.95259	195.12556	146.09195	11.43654	0.1226957	2.6397625	80	2	1998–1999	0.60	M-v	3	Williams	36908	1999 OC
1999 OW	15.0	0.15	19990810	347.44883	172.60182	163.09475	6.49937	0.3149343	2.5791602	84	2	1995–1999	0.57	M-v	2	Williams	36908	1999 OW
1999 OV ₁	14.3	0.15	19990810	326.98025	73.50807	314.01801	5.55940	0.1515309	2.3053671	46	3	1985–1999	0.66	M-v	3	Williams	36548	1999 OV ₁
1999 OX ₁	15.3	0.15	19990810	16.31848	354.72118	320.91173	7.49853	0.2266594	2.3970717	42	1	142 days	0.62	M-v	4	Williams	36548	1999 OX ₁
1999 OZ ₁	14.1	0.15	19990810	6.38098	80.11348	259.07633	12.94360	0.2423343	2.5610814	27	2	1995–1999	0.69	M-v	4	Williams	36822	1999 OZ ₁
1999 OD ₂	14.0	0.15	19990810	14.62577	96.46616	235.25621	14.85927	0.2425926	3.0635233	49	1	137 days	0.45	M-v	4	Williams	36908	1999 OD ₂
1999 OE ₂	12.7	0.15	19990810	126.40430	342.76595	247.15372	15.28007	0.0554624	3.1875286	43	1	138 days	0.51	M-v	4	Williams	36908	1999 OE ₂
1999 OG ₂	14.7	0.15	19990810	32.58522	122.89185	185.05273	22.30885	0.1180503	1.9357599	48	1	82 days	0.34	M-v	4	Williams	36548	1999 OG ₂
1999 OJ ₂	12.8	0.15	19990810	213.46250	255.94912	259.30012	12.40580	0.1054402	2.5898865	71	3	1987–1999	0.56	M-v	2	Williams	36908	1999 OJ ₂
1999 OL ₂	13.6	0.15	19990810	298.01074	139.97481	314.92224	23.53455	0.2831899	2.3711468	32	1	143 days	0.51	M-v	4	Williams	36908	1999 OL ₂
1999 OM ₂	14.1	0.15	19990810	141.38250	291.28592	281.88034	17.99040	0.0590403	1.9420208	29	1	91 days	0.39	M-v	4	Williams	36908	1999 OM ₂
1999 OR ₂	13.8	0.15	19990810	284.87789	173.03744	280.96364	12.18266	0.1178214	2.3420967	31	2	1992–1999	0.50	M-v	4	Williams	36822	1999 OR ₂
1999 OS ₂	14.3	0.15	19990810	12.18740	56.35042	288.94403	12.09574	0.1991243	2.5559228	28	1	141 days	0.39	M-v	5	Williams		1999 OS ₂
1999 OW ₂	12.5	0.15	19990810	325.71725	100.04899	313.50950	21.17370	0.1535561	2.6160617	52	3	1986–1999	0.49	M-v	2	Williams	36908	1999 OW ₂
1999 OY ₂	14.3	0.15	19990810	13.45996	109.64038	223.95859	24.07732	0.3714865	3.1335143	26	1	138 days	0.48	M-v	4	Williams	36908	1999 OY ₂
1999 OB ₃	12.3	0.15	19990810	18.58889	93.23418	256.46515	12.25491	0.0980297	2.9892968	64	3	1989–1999	0.65	M-v	2	Williams	36908	1999 OB ₃
1999 OC ₃	14.6	0.15	19990810	14.68108	25.72674	318.96459	17.65515	0.2334045	2.6105489	16	1	143 days	0.44	M-v	6	Williams		1999 OC ₃
1999 OG ₃	14.6	0.15	19990810	358.33315	137.70393	233.28384	20.64751	0.2362566	2.2970631	45	2	1992–1999	0.53	M-v	3	Williams	36822	1999 OG ₃
1999 OH ₃	13.6	0.15	19990810	19.93911	98.73241	243.98658	18.87405	0.2140613	2.7881407	63	2	1998–1999	0.56	M-v	3	Williams	36822	1999 OH ₃
1999 OJ ₃	14.2	0.15	19990810	20.08962	110.03739	226.03480	28.24910	0.2484885	2.6355753	82	2	1998–1999	0.71	M-v	3	Williams	36823	1999 OJ ₃
1999 OO ₃	14.7	0.15	19990810	351.06282	128.87355	232.76865	11.93742	0.2211802	2.5280703	52	1	136 days	0.50	M-v	3	Williams	36908	1999 OO ₃
1999 OS ₃	15.0	0.15	19990810	17.84334	281.98508	6.27097	5.60187	0.1913071	2.2848976	58	1	172 days	0.58	M-v	4	Williams	36908	1999 OS ₃
1999 OW ₃	14.6	0.15	19990810	67.65190	34.93655	196.88419	35.52755	0.7792395	2.0886025	59	1	144 days	0.48	M-v	4	Williams	36908	1999 OW ₃
1999 PE	15.8	0.15	19990810	328.75660	230.59803	142.76546	6.94577	0.1244125	2.2977749	43	1	97 days	0.53	M-v	4	Williams	36908	1999 PE
1999 PF	16.2	0.15	19990810	343.05070	220.64248	137.32121	6.79105	0.1978396	2.2453529	44	1	98 days	0.49	M-v	4	Williams	36908	1999 PF
1999 PL	15.5	0.15	19990810	327.87249	135.61268	262.89854	14.79490	0.2938792	2.5878318	82	1	113 days	0.64	M-v	4	Williams	36908	1999 PL
1999 PM	16.0	0.15	19990810	347.23338	202.60596	149.60646	11.48063	0.2703865	2.5253503	65	1	71 days	0.54	M-v	4	Williams	36548	1999 PM
1999 PV	13.3	0.15	19990810	167.25011	352.45532	158.62381	14.13916	0.1115311	2.5706700	101	2	1998–1999	0.57	M-v	3	Williams	36908	1999 PV
1999 PY	14.4	0.15	19990810	26.19276	292.87372	49.03033	6.30169	0.1246431	2.2344884	138	2	1998–1999	0.55	M-v	3	Williams	36908	1999 PY
1999 PB ₁	15.5	0.15	19990810	5.37735	209.58001	139.24702	3.92313	0.2306094	2.5636996	43	1	90 days	0.43	M-v	4	Williams	36908	1999 PB ₁
1999 PC ₁	13.2	0.15	19990810	79.71684	7.34120	293.61791	13.38040	0.1774734	2.6463440	47	2	1998–1999	0.53	M-v	3	Williams	36908	1999 PC ₁
1999 PJ ₁	18.0	0.15	19990810	319.67485	80.46261	319.59300	34.48592	0.3594858	1.6750644	212	1	114 days	0.56	M-v	4	Williams	36548	1999 PJ ₁

1999 PR ₁	14.9	0.15	19990810	333.15930	353.61900	11.05562	2.18080	0.0745792	2.4383860	90	2	1998–1999	0.55	M-v	3	Williams	36908	1999 PR ₁
1999 PR ₃	14.6	0.15	19990810	27.06942	260.11124	46.99689	4.90109	0.1431043	2.5745902	73	3	1995–1999	0.68	M-v	2	Williams	36549	1999 PR ₃
1999 PA ₄	13.9	0.15	19990810	33.33584	297.54530	6.72096	6.18151	0.0753419	3.1011465	33	2	1997–1999	0.61	M-v	4	Williams	36549	1999 PA ₄
1999 PB ₄	14.6	0.15	19990810	350.46910	247.90842	107.68953	3.04151	0.2164127	3.1556579	63	2	1993–1999	0.59	M-v	3	Williams	36909	1999 PB ₄
1999 PD ₄	14.4	0.15	19990810	322.16707	262.94504	124.79824	5.81924	0.0998325	2.7681858	39	1	109 days	0.57	M-v	4	Williams	36909	1999 PD ₄
1999 PO ₄	14.6	0.15	19990810	342.48037	20.47711	349.35265	19.23626	0.3055874	2.5647760	92	1	112 days	0.43	M-v	3	Williams	36909	1999 PO ₄
1999 PP ₄	13.0	0.15	19990810	12.99940	296.92076	33.06075	6.57568	0.0779387	3.1894280	51	1	113 days	0.46	M-v	4	Williams	36909	1999 PP ₄
1999 PT ₄	13.8	0.15	19990810	222.80891	216.06809	263.96330	2.62878	0.0109944	2.3887460	99	3	1981–1999	0.65	M-v	2	Williams	36909	1999 PT ₄
1999 PU ₄	15.4	0.15	19990810	299.72768	290.58104	125.64415	5.09660	0.1447639	2.2905903	45	2	1998–1999	0.70	M-v	4	Williams	36549	1999 PU ₄
1999 PV ₄	14.2	0.15	19990810	313.62685	240.05869	177.88395	21.67253	0.0789513	2.6148444	48	1	61 days	0.41	M-v	4	Williams	36549	1999 PV ₄
1999 PB ₅	13.5	0.15	19990810	350.21885	354.90412	24.56702	11.47919	0.0804173	3.2364282	63	1	94 days	0.49	M-v	4	Williams	36909	1999 PB ₅
1999 PS ₅	15.3	0.15	19990810	328.60610	235.10949	159.01948	6.81466	0.3445582	2.5981997	80	2	1978–1999	0.66	M-v	3	Williams	36909	1999 PS ₅
1999 PK ₆	15.0	0.15	19990810	22.37142	156.63877	156.32561	6.54702	0.1945409	2.2786014	49	4	1992–1999	0.62	M-v	2	Williams	36382	1999 PK ₆
1999 QT ₁	14.0	0.15	19990810	280.74478	130.89757	316.16717	11.81599	0.1435187	2.6314865	62	1	136 days	0.59	M-v	4	Williams	36909	1999 QT ₁
1999 QU ₁	15.4	0.15	19990810	339.28006	80.45380	297.01453	5.40166	0.2691389	2.3772573	62	1	136 days	0.52	M-v	3	Williams	36909	1999 QU ₁
1999 QV ₁	15.8	0.15	19990810	343.88243	207.95484	167.80853	6.97271	0.3652220	2.6045357	101	1	132 days	0.53	M-v	3	Williams	36909	1999 QV ₁
1999 QZ ₁	14.5	0.15	19990810	298.77939	238.29824	192.38194	4.78333	0.0438972	2.7371962	79	3	1994–1999	0.71	M-v	3	Williams	36909	1999 QZ ₁
1999 QB ₂	13.7	0.15	19990810	353.13272	43.63450	305.69641	6.75519	0.2339131	2.7960992	76	1	133 days	0.50	M-v	3	Williams	36909	1999 QB ₂
1999 QJ ₂	14.6	0.15	19990810	34.96999	123.18191	164.67441	13.93877	0.2379978	2.6730813	67	1	76 days	0.59	M-v	4	Williams	36909	1999 QJ ₂
1999 QP ₂	13.8	0.15	19990810	200.21493	195.55862	307.85531	8.77070	0.1303837	2.3635156	46	1	103 days	0.54	M-v	4	Williams		1999 QP ₂
1999 QQ ₂	14.4	0.15	19990810	313.84079	56.99942	345.11508	13.20236	0.2055009	2.5907823	212	1	140 days	0.39	M-v	3	Williams	36909	1999 QQ ₂
1999 RA	15.0	0.15	19990810	348.21418	166.49255	166.25466	5.61534	0.2493158	2.3601935	99	1	173 days	0.57	M-v	3	Williams	36909	1999 RA
1999 RB	13.7	0.15	19990810	293.71865	263.65320	159.54065	12.27010	0.1857454	2.8559957	94	2	1998–1999	0.54	M-v	3	Williams	36909	1999 RB
1999 RC	13.9	0.15	19990810	7.14919	356.08494	344.81479	13.04681	0.1695212	2.5449062	84	4	1993–1999	0.50	M-v	2	Williams	36909	1999 RC
1999 RF	14.5	0.15	19990810	332.12427	207.28098	174.49478	14.64495	0.1935877	2.6154612	87	3	1997–1999	0.60	M-v	3	Williams	36550	1999 RF
1999 RM	13.9	0.15	19990810	28.93751	148.81962	171.22189	9.28766	0.1312944	3.0598793	69	2	1998–1999	0.66	M-v	3	Williams	36909	1999 RM
1999 RN	15.7	0.15	19990810	298.08926	68.72071	351.62574	3.71552	0.1198452	2.3347765	61	1	107 days	0.52	M-v	4	Williams	36909	1999 RN
1999 RE ₁	13.5	0.15	19990810	116.05293	285.82791	305.01147	14.16451	0.0783380	2.6055870	83	5	1990–1999	0.54	M-v	1	Williams	36909	1999 RE ₁
1999 RS ₁	15.1	0.15	19990810	274.79220	103.95098	341.26679	3.87776	0.1235655	2.2569265	79	1	117 days	0.58	M-v	4	Williams	36909	1999 RS ₁
1999 RT ₁	13.5	0.15	19990810	346.65773	11.68183	351.57500	15.11777	0.1799267	2.5957461	92	3	1995–1999	0.45	M-v	2	Williams	36909	1999 RT ₁
1999 RU ₁	16.3	0.15	19990810	345.47492	225.67244	137.40140	0.49123	0.2215005	2.3539110	46	2	1997–1999	0.69	M-v	4	Williams	36909	1999 RU ₁
1999 RW ₁	14.6	0.15	19990810	342.37064	5.02470	6.50528	1.95624	0.2240174	2.6912825	105	3	1990–1999	0.63	M-v	2	Williams	36909	1999 RW ₁
1999 RX ₁	15.8	0.15	19990810	8.62787	346.98865	347.27227	2.12016	0.2096160	2.4396078	67	1	116 days	0.55	M-v	4	Williams	36909	1999 RX ₁
1999 RZ ₁	15.0	0.15	19990810	336.59354	18.81818	5.29278	0.91930	0.1982634	2.4188988	100	3	1995–1999	0.54	M-v	2	Williams	36909	1999 RZ ₁
1999 RA ₂	15.8	0.15	19990810	5.17463	167.95627	170.39813	3.32906	0.1780349	2.1769579	97	2	1998–1999	0.63	M-v	4	Williams	36909	1999 RA ₂
1999 RD ₂	12.4	0.15	19990810	278.51066	113.17467	23.52177	32.71366	0.3193666	2.7975440	74	1	93 days	0.44	M-v	4	Williams	36910	1999 RD ₂
1999 RE ₂	14.8	0.15	19990810	331.98447	215.91581	192.47606	8.47014	0.2444821	2.3785706	38	1	84 days	0.57	M-v	4	Williams	36910	1999 RE ₂
1999 RR ₂	12.4	0.15	19990810	292.06680	173.64695	259.52368	17.32465	0.1700369	3.1388949	36	1	91 days	0.36	M-v	4	Williams	36910	1999 RR ₂
1999 RV ₂	18.6	0.15	19990810	345.37146	42.84231	335.61822	4.85786	0.5092438	2.4384344	167	1	98 days	0.52	M-v	4	Williams	36910	1999 RV ₂
1999 RZ ₂	14.1	0.15	19990810	306.63413	98.17586	319.58423	0.97633	0.0795251	2.8683520	64	2	1997–1999	0.61	M-v	4	Williams	36910	1999 RZ ₂
1999 RA ₃	15.1	0.15	19990810	299.84337	238.62019	191.10699	2.39886	0.1576490	2.4193012	53	1	92 days	0.56	M-v	4	Williams		1999 RA ₃
1999 RB ₃	15.0	0.15	19990810	162.80068	197.56813	352.68675	4.46621	0.0517014	2.2546513	83	4	1984–1999	0.63	M-v	3	Williams	36910	1999 RB ₃
1999 RD ₃	14.8	0.15	19990810	302.82606	219.33733	196.38137	2.44372	0.1358317	2.2820760	83	3	1982–1999	0.55	M-v	3	Williams	36910	1999 RD ₃
1999 RE ₃	16.5	0.15	19990810	1.42615	153.15820	182.71769	4.49393	0.3126115	2.5873100	71	1	76 days	0.57	M-v	4	Williams	36550	1999 RE ₃
1999 RK ₃	15.7	0.15	19990810	245.68813	75.46248	44.24055	7.28684	0.0409508	2.2255661	40	1	94 days	0.64	M-v	4	Williams	36910	1999 RK ₃
1999 RL ₃	13.0	0.15	19990810	313.29827	69.55995	36.21821	15.39625	0.0788498	2.5879055	37	1	98 days	0.32	M-v	4	Williams		1999 RL ₃
1999 RM ₃	14.2	0.15	19990810	60.75087	356.03495	256.60846	3.98278	0.1229492	2.2876462	45	1	141 days	0.48	M-v	4	Williams	36910	1999 RM ₃
1999 RL ₆	15.5	0.15	19990810	310.70019	56.50604	352.19878	3.96266	0.1999522	2.5624831	60	2	1995–1999	0.57	M-v	4	Williams	36910	1999 RL ₆
1999 RZ ₆	14.2	0.15	19990810	33.63931	303.86637	359.40558	6.62141	0.1951028	2.9900178	35	1	107 days	0.51	M-v	5	Williams		1999 RZ ₆
1999 RK ₇	15.2	0.15	19990810	4.06457	318.09031	16.15515	2.07562	0.2439605	2.1737006	91	1	149 days	0.48	M-v	4	Williams	36910	1999 RK ₇
1999 RK ₉	15.3	0.15	19990810	324.05139	32.72134	352.39969	2.67326	0.1635076	2.1930308	91	2	1998–1999	0.52	M-v	3	Williams	36910	1999 RK ₉
1999 RD ₁₀	14.0	0.15	19990810	315.84518	194.36848	185.49015	6.99721	0.2024210	2.5333105	67	4	1991–1999	0.70	M-v	3	Williams	36910	1999 RD ₁₀
1999 RS ₁₀	13.8	0.15	19990810	287.96721	246.21983	158.27567	14.73396	0.0663310	2.4442598	81	2	1998–1999	0.57	M-v	3	Williams	36910	1999 RS ₁₀

1999 RY ₁₀	14.2	0.15	19990810	300.19839	77.62906	327.21772	6.43137	0.1788109	2.3078536	64	2	1994–1999	0.40	M-v	3	Williams	36910	1999 RY ₁₀
1999 RV ₁₁	14.3	0.15	19990810	308.65425	72.86703	334.86412	22.51887	0.2624714	2.3325311	57	1	120 days	0.55	M-v	4	Williams	36910	1999 RV ₁₁
1999 RF ₁₄	14.4	0.15	19990810	289.81791	90.94634	345.30244	20.82420	0.2832167	2.2959343	108	1	113 days	0.52	M-v	4	Williams	36910	1999 RF ₁₄
1999 RK ₁₄	14.7	0.15	19990810	311.52135	235.80614	166.54442	8.10393	0.1926342	2.5543454	87	4	1991–1999	0.60	M-v	2	Williams	36910	1999 RK ₁₄
1999 RK ₁₅	14.9	0.15	19990810	1.76411	324.90682	5.48618	6.74574	0.1693865	2.6471128	59	2	1998–1999	0.73	M-v	4	Williams	36388	1999 RK ₁₅
1999 RU ₁₅	15.7	0.15	19990810	319.30684	226.13952	168.06236	2.26368	0.2128265	2.3558236	140	1	91 days	0.38	M-v	4	Williams	36910	1999 RU ₁₅
1999 RU ₁₆	13.6	0.15	19990810	8.84518	59.13344	272.12976	1.10158	0.0429479	2.8434943	67	3	1997–1999	0.61	M-v	3	Williams	36552	1999 RU ₁₆
1999 RV ₁₆	15.3	0.15	19990810	333.19260	154.49540	220.34055	1.83495	0.1847126	2.4045002	70	2	1977–1999	0.49	M-v	3	Williams	36910	1999 RV ₁₆
1999 RE ₁₇	15.4	0.15	19990810	315.31530	172.78562	224.62075	3.90440	0.1505100	2.3301796	49	2	1978–1999	0.67	M-v	4	Williams	36910	1999 RE ₁₇
1999 RY ₁₇	14.8	0.15	19990810	335.88671	63.82962	311.55523	2.36714	0.2314846	2.5649731	95	4	1991–1999	0.54	M-v	2	Williams	36910	1999 RY ₁₇
1999 RG ₁₈	14.0	0.15	19990810	324.93559	229.70575	153.94418	15.57220	0.1372092	2.6218334	64	3	1997–1999	0.62	M-v	3	Williams	36910	1999 RG ₁₈
1999 RJ ₁₈	15.4	0.15	19990810	334.48364	260.69183	114.09800	3.36016	0.2055565	2.4448649	63	3	1997–1999	0.55	M-v	3	Williams	36910	1999 RJ ₁₈
1999 RN ₁₈	14.9	0.15	19990810	351.93284	154.71145	194.72512	6.21446	0.1570113	2.3401105	93	3	1992–1999	0.61	M-v	2	Williams	36910	1999 RN ₁₈
1999 RR ₁₈	14.6	0.15	19990810	26.18864	115.47544	185.67689	4.91421	0.1681628	2.2323487	83	2	1989–1999	0.53	M-v	4	Williams	36911	1999 RR ₁₈
1999 RT ₁₈	14.0	0.15	19990810	347.36094	24.25024	339.17970	9.03747	0.2839973	3.1186417	82	1	144 days	0.50	M-v	3	Williams	36911	1999 RT ₁₈
1999 RU ₁₈	16.4	0.15	19990810	331.09402	129.09871	249.07591	1.11165	0.1896358	2.1532153	81	2	1977–1999	0.55	M-v	3	Williams	36911	1999 RU ₁₈
1999 RW ₁₈	14.8	0.15	19990810	283.60179	69.44324	356.41487	4.78875	0.0828678	2.2033413	77	2	1998–1999	0.48	M-v	3	Williams	36552	1999 RW ₁₈
1999 RY ₁₈	15.7	0.15	19990810	10.52324	333.53222	349.69139	19.47443	0.0844182	1.9221123	85	2	1991–1999	0.35	M-v	3	Williams	36911	1999 RY ₁₈
1999 RN ₁₉	15.0	0.15	19990830	351.46216	329.04526	26.64279	0.72735	0.2058450	3.1071786	56	1	3 days	0.49		E	Williams	36392	1999 RN ₁₉
1999 RO ₁₉	14.4	0.15	19990810	18.38503	311.79988	2.70816	2.50168	0.1747271	2.7376560	84	2	1998–1999	0.50	M-v	3	Williams	36911	1999 RO ₁₉
1999 RS ₁₉	14.2	0.15	19990810	1.42705	174.30742	166.92759	10.15218	0.1291445	2.9833062	52	3	1997–1999	0.69	M-v	3	Williams	36911	1999 RS ₁₉
1999 RT ₁₉	12.5	0.15	19990810	267.14052	100.14567	350.41889	18.26325	0.1013783	3.1823275	71	1	88 days	0.48	M-v	5	Williams		1999 RT ₁₉
1999 RU ₁₉	14.9	0.15	19990810	98.07465	134.83563	96.11102	0.07978	0.1186867	2.1898069	79	3	1996–1999	0.75	M-v	3	Williams	36552	1999 RU ₁₉
1999 RC ₂₀	13.9	0.15	19990810	292.70125	219.40559	211.25066	5.27649	0.1272380	3.1941873	28	1	94 days	0.50	M-v	5	Williams		1999 RC ₂₀
1999 RD ₂₀	14.5	0.15	19990810	321.29291	60.65613	338.20510	10.79973	0.1967450	2.5851262	33	1	115 days	0.42	M-v	4 D	Williams		1999 RD ₂₀
1999 RN ₂₀	14.9	0.15	19990810	339.02675	198.60829	173.52092	27.09079	0.2688633	2.1516750	93	1	132 days	0.41	M-v	3	Williams	36911	1999 RN ₂₀
1999 RL ₂₁	15.6	0.15	19990810	357.76678	209.95620	132.87887	3.00620	0.2266929	2.3605814	66	3	1994–1999	0.53	M-v	2	Williams	36911	1999 RL ₂₁
1999 RB ₂₂	12.7	0.15	19990810	169.59299	167.11410	13.48810	8.76156	0.0620334	2.7692282	43	4	1974–1999	0.78	M-v	2	Williams	36824	1999 RB ₂₂
1999 RD ₂₂	13.2	0.15	19990810	88.84134	155.54754	102.49445	2.29221	0.0465325	3.0390568	61	5	1993–1999	0.59	M-v	1	Williams	36393	1999 RD ₂₂
1999 RT ₂₂	13.6	0.15	19990810	359.37987	154.17175	198.89206	8.82223	0.0902013	3.1674614	38	2	1997–1999	0.66	M-v	3	Williams	36911	1999 RT ₂₂
1999 RB ₂₃	13.4	0.15	19990810	329.97321	216.99938	175.15831	11.43971	0.1657928	2.9717758	61	3	1971–1999	0.72	M-v	3	Williams	36394	1999 RB ₂₃
1999 RF ₂₃	15.2	0.15	19990810	11.03439	171.41947	155.72997	3.33653	0.1969181	2.4573365	76	3	1976–1999	0.62	M-v	2	Williams	36911	1999 RF ₂₃
1999 RH ₂₃	13.6	0.15	19990810	338.39498	337.84043	38.37029	2.47370	0.0861630	2.8872935	53	1	107 days	0.53	M-v	4	Williams		1999 RH ₂₃
1999 RO ₂₃	14.6	0.15	19990810	287.29745	305.61681	131.35168	3.62141	0.1398393	2.5194875	32	1	88 days	0.59	M-v	5	Williams		1999 RO ₂₃
1999 RR ₂₃	14.8	0.15	19990810	275.38518	75.22797	15.88982	7.14645	0.1657313	2.3332001	50	1	107 days	0.48	M-v	4	Williams	36911	1999 RR ₂₃
1999 RW ₂₃	15.8	0.15	19990810	346.76020	339.44937	21.35382	6.00342	0.2333559	2.2955752	45	1	93 days	0.48	M-v	3	Williams	36911	1999 RW ₂₃
1999 RX ₂₃	15.7	0.15	19990810	30.36890	260.29021	33.88449	5.32376	0.2263721	2.2372392	51	1	122 days	0.68	M-v	4	Williams	36911	1999 RX ₂₃
1999 RB ₂₄	14.2	0.15	19990810	356.24480	322.91599	25.26582	6.38420	0.1650964	2.3734662	121	2	1998–1999	0.65	M-v	3	Williams	36911	1999 RB ₂₄
1999 RE ₂₄	15.8	0.15	19990810	294.58406	16.50296	47.20522	4.41518	0.1187048	2.2225340	31	1	107 days	0.66	M-v	5	Williams		1999 RE ₂₄
1999 RR ₂₄	14.4	0.15	19990810	102.15597	282.43832	317.87241	6.50100	0.0796156	2.4433863	35	2	1991–1999	0.65	M-v	5	Williams	36394	1999 RR ₂₄
1999 RZ ₂₄	15.1	0.15	19990810	334.81015	120.74360	266.81967	2.16413	0.2168015	2.6864620	32	1	91 days	0.44	M-v	4	Williams		1999 RZ ₂₄
1999 RE ₂₅	14.6	0.15	19990810	254.56683	195.77474	274.90471	1.81358	0.1241243	2.4111805	37	3	1977–1999	0.54	M-v	3	Williams	36911	1999 RE ₂₅
1999 RL ₂₅	13.9	0.15	19990810	344.99463	14.09173	354.15555	16.34893	0.0967114	2.4754117	26	3	1978–1999	0.69	M-v	3	Williams	36824	1999 RL ₂₅
1999 RU ₂₅	15.6	0.15	19990810	338.54802	42.03103	340.85146	3.58359	0.2449273	2.5848567	43	1	91 days	0.50	M-v	4	Williams		1999 RU ₂₅
1999 RV ₂₅	13.7	0.15	19990810	328.96250	54.35163	345.37992	4.54731	0.1869605	3.1788587	22	1	91 days	0.32	M-v	5	Williams		1999 RV ₂₅
1999 RX ₂₅	15.2	0.15	19990810	7.80711	319.13077	13.01851	4.59730	0.1817919	2.1572033	100	4	1980–1999	0.68	M-v	2	Williams	36911	1999 RX ₂₅
1999 RE ₂₆	13.3	0.15	19990810	126.16739	207.11471	6.87165	32.64810	0.2159492	2.5695908	43	1	90 days	0.48	M-v	4	Williams		1999 RE ₂₆
1999 RG ₂₆	16.5	0.15	19990810	339.12964	353.86959	24.97547	4.41955	0.2724128	2.2993511	59	1	91 days	0.45	M-v	3	Williams	36911	1999 RG ₂₆
1999 RN ₂₆	14.6	0.15	19990810	332.87739	11.38648	18.90689	10.99635	0.1471717	2.9424161	43	1	91 days	0.58	M-v	4	Williams		1999 RN ₂₆
1999 RP ₂₆	14.6	0.15	19990810	332.69359	13.57622	20.84030	5.71179	0.1659534	3.1563918	33	1	91 days	0.58	M-v	5	Williams		1999 RP ₂₆
1999 RE ₂₇	15.0	0.15	19990810	318.21396	229.30645	171.53882	23.13766	0.1091352	1.9707717	35	1	130 days	0.51	M-v	4	Williams	36554	1999 RE ₂₇
1999 RF ₂₇	13.1	0.15	19990810	139.90065	69.58841	141.25407	8.03398	0.2548785	2.6098394	51	4	1951–1999	0.64	M-v	1	Williams	36911	1999 RF ₂₇
1999 RH ₂₇	16.6	0.15	19990810	334.22615	95.35135	343.91466	4.39698	0.5766360	2.8840643	317	1	100 days	0.46	M-v	3	Marsden	36911	1999 RH ₂₇

1999 RK ₂₇	14.4	0.15	19990810	334.64959	213.21520	162.58583	7.61759	0.1530231	2.5460194	107	4	1991–1999	0.62	M-v	2	Williams	36911	1999 RK ₂₇
1999 RL ₂₇	12.7	0.15	19990810	68.98939	262.48643	32.48718	13.37931	0.1705045	2.6005423	65	1	96 days	0.38	M-v	4	Williams	36911	1999 RL ₂₇
1999 RP ₂₇	15.4	0.15	19990810	4.92872	189.55931	141.54662	1.11838	0.1777415	2.1979446	58	1	107 days	0.68	M-v	4	Williams	36912	1999 RP ₂₇
1999 RR ₂₇	14.9	0.15	19990810	331.87960	45.56593	350.78214	10.37403	0.3066988	3.0311467	66	1	92 days	0.49	M-v	4	Williams		1999 RR ₂₇
1999 RV ₂₇	14.1	0.15	19990810	330.59440	218.99333	172.84908	5.34655	0.2218995	3.0891325	75	1	144 days	0.57	M-v	4	Williams	36912	1999 RV ₂₇
1999 RW ₂₇	13.1	0.15	19990810	331.66256	41.77816	21.69972	14.06266	0.2859113	2.6076931	62	2	1978–1999	0.45	M-v	2	Williams	36912	1999 RW ₂₇
1999 RY ₂₇	13.1	0.15	19990810	102.21086	227.69480	353.37787	12.59489	0.1231589	2.6374382	104	3	1987–1999	0.60	M-v	3	Williams	36912	1999 RY ₂₇
1999 RD ₂₈	15.4	0.15	19990810	19.31289	131.01331	167.38393	2.77606	0.1988668	2.2190008	49	2	1996–1999	0.64	M-v	4	Williams	36912	1999 RD ₂₈
1999 RE ₂₈	16.1	0.15	19990810	337.10312	39.74769	348.12375	5.18246	0.3504251	2.5628939	74	1	106 days	0.56	M-v	4	Williams	36912	1999 RE ₂₈
1999 RM ₂₈	16.8	0.15	19990810	291.18599	301.70635	136.19963	30.53328	0.3241008	1.8169156	33	1	93 days	0.47	M-v	4	Williams	36912	1999 RM ₂₈
1999 RQ ₂₈	20.4	0.15	19990810	329.95199	269.46875	124.48790	3.55636	0.4242738	1.9081068	100	1	99 days	0.59	M-v	4	Williams	36912	1999 RQ ₂₈
1999 RO ₂₉	16.1	0.15	19990810	337.67818	169.72191	195.03410	15.45766	0.2682620	2.4428288	37	2	1980–1999	0.42	M-v	3	Williams	36554	1999 RO ₂₉
1999 RW ₂₉	14.4	0.15	19990810	6.11459	2.45906	322.34137	16.07112	0.2984030	2.6741945	57	1	143 days	0.43	M-v	3	Williams	36912	1999 RW ₂₉
1999 RN ₃₀	15.7	0.15	19990810	50.41481	95.39414	187.05826	21.57332	0.0836211	1.9213942	65	1	86 days	0.43	M-v	4	Williams	36554	1999 RN ₃₀
1999 RS ₃₀	14.3	0.15	19990810	314.77992	80.35267	345.11150	25.07398	0.2784537	2.7550720	48	1	91 days	0.41	M-v	4	Williams		1999 RS ₃₀
1999 RZ ₃₀	14.7	0.15	19990810	120.25585	254.02018	333.44021	17.94100	0.0593121	1.9238045	64	2	1998–1999	0.41	M-v	2	Williams	36912	1999 RZ ₃₀
1999 RC ₃₁	16.4	0.15	19990810	325.67630	91.82835	345.20516	26.26295	0.4649936	2.5794740	17	1	81 days	0.44	M-v	5	Williams	36912	1999 RC ₃₁
1999 RD ₃₁	15.8	0.15	19990810	311.70215	55.17744	357.33519	24.44285	0.0836312	1.9614864	54	1	95 days	0.47	M-v	4	Williams		1999 RD ₃₁
1999 RJ ₃₁	14.6	0.15	19990810	56.71937	285.95722	342.62053	7.51484	0.0983140	2.3115302	77	4	1985–1999	0.58	M-v	2	Williams	36912	1999 RJ ₃₁
1999 RK ₃₁	16.0	0.15	19990810	341.06275	14.57357	1.42115	4.82263	0.1621800	2.3529464	54	1	91 days	0.56	M-v	4	Williams		1999 RK ₃₁
1999 RL ₃₁	14.2	0.15	19990810	328.59089	25.78441	5.30618	7.56477	0.1443105	2.2549076	67	3	1982–1999	0.51	M-v	2	Williams	36912	1999 RL ₃₁
1999 RR ₃₁	15.2	0.15	19990810	15.59738	306.13468	23.01268	5.35722	0.2033226	2.2453475	98	2	1998–1999	0.46	M-v	4	Williams	36912	1999 RR ₃₁
1999 RS ₃₁	14.3	0.15	19990810	302.08217	227.24200	186.71769	5.29620	0.0589154	2.7608198	47	3	1981–1999	0.67	M-v	3	Williams	36398	1999 RS ₃₁
1999 RV ₃₁	13.7	0.15	19990810	74.20402	251.99915	12.88121	2.43745	0.0244337	2.7879324	62	3	1981–1999	0.73	M-v	3	Williams	36912	1999 RV ₃₁
1999 RF ₃₂	14.5	0.15	19990810	303.36989	244.25354	167.68149	12.34899	0.1649823	2.5585410	63	1	93 days	0.45	M-v	4	Williams		1999 RF ₃₂
1999 RJ ₃₂	12.7	0.15	19990810	354.29322	0.94254	357.15741	8.14204	0.0811496	3.1669738	85	1	144 days	0.48	M-v	3	Williams	36912	1999 RJ ₃₂
1999 RL ₃₂	14.5	0.15	19990810	348.73218	25.21360	341.79844	1.85931	0.1861501	3.0688632	43	2	1978–1999	0.69	M-v	4	Williams	36398	1999 RL ₃₂
1999 RN ₃₂	13.4	0.15	19990810	332.71090	208.15582	177.71543	9.27126	0.0974908	3.1692259	54	2	1994–1999	0.54	M-v	4	Williams	36555	1999 RN ₃₂
1999 RO ₃₂	13.3	0.15	19990810	297.38653	88.79674	358.70275	12.96142	0.2913945	3.1239999	89	2	1988–1999	0.48	M-v	3	Williams	36912	1999 RO ₃₂
1999 RQ ₃₂	14.9	0.15	19990810	9.03455	345.02899	359.46331	5.00518	0.1346716	2.5853481	53	1	91 days	0.58	M-v	5	Williams		1999 RQ ₃₂
1999 RW ₃₂	13.4	0.15	19990810	330.37748	101.95754	309.42190	8.56115	0.0967559	3.0609453	56	1	92 days	0.48	M-v	4	Williams	36912	1999 RW ₃₂
1999 RX ₃₂	13.3	0.15	19990810	268.06868	309.49785	124.62894	3.26118	0.0674864	2.9233303	38	1	68 days	0.53	M-v	5	Williams	36555	1999 RX ₃₂
1999 RY ₃₂	15.2	0.15	19990810	309.58448	104.58978	299.14219	8.22854	0.1129513	2.5333606	50	1	82 days	0.55	M-v	5	Williams		1999 RY ₃₂
1999 RA ₃₃	14.8	0.15	19990810	350.37922	337.98936	29.34950	1.18022	0.1332589	2.4185418	83	1	94 days	0.53	M-v	3	Williams		1999 RA ₃₃
1999 RB ₃₃	15.4	0.15	19990810	327.18013	227.37355	152.96889	6.12867	0.1950185	2.2539694	60	3	1994–1999	0.54	M-v	3	Williams	36399	1999 RB ₃₃
1999 RC ₃₃	13.7	0.15	19990810	100.58338	69.70968	153.56167	11.23097	0.1401039	2.6115202	67	2	1998–1999	0.58	M-v	3	Williams	36912	1999 RC ₃₃
1999 RG ₃₃	12.2	0.15	19990810	12.46769	274.47298	23.82795	35.13839	0.7752682	9.6376692	108	1	94 days	0.39	M-v	3	Williams	36912	1999 RG ₃₃
1999 RP ₃₃	15.2	0.15	19990810	294.06503	52.18010	7.97723	7.06537	0.0966781	2.3908727	39	1	107 days	0.70	M-v	5	Williams		1999 RP ₃₃
1999 RR ₃₃	15.1	0.15	19990810	270.87703	75.66327	18.03036	5.63092	0.1290470	2.4283701	42	3	1988–1999	0.66	M-v	2	Williams	36399	1999 RR ₃₃
1999 RS ₃₃	15.0	0.15	19990810	1.62439	282.54209	41.59237	4.92262	0.2007523	2.2549872	53	4	1989–1999	0.58	M-v	2	Williams	36912	1999 RS ₃₃
1999 RW ₃₃	14.9	0.15	19990810	295.20704	262.85150	175.58440	11.33892	0.1639442	2.6457876	38	2	1988–1999	0.65	M-v	5	Williams	36400	1999 RW ₃₃
1999 RC ₃₄	14.8	0.15	19990810	358.94082	151.54826	196.93309	2.73569	0.0715032	2.5562387	60	1	94 days	0.49	M-v	4	Williams		1999 RC ₃₄
1999 RD ₃₄	14.0	0.15	19990810	343.70373	5.49913	4.18886	3.22677	0.1263281	3.0592275	86	3	1995–1999	0.63	M-v	3	Williams	36913	1999 RD ₃₄
1999 RF ₃₄	14.1	0.15	19990810	310.48013	272.83865	147.85624	0.53605	0.1902427	3.1362329	58	3	1994–1999	0.51	M-v	4	Williams	36555	1999 RF ₃₄
1999 RK ₃₄	15.0	0.15	19990810	355.29541	170.58164	185.26506	7.09157	0.1315021	2.4160523	80	3	1995–1999	0.62	M-v	2	Williams	36913	1999 RK ₃₄
1999 RM ₃₄	15.4	0.15	19990810	352.80087	353.22873	6.52190	7.04314	0.1367412	2.2398842	59	2	1998–1999	0.71	M-v	3	Williams	36913	1999 RM ₃₄
1999 RO ₃₄	13.1	0.15	19990810	204.77337	338.42235	177.11940	9.64721	0.0334777	3.0607757	59	3	1986–1999	0.51	M-v	2	Williams	36913	1999 RO ₃₄
1999 RP ₃₄	13.6	0.15	19990810	119.51954	86.49420	148.90542	2.37696	0.0243558	2.8803595	71	3	1992–1999	0.55	M-v	3	Williams	36913	1999 RP ₃₄
1999 RQ ₃₄	15.9	0.15	19990810	287.88644	270.22082	167.02242	4.97066	0.1220855	2.2797715	42	2	1998–1999	0.49	M-v	4	Williams	36401	1999 RQ ₃₄
1999 RS ₃₄	14.6	0.15	19990810	204.46966	134.75175	33.72707	12.89156	0.0642837	2.8132090	29	1	86 days	0.53	M-v	4	Williams	36913	1999 RS ₃₄
1999 RW ₃₄	15.1	0.15	19990810	6.65053	154.88631	187.06382	6.89017	0.2581742	2.5442289	80	3	1995–1999	0.55	M-v	2	Williams	36913	1999 RW ₃₄
1999 RX ₃₄	14.9	0.15	19990810	40.01274	233.67486	82.33133	2.01525	0.1824575	2.1309701	66	2	1998–1999	0.61	M-v	4	Williams	36824	1999 RX ₃₄
1999 RZ ₃₄	13.5	0.15	19990810	21.50620	314.32606	34.99474	22.62042	0.1342283	2.4314067	63	1	93 days	0.46	M-v	4	Williams	36913	1999 RZ ₃₄

1999 RB ₃₅	14.0	0.15	19990810	285.88411	136.61180	291.28063	21.26663	0.0407274	2.6497384	108	1	139 days	0.67	M-v	4	Williams	36913	1999 RB ₃₅
1999 RD ₃₅	15.0	0.15	19990810	330.68818	199.58250	205.11415	24.35692	0.2164648	2.3364093	80	1	112 days	0.44	M-v	3	Williams	36913	1999 RD ₃₅
1999 RL ₃₅	14.5	0.15	19990810	342.06066	119.38546	250.83673	0.99238	0.0735910	2.8943237	84	4	1979–1999	0.57	M-v	3	Williams	36913	1999 RL ₃₅
1999 RM ₃₅	13.6	0.15	19990810	69.29880	84.56689	192.33726	2.99184	0.1198567	3.0527128	58	1	93 days	0.58	M-v	5	Williams	36913	1999 RM ₃₅
1999 RN ₃₅	15.4	0.15	19990810	339.64520	186.94720	182.53466	6.46674	0.1317688	2.3012978	78	2	1998–1999	0.56	M-v	3	Williams	36913	1999 RN ₃₅
1999 RO ₃₅	15.1	0.15	19990810	357.50784	275.66602	72.92903	1.15479	0.2972623	2.5761981	93	3	1996–1999	0.54	M-v	2	Williams	36913	1999 RO ₃₅
1999 RP ₃₅	16.2	0.15	19990810	340.10046	15.67724	6.46490	5.95369	0.2728536	2.5396679	65	1	89 days	0.56	M-v	4	Williams		1999 RP ₃₅
1999 RR ₃₅	14.0	0.15	19990810	136.65036	195.37950	21.93386	4.00894	0.0208978	2.7402012	41	1	94 days	0.50	M-v	4	Williams	36913	1999 RR ₃₅
1999 RT ₃₅	15.3	0.15	19990810	12.03742	325.57717	6.81304	8.22050	0.1386575	2.3684628	64	3	1994–1999	0.64	M-v	3	Williams	36913	1999 RT ₃₅
1999 RC ₃₆	13.1	0.15	19990810	38.99612	328.08671	8.09046	10.65531	0.1061758	3.2134655	68	2	1993–1999	0.55	M-v	4	Williams	36913	1999 RC ₃₆
1999 RH ₃₆	13.4	0.15	19990810	15.36078	322.66297	43.37622	11.83679	0.1536147	3.0358635	69	3	1976–1999	0.52	M-v	3	Williams	36913	1999 RH ₃₆
1999 RM ₃₆	13.4	0.15	19990810	0.03970	183.28853	166.71612	18.09893	0.2091555	2.5993231	31	2	1998–1999	0.67	M-v	3	Williams	36403	1999 RM ₃₆
1999 RN ₃₆	13.3	0.15	19990810	5.09052	152.89375	217.14115	12.84996	0.1885175	2.5726736	60	2	1998–1999	0.54	M-v	3	Williams	36913	1999 RN ₃₆
1999 RP ₃₆	18.6	0.15	19990810	340.62144	321.22872	58.13066	5.47841	0.4166772	2.2276031	138	1	87 days	0.47	M-v	4	Williams	36913	1999 RP ₃₆
1999 RR ₃₆	14.1	0.15	19990810	303.46036	63.23157	0.92661	1.72668	0.0501196	2.9530162	33	1	87 days	0.56	M-v	5	Williams	36913	1999 RR ₃₆
1999 RS ₃₆	15.7	0.15	19990810	312.78475	221.92777	189.47614	4.92603	0.1411586	2.3394778	48	1	91 days	0.60	M-v	4	Williams		1999 RS ₃₆
1999 RT ₃₆	15.3	0.15	19990810	311.51643	67.51154	0.41176	12.89088	0.2535038	2.6343019	34	1	91 days	0.62	M-v	4	Williams	36913	1999 RT ₃₆
1999 RA ₃₇	16.5	0.15	19990810	352.59591	1.42338	346.79641	1.82154	0.1835391	2.4287953	50	2	1996–1999	0.47	M-v	4	Marsden	36913	1999 RA ₃₇
1999 RB ₃₇	13.8	0.15	19990810	339.43614	18.91823	346.81053	5.72938	0.0765753	2.7776156	63	2	1990–1999	0.48	M-v	4	Williams	36403	1999 RB ₃₇
1999 RC ₃₇	15.6	0.15	19990810	15.27525	310.11081	3.61349	4.29135	0.2446030	2.5502052	62	2	1995–1999	0.57	M-v	4	Williams	36913	1999 RC ₃₇
1999 RE ₃₇	15.9	0.15	19990810	325.88816	311.00875	78.61397	2.08021	0.1926781	2.1986662	27	2	1996–1999	0.73	M-v	4	Williams	36913	1999 RE ₃₇
1999 RT ₃₇	15.2	0.15	19990810	18.80753	319.32556	4.77208	6.75815	0.1265329	2.4156395	54	2	1998–1999	0.61	M-v	4	Williams	36404	1999 RT ₃₇
1999 RV ₃₇	15.5	0.15	19990810	30.58721	124.87896	189.55521	4.36403	0.1211678	2.4632176	44	2	1998–1999	0.76	M-v	4	Williams	36404	1999 RV ₃₇
1999 RY ₃₇	15.4	0.15	19990810	318.77928	36.46636	9.98817	4.80740	0.1430870	2.2445437	49	2	1994–1999	0.67	M-v	4	Williams	36913	1999 RY ₃₇
1999 RZ ₃₇	15.5	0.15	19990810	306.27288	249.86106	184.00835	5.45160	0.2143287	2.5585119	46	2	1997–1999	0.47	M-v	4	Williams	36913	1999 RZ ₃₇
1999 RA ₃₈	14.5	0.15	19990810	301.94553	30.82164	38.87316	3.11013	0.1443304	2.4076044	45	1	85 days	0.45	M-v	4	Williams		1999 RA ₃₈
1999 RC ₃₈	12.5	0.15	19990810	256.26996	289.23666	190.32370	13.40472	0.1204683	2.6288292	50	2	1965–1999	0.66	M-v	4	Williams	36913	1999 RC ₃₈
1999 RG ₃₈	15.1	0.15	19990810	20.91720	311.46642	16.78609	4.64573	0.1987593	2.9770937	35	1	84 days	0.57	M-v	4	Williams		1999 RG ₃₈
1999 RH ₃₈	15.2	0.15	19990810	344.19988	355.12041	19.13269	5.92267	0.1532308	2.3443727	40	1	85 days	0.46	M-v	4	Williams		1999 RH ₃₈
1999 RL ₃₈	15.0	0.15	19990810	29.35017	162.05193	149.94303	3.85046	0.1898824	2.4077229	67	3	1994–1999	0.46	M-v	3	Williams	36913	1999 RL ₃₈
1999 RM ₃₈	13.1	0.15	19990810	53.31426	110.12314	195.78307	9.14533	0.0587403	3.1732816	68	3	1994–1999	0.54	M-v	3	Williams	36913	1999 RM ₃₈
1999 RN ₃₈	14.4	0.15	19990810	5.24688	222.78588	123.03122	1.52674	0.1362939	2.3056274	72	2	1998–1999	0.53	M-v	3	Williams	36913	1999 RN ₃₈
1999 RO ₃₈	15.2	0.15	19990810	315.75547	232.35378	186.07850	5.97116	0.2273215	2.2718961	64	3	1975–1999	0.49	M-v	3	Williams	36913	1999 RO ₃₈
1999 RP ₃₈	15.5	0.15	19990810	353.24873	118.63831	239.31604	4.66604	0.1606443	2.3333728	85	3	1994–1999	0.47	M-v	2	Williams	36913	1999 RP ₃₈
1999 RT ₃₈	14.9	0.15	19990810	342.89905	342.27339	54.50262	4.03015	0.1597000	2.2093309	87	4	1994–1999	0.52	M-v	2	Williams	36914	1999 RT ₃₈
1999 RV ₃₈	15.8	0.15	19990810	1.33175	293.10404	37.76055	6.84289	0.1445269	2.3600065	27	1	68 days	0.48	M-v	4	Williams		1999 RV ₃₈
1999 RX ₃₈	14.9	0.15	19990810	10.24822	275.41882	44.80957	7.09576	0.1269989	2.3225172	34	1	81 days	0.45	M-v	4	Williams	36914	1999 RX ₃₈
1999 RY ₃₈	14.1	0.15	19990810	313.06152	278.70100	121.74661	9.73421	0.1703323	2.7700220	55	4	1990–1999	0.54	M-v	1	Williams	36914	1999 RY ₃₈
1999 RZ ₃₈	14.5	0.15	19990810	290.67846	344.62921	91.38310	6.98741	0.2562608	2.5422754	41	2	1993–1999	0.60	M-v	4	Williams	36914	1999 RZ ₃₈
1999 RA ₃₉	14.2	0.15	19990810	266.71479	317.93105	149.26537	24.76500	0.2464684	2.3389862	26	2	1990–1999	0.63	M-v	4	Williams	36406	1999 RA ₃₉
1999 RJ ₃₉	16.0	0.15	19990810	42.80086	275.62439	41.20917	21.63684	0.0760400	1.9705838	16	1	95 days	0.48	M-v	5	Williams		1999 RJ ₃₉
1999 RL ₃₉	15.7	0.15	19990810	13.33877	251.84960	88.19561	7.63301	0.2428641	2.1825663	17	1	88 days	0.66	M-v	5	Williams	36914	1999 RL ₃₉
1999 RO ₃₉	15.0	0.15	19990810	345.10763	337.11317	25.38746	6.69924	0.1712363	2.2270013	83	3	1989–1999	0.69	M-v	2	Williams	36914	1999 RO ₃₉
1999 RU ₃₉	14.7	0.15	19990810	332.99820	105.30205	265.71281	6.37789	0.2434074	2.3590746	63	1	166 days	0.44	M-v	3	Williams	36914	1999 RU ₃₉
1999 RC ₄₀	14.2	0.15	19990810	328.22618	39.72871	17.55324	16.89341	0.1356984	3.2124872	37	1	82 days	0.57	M-v	4	Williams	36914	1999 RC ₄₀
1999 RK ₄₀	14.5	0.15	19990810	126.51611	48.30399	167.04168	11.66130	0.0259546	2.4337137	50	2	1998–1999	0.62	M-v	3	Williams	36914	1999 RK ₄₀
1999 RF ₄₁	15.5	0.15	19990810	306.84496	244.20769	162.89609	23.01876	0.1310651	1.9329071	33	1	100 days	0.42	M-v	4	Williams		1999 RF ₄₁
1999 RH ₄₁	12.7	0.15	19990810	25.20474	161.53407	155.69519	23.94003	0.1262966	2.7889091	54	3	1994–1999	0.63	M-v	2	Williams	36407	1999 RH ₄₁
1999 RV ₄₁	14.3	0.15	19990810	348.31098	330.74224	45.78186	1.98406	0.1887153	3.0776504	45	1	93 days	0.58	M-v	4	Williams	36914	1999 RV ₄₁
1999 RW ₄₁	13.6	0.15	19990810	354.26906	325.74967	20.25726	2.13425	0.0687071	2.8393590	105	2	1998–1999	0.51	M-v	3	Williams	36914	1999 RW ₄₁
1999 RX ₄₁	13.8	0.15	19990810	96.25823	261.54787	349.22680	13.89261	0.0816116	2.6059447	42	1	89 days	0.56	M-v	5	Williams		1999 RX ₄₁
1999 RY ₄₁	13.4	0.15	19990810	344.50296	170.18956	217.40255	6.19830	0.3416468	3.9656379	126	1	137 days	0.50	M-v	3	Williams	36914	1999 RY ₄₁
1999 RZ ₄₁	12.5	0.15	19990810	40.01279	107.90853	204.19453	8.48351	0.0672991	3.1898227	99	3	1982–1999	0.53	M-v	2	Williams	36914	1999 RZ ₄₁

1999 RC ₄₂	13.9	0.15	19990810	347.34532	33.45493	332.98658	4.83853	0.0839372	2.4307712	83	3	1995–1999	0.56	M-v	3	Williams	36914	1999 RC ₄₂
1999 RF ₄₂	15.7	0.15	19990810	347.14270	57.60589	334.91680	3.72188	0.1466069	2.6836296	35	1	76 days	0.41	M-v	4	Williams		1999 RF ₄₂
1999 RH ₄₂	14.0	0.15	19990810	323.98476	112.54434	3.84701	9.60273	0.0696166	3.0046669	36	2	1998–1999	0.46	M-v	3	Williams	36914	1999 RH ₄₂
1999 RJ ₄₂	12.8	0.15	19990810	352.26119	145.45808	241.39982	8.35436	0.1662488	2.7799424	90	2	1962–1999	0.51	M-v	3	Williams	36914	1999 RJ ₄₂
1999 RK ₄₂	14.6	0.15	19990810	313.72370	234.90841	208.29942	22.46496	0.1991268	2.3260349	51	1	87 days	0.42	M-v	3	Williams		1999 RK ₄₂
1999 RL ₄₂	13.9	0.15	19990810	21.82011	309.06677	41.67605	4.54994	0.2124716	2.8052100	44	1	90 days	0.48	M-v	4	Williams		1999 RL ₄₂
1999 RM ₄₂	14.3	0.15	19990810	265.07624	74.02356	46.68677	14.54066	0.1419503	2.5671373	50	2	1997–1999	0.64	M-v	4	Williams	36914	1999 RM ₄₂
1999 RO ₄₂	15.7	0.15	19990810	28.86523	197.33670	113.94098	5.48657	0.2276052	2.1347535	29	1	80 days	0.62	M-v	4	Williams		1999 RO ₄₂
1999 RP ₄₂	15.7	0.15	19990810	319.24035	10.85753	51.48356	9.39076	0.2353271	2.3479023	35	1	84 days	0.55	M-v	4	Williams		1999 RP ₄₂
1999 RR ₄₂	13.5	0.15	19990810	358.29371	212.12116	163.60333	10.06503	0.1093022	3.0632221	30	1	102 days	0.59	M-v	4	Williams	36914	1999 RR ₄₂
1999 RV ₄₂	15.2	0.15	19990810	74.45877	226.58821	28.69187	4.60247	0.1264397	2.2598267	55	2	1998–1999	0.64	M-v	4	Williams	36557	1999 RV ₄₂
1999 RX ₄₂	13.9	0.15	19990810	7.35004	148.21812	179.76776	12.98426	0.2612711	2.4444320	65	3	1980–1999	0.73	M-v	2	Williams	36914	1999 RX ₄₂
1999 RD ₄₃	17.4	0.15	19990810	359.34196	264.06566	81.45706	8.15103	0.3538434	2.1748556	29	1	83 days	0.50	M-v	4	Williams		1999 RD ₄₃
1999 RM ₄₃	14.4	0.15	19990810	127.25258	26.83376	198.10051	3.49410	0.2058894	2.5952572	41	2	1994–1999	0.62	M-v	4	Williams	36914	1999 RM ₄₃
1999 RQ ₄₃	15.8	0.15	19990810	13.14210	134.07689	184.78984	4.18890	0.3005377	2.1402141	68	2	1998–1999	0.50	M-v	4	Williams	36914	1999 RQ ₄₃
1999 RS ₄₃	15.3	0.15	19990810	6.39205	180.85173	182.15386	4.39480	0.1642320	2.1768068	54	2	1998–1999	0.60	M-v	4	Williams	36914	1999 RS ₄₃
1999 RT ₄₃	14.1	0.15	19990810	327.07006	300.27218	134.03492	2.46873	0.1690170	3.1012080	51	1	89 days	0.50	M-v	4	Williams	36914	1999 RT ₄₃
1999 RU ₄₃	12.8	0.15	19990810	56.41177	265.04395	40.26826	22.89765	0.2156120	2.5812475	61	2	1998–1999	0.50	M-v	3	Williams	36825	1999 RU ₄₃
1999 RZ ₄₃	14.2	0.15	19990810	350.60444	296.86635	89.03302	6.24818	0.1459128	3.1750074	38	1	102 days	0.46	M-v	4	Williams	36914	1999 RZ ₄₃
1999 RA ₄₄	14.3	0.15	19990810	268.77536	75.12014	52.86005	7.20827	0.1143447	2.2757632	50	2	1992–1999	0.50	M-v	4	Williams	36825	1999 RA ₄₄
1999 RB ₄₄	14.1	0.15	19990810	335.25742	16.70754	39.38460	11.23614	0.1704250	2.5367844	39	2	1987–1999	0.42	M-v	3	Williams	36825	1999 RB ₄₄
1999 RC ₄₄	13.2	0.15	19990810	5.97760	328.03705	45.23386	11.89573	0.1689421	2.6247654	60	2	1986–1999	0.62	M-v	4	Williams	36825	1999 RC ₄₄
1999 RH ₄₄	14.4	0.15	19990810	348.67438	324.90186	29.31194	7.20572	0.1453186	2.4328561	74	3	1982–1999	0.58	M-v	2	Williams	36914	1999 RH ₄₄
1999 RL ₄₄	15.6	0.15	19990810	344.17968	24.80472	348.00033	13.87260	0.3039739	2.5973468	34	1	106 days	0.62	M-v	4	Williams	36915	1999 RL ₄₄
1999 RM ₄₄	14.3	0.15	19990810	356.26423	150.31389	196.12906	17.87026	0.2312795	2.5949138	79	2	1998–1999	0.51	M-v	3	Williams	36915	1999 RM ₄₄
1999 RN ₄₄	15.4	0.15	19990810	9.73364	126.66699	194.02518	12.62864	0.2918382	2.3304141	25	1	120 days	0.38	M-v	4	Williams		1999 RN ₄₄
1999 RS ₄₄	14.9	0.15	19990810	348.05321	321.99228	57.11340	5.80218	0.2715676	2.5347177	66	3	1991–1999	0.56	M-v	3	Williams	36915	1999 RS ₄₄
1999 RT ₄₄	13.6	0.15	19990810	323.54089	48.62505	331.21208	13.08667	0.2162631	2.5819840	72	2	1997–1999	0.49	M-v	3	Williams	36915	1999 RT ₄₄
1999 RU ₄₄	14.6	0.15	19990810	355.48030	162.65249	173.09000	13.40846	0.1935456	2.5638662	47	1	83 days	0.48	M-v	4	Williams		1999 RU ₄₄
1999 RY ₄₄	14.8	0.15	19990810	37.16944	333.42880	326.72831	6.37123	0.1252735	2.3425045	39	2	1998–1999	0.77	M-v	4	Williams	36410	1999 RY ₄₄
1999 RB ₄₅	15.5	0.15	19990810	334.77827	40.30046	347.70116	1.91835	0.2132231	2.3714201	39	1	93 days	0.49	M-v	4	Williams		1999 RB ₄₅
1999 RG ₄₅	12.8	0.15	19990810	23.36258	330.74532	329.10323	6.47267	0.1650828	3.1885127	82	3	1981–1999	0.67	M-v	3	Williams	36915	1999 RG ₄₅
1999 RJ ₄₅	14.9	0.15	19990810	349.65940	241.80051	126.40816	15.22876	0.4435510	2.8616183	114	2	1984–1999	0.56	M-v	2	Williams	36825	1999 RJ ₄₅
1999 RQ ₄₅	15.5	0.15	19990810	348.22455	180.22519	177.06976	6.71301	0.1392599	2.3227872	52	1	115 days	0.57	M-v	4	Williams	36915	1999 RQ ₄₅
1999 RU ₄₅	14.9	0.15	19990810	305.32034	213.14509	200.54930	6.01661	0.0687780	2.7202192	45	1	91 days	0.49	M-v	4	Williams		1999 RU ₄₅
1999 RW ₄₅	15.0	0.15	19990810	351.15855	288.18283	68.87808	1.44367	0.3104676	3.0728309	45	1	122 days	0.56	M-v	4	Williams	36915	1999 RW ₄₅
1999 RW ₄₆	15.2	0.15	19990810	354.74614	12.58771	311.43862	2.76686	0.3465252	2.6357156	55	1	148 days	0.54	M-v	4	Williams	36915	1999 RW ₄₆
1999 RN ₅₀	15.6	0.15	19990810	356.86139	344.39851	338.84243	10.00987	0.2463830	2.3793479	43	1	88 days	0.59	M-v	4	Williams	36915	1999 RN ₅₀
1999 RC ₅₂	14.9	0.15	19990810	351.05828	312.99487	20.43044	3.54526	0.1835306	2.3100356	52	4	1971–1999	0.65	M-v	3	Williams	36915	1999 RC ₅₂
1999 RX ₅₂	13.9	0.15	19990810	333.06462	27.64910	335.05542	14.42238	0.2116319	2.6545309	50	1	146 days	0.63	M-v	4	Williams	36915	1999 RX ₅₂
1999 RQ ₅₇	13.4	0.15	19990810	23.39559	310.35517	346.11821	14.95318	0.1128213	2.6017553	63	2	1998–1999	0.51	M-v	3	Williams	36915	1999 RQ ₅₇
1999 RF ₆₂	13.3	0.15	19990810	209.59821	111.56014	13.49110	6.57051	0.1177762	2.4276576	39	5	1975–1999	0.72	M-v	1	Williams	36915	1999 RF ₆₂
1999 RO ₆₃	13.6	0.15	19990810	288.72724	212.53153	202.08520	2.85114	0.0881604	2.5953409	110	3	1962–1999	0.72	M-v	3	Williams	36915	1999 RO ₆₃
1999 RG ₇₁	13.2	0.15	19990810	247.49972	104.35441	353.54299	9.23868	0.0532894	2.9850246	57	2	1997–1999	0.52	M-v	3	Williams	36915	1999 RG ₇₁
1999 RR ₇₁	15.7	0.15	19990810	349.44594	343.82297	5.52976	4.71105	0.1832943	2.4143742	46	1	117 days	0.55	M-v	3	Williams	36915	1999 RR ₇₁
1999 RD ₇₂	15.5	0.15	19990810	350.17029	285.31561	63.91150	3.73453	0.1521226	2.5898139	55	4	1991–1999	0.66	M-v	4	Williams	36558	1999 RD ₇₂
1999 RF ₇₂	15.2	0.15	19990810	332.90814	238.49520	134.80560	5.78607	0.1793674	2.3740404	54	1	87 days	0.34	M-v	4	Williams	36915	1999 RF ₇₂
1999 RL ₇₃	15.1	0.15	19990810	334.18923	54.03893	330.12420	11.08745	0.3003195	2.5833890	70	1	143 days	0.49	M-v	3	Williams	36915	1999 RL ₇₃
1999 RR ₇₄	14.6	0.15	19990810	296.97005	289.21544	127.48589	5.39348	0.1508342	2.4049659	64	1	111 days	0.47	M-v	4	Williams	36915	1999 RR ₇₄
1999 RR ₇₅	15.1	0.15	19990810	250.29302	208.87639	248.62812	4.65214	0.0651505	2.2256458	62	3	1993–1999	0.56	M-v	3	Williams	36915	1999 RR ₇₅
1999 RV ₇₅	14.4	0.15	19990810	298.81709	231.76084	187.15426	15.00440	0.1398760	2.5933888	41	1	91 days	0.53	M-v	4	Williams		1999 RV ₇₅
1999 RQ ₇₇	12.4	0.15	19990830	193.09294	163.90000	341.70919	14.97068	0.0283493	3.1752261	14	1	27 days	0.47			Williams		1999 RQ ₇₇
1999 RF ₈₁	15.2	0.15	19990810	49.61934	147.85623	127.34012	2.96947	0.1589539	2.2793334	57	3	1984–1999	0.68	M-v	2	Williams	36915	1999 RF ₈₁

1999 RT ₈₁	15.2	0.15	19990810	322.30465	61.22928	337.73438	9.10923	0.2308715	2.5753907	44	1	105 days	0.55	M-v	4	Williams		1999 RT ₈₁
1999 RU ₈₁	14.7	0.15	19990810	321.89386	213.75761	186.97021	7.97082	0.2278457	2.7864571	40	2	1997–1999	0.47	M-v	3	Williams	36915	1999 RU ₈₁
1999 RV ₈₁	13.7	0.15	19990810	337.61255	155.00137	220.48037	3.80306	0.1532093	3.2048387	51	1	107 days	0.61	M-v	4	Williams		1999 RV ₈₁
1999 RA ₈₃	15.4	0.15	19990810	15.21627	350.86426	325.89621	1.68102	0.1946729	2.4095906	57	2	1998–1999	0.64	M-v	3	Williams	36915	1999 RA ₈₃
1999 RJ ₈₃	15.6	0.15	19990810	1.46674	300.67595	33.82434	2.67400	0.2237384	2.3758782	33	1	144 days	0.47	M-v	4	Williams	36915	1999 RJ ₈₃
1999 RB ₈₄	13.6	0.15	19990810	151.33419	194.00507	359.37237	10.53401	0.0728758	2.9466452	60	1	117 days	0.68	M-v	4	Williams	36915	1999 RB ₈₄
1999 RC ₈₄	15.2	0.15	19990810	337.20654	237.81276	135.20554	1.75667	0.1412087	2.5625334	44	2	1995–1999	0.63	M-v	4	Williams	36419	1999 RC ₈₄
1999 RN ₈₄	14.1	0.15	19990810	34.58435	30.46329	258.30111	2.54806	0.2264936	2.3068968	95	5	1981–1999	0.49	M-v	1	Williams	36916	1999 RN ₈₄
1999 RM ₈₅	14.0	0.15	19990810	332.60232	317.42810	60.58623	2.66843	0.0727551	2.8578902	37	2	1992–1999	0.56	M-v	4	Williams	36419	1999 RM ₈₅
1999 RA ₈₆	14.7	0.15	19990810	350.49070	251.94985	104.88155	3.23644	0.0967988	2.6865802	47	4	1993–1999	0.58	M-v	3	Williams	36916	1999 RA ₈₆
1999 RD ₈₆	14.9	0.15	19990810	27.33380	135.45884	156.06643	12.80683	0.3008148	2.6050405	46	2	1998–1999	0.52	M-v	4	Williams	36419	1999 RD ₈₆
1999 RS ₈₆	15.2	0.15	19990810	0.82727	325.77605	11.68445	6.37979	0.2803102	2.5645680	54	1	144 days	0.44	M-v	3	Williams	36916	1999 RS ₈₆
1999 RT ₈₆	14.2	0.15	19990810	347.93103	247.52733	114.41707	3.34188	0.1052482	2.8604254	51	3	1992–1999	0.76	M-v	3	Williams	36420	1999 RT ₈₆
1999 RV ₈₆	13.9	0.15	19990810	13.60014	307.56496	24.30912	5.61466	0.0629813	2.7489253	16	1	91 days	0.52	M-v	5	Williams		1999 RV ₈₆
1999 RW ₈₆	13.2	0.15	19990810	357.75958	328.53660	22.51994	6.41043	0.1643476	3.1836072	43	2	1997–1999	0.66	M-v	3	Williams	36916	1999 RW ₈₆
1999 RD ₈₇	14.3	0.15	19990810	356.72075	330.01291	21.91819	2.27993	0.0637074	2.8832505	33	2	1992–1999	0.61	M-v	4	Williams	36420	1999 RD ₈₇
1999 RK ₈₈	14.2	0.15	19990810	59.80972	9.17772	280.33211	0.86688	0.0307157	2.9080035	55	2	1992–1999	0.57	M-v	4	Williams	36916	1999 RK ₈₈
1999 RP ₈₈	15.0	0.15	19990810	341.99473	92.25429	277.76593	1.64555	0.1006879	2.6496574	27	2	1997–1999	0.61	M-v	4	Williams	36916	1999 RP ₈₈
1999 RR ₈₈	13.2	0.15	19990810	291.24304	101.99812	336.39387	4.57294	0.1508691	3.1897534	29	1	91 days	0.49	M-v	6	Williams		1999 RR ₈₈
1999 RT ₈₈	15.7	0.15	19990810	340.73109	181.74122	192.58589	7.28943	0.1891014	2.5832025	29	1	91 days	0.81	M-v	5	Williams		1999 RT ₈₈
1999 RW ₈₈	15.5	0.15	19990810	300.95087	209.67343	207.07242	2.44218	0.1224971	2.1643352	37	1	91 days	0.49	M-v	4	Williams	36916	1999 RW ₈₈
1999 RX ₈₈	14.9	0.15	19990810	282.36936	161.56320	284.33915	1.48940	0.1738826	2.3786432	48	2	1997–1999	0.47	M-v	4	Williams	36916	1999 RX ₈₈
1999 RZ ₈₈	14.8	0.15	19990810	69.73105	288.15596	335.19563	3.45129	0.1272268	2.2391001	38	2	1998–1999	0.58	M-v	4	Williams	36421	1999 RZ ₈₈
1999 RB ₈₉	13.4	0.15	19990810	285.57895	259.89557	183.05856	13.58799	0.1427754	2.8855405	48	1	128 days	0.55	M-v	4	Williams	36916	1999 RB ₈₉
1999 RJ ₈₉	14.1	0.15	19990810	267.85686	92.67250	1.22803	9.58543	0.0730381	3.0520416	29	1	107 days	0.50	M-v	5	Williams		1999 RJ ₈₉
1999 RK ₈₉	14.8	0.15	19990810	339.11073	202.24205	170.82038	6.02456	0.1117659	2.4565521	28	1	86 days	0.52	M-v	5	Williams		1999 RK ₈₉
1999 RS ₈₉	14.2	0.15	19990810	341.69011	220.66880	154.47748	5.81336	0.2900528	2.5354145	22	2	1995–1999	0.47	M-v	4	Williams	36827	1999 RS ₈₉
1999 RG ₉₀	14.5	0.15	19990810	311.87070	300.43240	120.61909	4.84517	0.2689302	2.5364584	18	5	1975–1999	0.47	M-v	3	Williams	36827	1999 RG ₉₀
1999 RQ ₉₀	14.7	0.15	19990810	33.35063	159.63316	138.86489	5.99171	0.1709481	2.3055909	38	2	1998–1999	0.62	M-v	4	Williams	36422	1999 RQ ₉₀
1999 RF ₉₁	14.5	0.15	19990810	319.89702	240.43879	157.18216	4.88159	0.0789332	2.7817260	29	2	1976–1999	0.75	M-v	5	Williams	36422	1999 RF ₉₁
1999 RO ₉₁	14.7	0.15	19990810	315.10946	282.66895	130.62143	1.64925	0.2213533	2.4658943	33	2	1995–1999	0.48	M-v	5	Williams	36827	1999 RO ₉₁
1999 RP ₉₁	12.8	0.15	19990810	48.79977	234.42517	57.07315	1.46561	0.1404257	3.1939943	43	4	1976–1999	0.63	M-v	1	Williams	36827	1999 RP ₉₁
1999 RT ₉₁	16.4	0.15	19990810	321.44667	49.58036	351.26820	2.06012	0.2122072	2.2373526	40	1	95 days	0.50	M-v	4	Williams	36916	1999 RT ₉₁
1999 RV ₉₁	13.5	0.15	19990810	22.96610	324.30157	357.97653	9.12021	0.1109848	2.7303548	48	6	1972–1999	0.49	M-v	1	Williams	36916	1999 RV ₉₁
1999 RZ ₉₁	16.0	0.15	19990810	325.71521	98.82820	303.27903	0.73304	0.2793961	2.3632849	28	1	91 days	0.47	M-v	5	Williams		1999 RZ ₉₁
1999 RC ₉₂	15.1	0.15	19990810	339.40800	27.02926	353.06585	6.21572	0.2628106	2.5366495	50	1	145 days	0.48	M-v	3	Williams	36916	1999 RC ₉₂
1999 RE ₉₂	14.1	0.15	19990810	1.71941	160.35257	187.50669	6.85969	0.1298654	2.7148971	52	4	1990–1999	0.54	M-v	2	Williams	36422	1999 RE ₉₂
1999 RF ₉₂	14.1	0.15	19990810	321.92923	225.57756	183.03011	12.34360	0.1974362	3.0308455	66	2	1997–1999	0.54	M-v	3	Williams	36916	1999 RF ₉₂
1999 RK ₉₂	14.1	0.15	19990810	216.66251	144.21695	357.18748	6.07330	0.0914469	2.2598054	61	4	1974–1999	0.57	M-v	3	Williams	36916	1999 RK ₉₂
1999 RL ₉₂	14.9	0.15	19990810	357.30359	170.35917	186.34543	1.77821	0.1179200	2.9449751	44	2	1997–1999	0.47	M-v	4	Williams	36916	1999 RL ₉₂
1999 RO ₉₂	13.4	0.15	19990810	299.94230	271.47424	154.95667	3.93702	0.1081781	3.0580883	55	3	1996–1999	0.64	M-v	3	Williams	36423	1999 RO ₉₂
1999 RP ₉₂	15.0	0.15	19990810	302.96716	53.73993	8.46825	5.87866	0.1546974	2.3356641	54	1	94 days	0.45	M-v	4	Williams		1999 RP ₉₂
1999 RX ₉₂	15.0	0.15	19990810	326.21161	15.93369	14.43270	5.23748	0.1106315	2.4420055	27	1	91 days	0.45	M-v	4	Williams		1999 RX ₉₂
1999 RB ₉₃	14.0	0.15	19990810	341.25066	323.98003	54.56332	2.92304	0.1948524	3.0640875	50	2	1978–1999	0.63	M-v	4	Williams	36916	1999 RB ₉₃
1999 RN ₉₃	13.8	0.15	19990810	299.89079	354.96637	59.45276	3.33152	0.0222771	2.6895083	34	3	1990–1999	0.62	M-v	3	Williams	36424	1999 RN ₉₃
1999 RQ ₉₃	16.3	0.15	19990810	348.76505	307.89350	53.15238	2.84983	0.2263892	2.3823601	47	2	1977–1999	0.74	M-v	3	Williams	36916	1999 RQ ₉₃
1999 RT ₉₃	14.3	0.15	19990810	23.48352	218.07538	85.16463	3.49578	0.3083002	2.9925677	52	2	1998–1999	0.68	M-v	4	Williams	36916	1999 RT ₉₃
1999 RC ₉₄	14.1	0.15	19990810	343.64673	222.97429	144.88538	6.97279	0.1346210	2.3224292	61	4	1992–1999	0.68	M-v	2	Williams	36424	1999 RC ₉₄
1999 RD ₉₄	13.3	0.15	19990810	60.79853	120.19430	151.35379	8.92103	0.1738973	2.5379793	45	3	1994–1999	0.58	M-v	2	Williams	36424	1999 RD ₉₄
1999 RK ₉₄	13.8	0.15	19990810	324.27250	25.53136	13.36390	15.59932	0.1309122	2.9753052	75	3	1971–1999	0.61	M-v	3	Williams	36916	1999 RK ₉₄
1999 RO ₉₄	12.5	0.15	19990810	184.28158	151.02040	21.46001	10.66945	0.0399146	3.0270827	24	4	1976–1999	0.62	M-v	2	Williams	36828	1999 RO ₉₄
1999 RE ₉₅	14.1	0.15	19990810	149.48411	6.51927	192.84445	11.42898	0.1728544	2.4700605	51	4	1991–1999	0.66	M-v	2	Williams	36916	1999 RE ₉₅
1999 RF ₉₅	16.0	0.15	19990810	299.44658	213.20196	208.85191	2.73337	0.1148226	2.1969508	36	1	91 days	0.59	M-v	5	Williams		1999 RF ₉₅

1999 RG ₉₅	14.3	0.15	19990810	350.81410	11.16611	353.74293	8.91207	0.1678207	2.7980999	51	2	1992–1999	0.44	M-v	3	Williams	36916	1999 RG ₉₅
1999 RR ₉₅	15.5	0.15	19990810	349.23630	291.11230	69.94384	3.29173	0.2234195	2.3778086	32	1	93 days	0.49	M-v	4	Williams		1999 RR ₉₅
1999 RS ₉₅	14.1	0.15	19990810	352.33970	224.55847	134.01163	5.33240	0.1838384	2.5319155	17	1	87 days	0.41	M-v	5	Williams		1999 RS ₉₅
1999 RX ₉₅	14.5	0.15	19990810	345.63936	206.26061	162.88191	14.56381	0.1635499	2.5466969	23	1	101 days	0.41	M-v	4	Williams		1999 RX ₉₅
1999 RY ₉₅	13.7	0.15	19990810	2.52939	248.20548	102.50519	4.86940	0.1430186	3.1811420	22	1	89 days	0.57	M-v	4	Williams		1999 RY ₉₅
1999 RZ ₉₅	13.7	0.15	19990810	323.85142	4.11476	35.13850	9.37110	0.1060207	3.1663617	24	1	91 days	0.49	M-v	4	Williams		1999 RZ ₉₅
1999 RA ₉₆	14.8	0.15	19990810	90.19324	124.39781	127.99053	4.97575	0.1058123	2.5254186	36	2	1998–1999	0.47	M-v	4	Williams	36426	1999 RA ₉₆
1999 RM ₉₆	14.2	0.15	19990810	345.19638	274.72707	102.53659	2.27596	0.1884484	3.1380254	42	1	91 days	0.50	M-v	4	Williams		1999 RM ₉₆
1999 RR ₉₇	15.7	0.15	19990810	324.04122	194.32772	196.62777	0.57826	0.0872157	2.3838967	29	1	91 days	0.65	M-v	5	Williams		1999 RR ₉₇
1999 RH ₉₈	14.4	0.15	19990810	6.07135	259.99745	86.05574	2.59444	0.1998909	3.1993497	34	1	91 days	0.51	M-v	4	Williams		1999 RH ₉₈
1999 RM ₉₈	14.9	0.15	19990810	291.22263	262.40846	174.12184	3.45675	0.1501966	2.6305539	51	2	1997–1999	0.57	M-v	4	Williams	36560	1999 RM ₉₈
1999 RY ₉₈	14.7	0.15	19990810	2.37688	338.96422	14.42813	25.88289	0.1194162	2.6863714	42	1	89 days	0.52	M-v	4	Williams		1999 RY ₉₈
1999 RZ ₉₈	12.6	0.15	19990810	33.25562	310.04555	21.15089	21.88929	0.0206818	3.2263835	85	4	1982–1999	0.53	M-v	1	Williams	36916	1999 RZ ₉₈
1999 RC ₉₉	14.6	0.15	19990810	49.92175	211.17165	69.54968	5.86035	0.2598501	2.4393286	35	2	1998–1999	0.73	M-v	4	Williams	36917	1999 RC ₉₉
1999 RS ₁₀₀	13.5	0.15	19990810	20.86055	66.52041	236.11926	9.33707	0.0810353	2.9744908	42	2	1998–1999	0.59	M-v	3	Williams	36560	1999 RS ₁₀₀
1999 RT ₁₀₀	12.7	0.15	19990810	14.67689	29.06193	279.26442	10.24594	0.1506062	3.2346255	34	1	144 days	0.44	M-v	4	Williams	36110	1999 RT ₁₀₀
1999 RW ₁₀₀	13.2	0.15	19990810	4.76066	40.28039	279.39750	11.33596	0.3106785	3.0974430	60	1	147 days	0.55	M-v	3	Williams	36917	1999 RW ₁₀₀
1999 RD ₁₀₂	13.0	0.15	19990810	47.47736	28.21225	247.59593	10.85038	0.1248113	3.0306014	73	3	1994–1999	0.72	M-v	2	Williams	36917	1999 RD ₁₀₂
1999 RE ₁₀₂	12.8	0.15	19990810	336.70889	164.44540	199.63753	16.41639	0.1360628	3.0978431	78	3	1983–1999	0.55	M-v	3	Williams	36917	1999 RE ₁₀₂
1999 RN ₁₀₂	14.7	0.15	19990810	352.99827	106.09615	236.32593	7.02470	0.2713998	2.6900577	59	1	144 days	0.57	M-v	3	Williams	36917	1999 RN ₁₀₂
1999 RQ ₁₀₂	14.4	0.15	19990810	326.33114	66.16935	307.67285	12.55014	0.0817579	2.6617388	39	1	144 days	0.56	M-v	4	Williams	36917	1999 RQ ₁₀₂
1999 RR ₁₀₂	13.9	0.15	19990810	309.71568	114.12000	279.34195	8.42717	0.0840564	2.9871528	47	1	117 days	0.58	M-v	4	Williams	36917	1999 RR ₁₀₂
1999 RT ₁₀₂	14.4	0.15	19990810	38.54410	36.74402	242.13727	6.84377	0.1698055	2.2375985	64	1	144 days	0.51	M-v	4	Williams	36917	1999 RT ₁₀₂
1999 RY ₁₀₂	14.3	0.15	19990810	1.43377	142.44493	187.45037	12.95048	0.2013656	2.7289363	62	2	1998–1999	0.54	M-v	3	Williams	36917	1999 RY ₁₀₂
1999 RZ ₁₀₂	15.1	0.15	19990810	323.87650	89.55550	298.25984	7.27768	0.2319343	3.3568573	51	1	117 days	0.50	M-v	4	Williams	36917	1999 RZ ₁₀₂
1999 RA ₁₀₃	12.6	0.15	19990810	348.47632	98.94472	251.62779	6.77322	0.1112555	3.2352764	61	3	1982–1999	0.57	M-v	2	Williams	36917	1999 RA ₁₀₃
1999 RB ₁₀₃	14.2	0.15	19990810	335.79781	157.55243	214.60572	15.95292	0.2342371	3.0424055	34	1	114 days	0.43	M-v	3	Williams		1999 RB ₁₀₃
1999 RE ₁₀₃	15.1	0.15	19990810	344.48908	61.38092	305.56925	14.56186	0.3499957	2.9810100	28	1	89 days	0.64	M-v	5	Williams		1999 RE ₁₀₃
1999 RG ₁₀₃	14.3	0.15	19990810	335.26498	150.47745	218.71743	12.71960	0.1777273	2.5524763	44	1	134 days	0.46	M-v	3	Williams	36917	1999 RG ₁₀₃
1999 RH ₁₀₃	14.9	0.15	19990810	319.65626	179.79062	214.65857	12.22630	0.2195940	2.4308579	46	1	127 days	0.48	M-v	4	Williams	36917	1999 RH ₁₀₃
1999 RQ ₁₀₃	15.0	0.15	19990810	342.54263	57.66116	297.96559	6.02926	0.1342045	2.3191351	57	2	1998–1999	0.66	M-v	3	Williams	36917	1999 RQ ₁₀₃
1999 RT ₁₀₃	14.6	0.15	19990810	329.24009	199.72579	185.79536	13.39273	0.2478150	2.5739747	72	1	126 days	0.57	M-v	4	Williams	36917	1999 RT ₁₀₃
1999 RV ₁₀₃	14.0	0.15	19990810	41.55235	11.38482	275.66490	5.73705	0.1136396	2.3698952	63	2	1998–1999	0.51	M-v	3	Williams	36917	1999 RV ₁₀₃
1999 RZ ₁₀₃	13.2	0.15	19990810	355.65251	75.32133	270.23494	8.80790	0.1122000	3.0237451	52	3	1984–1999	0.49	M-v	3	Williams	36917	1999 RZ ₁₀₃
1999 RJ ₁₀₄	14.7	0.15	19990810	2.93067	35.41217	300.54245	6.25326	0.1448721	2.3541896	68	2	1998–1999	0.57	M-v	3	Williams	36917	1999 RJ ₁₀₄
1999 RK ₁₀₄	12.7	0.15	19990810	15.61137	31.29770	281.31768	12.10673	0.1711940	2.6787630	56	3	1982–1999	0.55	M-v	3	Williams	36917	1999 RK ₁₀₄
1999 RZ ₁₀₄	14.8	0.15	19990810	16.44400	88.22042	241.65511	1.71668	0.1758603	2.4283662	71	2	1998–1999	0.56	M-v	3	Williams	36917	1999 RZ ₁₀₄
1999 RE ₁₀₅	16.1	0.15	19990810	353.35330	341.27566	21.05024	5.56629	0.1627794	2.2780515	26	1	90 days	0.61	M-v	4	Williams		1999 RE ₁₀₅
1999 RH ₁₀₅	14.0	0.15	19990810	23.11099	289.61195	46.79255	3.27616	0.0708227	2.7149628	56	1	93 days	0.45	M-v	4	Williams		1999 RH ₁₀₅
1999 RT ₁₀₅	13.2	0.15	19990810	24.36327	357.24508	323.72465	14.64766	0.0653603	3.0498660	38	1	135 days	0.50	M-v	4	Williams	36561	1999 RT ₁₀₅
1999 RU ₁₀₅	14.2	0.15	19990810	315.87612	113.48643	285.25239	12.94927	0.0969092	2.5957354	30	1	89 days	0.49	M-v	4	Williams		1999 RU ₁₀₅
1999 RC ₁₀₆	15.0	0.15	19990810	39.76087	1.92489	281.81581	5.01571	0.1937861	2.1956687	46	1	76 days	0.45	M-v	4	Williams	36561	1999 RC ₁₀₆
1999 RE ₁₀₆	14.1	0.15	19990810	345.09160	157.93136	205.29384	8.60071	0.1669667	2.8051297	56	1	137 days	0.45	M-v	3	Williams	36917	1999 RE ₁₀₆
1999 RP ₁₀₈	13.8	0.15	19990810	325.24229	89.51174	298.95596	8.59988	0.1003639	3.0165362	32	1	73 days	0.65	M-v	4	Williams	36561	1999 RP ₁₀₈
1999 RX ₁₀₈	14.5	0.15	19990810	0.50592	115.09759	233.05581	11.50154	0.1377809	2.6347327	45	1	136 days	0.50	M-v	3	Williams	36917	1999 RX ₁₀₈
1999 RD ₁₀₉	16.0	0.15	19990810	1.20469	157.26143	191.53922	8.00041	0.3048465	2.7524030	50	1	133 days	0.67	M-v	4	Williams	36917	1999 RD ₁₀₉
1999 RJ ₁₀₉	14.8	0.15	19990810	1.81468	12.30049	329.34358	9.06367	0.1966721	2.3623511	57	1	145 days	0.52	M-v	3	Williams	36917	1999 RJ ₁₀₉
1999 RL ₁₀₉	13.2	0.15	19990810	238.38265	274.18754	216.99383	10.59665	0.1558594	3.0453042	51	2	1997–1999	0.70	M-v	3	Williams	36917	1999 RL ₁₀₉
1999 RR ₁₀₉	14.4	0.15	19990810	336.48564	52.68335	334.88754	10.59373	0.1843059	2.7522887	56	1	136 days	0.44	M-v	3	Williams	36917	1999 RR ₁₀₉
1999 RZ ₁₀₉	15.9	0.15	19990810	348.28875	96.85883	270.02712	6.42539	0.1351252	2.1987651	35	1	82 days	0.55	M-v	4	Williams		1999 RZ ₁₀₉
1999 RH ₁₁₀	13.5	0.15	19990810	306.92387	170.87884	255.47299	8.90009	0.0864897	3.0062273	39	3	1989–1999	0.47	M-v	4	Williams	36918	1999 RH ₁₁₀
1999 RR ₁₁₀	15.7	0.15	19990810	356.05681	68.51343	294.57403	6.54587	0.1367078	2.3286979	37	2	1997–1999	0.65	M-v	4	Williams	36918	1999 RR ₁₁₀
1999 RX ₁₁₀	14.1	0.15	19990810	56.24270	7.37220	295.14238	5.79510	0.0703079	2.5219397	69	4	1989–1999	0.55	M-v	1	Williams	36918	1999 RX ₁₁₀

1999 RR ₁₁₃	12.8	0.15	19990810	310.65572	102.10911	303.36755	13.42051	0.2042498	2.5519627	51	1	93 days	0.34	M-v	5	Williams		1999 RR ₁₁₃
1999 RJ ₁₁₅	14.5	0.15	19990810	16.56337	157.47624	149.71618	6.91488	0.0859216	2.4820560	57	2	1998–1999	0.55	M-v	3	Williams	36918	1999 RJ ₁₁₅
1999 RT ₁₁₇	13.3	0.15	19990810	335.52340	72.53805	282.54245	13.56424	0.1264309	2.6722014	25	1	87 days	0.38	M-v	5	Williams		1999 RT ₁₁₇
1999 RX ₁₁₈	13.4	0.15	19990810	310.97680	201.87124	196.17222	12.05958	0.2509273	2.6926457	45	4	1955–1999	0.66	M-v	2	Williams	36918	1999 RX ₁₁₈
1999 RL ₁₁₉	14.6	0.15	19990810	324.18823	65.24892	314.07032	14.05654	0.2336427	2.7145807	39	1	135 days	0.61	M-v	4	Williams	36918	1999 RL ₁₁₉
1999 RP ₁₂₀	14.9	0.15	19990810	346.87289	24.97685	320.74856	13.20820	0.2501447	2.6590320	37	1	140 days	0.62	M-v	3	Williams	36918	1999 RP ₁₂₀
1999 RV ₁₂₀	13.8	0.15	19990810	353.05342	161.22536	172.01174	13.54692	0.2044375	2.4035669	91	3	1988–1999	0.54	M-v	2	Williams	36918	1999 RV ₁₂₀
1999 RT ₁₂₂	14.4	0.15	19990810	23.32396	248.23860	59.18333	4.16387	0.0906375	2.6616498	55	3	1978–1999	0.62	M-v	3	Williams	36434	1999 RT ₁₂₂
1999 RU ₁₂₂	15.7	0.15	19990810	344.93397	209.72928	148.89553	14.27118	0.2588073	2.6341873	58	2	1997–1999	0.56	M-v	4	Williams	36434	1999 RU ₁₂₂
1999 RE ₁₂₃	13.7	0.15	19990810	82.04197	322.51397	287.42761	6.25339	0.0764745	2.3527881	63	2	1998–1999	0.51	M-v	3	Williams	36918	1999 RE ₁₂₃
1999 RK ₁₂₃	15.3	0.15	19990810	303.69521	168.07356	239.93210	6.15366	0.1167196	2.2904644	40	3	1982–1999	0.44	M-v	3	Williams	36918	1999 RK ₁₂₃
1999 RN ₁₂₃	13.3	0.15	19990810	331.57073	70.48129	308.82444	10.99020	0.0768115	2.9421365	37	1	135 days	0.64	M-v	4	Williams	36562	1999 RN ₁₂₃
1999 RQ ₁₂₃	15.1	0.15	19990810	341.55852	151.45800	223.56420	8.17861	0.3255165	2.7240644	45	1	91 days	0.42	M-v	4	Williams		1999 RQ ₁₂₃
1999 RA ₁₂₄	14.4	0.15	19990810	358.30658	65.11158	279.76776	6.16746	0.2256915	2.7752759	47	2	1994–1999	0.46	M-v	3	Williams	36918	1999 RA ₁₂₄
1999 RB ₁₂₄	14.7	0.15	19990810	51.25413	49.81361	220.58902	7.94600	0.1957824	2.2342582	67	2	1996–1999	0.52	M-v	4	Williams	36918	1999 RB ₁₂₄
1999 RE ₁₂₄	14.8	0.15	19990810	4.49694	142.55931	195.27858	13.79329	0.1141819	2.5935176	64	3	1995–1999	0.52	M-v	2	Williams	36918	1999 RE ₁₂₄
1999 RG ₁₂₄	14.2	0.15	19990810	345.68374	58.22611	306.51373	8.98958	0.1326207	2.5824640	40	1	135 days	0.58	M-v	3	Williams	36918	1999 RG ₁₂₄
1999 RL ₁₂₄	13.7	0.15	19990810	337.21107	52.24256	327.80898	12.35899	0.2022344	2.6395392	69	1	138 days	0.44	M-v	3	Williams	36918	1999 RL ₁₂₄
1999 RZ ₁₂₅	13.5	0.15	19990810	99.01572	254.33330	324.89133	14.83665	0.1235006	2.5290711	30	2	1991–1999	0.57	M-v	5	Williams	36828	1999 RZ ₁₂₅
1999 RF ₁₂₆	13.9	0.15	19990810	352.35065	15.62324	322.60203	13.41473	0.0982338	2.5403021	60	2	1991–1999	0.54	M-v	3	Williams	36918	1999 RF ₁₂₆
1999 RT ₁₂₈	14.0	0.15	19990810	354.12673	152.28753	183.41862	6.91821	0.2768413	2.7598118	70	3	1981–1999	0.74	M-v	2	Williams	36918	1999 RT ₁₂₈
1999 RG ₁₃₂	14.1	0.15	19990810	33.76917	356.84799	289.81056	6.34105	0.1130011	2.2921830	36	3	1992–1999	0.44	M-v	3	Williams	36918	1999 RG ₁₃₂
1999 RP ₁₃₂	12.5	0.15	19990810	304.38167	100.06226	312.51426	12.87563	0.2329332	3.1677603	50	3	1984–1999	0.54	M-v	2	Williams	36918	1999 RP ₁₃₂
1999 RA ₁₃₃	13.2	0.15	19990810	28.29193	343.70873	300.77793	9.83054	0.2403221	2.8088018	53	4	1985–1999	0.55	M-v	1	Williams	36918	1999 RA ₁₃₃
1999 RW ₁₃₃	15.2	0.15	19990810	9.70303	92.80856	223.34223	5.42025	0.1393004	2.3159274	43	1	125 days	0.47	M-v	3	Williams	36918	1999 RW ₁₃₃
1999 RK ₁₃₄	11.7	0.15	19990810	242.29653	194.85104	270.74266	6.28612	0.1472808	3.9632198	31	1	137 days	0.55	M-v	5	Williams	36563	1999 RK ₁₃₄
1999 RL ₁₄₂	13.7	0.15	19990810	188.62279	133.79650	28.43379	6.45068	0.0773965	2.4607389	68	5	1970–1999	0.65	M-v	2	Williams	36919	1999 RL ₁₄₂
1999 RV ₁₄₂	14.4	0.15	19990810	345.47360	232.47494	130.56049	4.81556	0.2346527	2.2600792	20	1	91 days	0.44	M-v	5	Williams		1999 RV ₁₄₂
1999 RW ₁₄₂	14.3	0.15	19990810	284.05800	81.37240	359.81816	4.83864	0.1174945	2.6766120	58	2	1997–1999	0.51	M-v	4	Williams	36444	1999 RW ₁₄₂
1999 RM ₁₄₃	15.1	0.15	19990810	14.02653	315.41560	8.14380	4.96354	0.2445750	2.6557232	51	1	107 days	0.47	M-v	4	Williams		1999 RM ₁₄₃
1999 RN ₁₄₃	15.6	0.15	19990810	337.92892	206.93111	175.79331	8.62114	0.3113263	2.4040019	55	2	1997–1999	0.54	M-v	3	Williams	36919	1999 RN ₁₄₃
1999 RT ₁₄₃	15.0	0.15	19990810	334.79779	186.70490	188.44622	6.50217	0.1248911	2.3534994	71	3	1994–1999	0.52	M-v	2	Williams	36919	1999 RT ₁₄₃
1999 RW ₁₄₃	15.9	0.15	19990810	21.99255	78.27238	227.43628	2.28089	0.2051913	2.2446840	46	1	137 days	0.53	M-v	4	Williams	36919	1999 RW ₁₄₃
1999 RS ₁₄₄	13.2	0.15	19990810	64.24433	354.72671	271.85120	8.82643	0.0447143	2.9929129	58	3	1989–1999	0.59	M-v	3	Williams	36919	1999 RS ₁₄₄
1999 RA ₁₄₅	15.3	0.15	19990810	349.10026	162.76324	185.37768	12.57148	0.2593899	2.6315255	41	2	1998–1999	0.44	M-v	3	Williams	36919	1999 RA ₁₄₅
1999 RB ₁₄₅	12.7	0.15	19990810	289.18880	107.70311	323.49900	20.98523	0.2138405	3.1079803	51	3	1988–1999	0.51	M-v	1	Williams	36919	1999 RB ₁₄₅
1999 RD ₁₄₅	15.2	0.15	19990810	35.83004	50.63090	223.79348	5.24378	0.2313854	2.2249764	43	1	82 days	0.48	M-v	4	Williams	36563	1999 RD ₁₄₅
1999 RH ₁₄₅	15.4	0.15	19990810	1.52584	92.89244	233.31784	4.05510	0.2180466	2.3147668	48	2	1978–1999	0.56	M-v	3	Williams	36919	1999 RH ₁₄₅
1999 RP ₁₄₅	12.5	0.15	19990810	22.14392	343.01497	322.53347	13.61392	0.1206162	2.3135113	67	5	1989–1999	0.56	M-v	1	Williams	36919	1999 RP ₁₄₅
1999 RM ₁₄₆	13.5	0.15	19990810	319.03265	201.33094	182.99055	10.57465	0.1105120	2.9744404	56	1	111 days	0.59	M-v	4	Williams	36919	1999 RM ₁₄₆
1999 RG ₁₄₇	13.9	0.15	19990810	325.66458	89.00984	288.34264	8.28459	0.1084495	3.0930506	35	1	89 days	0.59	M-v	5	Williams		1999 RG ₁₄₇
1999 RY ₁₄₇	14.4	0.15	19990810	306.59177	86.61634	319.87691	8.91860	0.1907892	2.3174604	17	2	1985–1999	0.33	M-v	4	Williams	36829	1999 RY ₁₄₇
1999 RA ₁₄₈	13.5	0.15	19990810	314.33494	85.74409	314.31284	7.40519	0.1931460	3.0808154	53	2	1996–1999	0.56	M-v	3	Williams	36919	1999 RA ₁₄₈
1999 RM ₁₄₉	16.0	0.15	19990810	347.47252	359.83132	349.26300	2.65595	0.2518767	3.3632238	32	2	1981–1999	0.49	M-v	3	Williams	36829	1999 RM ₁₄₉
1999 RW ₁₄₉	14.3	0.15	19990810	11.75250	355.22530	316.71267	2.32007	0.1872074	2.3208109	76	3	1992–1999	0.65	M-v	2	Williams	36919	1999 RW ₁₄₉
1999 RX ₁₄₉	13.4	0.15	19990810	241.42423	298.43502	166.02646	13.67945	0.1296757	2.5994403	52	3	1991–1999	0.59	M-v	3	Williams	36919	1999 RX ₁₄₉
1999 RY ₁₄₉	15.9	0.15	19990810	345.13768	19.90081	332.01226	6.17437	0.2078621	2.2798775	37	4	1982–1999	0.57	M-v	2	Williams	36448	1999 RY ₁₄₉
1999 RE ₁₅₀	16.0	0.15	19990810	341.89488	15.09666	341.00754	5.37828	0.1859145	2.2527714	54	4	1989–1999	0.68	M-v	2	Williams	36449	1999 RE ₁₅₀
1999 RV ₁₅₁	14.9	0.15	19990810	289.87267	341.65369	78.65797	1.45118	0.1528346	2.4195211	21	3	1982–1999	0.63	M-v	5	Williams	36450	1999 RV ₁₅₁
1999 RX ₁₅₁	13.1	0.15	19990810	195.85978	13.29331	128.19477	4.48311	0.0647339	2.9999584	39	4	1982–1999	0.76	M-v	2	Williams	36919	1999 RX ₁₅₁
1999 RB ₁₅₂	14.6	0.15	19990810	19.05153	146.01745	150.95289	6.70672	0.2639528	2.4660589	43	3	1994–1999	0.61	M-v	2	Williams	36830	1999 RB ₁₅₂
1999 RR ₁₅₂	16.0	0.15	19990810	335.56028	186.21373	191.36405	4.61425	0.3188619	2.5480071	44	1	107 days	0.54	M-v	4	Williams	36919	1999 RR ₁₅₂
1999 RX ₁₅₂	15.0	0.15	19990810	330.53978	198.38078	182.12273	9.98599	0.2330717	2.7822932	47	3	1976–1999	0.70	M-v	3	Williams	36919	1999 RX ₁₅₂

1999 RY ₁₅₂	14.8	0.15	19990810	336.30046	66.58923	298.17384	5.23976	0.1515103	2.3760634	33	1	103 days	0.54	M-v	4	Williams	1999 RY ₁₅₂
1999 RB ₁₅₃	15.0	0.15	19990810	24.95268	93.98222	205.65467	5.56985	0.1441076	2.3233067	65	3	1996–1999	0.71	M-v	3	Williams	36919 1999 RB ₁₅₃
1999 RE ₁₅₄	13.8	0.15	19990810	349.75911	13.44705	334.91817	14.21269	0.1218892	2.6398927	43	1	118 days	0.44	M-v	3	Williams	36919 1999 RE ₁₅₄
1999 RK ₁₅₅	13.0	0.15	19990810	161.11904	223.36076	314.49248	8.79057	0.0376744	3.0683656	41	1	117 days	0.55	M-v	4	Williams	36564 1999 RK ₁₅₅
1999 RO ₁₅₅	13.6	0.15	19990810	347.82719	36.94115	317.88934	10.02778	0.1121056	2.9752100	38	1	103 days	0.34	M-v	4	Williams	1999 RO ₁₅₅
1999 RY ₁₅₅	16.2	0.15	19990810	344.01052	50.32938	306.42557	4.26240	0.1979504	2.2224843	53	2	1994–1999	0.57	M-v	4	Williams	36919 1999 RY ₁₅₅
1999 RL ₁₅₆	14.8	0.15	19990810	339.55560	169.54459	198.65963	3.60755	0.2470164	2.6332049	45	1	107 days	0.63	M-v	4	Williams	36919 1999 RL ₁₅₆
1999 RK ₁₅₇	14.5	0.15	19990810	58.62563	119.06679	136.61560	6.25857	0.1750797	2.4277979	40	3	1995–1999	0.67	M-v	2	Williams	36919 1999 RK ₁₅₇
1999 RR ₁₅₇	14.7	0.15	19990810	343.37170	347.71042	10.17118	8.29584	0.2311698	2.7921284	33	2	1990–1999	0.62	M-v	3	Williams	36919 1999 RR ₁₅₇
1999 RB ₁₅₈	12.5	0.15	19990810	32.18890	302.47003	355.36385	16.56042	0.0876514	3.1725374	69	2	1997–1999	0.59	M-v	3	Williams	36919 1999 RB ₁₅₈
1999 RR ₁₅₈	13.6	0.15	19990810	23.75673	308.09100	348.18615	14.50309	0.2498053	3.1805624	56	3	1997–1999	0.59	M-v	2	Williams	36920 1999 RR ₁₅₈
1999 RU ₁₅₈	13.6	0.15	19990810	342.28396	200.43551	159.10649	11.07951	0.0866862	3.0556569	32	2	1998–1999	0.56	M-v	4	Williams	36453 1999 RU ₁₅₈
1999 RF ₁₅₉	12.6	0.15	19990810	179.90609	167.95390	350.47925	19.41129	0.0822808	3.1189021	32	1	107 days	0.52	M-v	4	Williams	1999 RF ₁₅₉
1999 RR ₁₅₉	14.7	0.15	19990810	334.05404	14.26850	358.18250	11.93810	0.1990081	2.6652515	51	3	1973–1999	0.67	M-v	3	Williams	36920 1999 RR ₁₅₉
1999 RD ₁₆₀	14.7	0.15	19990810	29.63348	267.82324	22.22113	7.48005	0.1827849	2.2991055	47	2	1998–1999	0.50	M-v	4	Williams	36920 1999 RD ₁₆₀
1999 RF ₁₆₀	14.6	0.15	19990810	338.63966	312.28194	56.04347	4.91711	0.2355742	2.6833908	48	2	1993–1999	0.51	M-v	3	Williams	36920 1999 RF ₁₆₀
1999 RG ₁₆₀	14.8	0.15	19990810	135.62252	92.63521	104.64934	5.96025	0.0429713	2.2182761	45	4	1994–1999	0.50	M-v	3	Williams	36454 1999 RG ₁₆₀
1999 RN ₁₆₀	13.3	0.15	19990810	299.96539	40.63539	13.41418	9.34212	0.1563812	2.8042517	53	3	1992–1999	0.52	M-v	2	Williams	36920 1999 RN ₁₆₀
1999 RO ₁₆₀	13.1	0.15	19990810	80.63208	237.84562	13.73468	9.97915	0.0532784	2.9810587	40	2	1989–1999	0.65	M-v	5	Williams	36920 1999 RO ₁₆₀
1999 RO ₁₆₁	13.1	0.15	19990810	9.19793	184.03492	134.77003	1.84923	0.1641461	3.1286561	66	2	1998–1999	0.53	M-v	3	Williams	36920 1999 RO ₁₆₁
1999 RN ₁₆₂	13.4	0.15	19990810	334.26735	4.78830	27.48759	13.93099	0.1317733	2.8666709	87	3	1991–1999	0.50	M-v	2	Williams	36920 1999 RN ₁₆₂
1999 RO ₁₆₂	13.1	0.15	19990810	337.63592	351.94464	36.34843	9.96648	0.1639895	2.7901261	28	1	89 days	0.49	M-v	4	Williams	1999 RO ₁₆₂
1999 RS ₁₆₂	14.4	0.15	19990810	26.12553	339.12982	321.50363	9.14447	0.2210962	2.7801686	43	2	1998–1999	0.60	M-v	3	Williams	36456 1999 RS ₁₆₂
1999 RD ₁₆₃	14.4	0.15	19990810	338.40452	71.34317	295.38637	4.45330	0.1336157	2.7479248	38	1	89 days	0.56	M-v	5	Williams	1999 RD ₁₆₃
1999 RP ₁₆₃	14.8	0.15	19990810	38.14975	81.38206	192.08783	5.25234	0.2605258	2.3127575	50	1	107 days	0.45	M-v	4	Williams	36920 1999 RP ₁₆₃
1999 RU ₁₆₃	14.8	0.15	19990810	3.83065	8.97201	323.61905	4.29935	0.1619226	2.7698125	58	3	1993–1999	0.74	M-v	3	Williams	36920 1999 RU ₁₆₃
1999 RZ ₁₆₃	14.2	0.15	19990810	315.55010	225.96444	169.03024	13.65166	0.1411197	2.8420395	32	2	1992–1999	0.58	M-v	4	Williams	36830 1999 RZ ₁₆₃
1999 RW ₁₆₄	15.0	0.15	19990810	48.31521	323.30121	318.48138	6.17763	0.1050834	2.3897817	63	2	1998–1999	0.51	M-v	3	Williams	36457 1999 RW ₁₆₄
1999 RH ₁₆₇	16.2	0.15	19990810	338.06034	327.49677	45.18208	3.50566	0.3080534	2.3633195	42	1	144 days	0.64	M-v	4	Williams	36920 1999 RH ₁₆₇
1999 RO ₁₆₇	13.6	0.15	19990810	298.95948	36.42965	16.10368	9.84924	0.1085469	2.9795311	42	2	1997–1999	0.57	M-v	3	Williams	36920 1999 RO ₁₆₇
1999 RA ₁₆₈	14.5	0.15	19990810	331.51523	11.05486	4.13673	4.96601	0.1671548	2.2849499	65	1	144 days	0.54	M-v	3	Williams	36920 1999 RA ₁₆₈
1999 RK ₁₆₈	14.3	0.15	19990810	352.39002	344.46777	5.18008	4.55857	0.1736561	2.7020188	58	2	1998–1999	0.49	M-v	3	Williams	36920 1999 RK ₁₆₈
1999 RU ₁₆₈	14.8	0.15	19990810	16.57147	146.08605	169.73818	2.89561	0.1300080	2.2451956	42	2	1998–1999	0.44	M-v	3	Williams	36920 1999 RU ₁₆₈
1999 RZ ₁₆₈	15.3	0.15	19990810	343.13330	26.43904	333.75003	2.31547	0.1514289	2.2877465	59	2	1998–1999	0.63	M-v	3	Williams	36920 1999 RZ ₁₆₈
1999 RC ₁₆₉	15.4	0.15	19990810	4.65728	146.63870	183.88665	2.82156	0.1890457	2.4347930	36	1	119 days	0.55	M-v	4	Williams	36920 1999 RC ₁₆₉
1999 RD ₁₆₉	15.4	0.15	19990810	337.22132	62.37392	315.29783	2.38810	0.2892814	2.6200398	43	1	107 days	0.59	M-v	4	Williams	36920 1999 RD ₁₆₉
1999 RG ₁₆₉	14.2	0.15	19990810	284.78995	104.06472	330.05637	8.10026	0.1380431	2.7964513	35	1	90 days	0.50	M-v	5	Williams	1999 RG ₁₆₉
1999 RH ₁₇₀	15.4	0.15	19990810	28.29327	319.67533	336.92693	3.46039	0.1868759	2.2267527	66	3	1989–1999	0.46	M-v	2	Williams	36920 1999 RH ₁₇₀
1999 RX ₁₇₁	15.2	0.15	19990810	354.26238	315.50742	27.74526	2.66566	0.1337236	2.1940261	54	2	1998–1999	0.57	M-v	3	Williams	36920 1999 RX ₁₇₁
1999 RM ₁₇₂	13.8	0.15	19990810	324.35765	257.39462	137.74010	6.11911	0.2567838	2.5587174	49	1	140 days	0.51	M-v	4	Williams	36920 1999 RM ₁₇₂
1999 RQ ₁₇₃	14.3	0.15	19990810	67.80116	185.69738	73.94074	5.17315	0.1343046	2.9734088	31	2	1998–1999	0.73	M-v	4	Williams	36461 1999 RQ ₁₇₃
1999 RR ₁₇₃	13.2	0.15	19990810	336.04249	230.94082	141.91001	11.79436	0.1336319	3.0324458	28	1	85 days	0.42	M-v	4	Williams	36920 1999 RR ₁₇₃
1999 RV ₁₇₅	14.9	0.15	19990810	19.34519	113.36377	188.97777	4.62840	0.2932850	2.5773763	65	5	1982–1999	0.48	M-v	1	Williams	36920 1999 RV ₁₇₅
1999 RZ ₁₇₅	14.5	0.15	19990810	331.42506	201.40649	182.52630	12.12546	0.1690651	3.0588671	51	2	1998–1999	0.55	M-v	3	Williams	36920 1999 RZ ₁₇₅
1999 RF ₁₇₆	14.5	0.15	19990810	39.17066	120.61882	184.76033	11.68231	0.0078077	2.6038681	56	2	1998–1999	0.67	M-v	3	Williams	36462 1999 RF ₁₇₆
1999 RG ₁₇₆	15.9	0.15	19990810	5.68903	21.32145	306.96616	2.18731	0.1902806	2.1585621	72	1	144 days	0.51	M-v	4	Williams	36920 1999 RG ₁₇₆
1999 RG ₁₇₇	14.5	0.15	19990810	5.93506	63.74984	274.56894	0.59350	0.0247514	2.5403578	71	3	1997–1999	0.59	M-v	3	Williams	36920 1999 RG ₁₇₇
1999 RO ₁₇₇	15.6	0.15	19990810	337.76707	206.49360	164.46344	4.58791	0.1652240	2.3967894	42	2	1998–1999	0.75	M-v	4	Williams	36921 1999 RO ₁₇₇
1999 RT ₁₇₇	14.7	0.15	19990810	256.11587	87.03189	10.85684	3.53425	0.1046999	2.2929229	63	4	1992–1999	0.66	M-v	1	Williams	36921 1999 RT ₁₇₇
1999 RA ₁₇₈	15.2	0.15	19990810	22.36872	144.36220	162.02366	11.28890	0.2022117	2.5374540	38	2	1998–1999	0.61	M-v	4	Williams	36464 1999 RA ₁₇₈
1999 RN ₁₇₈	15.7	0.15	19990810	343.63419	222.38013	149.57785	5.30264	0.3826050	2.6611627	31	1	112 days	0.59	M-v	4	Williams	36921 1999 RN ₁₇₈
1999 RC ₁₇₉	14.3	0.15	19990810	260.26917	50.36313	44.57377	5.15616	0.1248283	2.3877757	34	1	144 days	0.50	M-v	4	Williams	36921 1999 RC ₁₇₉
1999 RY ₁₈₀	13.4	0.15	19990810	19.85328	312.45599	359.74166	16.62744	0.2101070	3.1184799	35	1	87 days	0.37	M-v	4	Williams	1999 RY ₁₈₀

1999 RK ₁₈₁	14.7	0.15	19990810	273.50408	74.99312	9.41912	5.74421	0.1196949	2.4488643	40	1	117 days	0.64	M-v	4	Williams	36921	1999 RK ₁₈₁
1999 RM ₁₈₁	15.4	0.15	19990810	64.22198	123.74660	136.38871	1.70697	0.1610467	2.2253158	43	2	1998–1999	0.57	M-v	5	Williams	36465	1999 RM ₁₈₁
1999 RF ₁₈₂	15.4	0.15	19990810	20.31629	320.98134	350.44435	4.49860	0.1859102	2.4446841	59	3	1994–1999	0.59	M-v	3	Williams	36921	1999 RF ₁₈₂
1999 RG ₁₈₂	15.2	0.15	19990810	8.69671	151.60316	176.27857	2.66147	0.1788798	2.4178169	62	3	1994–1999	0.62	M-v	2	Williams	36921	1999 RG ₁₈₂
1999 RX ₁₈₂	14.9	0.15	19990810	302.04783	232.70276	187.54039	2.83036	0.1566899	2.5671687	57	1	107 days	0.62	M-v	4	Williams	36921	1999 RX ₁₈₂
1999 RA ₁₈₃	13.0	0.15	19990810	347.57018	4.72642	357.27484	21.43969	0.0296173	3.2212104	57	1	81 days	0.55	M-v	4	Williams	36921	1999 RA ₁₈₃
1999 RH ₁₈₃	14.1	0.15	19990810	281.74393	275.32230	166.69823	10.92708	0.1363424	2.8734200	40	2	1994–1999	0.59	M-v	5	Williams	36466	1999 RH ₁₈₃
1999 RM ₁₈₃	15.1	0.15	19990810	336.91242	7.66597	3.57496	6.55562	0.1337026	2.3953716	57	1	117 days	0.52	M-v	3	Williams	36921	1999 RM ₁₈₃
1999 RP ₁₈₃	13.2	0.15	19990810	87.76255	94.36089	164.07070	13.92721	0.0198327	3.1906022	37	3	1993–1999	0.52	M-v	2	Williams	36466	1999 RP ₁₈₃
1999 RS ₁₈₃	14.3	0.15	19990810	168.63822	88.65729	88.16049	2.53885	0.0760771	2.5571836	36	2	1998–1999	0.55	M-v	5	Williams	36467	1999 RS ₁₈₃
1999 RL ₁₈₄	15.2	0.15	19990810	35.12660	157.86195	136.83691	6.15733	0.1332519	2.2089587	44	2	1998–1999	0.59	M-v	4	Williams	36467	1999 RL ₁₈₄
1999 RZ ₁₈₄	13.7	0.15	19990810	314.03627	261.15449	140.15673	11.04550	0.1132812	2.9861315	18	2	1998–1999	0.45	M-v	4	Williams	36468	1999 RZ ₁₈₄
1999 RO ₁₉₀	15.2	0.15	19990810	327.00266	28.75589	13.09075	6.46872	0.1413263	2.4588310	53	1	91 days	0.53	M-v	4	Williams	36921	1999 RO ₁₉₀
1999 RQ ₁₉₀	14.2	0.15	19990810	337.29713	172.55958	202.04566	11.33329	0.1420751	3.0448970	32	1	94 days	0.66	M-v	4	Williams		1999 RQ ₁₉₀
1999 RY ₁₉₁	13.2	0.15	19990810	353.50399	264.25832	86.60857	15.60104	0.0977643	2.6949890	25	1	80 days	0.39	M-v	4	Williams		1999 RY ₁₉₁
1999 RA ₁₉₂	13.7	0.15	19990810	81.92896	296.36814	332.39222	12.80218	0.1504480	2.5950226	43	2	1990–1999	0.60	M-v	4	Williams	36921	1999 RA ₁₉₂
1999 RD ₁₉₂	13.3	0.15	19990810	54.65616	180.16587	85.55532	5.28649	0.1420914	2.6162084	61	2	1998–1999	0.47	M-v	3	Williams	36921	1999 RD ₁₉₂
1999 RF ₁₉₂	13.6	0.15	19990810	351.42787	331.58523	14.77443	10.53475	0.1230448	3.0335282	42	1	81 days	0.54	M-v	4	Williams		1999 RF ₁₉₂
1999 RG ₁₉₃	12.8	0.15	19990810	245.71926	10.11360	106.17714	10.84894	0.0628033	3.0886319	37	2	1998–1999	0.67	M-v	4	Williams	36921	1999 RG ₁₉₃
1999 RO ₁₉₃	12.7	0.15	19990810	329.25539	39.47453	353.28042	12.84274	0.1748652	2.6863269	88	4	1982–1999	0.55	M-v	2	Williams	36921	1999 RO ₁₉₃
1999 RQ ₁₉₃	14.9	0.15	19990810	56.94335	158.66893	132.64323	5.66562	0.1920172	2.3346293	39	2	1998–1999	0.51	M-v	4	Williams	36831	1999 RQ ₁₉₃
1999 RU ₁₉₃	13.9	0.15	19990810	0.12964	12.16678	333.65027	13.07759	0.1480120	3.1400705	45	2	1960–1999	0.62	M-v	4	Williams	36921	1999 RU ₁₉₃
1999 RX ₁₉₃	15.0	0.15	19990810	5.03257	8.21233	323.74443	6.99492	0.1939690	2.3021367	43	1	142 days	0.45	M-v	3	Williams	36921	1999 RX ₁₉₃
1999 RY ₁₉₃	13.6	0.15	19990810	345.51194	94.28113	272.74959	4.82912	0.1470288	3.1214405	50	1	116 days	0.49	M-v	3	Williams	36921	1999 RY ₁₉₃
1999 RA ₁₉₄	14.2	0.15	19990810	326.08163	132.35167	263.06669	3.77966	0.1759392	3.0780767	37	2	1996–1999	0.57	M-v	3	Williams	36921	1999 RA ₁₉₄
1999 RB ₁₉₄	14.8	0.15	19990810	307.66959	144.74690	277.54606	3.37760	0.2257850	2.5977004	32	1	117 days	0.56	M-v	4	Williams		1999 RB ₁₉₄
1999 RD ₁₉₄	14.6	0.15	19990810	114.54535	4.38138	216.64184	5.51975	0.1069478	2.2199831	68	3	1995–1999	0.62	M-v	3	Williams	36921	1999 RD ₁₉₄
1999 RE ₁₉₄	12.9	0.15	19990810	233.15395	184.27638	301.72246	5.35062	0.0977659	2.9082386	43	3	1975–1999	0.78	M-v	2	Williams	36472	1999 RE ₁₉₄
1999 RG ₁₉₄	14.8	0.15	19990810	13.16165	114.04635	202.43697	6.67738	0.3101387	2.8696503	40	2	1993–1999	0.52	M-v	4	Williams	36921	1999 RG ₁₉₄
1999 RK ₁₉₄	14.7	0.15	19990810	337.90593	155.90187	223.78536	3.54134	0.2500827	2.6067721	36	2	1978–1999	0.53	M-v	3	Williams	36831	1999 RK ₁₉₄
1999 RN ₁₉₄	15.1	0.15	19990810	294.09579	184.15332	251.35309	3.45212	0.1982462	2.3502644	42	2	1990–1999	0.78	M-v	4	Williams	36921	1999 RN ₁₉₄
1999 RO ₁₉₄	13.7	0.15	19990810	2.64195	131.89009	214.38701	3.33365	0.1089060	2.8006229	66	3	1994–1999	0.41	M-v	2	Williams	36921	1999 RO ₁₉₄
1999 RQ ₁₉₄	12.8	0.15	19990810	323.18402	66.42699	343.52468	16.20071	0.2548516	2.9946832	56	1	145 days	0.49	M-v	3	Williams	36921	1999 RQ ₁₉₄
1999 RR ₁₉₄	15.0	0.15	19990810	7.36754	58.59802	275.05233	3.44578	0.1965338	2.4092298	43	1	89 days	0.55	M-v	4	Williams		1999 RR ₁₉₄
1999 RS ₁₉₄	12.8	0.15	19990810	330.47140	157.71521	231.55532	5.19562	0.1512814	3.1356816	41	2	1960–1999	0.48	M-v	4	Williams	36921	1999 RS ₁₉₄
1999 RC ₁₉₅	13.5	0.15	19990810	322.14201	139.96675	250.66287	7.86687	0.1456977	3.1132637	32	1	93 days	0.55	M-v	4	Williams		1999 RC ₁₉₅
1999 RD ₁₉₅	14.1	0.15	19990810	357.10763	76.54582	264.54924	7.78580	0.1660873	2.7661145	32	1	89 days	0.61	M-v	4	Williams		1999 RD ₁₉₅
1999 RZ ₁₉₅	15.4	0.15	19990810	344.77719	115.05708	240.90447	5.80095	0.1509609	2.2818569	50	2	1998–1999	0.69	M-v	4	Williams	36921	1999 RZ ₁₉₅
1999 RJ ₁₉₆	12.7	0.15	19990810	111.84162	251.39684	337.26036	18.48620	0.1022946	3.2377056	22	2	1993–1999	0.53	M-v	5	Williams	36473	1999 RJ ₁₉₆
1999 RG ₁₉₇	14.7	0.15	19990810	7.20112	137.38454	198.51258	12.30691	0.0950216	2.4638636	68	2	1998–1999	0.61	M-v	3	Williams	36921	1999 RG ₁₉₇
1999 RH ₁₉₇	15.3	0.15	19990810	2.77916	99.34153	233.32891	5.15655	0.2282105	2.1948004	20	1	90 days	0.52	M-v	5	Williams		1999 RH ₁₉₇
1999 RK ₁₉₇	14.1	0.15	19990810	216.67609	226.57401	272.00753	4.68468	0.1089208	2.3969383	39	1	133 days	0.63	M-v	4	Williams	36922	1999 RK ₁₉₇
1999 RL ₁₉₇	12.3	0.15	19990810	273.49016	192.97829	254.53992	8.57122	0.0712396	3.0594917	40	3	1989–1999	0.69	M-v	3	Williams	36832	1999 RL ₁₉₇
1999 RO ₁₉₇	14.3	0.15	19990810	271.82828	150.59149	296.08958	5.99991	0.0806743	2.2749262	51	1	135 days	0.52	M-v	4	Williams	36922	1999 RO ₁₉₇
1999 RX ₁₉₇	13.0	0.15	19990810	319.53650	135.29839	261.03561	8.23768	0.0972711	3.1652832	43	1	89 days	0.58	M-v	4	Williams		1999 RX ₁₉₇
1999 RC ₁₉₈	12.1	0.15	19990810	299.50151	106.85313	333.37292	14.31070	0.2146016	3.1285507	50	1	136 days	0.46	M-v	4	Williams	36922	1999 RC ₁₉₈
1999 RR ₁₉₈	14.3	0.15	19990810	342.56359	164.76569	202.00703	5.02367	0.2126039	2.4306607	77	2	1998–1999	0.45	M-v	3	Williams	36922	1999 RR ₁₉₈
1999 RX ₁₉₈	14.6	0.15	19990810	334.06669	122.20142	248.20247	12.17641	0.1901569	2.5480614	46	1	137 days	0.50	M-v	3	Williams	36922	1999 RX ₁₉₈
1999 RM ₁₉₉	13.6	0.15	19990810	3.85474	359.23526	339.84840	10.85312	0.2671669	2.3945944	26	4	1973–1999	0.56	M-v	2	Williams	36832	1999 RM ₁₉₉
1999 RN ₁₉₉	15.6	0.15	19990810	337.66028	112.61949	268.86437	4.09166	0.1650318	2.3352576	38	2	1992–1999	0.44	M-v	3	Williams	36922	1999 RN ₁₉₉
1999 RO ₁₉₉	13.7	0.15	19990810	299.46579	212.93962	228.74729	7.94186	0.2217889	2.7276216	32	1	90 days	0.30	M-v	4	Williams		1999 RO ₁₉₉
1999 RP ₁₉₉	12.9	0.15	19990810	66.60867	340.98608	293.54377	7.09462	0.1331287	2.7284713	62	3	1997–1999	0.53	M-v	3	Williams	36922	1999 RP ₁₉₉
1999 RZ ₁₉₉	14.5	0.15	19990810	336.55877	115.03490	262.50374	11.50998	0.1619926	2.6562893	21	1	89 days	0.50	M-v	4	Williams		1999 RZ ₁₉₉

1999 RL ₂₀₀	14.4	0.15	19990810	325.18506	143.39610	246.53111	12.93952	0.1243391	2.5945128	31	2	1998–1999	0.40	M-v	3	Williams	36922	1999 RL ₂₀₀
1999 RB ₂₀₁	14.6	0.15	19990810	359.36042	112.69508	233.88564	12.06459	0.1826734	2.5643295	40	3	1991–1999	0.62	M-v	2	Williams	36832	1999 RB ₂₀₁
1999 RL ₂₀₁	14.0	0.15	19990810	324.84756	212.59818	202.87171	18.55966	0.3272021	3.1680974	32	1	90 days	0.46	M-v	4	Williams		1999 RL ₂₀₁
1999 RR ₂₀₁	13.0	0.15	19990810	326.96648	101.52250	294.58366	11.67008	0.1639986	2.7831632	52	1	138 days	0.46	M-v	3	Williams	36922	1999 RR ₂₀₁
1999 RS ₂₀₁	13.5	0.15	19990810	292.50661	199.75619	242.45836	13.42971	0.1778614	3.1584452	37	1	88 days	0.49	M-v	4	Williams		1999 RS ₂₀₁
1999 RE ₂₀₂	13.3	0.15	19990810	302.67158	145.87921	280.64687	9.62996	0.1307432	2.9507052	38	1	91 days	0.53	M-v	4	Williams	36922	1999 RE ₂₀₂
1999 RF ₂₀₂	13.7	0.15	19990810	37.95817	50.10450	258.40651	9.36169	0.1075366	2.9970979	52	2	1998–1999	0.65	M-v	3	Williams	36922	1999 RF ₂₀₂
1999 RA ₂₀₄	13.8	0.15	19990810	282.44996	111.41965	347.56060	28.07601	0.2305418	2.6474414	42	1	89 days	0.50	M-v	4	Williams		1999 RA ₂₀₄
1999 RF ₂₀₄	13.9	0.15	19990810	26.13386	61.29390	255.64996	7.95631	0.1574095	2.8130418	31	2	1998–1999	0.65	M-v	3	Williams	36832	1999 RF ₂₀₄
1999 RQ ₂₀₄	12.9	0.15	19990810	300.05790	146.69574	277.31461	9.58063	0.0567917	3.0624426	46	3	1978–1999	0.50	M-v	2	Williams	36922	1999 RQ ₂₀₄
1999 RM ₂₀₅	14.0	0.15	19990810	338.51413	118.79488	264.62950	12.20023	0.0800896	3.1392274	27	1	90 days	0.59	M-v	4	Williams		1999 RM ₂₀₅
1999 RP ₂₀₅	14.9	0.15	19990810	333.18592	180.07069	209.13461	16.98555	0.1820050	2.6216734	75	1	138 days	0.61	M-v	3	Williams	36922	1999 RP ₂₀₅
1999 RR ₂₀₅	13.1	0.15	19990810	314.38502	165.63231	247.52695	10.39080	0.1075201	3.0582275	41	1	135 days	0.42	M-v	4	Williams	36922	1999 RR ₂₀₅
1999 RB ₂₀₆	15.6	0.15	19990810	321.34725	98.04334	299.84014	6.24059	0.1049259	2.2861240	33	1	88 days	0.68	M-v	4	Williams		1999 RB ₂₀₆
1999 RT ₂₀₆	12.3	0.15	19990810	358.13642	76.85537	284.41227	13.18066	0.1177442	3.1403826	43	1	139 days	0.45	M-v	3	Williams	36922	1999 RT ₂₀₆
1999 RU ₂₀₆	13.1	0.15	19990810	324.89822	110.82620	295.63340	11.75203	0.2154918	2.6800853	37	3	1990–1999	0.56	M-v	3	Williams	36833	1999 RU ₂₀₆
1999 RC ₂₀₇	14.1	0.15	19990810	318.28636	170.98263	244.04868	11.93483	0.1570372	3.0986588	36	1	89 days	0.49	M-v	4	Williams	36922	1999 RC ₂₀₇
1999 RP ₂₀₇	15.6	0.15	19990810	330.29412	69.38681	321.26011	8.77187	0.1655251	2.2627889	23	1	89 days	0.43	M-v	4	Williams		1999 RP ₂₀₇
1999 RR ₂₀₇	15.0	0.15	19990810	2.71333	121.52866	222.44333	7.60794	0.1677220	2.2872040	51	3	1992–1999	0.56	M-v	3	Williams	36833	1999 RR ₂₀₇
1999 RY ₂₀₇	14.9	0.15	19990810	336.41551	180.85904	208.80675	13.89360	0.2655433	2.5209481	62	1	134 days	0.39	M-v	3	Williams	36922	1999 RY ₂₀₇
1999 RN ₂₀₈	15.8	0.15	19990810	313.70190	186.05150	236.47160	7.44499	0.2208746	2.5244988	23	1	90 days	0.49	M-v	4	Williams		1999 RN ₂₀₈
1999 RS ₂₀₈	15.4	0.15	19990810	16.45734	95.32939	231.80116	7.25097	0.2216188	2.6439540	45	3	1995–1999	0.52	M-v	2	Williams	36922	1999 RS ₂₀₈
1999 RW ₂₀₈	13.1	0.15	19990810	322.73090	177.44109	233.79528	6.48089	0.2200281	2.7094255	54	1	137 days	0.55	M-v	4	Williams	36922	1999 RW ₂₀₈
1999 RB ₂₀₉	13.3	0.15	19990810	343.71152	63.24416	319.98496	7.61904	0.1656779	3.1499644	45	1	136 days	0.50	M-v	3	Williams	36922	1999 RB ₂₀₉
1999 RC ₂₀₉	15.5	0.15	19990810	337.29584	107.93999	274.73011	4.68237	0.1105154	2.3764118	33	1	82 days	0.54	M-v	4	Williams		1999 RC ₂₀₉
1999 RH ₂₀₉	15.0	0.15	19990810	348.42639	166.52817	209.99887	17.77924	0.1668933	3.1586464	18	1	90 days	0.37	M-v	4	Williams		1999 RH ₂₀₉
1999 RQ ₂₀₉	13.2	0.15	19990810	341.67861	108.48611	278.03700	9.40133	0.1132254	2.9754996	44	2	1993–1999	0.59	M-v	3	Williams	36922	1999 RQ ₂₀₉
1999 RD ₂₁₀	14.8	0.15	19990810	333.31653	74.01033	321.44788	6.09477	0.2279205	2.4361767	40	1	137 days	0.39	M-v	3	Williams	36923	1999 RD ₂₁₀
1999 RX ₂₁₀	13.1	0.15	19990810	60.16802	331.58547	330.33968	11.95544	0.0549877	2.8914788	47	2	1994–1999	0.59	M-v	4	Williams	36923	1999 RX ₂₁₀
1999 RB ₂₁₁	15.0	0.15	19990810	71.34342	24.35370	241.14297	7.72171	0.2239220	2.3993431	42	2	1998–1999	0.66	M-v	4	Williams	36923	1999 RB ₂₁₁
1999 RJ ₂₁₁	13.9	0.15	19990810	221.72897	164.29898	349.26377	12.90622	0.1019411	2.6910524	31	2	1977–1999	0.66	M-v	5	Williams	36923	1999 RJ ₂₁₁
1999 RM ₂₁₁	13.7	0.15	19990810	188.23676	213.20692	327.17771	9.46565	0.0135003	2.8018021	23	1	80 days	0.48	M-v	4	Williams		1999 RM ₂₁₁
1999 RO ₂₁₁	13.6	0.15	19990810	337.23287	190.19220	206.92283	27.45814	0.1642395	3.1757534	90	1	134 days	0.60	M-v	3	Williams	36923	1999 RO ₂₁₁
1999 RQ ₂₁₁	14.5	0.15	19990810	351.21251	42.70256	331.60669	9.98811	0.2116546	2.7349359	29	1	91 days	0.49	M-v	4	Williams		1999 RQ ₂₁₁
1999 RU ₂₁₁	13.2	0.15	19990810	358.87537	27.94779	339.87016	11.80959	0.2008183	3.1415989	55	3	1988–1999	0.54	M-v	2	Williams	36833	1999 RU ₂₁₁
1999 RC ₂₁₂	15.3	0.15	19990810	356.60198	55.39967	306.76285	6.08777	0.2295934	2.4014884	36	1	91 days	0.42	M-v	4	Williams	36923	1999 RC ₂₁₂
1999 RP ₂₁₂	16.4	0.15	19990810	357.39338	18.27290	339.74392	13.79676	0.2670708	2.6895611	28	2	1990–1999	0.68	M-v	4	Williams	36923	1999 RP ₂₁₂
1999 RE ₂₁₃	13.9	0.15	19990810	355.01417	80.65711	264.89051	14.10424	0.0864418	3.0244611	25	1	136 days	0.50	M-v	3	Williams	36569	1999 RE ₂₁₃
1999 RM ₂₁₄	13.6	0.15	19990810	27.04138	298.84595	29.79384	8.86327	0.1235869	3.0792461	79	3	1992–1999	0.56	M-v	3	Williams	36923	1999 RM ₂₁₄
1999 RN ₂₁₄	13.5	0.15	19990810	315.88315	246.81516	162.92391	5.51282	0.0598306	2.7446537	49	4	1981–1999	0.55	M-v	3	Williams	36923	1999 RN ₂₁₄
1999 RO ₂₁₄	13.4	0.15	19990810	289.14738	85.18418	356.29106	10.82515	0.1241317	3.0252035	38	1	91 days	0.58	M-v	5	Williams	36923	1999 RO ₂₁₄
1999 RS ₂₁₄	7.9	0.15	19990919	0.00000	178.81820	139.49575	3.17443	0.0000000	42.9643630	10	1	33 days	0.32		E	Marsden		1999 RS ₂₁₄
1999 RT ₂₁₄	7.8	0.15	19990919	0.04428	180.24597	138.06258	2.53517	0.0701504	43.6724393	10	1	33 days	0.09		E	Marsden		1999 RT ₂₁₄
1999 RU ₂₁₄	7.3	0.15	19991009	345.44882	261.58242	137.80433	4.16945	0.6819972	95.5282292	11	1	68 days	0.13		E	Marsden		1999 RU ₂₁₄
1999 SE	14.3	0.15	19990810	354.44101	174.26466	195.25655	12.01542	0.2027261	3.1956204	63	1	133 days	0.58	M-v	3	Williams	36923	1999 SE
1999 SG	14.4	0.15	19990810	251.98927	112.07551	8.18654	5.32482	0.1148315	2.3020095	52	1	116 days	0.54	M-v	4	Williams	36923	1999 SG
1999 SH	15.4	0.15	19990810	356.96234	339.76822	17.99767	4.31743	0.2845305	2.6895832	44	1	81 days	0.46	M-v	4	Williams		1999 SH
1999 SL	13.6	0.15	19990810	335.37204	11.08838	30.71604	8.68582	0.2289108	2.8005746	73	1	82 days	0.52	M-v	4	Williams		1999 SL
1999 SN ₁	13.0	0.15	19990810	173.92216	182.79349	39.43170	14.37728	0.1290415	2.6222658	47	1	87 days	0.57	M-v	4	Williams		1999 SN ₁
1999 SO ₁	13.5	0.15	19990810	299.20036	44.33166	28.05095	6.44254	0.0881839	2.7119441	105	3	1990–1999	0.50	M-v	2	Williams	36923	1999 SO ₁
1999 ST ₁	13.8	0.15	19990810	197.11308	189.53018	328.18805	4.83952	0.0987219	2.2949099	48	3	1980–1999	0.51	M-v	3	Williams	36923	1999 ST ₁
1999 SU ₁	13.1	0.15	19990810	351.54896	29.70609	352.97268	12.55397	0.1393898	2.7231808	49	1	75 days	0.37	M-v	4	Williams		1999 SU ₁
1999 SW ₁	12.5	0.15	19990810	303.48068	156.70428	255.86399	16.61045	0.1283342	3.1907766	41	3	1977–1999	0.56	M-v	2	Williams	36923	1999 SW ₁

1999 SB ₂	13.7	0.15	19990810	332.94236	118.89225	267.84317	12.59406	0.1991911	2.6402920	49	1	137 days	0.54	M-v	4	Williams	36923	1999 SB ₂
1999 SC ₂	13.7	0.15	19990810	321.68714	196.17602	206.18660	24.11985	0.2477191	2.3707685	54	1	80 days	0.44	M-v	3	Williams		1999 SC ₂
1999 SF ₂	14.9	0.15	19990810	332.24134	270.49818	133.65305	3.35971	0.1832887	2.4287396	52	4	1991–1999	0.68	M-v	2	Williams	36923	1999 SF ₂
1999 SG ₂	14.0	0.15	19990810	218.96855	109.98841	51.41679	9.44558	0.0993815	2.4348172	35	1	76 days	0.59	M-v	5	Williams		1999 SG ₂
1999 SH ₂	15.4	0.15	19990810	342.26090	254.11124	146.19340	2.44705	0.1975359	2.4113373	44	2	1995–1999	0.59	M-v	4	Williams	36834	1999 SH ₂
1999 SJ ₂	14.2	0.15	19990810	334.45899	37.71285	353.95742	13.63049	0.2753385	2.5396642	69	1	117 days	0.49	M-v	3	Williams	36923	1999 SJ ₂
1999 SP ₂	14.8	0.15	19990810	14.57644	359.17441	345.79001	25.68302	0.2238258	2.3514341	26	1	82 days	0.43	M-v	4	Williams		1999 SP ₂
1999 SU ₂	14.6	0.15	19990810	355.39998	174.52387	195.58541	4.89553	0.1731644	3.1681541	51	2	1993–1999	0.70	M-v	3	Williams	36923	1999 SU ₂
1999 SV ₂	14.5	0.15	19990810	337.03726	37.89346	10.68799	9.27158	0.0615282	2.9691055	40	1	82 days	0.59	M-v	4	Williams		1999 SV ₂
1999 SW ₂	13.7	0.15	19990810	205.71665	153.05819	14.06411	1.40623	0.0883305	2.9497082	68	3	1976–1999	0.46	M-v	4	Williams	36924	1999 SW ₂
1999 SO ₃	15.0	0.15	19990810	358.12326	67.05701	295.71802	19.46994	0.3727741	2.9911980	15	1	79 days	0.67	M-v	6	Williams		1999 SO ₃
1999 SX ₃	15.6	0.15	19990810	2.58176	137.57304	211.99165	1.77852	0.0244610	2.2567870	46	2	1998–1999	0.61	M-v	5	Williams	36924	1999 SX ₃
1999 SB ₄	13.8	0.15	19990810	32.93712	314.79736	3.59584	7.16470	0.1145702	3.1533161	62	3	1980–1999	0.67	M-v	3	Williams	36834	1999 SB ₄
1999 SG ₄	13.1	0.15	19990810	218.22393	108.87566	54.43032	14.27377	0.1181561	2.5789032	26	1	65 days	0.39	M-v	4	Williams		1999 SG ₄
1999 SK ₄	14.9	0.15	19990810	6.62110	154.84817	188.03204	6.68340	0.1158434	2.3807190	71	2	1998–1999	0.55	M-v	3	Williams	36924	1999 SK ₄
1999 SL ₄	13.4	0.15	19990810	326.81219	214.29654	199.30074	4.71837	0.2924339	3.1186550	68	3	1977–1999	0.64	M-v	3	Williams	36834	1999 SL ₄
1999 SO ₄	14.4	0.15	19990810	283.37652	66.78033	18.12403	4.93697	0.0541674	2.3569577	43	1	97 days	0.38	M-v	4	Williams	36924	1999 SO ₄
1999 SP ₄	14.2	0.15	19990810	314.42514	227.08141	199.73689	8.95114	0.1897458	2.7598245	56	3	1976–1999	0.64	M-v	3	Williams	36835	1999 SP ₄
1999 SQ ₄	13.1	0.15	19990810	37.09282	131.11244	201.16200	15.52885	0.0065152	3.1023204	46	2	1997–1999	0.55	M-v	3	Williams	36924	1999 SQ ₄
1999 SR ₄	12.6	0.15	19990810	150.22737	17.12937	198.50809	8.91226	0.0855797	2.8045863	77	5	1985–1999	0.57	M-v	2	Williams	36924	1999 SR ₄
1999 SX ₄	15.3	0.15	19991009	338.82417	258.78406	145.63309	3.93686	0.1997591	2.7405340	59	1	59 days	0.70			Williams		1999 SX ₄
1999 SB ₅	14.1	0.15	19990810	3.10144	277.42517	67.13974	22.99836	0.1025615	1.9602228	30	1	64 days	0.42	M-v	5	Williams		1999 SB ₅
1999 SL ₅	17.1	0.15	19990810	6.71555	43.00537	239.35486	22.82605	0.5377001	1.9226247	131	1	61 days	0.39	M-v	4	Marsden	36924	1999 SL ₅
1999 SM ₅	19.1	0.15	19990810	0.14112	318.49245	328.39198	5.17120	0.6928535	2.3013146	250	1	33 days	0.54	M-v	6	Williams	36924	1999 SM ₅
1999 SU ₅	15.8	0.15	19990810	7.10613	308.19270	29.62317	21.68771	0.0702257	1.9011892	54	2	1986–1999	0.59	M-v	3	Williams	36924	1999 SU ₅
1999 SY ₅	13.8	0.15	19990810	339.05754	272.44426	130.55445	23.24087	0.3204995	2.3288238	18	1	62 days	0.34	M-v	6	Williams		1999 SY ₅
1999 SZ ₅	13.9	0.15	19990810	339.07412	239.46767	161.48100	22.63278	0.3179884	2.4292896	55	3	1989–1999	0.58	M-v	2	Williams	36924	1999 SZ ₅
1999 SV ₆	14.8	0.15	19990810	16.79494	71.62031	256.30995	3.73998	0.2084930	2.2544106	80	2	1998–1999	0.61	M-v	4	Williams	36924	1999 SV ₆
1999 SW ₆	15.7	0.15	19990810	6.44096	124.60045	219.29316	1.47319	0.2283184	2.4113292	49	1	68 days	0.55	M-v	5	Williams		1999 SW ₆
1999 SR ₇	14.1	0.15	19990810	352.53837	289.26673	48.91888	7.59581	0.1508895	2.3762327	27	3	1981–1999	0.63	M-v	3	Williams	36835	1999 SR ₇
1999 SL ₈	14.6	0.15	19990810	321.82880	342.64253	46.41413	11.15872	0.2471535	2.2867875	35	3	1975–1999	0.71	M-v	3	Williams	36924	1999 SL ₈
1999 ST ₈	13.9	0.15	19990810	338.67957	282.55674	84.68710	7.67152	0.2480504	2.5353295	21	1	65 days	0.64	M-v	7	Williams		1999 ST ₈
1999 SN ₉	14.9	0.15	19990810	313.79732	81.59744	337.34508	1.84528	0.1921965	2.3816915	74	4	1988–1999	0.51	M-v	1	Williams	36924	1999 SN ₉
1999 SR ₉	15.0	0.15	19990810	35.46982	139.00697	169.69876	5.86164	0.2257607	2.2345457	57	2	1998–1999	0.57	M-v	4	Williams	36924	1999 SR ₉
1999 SX ₉	16.5	0.15	19990810	351.36105	326.58197	34.04059	5.20608	0.1541797	2.2538461	44	1	74 days	0.60	M-v	4	Williams	36924	1999 SX ₉
1999 SA ₁₀	14.7	0.15	19990810	326.29085	1.83611	45.10544	14.87420	0.2456010	2.6540679	25	1	68 days	0.60	M-v	4	Williams		1999 SA ₁₀
1999 SE ₁₀	20.0	0.15	19990810	346.21252	349.49422	40.40982	6.89716	0.6208720	3.2099996	84	1	46 days	0.58	M-v	5	Marsden	36924	1999 SE ₁₀
1999 SK ₁₀	19.4	0.15	19990810	298.82730	268.76227	198.14589	6.96170	0.4410053	1.7640368	79	1	64 days	0.42	M-v	5	Williams	36924	1999 SK ₁₀
1999 SO ₁₀	14.4	0.15	19990810	12.32573	287.72722	34.90353	14.07566	0.2709046	2.4680183	22	1	68 days	0.44	M-v	5	Williams		1999 SO ₁₀
1999 SR ₁₀	15.4	0.15	19990810	1.55045	136.89759	209.23062	6.70560	0.1325617	2.2795520	60	2	1998–1999	0.66	M-v	3	Williams	36836	1999 SR ₁₀
1999 SU ₁₀	14.6	0.15	19990810	325.71930	349.86692	73.87807	10.75073	0.2290709	3.1372855	18	1	64 days	0.36	M-v	4	Williams		1999 SU ₁₀
1999 SW ₁₀	13.8	0.15	19990810	18.19830	285.78378	55.39202	15.66677	0.2057214	2.9131374	57	3	1997–1999	0.55	M-v	2	Williams	36836	1999 SW ₁₀
1999 SP ₁₁	16.3	0.15	19990810	2.20936	229.75164	120.19333	3.26250	0.2631642	2.2596240	21	1	66 days	0.45	M-v	5	Williams		1999 SP ₁₁
1999 SQ ₁₁	14.5	0.15	19990810	0.17253	293.67956	77.03075	5.81893	0.1271680	2.7466378	20	1	63 days	0.41	M-v	4	Williams		1999 SQ ₁₁
1999 SS ₁₁	14.4	0.15	19990810	14.33159	248.33591	94.30289	4.44134	0.2244121	2.6075884	51	2	1998–1999	0.64	M-v	4	Williams	36924	1999 SS ₁₁
1999 ST ₁₁	14.7	0.15	19990810	16.03466	286.33291	57.50319	7.40992	0.1421142	2.3381095	33	2	1998–1999	0.72	M-v	4	Williams	36836	1999 ST ₁₁
1999 SV ₁₁	15.3	0.15	19990810	349.49952	294.24472	84.95332	5.14712	0.2413389	2.5365835	19	1	66 days	0.37	M-v	4	Williams		1999 SV ₁₁
1999 TD	13.5	0.15	19990810	298.10339	252.73026	201.91775	22.41117	0.2359274	3.1370214	45	1	70 days	0.52	M-v	4	Williams		1999 TD
1999 TE	16.4	0.15	19990810	341.99824	148.16379	230.97728	2.75598	0.2378615	2.2511474	31	1	67 days	0.55	M-v	4	Williams		1999 TE
1999 TF	15.6	0.15	19990810	357.36047	217.87347	127.54409	5.36968	0.2591024	2.3498433	33	1	61 days	0.37	M-v	5	Williams		1999 TF
1999 TK	14.9	0.15	19991029	333.56156	346.09223	76.32890	2.18588	0.2035097	3.1133284	41	1	57 days	0.44			Marsden		1999 TK
1999 TL	14.7	0.15	19991029	300.35733	6.53811	90.00258	2.15958	0.1398706	3.1024481	41	1	59 days	0.46			Marsden		1999 TL
1999 TM	14.8	0.15	19990810	314.09055	204.03387	212.75274	5.18871	0.1282829	2.3147670	104	4	1978–1999	0.50	M-v	2	Williams	36925	1999 TM

1999 TN	15.2	0.15	19990810	335.29272	183.20224	209.29597	7.10084	0.1976587	2.3948397	71	1	137 days	0.49	M-v	3	Williams	36925	1999 TN
1999 TO	16.4	0.15	19990810	326.16343	115.75797	284.41692	0.73627	0.1725016	2.3929659	35	1	68 days	0.55	M-v	5	Williams		1999 TO
1999 TP	13.6	0.15	19990810	4.53004	156.62447	198.10177	17.01775	0.1292479	3.0773965	94	3	1997-1999	0.52	M-v	2	Williams	36925	1999 TP
1999 TT	15.1	0.15	19990810	18.06299	310.66644	21.27820	7.02121	0.1336582	2.3508805	54	2	1998-1999	0.65	M-v	4	Williams	36837	1999 TT
1999 TU	14.9	0.15	19990810	38.05014	278.44782	28.96984	2.17222	0.1685293	2.5725437	55	2	1998-1999	0.63	M-v	4	Williams	36925	1999 TU
1999 TV	15.7	0.15	19990810	351.74279	145.70330	219.86220	2.30678	0.3011434	2.4283349	47	1	66 days	0.48	M-v	4	Williams		1999 TV
1999 TW	14.7	0.15	19990810	24.61666	101.85937	214.56530	3.36693	0.2190938	2.1847828	107	2	1998-1999	0.53	M-v	4	Williams	36925	1999 TW
1999 TY	14.2	0.15	19990810	67.73536	252.44315	22.28340	17.51718	0.2083993	2.5981403	60	2	1998-1999	0.55	M-v	3	Williams	36837	1999 TY
1999 TZ	15.6	0.15	19990810	352.41938	177.61411	188.33814	4.70240	0.2970593	2.5367028	37	1	132 days	0.43	M-v	3	Williams	36925	1999 TZ
1999 TA ₁	16.3	0.15	19990810	1.50345	177.28018	174.32649	2.69903	0.2178712	2.3628757	41	2	1996-1999	0.58	M-v	4	Williams	36837	1999 TA ₁
1999 TB ₁	15.1	0.15	19990810	339.11392	179.38373	208.77171	4.70784	0.2348008	2.3700974	78	2	1988-1999	0.57	M-v	3	Williams	36837	1999 TB ₁
1999 TE ₁	13.8	0.15	19990810	10.58274	279.25949	70.92896	2.04299	0.1907610	3.2089937	45	3	1976-1999	0.51	M-v	4	Williams	36838	1999 TE ₁
1999 TF ₁	14.8	0.15	19991029	335.76844	204.44856	224.09893	2.80431	0.2503964	3.0571494	39	1	56 days	0.89			Williams		1999 TF ₁
1999 TG ₁	14.5	0.15	19991029	5.36521	71.99012	308.73113	0.96804	0.1397508	2.9275399	35	1	56 days	0.56			Williams		1999 TG ₁
1999 TH ₁	15.5	0.15	19990810	232.13574	289.38407	211.38604	4.69134	0.0774434	2.2752106	35	1	71 days	0.80	M-v	5	Williams		1999 TH ₁
1999 TJ ₁	14.3	0.15	19991029	327.01180	47.90227	15.54581	6.35711	0.0477039	2.4501122	42	1	56 days	0.50			Williams		1999 TJ ₁
1999 TL ₁	15.7	0.15	19991029	0.09906	191.42151	196.78402	6.29157	0.2007189	2.5253210	30	1	56 days	0.63			Williams		1999 TL ₁
1999 TM ₁	14.5	0.15	19990810	300.29665	46.66692	20.91632	8.42158	0.0568843	2.2263599	70	3	1989-1999	0.56	M-v	3	Williams	36925	1999 TM ₁
1999 TO ₁	15.3	0.15	19990810	355.31847	350.05885	16.18493	11.28818	0.1683723	2.4162234	54	1	66 days	0.52	M-v	4	Williams		1999 TO ₁
1999 TP ₁	15.5	0.15	19990810	327.23658	189.97905	216.63593	1.87966	0.1842645	2.4338493	38	2	1997-1999	0.41	M-v	4	Williams	36838	1999 TP ₁
1999 TR ₁	15.3	0.15	19990810	305.94032	226.12304	199.79161	6.24648	0.0852309	2.3382923	54	3	1994-1999	0.54	M-v	2	Williams	36925	1999 TR ₁
1999 TU ₁	13.0	0.15	19991029	140.01853	211.27881	33.66430	6.61380	0.0302340	3.0480012	40	1	56 days	0.56			Williams		1999 TU ₁
1999 TV ₁	15.5	0.15	19990810	4.72228	174.88519	170.82652	2.65917	0.2450899	2.3485225	44	1	66 days	0.55	M-v	5	Williams		1999 TV ₁
1999 TY ₁	14.6	0.15	19990810	350.61303	336.67864	50.76969	15.21194	0.3158085	2.5464774	58	1	88 days	0.42	M-v	3	Williams	36925	1999 TY ₁
1999 TA ₂	13.8	0.15	19990810	358.14327	34.41416	309.73116	16.27737	0.3642540	2.9155727	53	1	138 days	0.38	M-v	3	Williams	36925	1999 TA ₂
1999 TB ₂	13.2	0.15	19990810	349.87166	272.32795	93.57607	13.77000	0.1969300	2.6278315	42	2	1998-1999	0.68	M-v	3	Williams	36838	1999 TB ₂
1999 TD ₂	15.2	0.15	19990810	288.67880	31.96827	40.34784	21.65885	0.0919272	1.9301130	77	2	1998-1999	0.55	M-v	4	Williams	36925	1999 TD ₂
1999 TE ₂	15.4	0.15	19990810	22.64085	291.41812	42.96782	4.81549	0.1595860	2.3069336	55	3	1992-1999	0.63	M-v	3	Williams	36925	1999 TE ₂
1999 TF ₂	16.2	0.15	19990810	335.61664	172.94140	217.01364	5.64061	0.2587903	2.2787973	48	1	80 days	0.58	M-v	4	Williams		1999 TF ₂
1999 TG ₂	12.6	0.15	19990810	187.96452	182.41881	359.17224	8.96661	0.0825712	2.7934094	52	2	1997-1999	0.40	M-v	4	Williams	36925	1999 TG ₂
1999 TH ₂	15.2	0.15	19990810	0.10700	115.80067	242.51844	3.23282	0.1788063	2.6706419	41	3	1993-1999	0.64	M-v	3	Williams	36925	1999 TH ₂
1999 TJ ₂	16.2	0.15	19990810	10.07361	139.56135	196.99418	2.86183	0.2217205	2.3555147	47	1	66 days	0.54	M-v	5	Williams		1999 TJ ₂
1999 TQ ₂	14.1	0.15	19990810	336.38653	260.57683	141.16537	21.44509	0.3085920	3.0359577	28	1	78 days	0.63	M-v	4	Williams		1999 TQ ₂
1999 TR ₂	12.3	0.15	19990810	52.13390	199.46818	111.28248	22.79036	0.0431631	3.1658872	48	2	1998-1999	0.64	M-v	3	Williams	36839	1999 TR ₂
1999 TZ ₂	15.9	0.15	19990810	18.69988	227.96156	107.11611	4.31118	0.1988848	2.1621267	21	1	64 days	0.36	M-v	4	Williams		1999 TZ ₂
1999 TA ₃	13.2	0.15	19990810	2.15610	81.09705	297.15368	8.74018	0.1185575	3.0035518	55	2	1998-1999	0.75	M-v	3	Williams	36839	1999 TA ₃
1999 TM ₃	15.9	0.15	19991029	78.88691	205.96355	86.14402	4.21249	0.1412915	2.3181450	22	1	59 days	0.38			Marsden		1999 TM ₃
1999 TN ₃	14.3	0.15	19990810	309.55733	65.32731	28.54317	24.27641	0.3583996	2.7445075	84	1	83 days	0.37	M-v	4	Williams	36925	1999 TN ₃
1999 TO ₃	15.4	0.15	19990810	16.39588	58.79502	277.31994	0.96584	0.1728080	2.4483689	54	2	1998-1999	0.66	M-v	4	Williams	36925	1999 TO ₃
1999 TP ₃	13.3	0.15	19990810	347.61985	11.81593	18.22916	10.81214	0.1083569	3.0455478	52	1	80 days	0.52	M-v	4	Williams		1999 TP ₃
1999 TS ₃	15.6	0.15	19990810	53.63924	336.74969	324.05334	0.77495	0.0914984	2.6431823	21	1	65 days	0.42	M-v	6	Williams		1999 TS ₃
1999 TU ₃	13.5	0.15	19990810	241.36205	115.56662	16.20940	10.01448	0.0534561	2.9679375	53	1	68 days	0.47	M-v	5	Williams		1999 TU ₃
1999 TW ₃	14.2	0.15	19990810	298.83095	6.52616	65.68220	5.37439	0.0931503	2.3936229	73	4	1992-1999	0.51	M-v	3	Williams	36926	1999 TW ₃
1999 TX ₃	15.9	0.15	19990810	8.70972	329.33251	13.75393	4.26084	0.1599819	2.3166175	42	1	63 days	0.32	M-v	4	Williams		1999 TX ₃
1999 TY ₃	15.5	0.15	19990810	270.31717	83.97515	24.88373	3.62003	0.1539396	2.3305934	44	1	65 days	0.42	M-v	5	Williams		1999 TY ₃
1999 TF ₄	13.4	0.15	19990810	313.77862	31.07485	57.30744	2.24102	0.2661375	3.0753898	61	5	1979-1999	0.58	M-v	1	Williams	36839	1999 TF ₄
1999 TG ₄	14.7	0.15	19991009	326.02743	62.17319	316.18304	8.75718	0.2329941	3.1111289	22	1	36 days	0.84			Williams		1999 TG ₄
1999 TJ ₄	13.5	0.15	19990810	100.46190	43.62688	219.99571	6.30207	0.0730918	2.9883364	41	3	1997-1999	0.60	M-v	3	Williams	36840	1999 TJ ₄
1999 TM ₄	14.0	0.15	19990810	40.52085	89.84537	242.27290	4.40053	0.1242796	2.8550832	42	1	70 days	0.61	M-v	5	Williams		1999 TM ₄
1999 TN ₄	16.9	0.15	19991009	31.59044	308.88615	21.65389	8.19883	0.1958758	2.2037293	26	1	34 days	0.93			Williams		1999 TN ₄
1999 TO ₄	16.5	0.15	19990810	290.20142	56.21824	9.70568	21.13244	0.0865573	1.9097517	47	2	1998-1999	0.63	M-v	4	Williams	36926	1999 TO ₄
1999 TW ₄	14.8	0.15	19990810	1.85224	334.73327	22.06503	17.94380	0.2132983	2.5247212	54	1	65 days	0.39	M-v	4	Williams		1999 TW ₄
1999 TX ₄	15.7	0.15	19991029	0.42388	249.32254	126.62016	6.13318	0.2417189	2.6112296	25	1	58 days	0.40			Marsden		1999 TX ₄

1999 TD ₅	19.3	0.15	19990810	336.28250	309.50703	105.32276	4.14652	0.5273286	2.4681469	116	1	73 days	0.45	M-v	4	Marsden	36926	1999 TD ₅
1999 TJ ₅	15.2	0.15	19990810	7.43518	6.60288	347.38486	3.86107	0.1721202	2.1915632	56	2	1998–1999	0.62	M-v	4	Williams	36926	1999 TJ ₅
1999 TK ₅	14.0	0.15	19990810	37.74646	97.99835	212.65937	12.10712	0.2111217	2.5539325	89	2	1998–1999	0.54	M-v	4	Williams	36926	1999 TK ₅
1999 TO ₅	15.2	0.15	19990810	18.84956	309.94861	20.40858	5.15642	0.2134112	2.4405800	39	2	1998–1999	0.58	M-v	4	Williams	36840	1999 TO ₅
1999 TQ ₅	14.8	0.15	19990810	328.25849	206.37378	201.02091	4.05797	0.1722745	2.5892750	46	4	1987–1999	0.55	M-v	3	Williams	36840	1999 TQ ₅
1999 TS ₅	15.5	0.15	19990810	353.86560	24.69979	337.49351	3.70728	0.1791911	2.2001954	46	1	69 days	0.56	M-v	4	Williams		1999 TS ₅
1999 TT ₅	15.1	0.15	19990810	330.05511	185.27480	220.51936	5.12339	0.1994188	2.4376433	55	1	61 days	0.47	M-v	4	Williams		1999 TT ₅
1999 TU ₅	13.6	0.15	19990810	324.59565	350.17965	72.07453	5.46121	0.1011321	2.8145227	28	1	62 days	0.66	M-v	5	Williams		1999 TU ₅
1999 TV ₅	13.7	0.15	19990810	14.94909	137.00840	221.97185	11.21954	0.2080123	2.5761115	82	3	1974–1999	0.54	M-v	2	Williams	36926	1999 TV ₅
1999 TD ₆	14.5	0.15	19991029	359.14331	264.73716	122.47726	4.50828	0.1054810	2.6526285	42	1	55 days	0.77			Williams		1999 TD ₆
1999 TF ₆	15.0	0.15	19990810	345.34469	354.27061	27.84499	7.26627	0.1650082	3.1353846	65	1	66 days	0.58	M-v	4	Williams		1999 TF ₆
1999 TK ₆	15.8	0.15	19990810	338.14237	192.94388	199.16657	3.78749	0.2210905	2.5771054	40	1	66 days	0.63	M-v	4	Williams		1999 TK ₆
1999 TP ₆	14.1	0.15	19990810	344.09997	297.37910	92.92740	2.63270	0.2196600	3.0909123	31	1	65 days	0.68	M-v	5	Williams		1999 TP ₆
1999 TV ₆	13.9	0.15	19990810	307.04189	232.43927	198.59160	3.56996	0.1462178	2.3701098	60	5	1977–1999	0.49	M-v	1	Williams	36926	1999 TV ₆
1999 TX ₆	14.1	0.15	19990810	309.77922	49.55462	24.41209	13.58583	0.1710140	2.6612579	52	2	1997–1999	0.52	M-v	4	Williams	36926	1999 TX ₆
1999 TC ₇	14.2	0.15	19991029	196.86347	159.98669	33.13654	7.37975	0.0633074	2.3281999	29	1	56 days	0.53			Williams		1999 TC ₇
1999 TH ₇	14.2	0.15	19990810	239.11418	283.52437	212.22990	5.93302	0.0584029	2.3605722	50	3	1994–1999	0.48	M-v	3	Williams	36841	1999 TH ₇
1999 TK ₇	16.1	0.15	19990810	315.48438	51.05495	11.40235	2.74902	0.2106989	2.4027460	32	1	64 days	0.36	M-v	5	Williams		1999 TK ₇
1999 TO ₇	13.4	0.15	19990810	2.13002	325.06183	55.23297	14.40525	0.1773094	2.6292386	59	2	1992–1999	0.48	M-v	3	Williams	36841	1999 TO ₇
1999 TP ₇	14.8	0.15	19990810	31.71274	46.60750	264.44280	12.05536	0.2428915	2.3845967	101	1	139 days	0.62	M-v	4	Williams	36926	1999 TP ₇
1999 TQ ₇	15.7	0.15	19990810	359.06683	146.67766	180.22058	22.16285	0.0775785	1.9545812	44	2	1971–1999	0.58	M-v	3	Williams	36486	1999 TQ ₇
1999 TS ₇	15.8	0.15	19990810	356.91760	323.93429	28.65954	16.19340	0.2543447	2.6088729	21	1	66 days	0.45	M-v	4	Williams		1999 TS ₇
1999 TV ₇	15.0	0.15	19990810	6.43941	284.08351	47.15297	9.87947	0.2922008	2.3738804	20	1	66 days	0.57	M-v	5	Williams		1999 TV ₇
1999 TB ₈	15.0	0.15	19990810	334.94814	14.09973	32.41715	14.50732	0.2727946	2.6763700	71	1	112 days	0.44	M-v	3	Williams	36927	1999 TB ₈
1999 TC ₈	14.5	0.15	19991029	14.31485	262.34898	98.29402	3.82440	0.2621523	3.9725360	26	1	59 days	0.47			Williams		1999 TC ₈
1999 TD ₈	15.7	0.15	19990810	333.07295	358.35646	37.46788	0.84947	0.2053517	2.3283878	49	1	66 days	0.55	M-v	4	Williams		1999 TD ₈
1999 TF ₈	14.7	0.15	19990810	6.48446	48.82064	303.63194	7.82587	0.2335738	2.7209781	33	1	64 days	0.59	M-v	4	Williams		1999 TF ₈
1999 TG ₈	14.0	0.15	19990810	310.44340	86.79173	342.00213	6.38889	0.1343894	2.2913592	37	1	66 days	0.56	M-v	5	Williams		1999 TG ₈
1999 TH ₈	15.2	0.15	19990810	322.09123	139.25218	279.46682	3.95829	0.2121856	2.3593600	35	1	70 days	0.56	M-v	4	Williams		1999 TH ₈
1999 TL ₈	15.5	0.15	19990810	350.02674	343.03102	29.98542	9.97828	0.1860506	2.4391885	29	1	83 days	0.47	M-v	5	Williams		1999 TL ₈
1999 TP ₈	15.3	0.15	19990810	32.16448	259.50342	69.32569	2.57509	0.0624733	2.3700636	47	2	1998–1999	0.78	M-v	4	Williams	36927	1999 TP ₈
1999 TQ ₈	14.0	0.15	19990810	106.40657	54.89003	212.02644	9.48150	0.0136750	2.9831728	41	1	79 days	0.45	M-v	4	Williams		1999 TQ ₈
1999 TS ₈	15.1	0.15	19990810	20.11439	333.73459	357.06175	4.05466	0.2103481	2.5578395	69	2	1998–1999	0.57	M-v	4	Williams	36842	1999 TS ₈
1999 TT ₈	13.8	0.15	19990810	14.99166	130.63259	216.96806	8.02574	0.1571890	3.0448667	58	1	66 days	0.42	M-v	4	Nakano		1999 TT ₈
1999 TU ₈	12.7	0.15	19990810	273.78344	25.50069	89.17440	2.75893	0.1132094	3.2305284	54	2	1982–1999	0.59	M-v	4	Williams	36927	1999 TU ₈
1999 TX ₈	16.1	0.15	19990810	348.45971	37.48743	320.63117	1.70003	0.2046310	2.3600886	70	1	107 days	0.49	M-v	3	Williams	36927	1999 TX ₈
1999 TC ₉	14.8	0.15	19990810	355.41331	358.79079	11.23974	3.88479	0.1813702	2.5811190	52	1	71 days	0.41	M-v	4	Williams		1999 TC ₉
1999 TF ₉	15.9	0.15	19991029	16.71228	344.93851	21.88890	5.94732	0.1864939	2.2885433	33	1	59 days	0.52			Williams		1999 TF ₉
1999 TJ ₉	12.5	0.15	19990810	276.23389	253.64425	210.04846	11.21800	0.0240921	3.1782057	38	1	61 days	0.41	M-v	5	Williams		1999 TJ ₉
1999 TL ₉	15.1	0.15	19990810	343.08024	7.79984	22.21110	9.74041	0.1891543	2.6045136	60	1	80 days	0.46	M-v	4	Williams		1999 TL ₉
1999 TM ₉	16.5	0.15	19990810	348.06297	352.41643	21.92099	8.43711	0.2727708	2.3079311	30	1	62 days	0.61	M-v	5	Williams		1999 TM ₉
1999 TQ ₉	13.8	0.15	19990810	349.07070	195.84265	192.04479	0.71692	0.1983658	3.0945477	77	3	1989–1999	0.58	M-v	3	Williams	36842	1999 TQ ₉
1999 TR ₉	15.2	0.15	19990810	333.76899	22.31235	19.11212	2.55283	0.2465658	2.3445301	44	2	1981–1999	0.49	M-v	3	Williams	36842	1999 TR ₉
1999 TS ₉	14.9	0.15	19990810	42.67863	272.76693	31.49585	5.69200	0.2069225	2.2732060	48	2	1998–1999	0.48	M-v	4	Williams	36842	1999 TS ₉
1999 TT ₉	15.9	0.15	19990810	327.28270	204.74904	205.32640	2.92442	0.2198358	2.4689558	32	1	61 days	0.60	M-v	5	Williams		1999 TT ₉
1999 TW ₉	15.8	0.15	19990810	4.27591	23.98158	330.38571	1.89799	0.2134128	2.3912311	98	3	1973–1999	0.70	M-v	3	Williams	36927	1999 TW ₉
1999 TX ₉	14.0	0.15	19991029	5.94929	12.89254	50.10821	26.40565	0.2761181	2.3142268	34	1	56 days	0.69			Williams		1999 TX ₉
1999 TZ ₉	15.0	0.15	19990810	310.44766	18.06388	54.22774	3.49091	0.1988893	2.8026000	47	2	1997–1999	0.51	M-v	4	Williams	36843	1999 TZ ₉
1999 TA ₁₀	17.7	0.15	19990810	21.83771	84.64665	214.78534	20.84290	0.2414683	1.5057791	195	1	40 days	0.52	M-v	5	Marsden	36927	1999 TA ₁₀
1999 TD ₁₀	8.7	0.15	19990810	359.96493	171.21438	184.66809	5.95486	0.8781757	100.9372491	56	1	63 days	0.43	M-v	5	Williams		1999 TD ₁₀
1999 TG ₁₀	14.5	0.15	19990810	226.62578	159.26651	350.67548	2.27137	0.1359525	2.4588328	47	2	1997–1999	0.54	M-v	4	Williams	36927	1999 TG ₁₀
1999 TH ₁₀	14.9	0.15	19991029	329.52704	244.98772	184.19872	8.19628	0.2021942	3.0550799	35	1	57 days	0.51			Marsden		1999 TH ₁₀
1999 TO ₁₀	16.6	0.15	19991029	8.97153	174.73462	204.94866	3.85878	0.1955894	2.5210269	17	1	50 days	0.34			Williams		1999 TO ₁₀

1999 TR ₁₀	13.1	0.15	19990810	357.80679	356.72041	20.51094	10.48740	0.0564778	3.0688879	52	1	63 days	0.32	M-v	4	Williams	1999 TR ₁₀
1999 TT ₁₀	12.7	0.15	19990810	62.36979	275.65345	31.55839	11.22593	0.0877170	3.0308133	43	1	65 days	0.48	M-v	5	Williams	1999 TT ₁₀
1999 TW ₁₀	15.3	0.15	19990810	301.71630	41.49628	45.30168	8.78746	0.1454247	2.3785828	44	1	66 days	0.67	M-v	5	Williams	1999 TW ₁₀
1999 TA ₁₁	15.8	0.15	19991029	293.79607	287.09616	184.35441	7.68305	0.0642233	2.2797463	31	1	55 days	0.79			Williams	1999 TA ₁₁
1999 TD ₁₁	14.8	0.15	19991029	8.24379	77.26350	352.10688	1.94801	0.3045281	2.5832671	29	1	49 days	0.56			Williams	1999 TD ₁₁
1999 TF ₁₁	14.1	0.15	19990810	353.46995	157.10200	220.21543	16.60304	0.2139484	3.1735653	40	1	65 days	0.53	M-v	4	Williams	1999 TF ₁₁
1999 TG ₁₁	14.7	0.15	19990810	3.79515	344.60893	9.93010	16.47941	0.2390333	2.6588946	53	1	87 days	0.51	M-v	4	Williams	36928 1999 TG ₁₁
1999 TH ₁₁	12.8	0.15	19990810	329.47225	185.22502	223.56666	14.59636	0.0872799	3.2009034	41	2	1997–1999	0.65	M-v	3	Williams	36843 1999 TH ₁₁
1999 TK ₁₁	13.5	0.15	19990810	272.42123	105.48053	356.98049	6.36960	0.0848586	2.4361686	59	4	1984–1999	0.45	M-v	1	Williams	36928 1999 TK ₁₁
1999 TL ₁₁	14.4	0.15	19990810	328.20074	202.72299	208.25676	13.73685	0.1339460	2.4422445	71	3	1994–1999	0.61	M-v	3	Williams	36928 1999 TL ₁₁
1999 TN ₁₁	15.4	0.15	19991029	19.95121	248.13335	99.57473	22.99607	0.2951856	2.3687282	21	1	55 days	0.42			Williams	1999 TN ₁₁
1999 TO ₁₁	18.4	0.15	19991029	15.99624	341.89760	23.62758	4.71681	0.3273760	2.3271349	52	1	53 days	0.42			Marsden	1999 TO ₁₁
1999 TP ₁₁	14.5	0.15	19990810	334.74584	330.74587	71.12527	7.31604	0.0954157	2.2522363	36	1	60 days	0.34	M-v	4	Williams	1999 TP ₁₁
1999 TQ ₁₁	12.9	0.15	19990810	353.42161	294.35278	96.84494	6.41502	0.1533796	3.1932965	49	2	1997–1999	0.57	M-v	4	Williams	36928 1999 TQ ₁₁
1999 TS ₁₁	12.9	0.15	19990810	10.27845	23.49164	326.68400	12.61802	0.1910194	2.6449545	95	2	1990–1999	0.40	M-v	3	Williams	36928 1999 TS ₁₁
1999 TU ₁₁	12.6	0.15	19990810	49.84507	106.87789	209.17164	13.60328	0.2256637	3.1811287	50	2	1997–1999	0.52	M-v	4	Williams	36928 1999 TU ₁₁
1999 TW ₁₁	15.0	0.15	19990810	281.43863	285.93062	185.32365	4.60396	0.1081093	2.3330018	49	2	1990–1999	0.63	M-v	4	Williams	36843 1999 TW ₁₁
1999 TX ₁₁	15.4	0.15	19991029	273.99769	118.81046	15.85818	11.92654	0.1297776	2.6178361	34	1	52 days	0.63			Williams	1999 TX ₁₁
1999 TZ ₁₁	15.7	0.15	19990810	36.14477	102.37208	204.21470	3.51840	0.1684655	2.2293937	39	1	61 days	0.35	M-v	5	Williams	1999 TZ ₁₁
1999 TA ₁₂	16.1	0.15	19990810	7.97660	130.11595	208.40789	1.88558	0.2313399	2.3349702	37	1	63 days	0.42	M-v	5	Williams	1999 TA ₁₂
1999 TB ₁₂	13.5	0.15	19990810	253.90780	87.84174	48.95691	14.18997	0.1020407	2.5662707	85	4	1987–1999	0.50	M-v	2	Williams	36928 1999 TB ₁₂
1999 TD ₁₂	15.1	0.15	19990810	7.07688	245.08889	111.37748	3.30354	0.1981189	2.4182620	36	1	63 days	0.40	M-v	4	Williams	1999 TD ₁₂
1999 TG ₁₂	15.5	0.15	19990810	345.27053	237.04811	151.28121	2.85535	0.1925251	2.3814881	40	1	63 days	0.57	M-v	4	Williams	1999 TG ₁₂
1999 TH ₁₂	15.1	0.15	19990810	355.00624	205.82322	142.57390	6.14504	0.2143447	2.1665897	43	3	1983–1999	0.41	M-v	2	Williams	36488 1999 TH ₁₂
1999 TK ₁₂	17.9	0.15	19990810	278.89802	111.98664	359.25046	24.48419	0.3931875	1.6829739	81	1	54 days	0.65	M-v	5	Williams	1999 TK ₁₂
1999 TN ₁₂	17.4	0.15	19990810	352.06697	150.17984	212.44690	37.25534	0.3916544	1.8866431	49	1	54 days	0.58	M-v	5	Williams	1999 TN ₁₂
1999 TP ₁₂	13.7	0.15	19990810	15.41338	303.51155	34.37905	13.28194	0.1950711	2.6095838	84	2	1998–1999	0.53	M-v	3	Williams	36928 1999 TP ₁₂
1999 TT ₁₂	15.5	0.15	19991029	12.94566	324.55350	29.95192	15.82989	0.2165087	2.5978057	37	1	55 days	0.47			Williams	1999 TT ₁₂
1999 TU ₁₂	15.7	0.15	19990810	335.48792	214.10990	178.61291	6.86263	0.2090596	2.3203276	36	1	88 days	0.55	M-v	4	Williams	1999 TU ₁₂
1999 TW ₁₂	13.7	0.15	19990810	302.51383	57.77729	36.13778	17.35997	0.2457196	3.1020803	40	1	64 days	0.64	M-v	5	Williams	1999 TW ₁₂
1999 TX ₁₂	12.8	0.15	19990810	307.44885	2.09347	67.69261	5.64655	0.0747499	3.0043970	62	2	1997–1999	0.58	M-v	4	Williams	36928 1999 TX ₁₂
1999 TY ₁₂	13.2	0.15	19990810	347.97971	323.02369	55.64961	4.48921	0.1987965	4.0043765	54	1	74 days	0.59	M-v	4	Williams	1999 TY ₁₂
1999 TZ ₁₂	13.9	0.15	19990810	9.97804	274.35520	81.46922	4.69414	0.1900227	2.2523160	65	3	1992–1999	0.51	M-v	3	Williams	36844 1999 TZ ₁₂
1999 TB ₁₃	14.6	0.15	19990810	5.76391	71.28445	292.21234	7.91416	0.2215135	2.7297496	34	1	64 days	0.41	M-v	4	Williams	1999 TB ₁₃
1999 TC ₁₃	13.8	0.15	19990810	28.22082	288.42249	55.14624	2.09479	0.1999179	3.1710606	63	1	70 days	0.46	M-v	4	Williams	1999 TC ₁₃
1999 TD ₁₃	16.8	0.15	19990810	342.31925	187.67529	211.29063	5.43676	0.3177659	2.5652899	37	1	65 days	0.68	M-v	4	Williams	1999 TD ₁₃
1999 TF ₁₃	14.4	0.15	19990810	234.93512	112.78413	52.70733	15.64599	0.0541660	2.6245296	52	1	64 days	0.59	M-v	5	Williams	1999 TF ₁₃
1999 TG ₁₃	15.1	0.15	19990810	27.47842	283.95639	54.88926	4.69798	0.1964826	2.2507523	81	2	1998–1999	0.56	M-v	4	Williams	36844 1999 TG ₁₃
1999 TK ₁₃	14.5	0.15	19990810	0.72212	291.01423	86.04938	7.07503	0.2399365	3.0621759	27	1	86 days	0.62	M-v	4	Williams	1999 TK ₁₃
1999 TL ₁₃	16.1	0.15	19990810	5.22204	306.20685	38.47837	5.67956	0.2345018	2.2221843	38	1	64 days	0.61	M-v	5	Williams	1999 TL ₁₃
1999 TP ₁₃	14.7	0.15	19990810	318.77573	192.60234	219.29526	1.92701	0.1421337	2.3664852	48	2	1997–1999	0.52	M-v	4	Williams	36845 1999 TP ₁₃
1999 TQ ₁₃	14.3	0.15	19990810	343.82682	123.98158	262.50983	2.26468	0.1610888	3.0650614	30	1	67 days	0.52	M-v	5	Williams	1999 TQ ₁₃
1999 TR ₁₃	13.8	0.15	19990810	283.21974	87.69589	14.06517	13.93816	0.1372093	2.5981155	54	2	1997–1999	0.51	M-v	4	Williams	36928 1999 TR ₁₃
1999 TT ₁₃	13.8	0.15	19990810	35.22155	289.42293	40.24092	5.23582	0.0963329	2.6999860	27	1	61 days	0.62	M-v	5	Williams	1999 TT ₁₃
1999 TX ₁₃	13.7	0.15	19990810	34.73606	125.75079	201.77638	10.55553	0.2058471	2.9032171	54	2	1998–1999	0.64	M-v	3	Williams	36845 1999 TX ₁₃
1999 TY ₁₃	14.6	0.15	19990810	340.82083	264.09361	135.87373	3.03335	0.1057673	2.6387204	34	1	64 days	0.62	M-v	5	Williams	1999 TY ₁₃
1999 TB ₁₄	16.2	0.15	19990810	338.76443	207.61529	183.89594	8.23376	0.1888950	2.5683441	22	1	60 days	0.47	M-v	5	Marsden	1999 TB ₁₄
1999 TD ₁₄	15.6	0.15	19990810	6.69541	139.87771	217.18491	5.71038	0.1375449	2.2676955	51	1	61 days	0.53	M-v	4	Williams	1999 TD ₁₄
1999 TG ₁₄	14.5	0.15	19990810	10.57460	306.20532	42.30000	7.30784	0.1324122	2.3854930	68	2	1998–1999	0.65	M-v	3	Williams	36928 1999 TG ₁₄
1999 TH ₁₄	13.4	0.15	19990810	22.10657	236.36879	103.79590	1.87082	0.1750088	3.1673221	31	3	1993–1999	0.61	M-v	4	Williams	36845 1999 TH ₁₄
1999 TK ₁₄	14.5	0.15	19990810	323.69619	265.94487	147.89514	2.45888	0.1960327	2.3797004	25	1	61 days	0.58	M-v	5	Williams	1999 TK ₁₄
1999 TL ₁₄	15.3	0.15	19990810	19.88570	272.11417	67.42968	4.92171	0.2619334	2.5595617	33	3	1995–1999	0.58	M-v	3	Williams	36845 1999 TL ₁₄
1999 TM ₁₄	16.2	0.15	19990810	342.38963	220.22557	173.73046	2.18276	0.1696412	2.2238010	54	3	1992–1999	0.62	M-v	3	Williams	36846 1999 TM ₁₄

1999 TN ₁₄	14.3	0.15	19990810	2.48812	166.91231	208.48968	9.43193	0.2673172	3.0790146	40	1	61 days	0.54	M-v	4	Williams		1999 TN ₁₄
1999 TO ₁₄	13.6	0.15	19990810	26.58879	219.30038	136.21477	2.87728	0.0857097	2.8471188	60	2	1998–1999	0.55	M-v	3	Williams	36846	1999 TO ₁₄
1999 TS ₁₄	14.9	0.15	19990810	336.69623	188.47807	207.04036	2.06481	0.1621900	3.0367863	38	1	65 days	0.58	M-v	5	Williams		1999 TS ₁₄
1999 TW ₁₄	13.7	0.15	19990810	53.70152	259.07802	57.86341	7.32519	0.1149278	2.5471514	49	1	70 days	0.43	M-v	4	Williams		1999 TW ₁₄
1999 TX ₁₄	15.8	0.15	19990810	347.67890	340.32661	39.34302	9.35191	0.3205012	2.6543193	40	1	64 days	0.57	M-v	4	Williams		1999 TX ₁₄
1999 TY ₁₄	16.0	0.15	19990810	350.41501	278.87924	94.33789	2.90260	0.3482059	2.6656204	27	1	61 days	0.58	M-v	4	Williams		1999 TY ₁₄
1999 TZ ₁₄	14.9	0.15	19990810	10.05002	156.62817	182.56132	7.70663	0.2318753	2.2450683	61	2	1998–1999	0.54	M-v	3	Williams	36929	1999 TZ ₁₄
1999 TD ₁₅	14.5	0.15	19990810	296.63513	231.54641	213.65342	22.73675	0.2970292	2.3555939	60	1	138 days	0.47	M-v	4	Williams	36929	1999 TD ₁₅
1999 TG ₁₅	15.3	0.15	19990810	311.14672	225.51335	203.87391	7.75343	0.1891955	2.7497393	42	1	67 days	0.45	M-v	5	Williams		1999 TG ₁₅
1999 TT ₁₅	14.8	0.15	19991029	341.70297	215.24394	241.98119	13.10418	0.1343716	2.6514823	31	1	56 days	0.33			Williams		1999 TT ₁₅
1999 TV ₁₅	13.7	0.15	19990810	135.01614	66.69462	170.89752	4.29822	0.0837385	2.2707499	52	4	1978–1999	0.60	M-v	2	Williams	36846	1999 TV ₁₅
1999 TY ₁₅	14.1	0.15	19990810	326.77679	203.81697	199.66005	5.69979	0.1454449	2.5650880	46	1	137 days	0.52	M-v	4	Williams	36929	1999 TY ₁₅
1999 TD ₁₆	13.7	0.15	19990810	330.93096	23.22687	15.49873	6.67868	0.1445480	3.2048083	50	1	93 days	0.59	M-v	4	Williams	36929	1999 TD ₁₆
1999 TE ₁₆	14.7	0.15	19990810	301.35073	72.12102	16.40024	12.69560	0.2420996	2.6851687	30	1	63 days	0.53	M-v	5	Williams		1999 TE ₁₆
1999 TG ₁₆	15.4	0.15	19990810	325.56141	199.85863	210.68981	2.69024	0.1787059	2.7329975	35	1	61 days	0.56	M-v	5	Williams		1999 TG ₁₆
1999 TJ ₁₆	15.1	0.15	19990810	345.62922	301.79194	78.66571	3.62703	0.1802360	2.3799143	30	1	64 days	0.55	M-v	4	Williams		1999 TJ ₁₆
1999 TP ₁₆	14.4	0.15	19990810	355.67947	177.98190	191.81980	1.51824	0.1337287	3.0850330	43	1	94 days	0.37	M-v	3	Williams	36929	1999 TP ₁₆
1999 TS ₁₆	16.3	0.15	19990810	326.61244	200.87536	211.39495	5.35184	0.1484569	2.2428947	37	1	64 days	0.40	M-v	4	Williams		1999 TS ₁₆
1999 TX ₁₆	15.7	0.15	19990810	355.38694	311.11160	54.74135	38.20911	0.3329865	1.5511785	71	1	51 days	0.46	M-v	6	Williams	36929	1999 TX ₁₆
1999 TZ ₁₆	14.3	0.15	19990810	339.97741	312.80954	74.09456	3.84821	0.2563650	2.9747411	33	1	86 days	0.50	M-v	4	Williams		1999 TZ ₁₆
1999 TB ₁₇	13.0	0.15	19990810	321.86995	0.46710	68.43253	3.04697	0.2012382	3.1808921	28	3	1994–1999	0.67	M-v	4	Williams	36847	1999 TB ₁₇
1999 TE ₁₇	15.9	0.15	19991029	4.01579	350.75832	48.39173	7.27455	0.1006989	2.2759462	46	1	54 days	0.50			Williams		1999 TE ₁₇
1999 TF ₁₇	15.2	0.15	19990810	311.70081	322.92389	117.16272	1.58098	0.1321156	2.4157503	46	1	80 days	0.57	M-v	4	Williams		1999 TF ₁₇
1999 TG ₁₇	14.1	0.15	19991029	38.21692	299.97464	68.42064	9.27981	0.1854679	2.6035703	32	1	56 days	0.46			Williams		1999 TG ₁₇
1999 TH ₁₇	13.7	0.15	19991029	26.15196	268.94220	92.07885	3.20170	0.1035415	2.9186895	23	1	56 days	0.54			Williams		1999 TH ₁₇
1999 TM ₁₇	13.3	0.15	19991029	295.39552	8.24017	92.27516	11.97741	0.0827252	3.0587473	29	1	56 days	0.47			Williams		1999 TM ₁₇
1999 TQ ₁₇	16.3	0.15	19990810	272.75145	166.80693	299.32023	0.41812	0.1498026	2.3882127	23	1	60 days	0.54	M-v	6	Williams		1999 TQ ₁₇
1999 TS ₁₇	15.8	0.15	19990810	309.98847	219.04895	202.93129	4.28567	0.1310566	2.3894104	47	1	66 days	0.49	M-v	5	Williams		1999 TS ₁₇
1999 TU ₁₇	14.6	0.15	19990810	3.36430	76.41762	255.63295	11.30423	0.3752876	2.6758469	59	1	79 days	0.62	M-v	4	Williams		1999 TU ₁₇
1999 TY ₁₇	15.3	0.15	19990810	353.44275	335.27953	50.21632	4.55662	0.1891657	2.3473286	36	1	69 days	0.42	M-v	4	Williams		1999 TY ₁₇
1999 TF ₁₈	15.6	0.15	19990810	14.62145	122.42759	226.57892	0.53694	0.2055882	2.1555381	67	1	63 days	0.45	M-v	5	Williams		1999 TF ₁₈
1999 TJ ₁₈	13.2	0.15	19990810	337.81651	196.21675	224.57847	10.81798	0.0510245	3.0493561	50	2	1998–1999	0.50	M-v	3	Williams	36848	1999 TJ ₁₈
1999 TL ₁₈	14.8	0.15	19990810	5.24241	306.06851	47.59297	7.57804	0.1375333	2.3489413	61	2	1998–1999	0.63	M-v	3	Williams	36848	1999 TL ₁₈
1999 TQ ₁₈	15.1	0.15	19990810	29.32157	300.60519	16.94099	4.25296	0.2170764	2.5955720	67	3	1997–1999	0.62	M-v	3	Williams	36930	1999 TQ ₁₈
1999 TR ₁₈	14.0	0.15	19991029	346.44196	35.77259	8.55255	1.80277	0.1096234	2.9236887	37	1	56 days	0.44			Williams		1999 TR ₁₈
1999 TU ₁₈	14.3	0.15	19990810	2.90545	326.80485	20.75665	25.41973	0.2452799	2.3912779	83	3	1988–1999	0.63	M-v	2	Williams	36930	1999 TU ₁₈
1999 TY ₁₈	14.7	0.15	19990810	310.73371	229.72657	215.86480	1.37539	0.1836601	2.3880696	70	5	1982–1999	0.46	M-v	1	Williams	36848	1999 TY ₁₈
1999 TZ ₁₈	14.5	0.15	19990810	317.39378	253.66828	164.37891	2.45270	0.1361886	2.2882622	21	1	60 days	0.46	M-v	5	Williams		1999 TZ ₁₈
1999 TG ₁₉	14.1	0.15	19990810	72.18639	353.25182	300.78315	3.66487	0.0152600	2.6966225	55	3	1991–1999	0.58	M-v	4	Williams	36930	1999 TG ₁₉
1999 TH ₁₉	15.0	0.15	19990810	14.83318	316.51993	30.81640	15.06033	0.1990964	2.5771428	53	1	70 days	0.53	M-v	4	Williams		1999 TH ₁₉
1999 TJ ₁₉	15.3	0.15	19990810	5.81717	337.86787	24.90427	3.07691	0.2131177	2.5703620	51	1	65 days	0.53	M-v	4	Williams		1999 TJ ₁₉
1999 TG ₂₀	13.8	0.15	19990810	334.63328	349.11489	61.85474	2.99951	0.0318944	2.9465725	69	2	1997–1999	0.63	M-v	4	Williams	36930	1999 TG ₂₀
1999 TH ₂₀	14.6	0.15	19990810	7.15460	236.77831	124.52433	4.55266	0.2562127	2.5965402	25	2	1998–1999	0.72	M-v	4	Williams	36849	1999 TH ₂₀
1999 TP ₂₀	15.0	0.15	19990810	338.31981	8.42703	22.21246	2.50540	0.1204288	2.9628879	26	1	65 days	0.47	M-v	5	Williams		1999 TP ₂₀
1999 TA ₂₁	14.2	0.15	19990810	305.36735	90.29932	345.38191	3.28921	0.0782817	2.9450828	52	2	1994–1999	0.49	M-v	4	Williams	36849	1999 TA ₂₁
1999 TP ₂₁	15.0	0.15	19990810	356.96135	340.06729	48.28620	14.58644	0.2445978	3.1840594	29	1	72 days	0.55	M-v	4	Williams		1999 TP ₂₁
1999 TQ ₂₁	14.6	0.15	19990810	313.92068	27.23160	56.28511	11.14668	0.0742881	3.0012052	30	1	71 days	0.45	M-v	4	Williams		1999 TQ ₂₁
1999 TR ₂₁	16.1	0.15	19990810	327.44256	3.05598	55.99802	7.53606	0.0928895	2.3546236	21	1	66 days	0.55	M-v	5	Williams		1999 TR ₂₁
1999 TU ₂₁	15.9	0.15	19990810	5.74796	319.74578	51.11970	13.79226	0.2089742	2.6027372	19	1	64 days	0.58	M-v	5	Williams		1999 TU ₂₁
1999 TH ₂₄	14.6	0.15	19990810	276.87601	288.49504	187.15616	20.48468	0.3115294	2.2865366	23	2	1997–1999	0.41	M-v	3	Williams	36849	1999 TH ₂₄
1999 TN ₂₅	13.6	0.15	19990810	294.70685	83.11902	6.83511	3.35447	0.1097517	2.7611903	26	1	62 days	0.30	M-v	6	Williams		1999 TN ₂₅
1999 TY ₂₅	13.8	0.15	19990810	16.38513	331.30643	24.85123	16.59127	0.0920236	3.1040688	36	2	1977–1999	0.61	M-v	4	Williams	36850	1999 TY ₂₅
1999 TE ₂₆	15.3	0.15	19990810	328.10684	24.74953	21.25702	10.86060	0.1037012	2.3410296	25	1	62 days	0.38	M-v	5	Williams		1999 TE ₂₆

1999 TJ ₂₆	15.7	0.15	19990810	337.53417	175.70853	220.82556	3.71796	0.1552828	2.3795124	21	1	60 days	0.69	M-v	5	Williams		1999 TJ ₂₆
1999 TL ₂₆	14.4	0.15	19990810	353.01586	167.29141	218.14667	9.90925	0.1450100	3.0684357	44	2	1997–1999	0.58	M-v	4	Williams	36850	1999 TL ₂₆
1999 TP ₂₆	13.7	0.15	19990810	31.13600	124.15124	217.53008	9.39603	0.0785288	3.0899276	21	1	63 days	0.52	M-v	5	Williams		1999 TP ₂₆
1999 TU ₂₆	14.1	0.15	19990810	326.89408	201.97613	219.49552	12.78351	0.1555485	3.0125943	43	1	65 days	0.59	M-v	5	Williams		1999 TU ₂₆
1999 TX ₂₆	14.6	0.15	19990810	7.15522	45.59276	323.65006	1.18184	0.0845321	2.8690567	29	1	65 days	0.53	M-v	5	Williams		1999 TX ₂₆
1999 TZ ₂₆	16.0	0.15	19990810	326.22270	28.91943	23.61466	6.68447	0.1490202	2.3841005	37	1	80 days	0.48	M-v	4	Williams		1999 TZ ₂₆
1999 TC ₂₇	14.3	0.15	19990810	269.21284	259.02552	223.66301	6.31761	0.1479532	2.3370336	48	3	1992–1999	0.50	M-v	3	Williams	36851	1999 TC ₂₇
1999 TH ₂₇	15.0	0.15	19990810	357.55464	354.38397	21.62008	7.01388	0.2364133	2.8019244	23	1	62 days	0.52	M-v	5	Williams		1999 TH ₂₇
1999 TK ₂₇	13.9	0.15	19990810	143.26969	9.54518	222.61697	6.47891	0.0788927	2.3130434	50	4	1960–1999	0.49	M-v	3	Williams	36851	1999 TK ₂₇
1999 TL ₂₇	14.5	0.15	19990810	324.34098	100.84864	323.51042	1.12547	0.0774361	2.9304686	40	1	65 days	0.53	M-v	5	Williams		1999 TL ₂₇
1999 TN ₂₇	14.0	0.15	19990810	306.98429	228.17383	225.32853	4.48493	0.1558483	3.1487504	34	1	70 days	0.57	M-v	5	Williams		1999 TN ₂₇
1999 TP ₂₇	14.2	0.15	19990810	302.21281	60.02589	25.19126	2.85660	0.0334796	2.7208237	45	2	1990–1999	0.51	M-v	4	Williams	36851	1999 TP ₂₇
1999 TQ ₂₇	13.9	0.15	19990810	190.50120	321.43099	231.70313	3.94964	0.0739444	2.2500114	49	3	1989–1999	0.59	M-v	3	Williams	36851	1999 TQ ₂₇
1999 TS ₂₇	13.0	0.15	19990810	219.97671	144.82610	32.15987	11.17720	0.0690009	2.9561362	29	1	71 days	0.56	M-v	5	Williams		1999 TS ₂₇
1999 TW ₂₇	14.8	0.15	19990810	342.34937	111.54944	293.70018	1.30030	0.2072863	2.3976733	20	1	66 days	0.47	M-v	6	Williams		1999 TW ₂₇
1999 TX ₂₇	12.9	0.15	19990810	357.72148	349.05852	44.68356	16.00163	0.2321342	3.1050207	18	1	71 days	0.31	M-v	5	Williams		1999 TX ₂₇
1999 TV ₂₈	14.9	0.15	19990810	338.51115	168.72468	210.61515	1.46817	0.0925965	2.7540215	23	1	64 days	0.67	M-v	6	Williams		1999 TV ₂₈
1999 TW ₂₈	15.3	0.15	19990810	291.68797	231.13443	198.74754	2.53386	0.1020050	2.2172209	29	2	1976–1999	0.53	M-v	4	Williams	36852	1999 TW ₂₈
1999 TX ₂₈	15.9	0.15	19990810	330.03538	29.20778	359.04100	6.67646	0.1471778	2.3057125	24	1	66 days	0.46	M-v	5	Williams		1999 TX ₂₈
1999 TD ₂₉	14.2	0.15	19990810	254.05718	270.69529	200.82454	4.68889	0.0980414	2.4358158	19	1	64 days	0.53	M-v	6	Williams		1999 TD ₂₉
1999 TF ₂₉	14.0	0.15	19990810	68.34113	69.53795	207.37314	4.21431	0.0777048	2.4056405	39	3	1980–1999	0.53	M-v	2	Williams	36852	1999 TF ₂₉
1999 TG ₂₉	14.5	0.15	19990810	314.75959	216.07229	195.45386	11.44253	0.1303436	2.7593718	30	1	64 days	0.70	M-v	5	Williams		1999 TG ₂₉
1999 TP ₂₉	15.4	0.15	19990810	347.00921	156.03302	212.18300	1.60463	0.1210109	2.5309234	21	1	68 days	0.67	M-v	5	Williams		1999 TP ₂₉
1999 TF ₃₀	14.8	0.15	19990810	290.68733	117.16589	325.48319	1.63122	0.1649383	2.4084118	31	1	64 days	0.48	M-v	6	Williams		1999 TF ₃₀
1999 TR ₃₀	14.2	0.15	19990810	353.11326	70.51007	296.77793	0.79872	0.1165610	2.8328757	14	1	64 days	0.51	M-v	7	Williams		1999 TR ₃₀
1999 TX ₃₀	14.9	0.15	19990810	80.82129	43.20752	223.35980	1.90641	0.0925759	2.2057164	30	3	1996–1999	0.45	M-v	3	Williams	36852	1999 TX ₃₀
1999 TA ₃₁	14.5	0.15	19990810	301.71257	209.33466	222.18999	3.29462	0.1589415	2.3287555	34	1	65 days	0.48	M-v	6	Williams		1999 TA ₃₁
1999 TE ₃₁	13.7	0.15	19990810	315.41845	45.14201	10.32120	14.98386	0.1228593	2.6488576	23	2	1997–1999	0.25	M-v	3	Williams	36853	1999 TE ₃₁
1999 TO ₃₁	13.2	0.15	19990810	226.07857	153.99739	354.03425	4.23021	0.0669915	3.0890090	14	1	68 days	0.42	M-v	6	Williams		1999 TO ₃₁
1999 TR ₃₁	16.7	0.15	19990810	333.59546	178.09482	215.45197	2.48889	0.1816323	2.4165215	23	1	63 days	0.39	M-v	5	Williams		1999 TR ₃₁
1999 TS ₃₁	16.1	0.15	19990810	37.92156	90.44821	211.40739	3.62741	0.2087865	2.3719873	15	1	62 days	0.27	M-v	6	Williams		1999 TS ₃₁
1999 TA ₃₂	15.4	0.15	19990810	40.90245	108.84233	208.04307	8.16632	0.0892707	2.6584364	17	1	65 days	0.41	M-v	6	Williams		1999 TA ₃₂
1999 TM ₃₂	14.6	0.15	19990810	324.35509	206.34018	207.13717	3.74880	0.2344785	2.3454979	18	1	64 days	0.47	M-v	6	Williams		1999 TM ₃₂
1999 TN ₃₂	15.5	0.15	19990810	342.21031	10.23368	14.55698	5.43762	0.2053426	2.3526253	32	4	1981–1999	0.41	M-v	2	Williams	36853	1999 TN ₃₂
1999 TH ₃₃	18.2	0.15	19990810	2.86008	135.64578	206.71785	3.29940	0.2563885	2.2647646	14	1	60 days	0.37	M-v	6	Williams		1999 TH ₃₃
1999 TN ₃₃	15.6	0.15	19990810	38.21630	78.71507	216.11269	3.58837	0.2779545	2.5878210	14	1	62 days	0.22	M-v	6	Williams		1999 TN ₃₃
1999 TR ₃₃	15.2	0.15	19990810	342.83841	181.02850	206.75860	9.93754	0.1441700	2.9620035	25	1	63 days	0.54	M-v	5	Williams		1999 TR ₃₃
1999 TZ ₃₃	14.9	0.15	19990810	335.76304	173.46084	217.94609	2.43007	0.1328412	2.8994143	34	2	1996–1999	0.50	M-v	4	Williams	36853	1999 TZ ₃₃
1999 TD ₃₄	13.4	0.15	19990810	41.07035	291.81084	40.77008	13.57794	0.2132206	2.5572344	49	2	1998–1999	0.61	M-v	4	Williams	36854	1999 TD ₃₄
1999 TQ ₃₄	14.6	0.15	19990810	44.22962	255.14019	30.74180	13.15892	0.2370512	2.3301107	24	2	1998–1999	0.45	M-v	4	Williams	36854	1999 TQ ₃₄
1999 TS ₃₄	15.1	0.15	19990810	344.95279	346.70946	31.40351	15.90801	0.1566605	2.6327592	20	1	66 days	0.43	M-v	4	Williams		1999 TS ₃₄
1999 TB ₃₅	14.8	0.15	19990810	267.63105	91.12272	18.71782	20.23485	0.1050587	1.9574747	24	1	68 days	0.34	M-v	5	Williams		1999 TB ₃₅
1999 TH ₃₅	14.2	0.15	19990810	242.46090	137.42019	3.53517	24.16397	0.2718685	2.3367759	22	1	62 days	0.51	M-v	5	Williams		1999 TH ₃₅
1999 TR ₃₅	14.0	0.15	19990810	151.15673	181.42138	25.80448	24.85143	0.1533797	2.4063191	39	2	1953–1999	0.64	M-v	4	Williams	36854	1999 TR ₃₅
1999 TY ₃₅	16.1	0.15	19990810	323.21434	203.04267	206.39245	2.60845	0.1915429	2.2944605	24	1	64 days	0.63	M-v	5	Williams		1999 TY ₃₅
1999 UA	16.2	0.15	19990810	354.47397	125.02970	245.58138	4.43856	0.2396080	2.3203023	31	1	62 days	0.39	M-v	4	Williams		1999 UA
1999 UC	16.7	0.15	19991029	315.97215	55.21798	36.69857	7.00725	0.0997993	2.3984420	11	1	44 days	0.55			Williams		1999 UC
1999 UE	13.9	0.15	19990810	11.10129	354.85211	345.65565	0.85542	0.1886010	3.1467999	39	1	93 days	0.53	M-v	4	Williams		1999 UE
1999 UF	13.4	0.15	19991029	273.89000	102.07349	18.62999	4.93194	0.0999045	3.2024026	30	1	54 days	0.67			Williams		1999 UF
1999 UG	15.8	0.15	19990810	343.05685	351.82506	28.49368	1.92229	0.1942506	2.3958993	45	1	66 days	0.49	M-v	4	Williams		1999 UG
1999 UK	15.1	0.15	19990810	332.64286	138.82594	260.02494	1.22085	0.1693850	2.5464993	25	1	66 days	0.36	M-v	5	Williams		1999 UK
1999 UR	20.8	0.15	19990810	320.89295	17.75239	50.90407	3.59066	0.5034074	1.8962276	58	1	28 days	0.56	M-v	6	Williams	36932	1999 UR
1999 US	13.1	0.15	19990810	191.76543	72.59244	133.37768	3.34961	0.1058903	3.0996092	49	4	1980–1999	0.65	M-v	2	Williams	36855	1999 US

1999 UT	14.3	0.15	19991029	350.47855	213.73553	203.57547	5.43751	0.0521721	2.8648685	39	1	57 days	0.52		Williams	1999 UT
1999 UV	15.2	0.15	19990810	322.86402	18.38726	29.61718	6.65777	0.1265331	2.4096463	39	1	65 days	0.45	M-v 5	Williams	1999 UV
1999 UA ₁	15.6	0.15	19991029	38.08596	298.83191	34.17304	7.52782	0.2520779	2.4281530	24	1	51 days	0.49		Williams	1999 UA ₁
1999 UC ₁	13.4	0.15	19990810	15.54599	309.55618	34.87138	12.41108	0.1953088	2.5748879	91	3	1988–1999	0.45	M-v 2	Williams	36855 1999 UC ₁
1999 UD ₁	14.9	0.15	19990810	110.01961	207.40080	44.31044	6.62313	0.1325656	2.3010356	61	2	1998–1999	0.55	M-v 3	Williams	36855 1999 UD ₁
1999 UF ₁	14.2	0.15	19990810	318.31627	42.86431	34.08130	17.11323	0.2110282	3.1207563	47	2	1977–1999	0.51	M-v 4	Williams	36856 1999 UF ₁
1999 UN ₁	15.6	0.15	19991029	309.86502	84.66364	17.33260	3.42436	0.1312351	2.4322241	43	1	46 days	0.45		Williams	1999 UN ₁
1999 UP ₁	15.9	0.15	19990810	346.59452	340.20181	39.12723	8.99023	0.2519854	2.7931886	41	1	77 days	0.54	M-v 4	Williams	1999 UP ₁
1999 UQ ₁	15.1	0.15	19991029	348.25213	12.06326	52.61946	7.38907	0.0891624	2.3240014	48	1	57 days	0.55		Williams	1999 UQ ₁
1999 UR ₁	16.1	0.15	19991029	54.11447	117.55340	218.70269	3.22041	0.1865493	2.2341586	39	1	51 days	0.53		Williams	1999 UR ₁
1999 UV ₁	13.3	0.15	19990810	182.06291	315.14387	248.46190	6.74878	0.1441691	2.5700151	48	1	70 days	0.44	M-v 5	Williams	1999 UV ₁
1999 UY ₁	14.1	0.15	19990810	32.41643	121.61762	218.10883	7.58229	0.1087825	2.2805867	82	3	1994–1999	0.44	M-v 2	Williams	36932 1999 UY ₁
1999 UA ₂	14.9	0.15	19990810	21.59857	98.82367	228.57449	2.49095	0.2953016	2.5986060	53	1	67 days	0.60	M-v 5	Williams	1999 UA ₂
1999 UB ₂	15.2	0.15	19991029	19.15022	277.83345	89.07021	6.59531	0.0891806	2.7264047	34	1	54 days	0.91		Williams	1999 UB ₂
1999 UE ₂	15.6	0.15	19991029	41.68076	286.12426	72.89399	6.52025	0.2038317	2.2682117	33	1	53 days	0.60		Williams	1999 UE ₂
1999 UF ₂	14.6	0.15	19991029	5.93510	246.32616	140.03193	2.79271	0.1096275	2.7122250	17	1	46 days	0.49		Williams	1999 UF ₂
1999 UG ₂	15.0	0.15	19990810	25.15813	174.77760	159.67764	2.77024	0.2243931	2.3530873	43	2	1998–1999	0.63	M-v 5	Williams	36856 1999 UG ₂
1999 UK ₂	14.3	0.15	19990810	106.69092	220.50632	35.59047	5.96770	0.1250665	2.3262770	47	3	1980–1999	0.59	M-v 4	Williams	36856 1999 UK ₂
1999 UP ₂	16.2	0.15	19991029	357.78626	339.59763	54.96542	18.01005	0.2737006	2.6362395	14	1	52 days	0.57		Williams	1999 UP ₂
1999 UR ₂	14.6	0.15	19991029	95.45827	50.22007	250.00654	7.42879	0.0381884	3.0980013	21	1	45 days	0.67		Williams	1999 UR ₂
1999 UT ₂	14.6	0.15	19991029	288.32901	82.48844	40.79561	11.37618	0.1002007	3.0794131	37	1	54 days	0.65		Williams	1999 UT ₂
1999 UU ₂	14.0	0.15	19990810	30.88701	351.43582	314.67063	6.49252	0.1524603	2.3034753	56	3	1992–1999	0.61	M-v 2	Williams	36856 1999 UU ₂
1999 UW ₂	13.9	0.15	19990810	246.07566	120.65425	28.78723	14.29720	0.0940692	2.5722955	38	1	71 days	0.51	M-v 4	Williams	1999 UW ₂
1999 UX ₂	14.4	0.15	19990810	337.63454	355.65985	34.39746	15.61650	0.0917936	2.6445122	47	1	90 days	0.38	M-v 3	Williams	36932 1999 UX ₂
1999 UY ₂	16.7	0.15	19990810	323.62340	212.81842	190.35164	4.36754	0.1555731	2.1941315	36	1	64 days	0.37	M-v 4	Williams	1999 UY ₂
1999 UZ ₂	13.9	0.15	19990810	14.37641	118.94720	222.27047	11.63444	0.1999886	2.6889495	72	2	1998–1999	0.68	M-v 3	Williams	36857 1999 UZ ₂
1999 UC ₃	15.0	0.15	19990810	335.91229	318.79370	88.75220	4.76439	0.2939518	2.6107003	50	3	1978–1999	0.46	M-v 2	Williams	36857 1999 UC ₃
1999 UK ₃	12.8	0.15	19991029	311.91673	354.42729	97.57416	3.31018	0.1191598	2.9407404	19	1	46 days	0.97		Williams	1999 UK ₃
1999 UL ₃	14.8	0.15	19990810	325.53648	65.85635	2.57380	7.99286	0.2240050	2.7679707	42	1	80 days	0.51	M-v 4	Williams	36932 1999 UL ₃
1999 UM ₃	16.2	0.15	19990810	320.19863	36.31889	113.90430	10.67760	0.6679662	2.3840521	68	1	50 days	0.50	M-v 6	Williams	1999 UM ₃
1999 UO ₃	15.2	0.15	19991029	33.27626	161.27237	202.11531	5.79389	0.1355409	2.4286856	22	1	50 days	0.45		Williams	1999 UO ₃
1999 UP ₃	13.6	0.15	19990810	337.89472	3.47093	52.94385	4.82259	0.1431666	2.7111190	68	3	1972–1999	0.45	M-v 3	Williams	36857 1999 UP ₃
1999 UR ₃	16.2	0.15	19991029	289.40585	22.23513	89.29704	26.89471	0.0693060	1.8699119	16	1	41 days	0.85		Williams	1999 UR ₃
1999 US ₃	13.7	0.15	19990810	332.90161	181.41396	268.32971	28.99125	0.5197187	2.7595256	272	2	1994–1999	0.45	M-v 1	Williams	36857 1999 US ₃
1999 UT ₃	14.6	0.15	19991029	348.80773	176.05266	228.63509	11.56023	0.2215256	2.4179963	51	1	40 days	0.53		Marsden	1999 UT ₃
1999 UU ₃	13.2	0.15	19990810	4.33229	132.73568	238.22211	4.45809	0.2093717	3.1538502	49	3	1982–1999	0.34	M-v 4	Williams	36858 1999 UU ₃
1999 UV ₃	15.9	0.15	19991029	0.16990	155.98454	222.59220	4.78152	0.2172200	2.6315283	28	1	31 days	0.60		Marsden	1999 UV ₃
1999 UZ ₃	16.2	0.15	19991029	359.59630	161.96128	232.92344	10.60813	0.2626444	3.1217781	36	1	31 days	0.86		Williams	1999 UZ ₃
1999 UA ₄	13.0	0.15	19991029	22.83704	180.15962	192.97034	9.72266	0.0662799	3.0702352	31	1	38 days	0.57		Williams	1999 UA ₄
1999 UG ₄	14.1	0.15	19990810	225.19989	345.51041	177.67652	2.27338	0.1415358	2.4085366	46	2	1992–1999	0.70	M-v 4	Williams	36858 1999 UG ₄
1999 UH ₄	14.8	0.15	19991029	5.14226	194.33742	197.09517	9.39363	0.2062034	2.7913271	26	1	32 days	0.60		Williams	1999 UH ₄
1999 UL ₄	13.2	0.15	19991118	113.65538	29.51330	252.41307	8.63108	0.0586052	3.0758442	27	1	42 days	0.52		Williams	1999 UL ₄
1999 UN ₄	13.6	0.15	19991118	319.19318	73.86136	24.14477	14.54922	0.1475006	2.5851991	33	1	38 days	0.45		Williams	1999 UN ₄
1999 UO ₄	15.7	0.15	19990810	305.35272	120.72411	319.49872	3.51495	0.1415180	2.3060456	37	2	1997–1999	0.47	M-v 5	Williams	36858 1999 UO ₄
1999 UP ₄	16.2	0.15	19991118	13.73206	356.86366	16.62611	2.69464	0.2107538	2.3610578	27	1	41 days	0.38		Williams	1999 UP ₄
1999 UU ₄	15.6	0.15	19991118	347.92029	170.07521	243.88097	1.79653	0.1935694	2.6111442	20	1	41 days	0.39		Marsden	1999 UU ₄
1999 UV ₄	12.4	0.15	19991118	79.74058	136.63263	164.48971	10.21944	0.0578299	3.4952796	17	1	41 days	0.38		Marsden	1999 UV ₄
1999 UA ₅	16.2	0.15	19990810	306.17644	84.18813	24.73519	5.79819	0.4680838	2.6801323	50	1	39 days	0.50	M-v 6	Nakano	1999 UA ₅
1999 UC ₅	15.4	0.15	19990810	356.48731	174.99229	198.32329	1.51916	0.1839148	2.4431714	48	1	64 days	0.47	M-v 4	Williams	1999 UC ₅
1999 UG ₅	10.1	0.15	19990810	5.70487	288.07229	87.48101	5.59637	0.4143504	12.7328186	76	1	35 days	0.48	M-v 6	Nakano	1999 UG ₅
1999 UR ₅	12.8	0.15	19990810	62.96826	71.58268	232.16280	10.72713	0.1401440	3.2411318	42	2	1993–1999	0.49	M-v 5	Williams	36858 1999 UR ₅
1999 UY ₅	15.4	0.15	19991118	160.86775	326.52680	272.25943	5.82147	0.0716197	2.4072291	26	1	40 days	0.64		Williams	1999 UY ₅
1999 UD ₆	13.0	0.15	19990810	346.36109	355.12839	52.20254	9.36761	0.1317530	2.8948978	45	2	1994–1999	0.40	M-v 4	Williams	36859 1999 UD ₆

1999 UK ₆	13.3	0.15	19991118	16.91782	344.58655	38.89303	7.07581	0.0871995	3.1700859	43	1	44 days	0.35		Williams	1999 UK ₆
1999 UN ₆	14.5	0.15	19990810	350.52124	339.46163	52.61553	10.18910	0.3176141	2.7549264	41	1	71 days	0.41	M-v 4	Williams	1999 UN ₆
1999 UO ₆	16.2	0.15	19991118	20.71750	181.04521	206.95414	1.64236	0.0993504	2.1644243	42	1	44 days	0.51		Williams	1999 UO ₆
1999 UZ ₆	16.2	0.15	19991118	49.49657	260.41179	96.92616	5.98722	0.2084042	2.2347727	17	1	40 days	0.50		Williams	1999 UZ ₆
1999 UR ₇	15.6	0.15	19991118	26.24967	158.55005	212.87190	8.71055	0.1638682	2.8065386	18	1	39 days	0.54		Williams	1999 UR ₇
1999 UU ₇	17.0	0.15	19991029	6.04259	169.44616	220.11599	16.49090	0.3214632	2.9317059	21	1	37 days	0.62		Williams	1999 UU ₇
1999 UW ₇	15.4	0.15	19990810	17.32561	289.25215	49.76123	4.64225	0.2339498	2.2385379	41	2	1989–1999	0.38	M-v 5	Williams	36859 1999 UW ₇
1999 UY ₇	16.5	0.15	19991118	354.35005	7.55032	48.93695	7.04460	0.1133497	2.3961440	33	1	39 days	0.50		Williams	1999 UY ₇
1999 UZ ₇	16.0	0.15	19991118	342.96383	13.79174	55.11960	5.63321	0.0783063	2.4506225	37	1	44 days	0.76		Williams	1999 UZ ₇
1999 UA ₈	15.0	0.15	19991029	342.70830	199.53405	228.03146	15.92592	0.1570316	3.1256084	21	1	30 days	0.42		Williams	1999 UA ₈
1999 UD ₈	15.2	0.15	19991118	24.94816	116.73926	260.71428	0.91332	0.1115778	2.9332826	20	1	39 days	0.44		Williams	1999 UD ₈
1999 UE ₈	15.6	0.15	19991118	355.12850	96.87247	318.12807	1.29891	0.1059728	2.7962553	20	1	40 days	0.70		Williams	1999 UE ₈
1999 UG ₈	16.5	0.15	19991118	41.74819	82.14268	266.26823	1.38960	0.2091473	2.3653902	21	1	39 days	0.64		Williams	1999 UG ₈
1999 UH ₈	16.1	0.15	19991118	30.79556	324.79582	41.12551	11.84131	0.1745290	2.6999767	21	1	40 days	0.56		Williams	1999 UH ₈
1999 UL ₈	15.3	0.15	19991118	18.55741	153.63555	227.44821	12.36262	0.2124038	2.5597414	26	1	39 days	0.61		Williams	1999 UL ₈
1999 UM ₈	16.0	0.15	19991118	320.96086	64.98261	44.05912	0.90883	0.2250716	2.4353701	30	1	44 days	0.43		Williams	1999 UM ₈
1999 UN ₈	15.1	0.15	19991118	72.58519	278.30127	41.43388	13.22480	0.1478194	2.6198998	27	1	44 days	0.56		Williams	1999 UN ₈
1999 UT ₈	14.6	0.15	19991118	285.62792	279.92172	228.74931	23.57212	0.2161101	2.6856280	30	1	44 days	0.36		Williams	1999 UT ₈
1999 UW ₈	15.5	0.15	19991118	4.87592	193.82980	209.71963	7.68923	0.1640850	2.3243681	20	1	40 days	0.60		Williams	1999 UW ₈
1999 UA ₉	15.8	0.15	19991029	48.90415	293.40646	53.42033	12.12958	0.1021290	3.0307701	17	1	36 days	0.66		Williams	1999 UA ₉
1999 UB ₉	14.9	0.15	19991118	270.46762	85.24169	55.62998	5.22457	0.0109705	2.8035540	37	1	44 days	0.65		Williams	1999 UB ₉
1999 UD ₉	14.9	0.15	19991118	91.10122	265.04724	46.05805	7.83718	0.0653638	2.7198956	27	1	44 days	0.58		Williams	1999 UD ₉
1999 UE ₉	14.0	0.15	19991118	345.53589	214.65123	212.83663	1.37240	0.0939848	2.9324784	42	1	44 days	0.33		Williams	1999 UE ₉
1999 UF ₉	14.0	0.15	19990810	343.50368	17.91508	28.28960	2.57081	0.0848292	2.9025378	45	4	1989–1999	0.48	M-v 1	Williams	36859 1999 UF ₉
1999 UH ₉	15.9	0.15	19991118	352.11395	192.66136	230.03540	1.74037	0.1792068	2.3965672	51	1	44 days	0.42		Williams	1999 UH ₉
1999 UJ ₉	14.3	0.15	19990810	332.47085	192.02367	224.35396	1.32654	0.0895497	2.6651535	49	2	1998–1999	0.47	M-v 4	Williams	36859 1999 UJ ₉
1999 UK ₉	14.0	0.15	19991118	339.02676	217.90005	220.78624	4.51989	0.1434167	3.1692850	41	1	44 days	0.56		Williams	1999 UK ₉
1999 UN ₉	16.6	0.15	19991118	351.95802	108.94860	316.62586	0.27693	0.2308362	2.4263409	35	1	44 days	0.42		Williams	1999 UN ₉
1999 UQ ₉	14.7	0.15	19991118	104.71668	4.58474	281.62380	24.08253	0.0749525	1.8809673	17	1	42 days	0.29		Williams	1999 UQ ₉
1999 UX ₉	15.6	0.15	19991118	2.48777	140.87055	263.27695	22.25903	0.2678844	2.2847841	29	1	43 days	0.41		Williams	1999 UX ₉
1999 UJ ₁₁	16.3	0.15	19990810	359.77536	330.85268	41.15369	17.67916	0.2820382	2.5585752	41	1	65 days	0.43	M-v 4	Williams	1999 UJ ₁₁
1999 UM ₁₁	13.5	0.15	19990810	309.33655	24.14359	61.52255	1.69459	0.1417795	3.1784694	46	2	1990–1999	0.49	M-v 4	Williams	36859 1999 UM ₁₁
1999 UN ₁₁	14.0	0.15	19990810	178.74290	343.51336	216.12772	9.65846	0.1150312	2.3469715	39	2	1994–1999	0.45	M-v 4	Williams	36859 1999 UN ₁₁
1999 UT ₁₁	16.7	0.15	19991029	259.74578	318.21516	199.94266	1.58413	0.1332586	2.3648094	14	1	30 days	0.40		Williams	1999 UT ₁₁
1999 UU ₁₁	16.1	0.15	19991029	36.67810	139.84459	214.87583	4.06498	0.1590912	3.1895229	18	1	30 days	0.48		Williams	1999 UU ₁₁
1999 UV ₁₁	17.0	0.15	19991118	183.55367	149.52348	75.58896	1.42366	0.0485302	2.4920592	20	1	44 days	0.31		Williams	1999 UV ₁₁
1999 UA ₁₂	16.6	0.15	19991029	150.63470	52.67893	199.36458	1.48717	0.0402105	3.1652629	9	1	37 days	0.19		Williams	1999 UA ₁₂
1999 UN ₁₂	15.9	0.15	19991118	333.36966	150.71851	290.71635	3.38636	0.2294359	2.5834935	28	1	45 days	0.83		Williams	1999 UN ₁₂
1999 UB ₁₃	15.3	0.15	19991118	9.94768	159.00000	209.66565	15.50964	0.1338902	2.7615950	17	1	39 days	0.60		Williams	1999 UB ₁₃
1999 UL ₁₃	15.4	0.15	19991118	333.77004	113.95834	312.09677	1.51407	0.1935663	2.3660998	18	1	39 days	0.39		Williams	1999 UL ₁₃
1999 UA ₁₅	15.7	0.15	19991118	347.30451	17.16941	43.08544	8.81140	0.2005760	2.8092622	22	1	39 days	0.38		Williams	1999 UA ₁₅
1999 UC ₁₅	16.1	0.15	19991118	350.38073	4.74934	48.56739	6.74084	0.1048578	2.3874784	18	1	39 days	0.44		Williams	1999 UC ₁₅
1999 UF ₁₅	13.2	0.15	19991029	36.04571	305.32937	42.16717	14.40086	0.1461285	2.9754993	28	1	38 days	0.55		Williams	1999 UF ₁₅
1999 UV ₁₅	15.7	0.15	19991118	303.98014	25.78631	76.89759	5.04485	0.0571777	2.3891379	18	1	39 days	0.51		Williams	1999 UV ₁₅
1999 UL ₁₆	15.2	0.15	19990810	48.87286	321.69265	342.81071	1.85736	0.2024708	2.4618406	35	3	1991–1999	0.68	M-v 3	Williams	36860 1999 UL ₁₆
1999 UO ₁₆	15.9	0.15	19991029	340.85202	79.06410	348.63237	1.31257	0.2316733	2.7898913	21	1	36 days	0.67		Williams	1999 UO ₁₆
1999 UP ₁₆	16.7	0.15	19991029	355.17776	177.31369	225.74175	6.09671	0.1319405	2.3394450	16	1	36 days	0.48		Williams	1999 UP ₁₆
1999 UQ ₁₆	16.4	0.15	19991118	358.27989	184.97416	222.62870	10.11945	0.2641880	2.7107947	31	1	39 days	0.52		Williams	1999 UQ ₁₆
1999 UR ₁₆	15.2	0.15	19991029	354.41414	146.84899	257.28817	2.24285	0.0921626	2.7863744	24	1	36 days	0.49		Williams	1999 UR ₁₆
1999 US ₁₆	15.2	0.15	19991118	333.54221	207.18930	228.47168	11.72332	0.1366780	3.0979954	22	1	39 days	0.63		Williams	1999 US ₁₆
1999 UF ₁₇	15.1	0.15	19991118	262.61471	280.72410	227.82752	12.79427	0.0975559	2.6075295	29	1	37 days	0.59		Williams	1999 UF ₁₇
1999 UP ₂₄	14.5	0.15	19991029	4.04389	137.01487	248.61141	8.09152	0.1457504	3.1603079	11	1	36 days	0.36		Williams	1999 UP ₂₄
1999 UQ ₂₅	14.3	0.15	19991118	10.70986	153.73059	243.81279	4.00628	0.1447801	2.7535612	40	1	44 days	0.36		Williams	1999 UQ ₂₅

1999 UR ₂₅	16.2	0.15	19991118	6.73375	14.26570	28.08618	2.77178	0.1883687	2.4558805	32	1	44 days	0.39		Williams	1999 UR ₂₅
1999 VA	15.6	0.15	19991118	38.55331	302.56622	74.47007	7.22628	0.0661486	2.3860692	59	1	37 days	0.48		Williams	1999 VA
1999 VB	15.8	0.15	19991118	47.49481	270.29504	85.98939	4.60540	0.1744850	2.5179687	58	1	41 days	0.38		Williams	1999 VB
1999 VK	15.4	0.15	19991118	38.10597	313.84983	79.84064	3.47700	0.1440395	2.2067964	25	1	39 days	0.35		Williams	1999 VK
1999 VL	15.6	0.15	19991029	355.97205	334.60605	66.91603	2.39004	0.1870329	2.3931647	27	1	28 days	0.84		Williams	1999 VL
1999 VM	14.6	0.15	19991029	29.31444	188.16985	173.21087	2.12376	0.0824321	2.6836781	22	1	30 days	0.72		Williams	1999 VM
1999 VN	14.2	0.15	19991118	352.68139	10.33729	50.11766	2.87450	0.0908237	2.8836237	36	1	35 days	0.38		Williams	1999 VN
1999 VP	14.0	0.15	19991118	52.90170	357.13627	352.49349	5.59968	0.0088951	2.5619612	41	1	41 days	0.48		Williams	1999 VP
1999 VQ	13.2	0.15	19990810	342.39583	249.20082	167.99568	1.22090	0.1851609	3.1077658	61	4	1988–1999	0.56	M-v 1	Williams	36860 1999 VQ
1999 VR	14.2	0.15	19991118	30.29035	326.81057	44.09099	1.76445	0.2214235	3.0898307	54	1	36 days	0.77		Williams	1999 VR
1999 VV	15.9	0.15	19990810	65.19832	19.68233	241.11159	58.04586	0.4230780	1.3324848	120	2	1979–1999	0.43	M-v 4	Williams	36860 1999 VV
1999 VY	15.9	0.15	19991029	330.88834	49.30097	18.72906	7.59037	0.1980703	2.5714286	15	1	25 days	0.30		Williams	1999 VY
1999 VB ₁	16.5	0.15	19991118	350.68355	359.65615	57.01044	13.26508	0.2654070	2.6937535	27	1	34 days	0.73		Williams	1999 VB ₁
1999 VE ₁	15.0	0.15	19991118	2.55804	20.72360	18.85624	10.20341	0.1135316	2.3247546	27	1	34 days	0.90		Williams	1999 VE ₁
1999 VG ₁	14.6	0.15	19991029	355.42581	357.82868	48.94274	2.03892	0.2622222	3.1344908	35	1	26 days	0.42		Williams	1999 VG ₁
1999 VJ ₁	15.1	0.15	19991029	12.15250	168.20500	215.52184	8.44645	0.1246451	3.1934968	22	1	25 days	0.47		Williams	1999 VJ ₁
1999 VK ₁	14.7	0.15	19990810	319.28170	13.78794	49.96873	4.20026	0.0718888	2.5570942	44	2	1993–1999	0.55	M-v 4	Williams	36860 1999 VK ₁
1999 VM ₁	16.7	0.15	19991118	349.31299	193.15804	240.99063	11.53500	0.2649835	2.6486669	43	1	41 days	0.72		Williams	1999 VM ₁
1999 VN ₁	15.4	0.15	19990810	118.68849	257.55242	4.68103	3.62093	0.0590056	2.1731130	42	2	1998–1999	0.61	M-v 4	Williams	36861 1999 VN ₁
1999 VO ₁	16.9	0.15	19991118	281.49821	219.02085	282.72017	3.36402	0.0728543	2.1639075	15	1	42 days	0.75		Williams	1999 VO ₁
1999 VP ₁	17.1	0.15	19991118	30.88018	315.43062	34.16255	7.36385	0.1328518	2.3634208	17	1	34 days	0.46		Williams	1999 VP ₁
1999 VS ₁	14.8	0.15	19990810	355.06313	164.07852	227.89524	7.24874	0.1753651	2.7145961	49	2	1985–1999	0.66	M-v 5	Williams	36861 1999 VS ₁
1999 VT ₁	12.9	0.15	19990810	358.73510	195.30719	204.84795	9.95760	0.0434726	3.0071050	40	3	1995–1999	0.57	M-v 3	Williams	36861 1999 VT ₁
1999 VV ₁	13.4	0.15	19990810	56.23397	112.79018	198.91548	13.66263	0.1056659	2.6221860	33	2	1998–1999	0.51	M-v 3	Williams	36861 1999 VV ₁
1999 VW ₁	13.4	0.15	19991118	328.20732	191.32327	273.65094	9.25055	0.1222060	2.5736607	26	1	35 days	0.26		Williams	1999 VW ₁
1999 VA ₂	15.3	0.15	19991118	34.59083	122.64497	232.94067	23.86168	0.2901060	2.2691520	72	1	33 days	0.60		Williams	1999 VA ₂
1999 VC ₂	14.5	0.15	19991118	260.09798	116.35725	64.79834	7.46852	0.1707447	2.3120393	29	1	34 days	0.49		Williams	1999 VC ₂
1999 VD ₂	13.8	0.15	19991118	61.94900	282.85750	65.84023	11.67425	0.1283337	2.9972285	32	1	34 days	0.59		Williams	1999 VD ₂
1999 VG ₂	13.4	0.15	19991118	17.05161	303.47566	74.34931	11.19202	0.1078719	2.9802278	33	1	35 days	0.97		Williams	1999 VG ₂
1999 VH ₂	14.3	0.15	19991118	10.20236	75.92278	320.55347	2.74899	0.1693380	2.5933928	37	1	40 days	0.66		Williams	1999 VH ₂
1999 VJ ₂	14.4	0.15	19991118	19.03719	87.27639	293.39461	8.77345	0.1294202	2.9764264	32	1	38 days	0.67		Williams	1999 VJ ₂
1999 VM ₂	12.3	0.15	19991118	302.98586	250.72381	241.81677	23.65900	0.0891351	2.5798351	31	1	41 days	0.43		Williams	1999 VM ₂
1999 VV ₂	16.4	0.15	19991118	19.29968	114.89207	267.24099	3.85771	0.2398584	2.6572758	31	1	40 days	0.57		Williams	1999 VV ₂
1999 VX ₂	14.8	0.15	19991118	11.97967	142.68042	264.50135	6.17504	0.0894976	2.2889802	42	1	36 days	0.71		Williams	1999 VX ₂
1999 VY ₂	13.9	0.15	19990810	0.82088	120.97799	272.17688	7.83717	0.1710573	2.8135173	29	2	1998–1999	0.71	M-v 4	Williams	36861 1999 VY ₂
1999 VZ ₂	14.8	0.15	19991118	311.88899	92.02209	5.01880	6.98555	0.0834027	2.3979404	43	1	32 days	0.79		Williams	1999 VZ ₂
1999 VB ₃	15.6	0.15	19991118	349.07995	324.05268	105.17276	2.21219	0.1682248	3.1932194	18	1	41 days	0.59		Williams	1999 VB ₃
1999 VT ₃	16.3	0.15	19991118	338.64796	355.14242	83.35277	4.02680	0.0702303	3.0560691	11	1	36 days	0.54		Williams	1999 VT ₃
1999 VA ₄	15.3	0.15	19991118	8.89898	282.55991	98.20755	3.15190	0.2222144	2.3938140	20	1	36 days	0.40		Williams	1999 VA ₄
1999 VD ₄	17.2	0.15	19991118	355.93354	353.96731	54.30355	5.99113	0.3792321	2.6326348	21	1	36 days	0.35		Williams	1999 VD ₄
1999 VH ₄	15.8	0.15	19991118	345.46890	11.30458	39.10537	15.22683	0.1377423	2.6521535	19	1	34 days	0.51		Williams	1999 VH ₄
1999 VR ₄	15.5	0.15	19991118	345.71830	0.98676	67.01376	12.61167	0.1579710	2.6469457	11	1	28 days	0.31		Williams	1999 VR ₄
1999 VS ₄	15.6	0.15	19991029	1.97456	343.81045	50.78375	2.52546	0.1600173	2.5395009	21	1	23 days	0.74		Williams	1999 VS ₄
1999 VV ₄	15.6	0.15	19991029	9.67621	339.39496	44.94220	3.31293	0.1807118	2.3866523	42	1	37 days	0.48		Williams	1999 VV ₄
1999 VW ₄	14.6	0.15	19991118	37.50919	307.36487	46.87810	4.18277	0.1718571	2.5992531	38	1	45 days	0.76		Williams	1999 VW ₄
1999 VZ ₄	16.0	0.15	19991118	6.65925	181.84118	216.06938	2.49465	0.1808817	2.4255052	33	1	33 days	0.48		Williams	1999 VZ ₄
1999 VB ₅	14.2	0.15	19990810	357.53358	341.33081	43.02127	2.50532	0.1068902	2.9276518	53	2	1997–1999	0.55	M-v 4	Williams	36862 1999 VB ₅
1999 VC ₅	15.6	0.15	19991118	341.75933	31.55211	42.90420	4.52324	0.1952212	2.5851652	34	1	33 days	0.50		Williams	1999 VC ₅
1999 VD ₅	15.6	0.15	19991118	17.42465	329.94527	52.20568	3.44588	0.1919190	2.4063985	29	1	33 days	0.54		Williams	1999 VD ₅
1999 VE ₅	14.5	0.15	19991118	343.98255	10.20448	60.20965	14.67826	0.1346772	2.6373114	16	1	36 days	0.31		Williams	1999 VE ₅
1999 VF ₅	14.7	0.15	19991118	44.64825	199.27824	160.56906	2.30283	0.0788226	2.5704668	32	1	38 days	0.31		Williams	1999 VF ₅
1999 VG ₅	16.6	0.15	19991029	11.39081	155.01163	225.38290	0.13913	0.2487357	2.2980034	32	1	25 days	0.32		Williams	1999 VG ₅
1999 VH ₅	13.5	0.15	19991118	93.28146	230.51626	64.59451	13.64891	0.1145320	2.9235905	14	1	29 days	0.47		Williams	1999 VH ₅

1999 VJ ₅	14.8	0.15	19990810	15.45116	6.53915	348.81400	3.79819	0.2166606	2.2222072	25	2	1998–1999	0.63	M-v	5	Williams	36862	1999 VJ ₅
1999 VL ₅	16.0	0.15	19991118	7.73355	160.77292	233.20799	11.72415	0.2271095	2.4379434	42	1	39 days	0.69			Williams		1999 VL ₅
1999 VM ₅	15.5	0.15	19991118	17.64247	47.51353	332.36666	2.52353	0.1963336	2.4201447	26	1	31 days	0.65			Williams		1999 VM ₅
1999 VN ₅	14.9	0.15	19991118	5.29975	180.06117	226.67974	7.25923	0.1907112	2.5924217	38	1	38 days	0.49			Williams		1999 VN ₅
1999 VO ₅	15.3	0.15	19991118	18.11892	172.91303	219.89679	3.76742	0.0910784	2.5162122	47	1	38 days	0.60			Williams		1999 VO ₅
1999 VP ₅	15.5	0.15	19991118	344.18041	349.85050	84.49545	1.15583	0.1067107	2.5880490	34	1	38 days	0.57			Williams		1999 VP ₅
1999 VS ₅	17.1	0.15	19991118	60.56970	160.02477	149.54633	1.13391	0.3763935	2.3476768	49	1	37 days	0.62			Williams		1999 VS ₅
1999 VT ₅	14.9	0.15	19990810	22.04630	4.70160	1.64691	4.96236	0.1662659	2.7365227	16	2	1997–1999	0.65	M-v	6	Williams	36862	1999 VT ₅
1999 VU ₅	15.0	0.15	19991118	36.51621	309.77399	68.29643	11.00389	0.0951322	2.3782732	32	1	34 days	0.56			Williams		1999 VU ₅
1999 VV ₅	13.5	0.15	19991118	8.62963	340.18680	72.87094	11.40854	0.0990420	3.0115022	29	1	34 days	0.69			Williams		1999 VV ₅
1999 VW ₅	15.8	0.15	19991118	11.60769	351.61534	53.55584	2.19719	0.1803198	2.3916458	37	1	33 days	0.51			Williams		1999 VW ₅
1999 VX ₅	13.1	0.15	19991118	53.33247	288.48214	77.95333	9.42342	0.0513982	3.0375408	31	1	34 days	0.42			Williams		1999 VX ₅
1999 VY ₅	15.6	0.15	19991118	10.72533	341.53909	66.40562	8.56956	0.1414698	2.2480611	28	1	35 days	0.64			Williams		1999 VY ₅
1999 VZ ₅	13.1	0.15	19991118	2.61530	340.56736	80.59141	11.83493	0.0888413	2.9969156	26	1	34 days	0.46			Williams		1999 VZ ₅
1999 VA ₆	14.3	0.15	19990810	319.81511	223.72998	229.92737	12.53172	0.2242573	2.7316656	26	2	1990–1999	0.49	M-v	4	Williams	36862	1999 VA ₆
1999 VB ₆	14.9	0.15	19990810	357.61782	275.80516	110.11054	1.93740	0.1951517	2.3263951	36	3	1981–1999	0.50	M-v	4	Williams	36862	1999 VB ₆
1999 VC ₆	14.7	0.15	19991208	33.25133	179.16767	207.73680	2.21574	0.1492173	2.1825152	29	1	35 days	0.68			Nakano		1999 VC ₆
1999 VE ₆	14.3	0.15	19991118	359.73956	334.81676	90.80415	5.78270	0.2632937	2.9815967	23	1	34 days	0.47			Williams		1999 VE ₆
1999 VF ₆	14.4	0.15	19990810	347.55195	193.06721	208.98162	3.12928	0.1504152	2.2678296	29	2	1998–1999	0.58	M-v	4	Williams	36862	1999 VF ₆
1999 VG ₆	14.5	0.15	19991118	27.42441	141.30411	234.73208	2.94239	0.2817242	2.5590072	32	1	35 days	0.77			Williams		1999 VG ₆
1999 VJ ₆	14.6	0.15	19991118	347.74969	5.90696	74.18060	5.34280	0.1048338	2.2849424	39	1	37 days	0.58			Williams		1999 VJ ₆
1999 VK ₆	12.8	0.15	19990810	55.79153	101.91320	239.93432	13.56264	0.1012912	2.9989896	43	3	1992–1999	0.54	M-v	3	Williams	36862	1999 VK ₆
1999 VM ₆	14.2	0.15	19990810	25.94496	241.87226	118.91132	5.76024	0.1716070	3.1782764	36	2	1995–1999	0.65	M-v	4	Williams	36863	1999 VM ₆
1999 VN ₆	19.5	0.15	19990810	295.17244	43.38171	58.19221	19.49411	0.3700217	1.7331544	136	1	34 days	0.56	M-v	5	Williams		1999 VN ₆
1999 VP ₆	20.2	0.15	19991029	26.50686	108.69395	227.27551	12.79548	0.3039393	1.3771181	53	1	25 days	1.04			Marsden		1999 VP ₆
1999 VS ₆	18.9	0.15	19990810	230.74832	89.26573	35.38361	27.97330	0.2230799	1.1977192	92	1	32 days	0.53	M-v	6	Williams		1999 VS ₆
1999 VU ₆	15.0	0.15	19991118	218.61501	135.86493	56.23643	2.37226	0.1012277	2.2997200	43	1	33 days	0.54			Williams		1999 VU ₆
1999 VV ₆	15.3	0.15	19991118	34.48584	295.44098	68.74970	3.36939	0.2106879	2.4374043	53	1	38 days	0.35			Williams		1999 VV ₆
1999 VY ₆	15.0	0.15	19991118	14.67206	265.61786	118.65400	13.61707	0.2084600	2.5130298	11	1	25 days	0.47			Williams		1999 VY ₆
1999 VZ ₆	13.0	0.15	19991118	348.58912	266.17740	156.57601	18.20922	0.1618984	3.1988579	10	1	19 days	0.40			Williams		1999 VZ ₆
1999 VA ₇	12.4	0.15	19991118	291.88323	19.26623	106.66429	23.60717	0.0942601	3.2182451	12	1	23 days	0.81			Williams		1999 VA ₇
1999 VC ₇	15.1	0.15	19991118	352.26455	12.49196	41.39630	12.48334	0.1448332	2.3202249	36	1	39 days	0.39			Williams		1999 VC ₇
1999 VE ₇	13.8	0.15	19991029	68.00745	261.83181	47.02339	2.57329	0.1671303	3.0880454	19	1	22 days	0.86			Williams		1999 VE ₇
1999 VG ₇	14.6	0.15	19991029	319.35555	31.07464	62.05715	0.69622	0.1567080	2.8742005	14	1	18 days	0.72			Williams		1999 VG ₇
1999 VJ ₇	13.1	0.15	19990810	332.63688	10.73855	49.11214	9.28888	0.1588007	3.1246502	61	2	1988–1999	0.75	M-v	5	Williams	36863	1999 VJ ₇
1999 VK ₇	15.9	0.15	19991118	309.65536	50.27374	63.83429	5.51576	0.1380800	2.5396694	32	1	38 days	0.75			Williams		1999 VK ₇
1999 VN ₇	16.0	0.15	19991118	329.24986	0.20085	90.51099	3.71111	0.1369650	2.4222276	31	1	38 days	0.62			Williams		1999 VN ₇
1999 VR ₇	13.2	0.15	19991118	171.50628	186.62982	59.00005	15.08689	0.0340573	3.2153288	39	1	34 days	0.50			Williams		1999 VR ₇
1999 VU ₇	16.0	0.15	19991118	344.10304	2.21655	76.92794	3.74099	0.1625326	2.6134661	33	1	38 days	0.66			Williams		1999 VU ₇
1999 VW ₇	16.3	0.15	19991118	3.84012	347.23162	63.54160	5.91934	0.2343261	2.5744147	47	1	34 days	0.41			Williams		1999 VW ₇
1999 VZ ₇	15.3	0.15	19991118	40.85619	137.14257	241.82757	5.04419	0.1063337	2.4582409	32	1	35 days	0.55			Williams		1999 VZ ₇
1999 VC ₈	16.2	0.15	19991118	33.55457	288.70403	78.87105	5.77539	0.2926882	2.5655012	27	1	30 days	0.63			Williams		1999 VC ₈
1999 VE ₈	14.6	0.15	19991118	47.65897	265.65652	111.55207	2.99699	0.2236832	2.4350094	23	1	30 days	0.56			Williams		1999 VE ₈
1999 VF ₈	13.0	0.15	19991118	22.49125	321.40443	92.89059	12.13986	0.2372273	3.1119711	26	1	32 days	0.34			Williams		1999 VF ₈
1999 VH ₈	13.0	0.15	19991118	282.63744	82.87031	118.68469	10.86213	0.0370077	3.0043465	21	1	31 days	0.61			Williams		1999 VH ₈
1999 VK ₈	14.9	0.15	19991118	32.99172	295.01657	63.83779	1.08304	0.1851618	3.1003620	31	1	33 days	0.62			Williams		1999 VK ₈
1999 VM ₈	13.7	0.15	19991118	348.21868	345.52359	61.05468	4.84055	0.1522701	2.6833230	14	1	32 days	0.53			Williams		1999 VM ₈
1999 VO ₈	15.5	0.15	19991118	336.28889	251.91930	193.88751	5.89836	0.1145769	2.3903381	31	1	34 days	0.38			Williams		1999 VO ₈
1999 VP ₈	15.9	0.15	19991118	322.13484	14.03600	85.04687	5.37845	0.1880100	2.3453690	23	1	27 days	0.89			Williams		1999 VP ₈
1999 VQ ₈	15.8	0.15	19991118	25.39606	308.55276	66.30084	12.37160	0.2994931	2.6224140	31	1	30 days	0.51			Williams		1999 VQ ₈
1999 VR ₈	15.0	0.15	19991118	36.36107	292.18168	87.30771	7.18455	0.1243155	2.2447615	36	1	34 days	0.71			Williams		1999 VR ₈
1999 VS ₈	14.6	0.15	19991118	15.14404	276.34978	120.94816	13.56925	0.2128859	2.5804041	15	1	27 days	0.72			Williams		1999 VS ₈
1999 VV ₈	16.1	0.15	19991118	66.90933	267.55892	53.56900	5.35570	0.2558918	2.2731205	46	1	40 days	0.93			Williams		1999 VV ₈

1999 VX ₈	14.9	0.15	19991118	4.83015	214.45458	170.29617	13.29547	0.2756839	2.7697316	6	1	24 days	0.52	Williams	1999 VX ₈
1999 VY ₈	13.5	0.15	19991118	12.28401	282.92142	91.44334	10.19999	0.2268229	2.4092983	13	1	23 days	0.40	Williams	1999 VY ₈
1999 VZ ₈	14.0	0.15	19991118	335.24289	347.45098	84.31731	13.40026	0.2331254	2.5481774	18	1	30 days	0.56	Williams	1999 VZ ₈
1999 VA ₉	12.2	0.15	19991118	342.15664	254.52114	176.99450	15.56176	0.3018771	2.6374626	8	1	24 days	0.19	Williams	1999 VA ₉
1999 VB ₉	13.2	0.15	19991118	353.28430	258.84962	151.41177	13.28248	0.3266906	2.9086608	11	1	22 days	0.69	Williams	1999 VB ₉
1999 VD ₉	14.0	0.15	19991118	348.52914	335.59213	71.84944	14.62835	0.1688270	2.5267184	12	1	23 days	0.52	Williams	1999 VD ₉
1999 VE ₉	15.1	0.15	19991118	13.36662	351.42539	97.39272	1.33154	0.2243636	2.4677871	24	1	29 days	0.59	Williams	1999 VE ₉
1999 VF ₉	13.5	0.15	19991118	64.78375	280.40222	50.47961	13.41976	0.1938125	2.7076857	23	1	40 days	0.49	Williams	1999 VF ₉
1999 VG ₉	15.1	0.15	19991118	21.82730	159.96525	222.05395	9.79904	0.2310031	3.1530647	25	1	32 days	0.59	Williams	1999 VG ₉
1999 VH ₉	15.4	0.15	19991118	12.07485	355.73117	43.24237	5.43127	0.1859082	2.4240903	21	1	35 days	0.35	Williams	1999 VH ₉
1999 VK ₉	15.4	0.15	19991118	62.18743	107.69556	233.61604	4.95300	0.1229905	2.2591757	34	1	35 days	0.43	Williams	1999 VK ₉
1999 VM ₉	16.6	0.15	19991118	14.23649	342.58142	52.22183	4.30098	0.2347237	2.3254161	37	1	40 days	0.41	Williams	1999 VM ₉
1999 VN ₉	13.9	0.15	19990810	136.06838	7.88028	243.22739	3.55553	0.1185862	2.2346912	53	2	1998–1999	0.52	M-v 4 Williams	36863 1999 VN ₉
1999 VQ ₉	15.1	0.15	19991118	1.07915	203.02013	222.92407	4.16376	0.2633055	2.6056610	20	1	41 days	0.40	Williams	1999 VQ ₉
1999 VS ₉	14.1	0.15	19991029	350.55935	248.52038	154.54927	14.00509	0.1913233	2.7623523	6	1	4 days	1.16	E Williams	1999 VS ₉
1999 VT ₉	13.5	0.15	19991118	314.20025	359.66372	90.62513	14.65873	0.1249400	2.6222225	15	1	30 days	0.55	Williams	1999 VT ₉
1999 VV ₉	13.3	0.15	19991029	19.66056	183.96287	174.95136	18.81922	0.2295264	3.1517827	6	1	4 days	0.40	E Williams	1999 VV ₉
1999 VW ₉	13.3	0.15	19991118	359.27470	307.19635	87.79384	18.20843	0.1347396	3.0860441	12	1	23 days	0.50	Williams	1999 VW ₉
1999 VY ₉	13.9	0.15	19991118	336.42579	107.40730	334.50414	9.79706	0.1735559	2.9505248	28	1	34 days	0.58	Williams	1999 VY ₉
1999 VA ₁₀	15.1	0.15	19991118	359.14516	33.23538	20.25195	12.82349	0.2773066	2.6420712	28	1	38 days	0.45	Williams	1999 VA ₁₀
1999 VB ₁₀	13.8	0.15	19991118	5.84369	87.51816	311.81111	9.43943	0.2432195	2.9783274	24	1	31 days	0.50	Williams	1999 VB ₁₀
1999 VE ₁₀	13.8	0.15	19991118	298.13017	163.21897	310.85657	7.35700	0.0419655	2.3423742	28	1	34 days	0.40	Williams	1999 VE ₁₀
1999 VF ₁₀	13.8	0.15	19991118	25.64045	290.35959	87.45386	12.42219	0.2999710	2.6604124	18	1	32 days	0.52	Williams	1999 VF ₁₀
1999 VK ₁₀	13.7	0.15	19990810	38.35106	114.10275	219.21855	11.03806	0.2783356	2.5478873	26	2	1998–1999	0.56	M-v 4 Williams	36863 1999 VK ₁₀
1999 VL ₁₀	14.3	0.15	19990810	16.31185	134.74865	221.55844	8.26805	0.2553665	2.3180952	29	2	1998–1999	0.62	M-v 5 Williams	36863 1999 VL ₁₀
1999 VN ₁₀	12.8	0.15	19990810	36.73108	102.10489	266.20181	5.25809	0.0450221	2.7926714	23	3	1980–1999	0.62	M-v 3 Williams	36864 1999 VN ₁₀
1999 VO ₁₀	15.7	0.15	19991118	44.81640	109.62061	260.63473	5.93377	0.1461239	2.3854772	25	1	31 days	0.70	Williams	1999 VO ₁₀
1999 VP ₁₀	12.5	0.15	19991118	111.99327	184.48371	113.61172	9.28488	0.2048303	2.8026625	28	1	34 days	0.51	Williams	1999 VP ₁₀
1999 VQ ₁₀	10.0	0.15	19990810	346.76290	182.14181	258.69453	8.44107	0.0401913	5.1818614	28	2	1998–1999	0.47	M-v 4 Williams	36864 1999 VQ ₁₀
1999 VS ₁₀	14.2	0.15	19991118	15.29864	300.31838	107.85932	7.44462	0.1044337	2.3597712	23	1	32 days	0.44	Williams	1999 VS ₁₀
1999 VT ₁₀	15.5	0.15	19991118	316.71076	313.63484	166.32271	3.91271	0.1050488	2.2745911	27	1	33 days	0.53	Williams	1999 VT ₁₀
1999 VV ₁₀	15.1	0.15	19990810	353.06600	321.54105	66.06291	23.08225	0.0702928	1.8442716	42	2	1998–1999	0.59	M-v 4 Williams	36864 1999 VV ₁₀
1999 VY ₁₀	15.4	0.15	19991118	304.20355	4.27614	115.15606	4.60604	0.0801310	2.3192028	36	1	38 days	0.46	Williams	1999 VY ₁₀
1999 VZ ₁₀	17.5	0.15	19991118	2.88653	296.91922	114.07791	3.43517	0.2186948	2.2779165	24	1	32 days	0.87	Williams	1999 VZ ₁₀
1999 VA ₁₁	15.7	0.15	19991118	8.67840	136.70578	251.05323	4.74845	0.2263776	2.6448896	44	1	30 days	0.71	Williams	1999 VA ₁₁
1999 VB ₁₁	14.6	0.15	19991118	14.02214	119.49132	261.58735	4.56179	0.1226981	2.9765428	29	1	30 days	0.50	Williams	1999 VB ₁₁
1999 VD ₁₁	16.1	0.15	19991118	357.58603	190.23022	219.86420	2.88271	0.1245908	2.2701804	42	1	33 days	0.61	Williams	1999 VD ₁₁
1999 VF ₁₁	15.1	0.15	19991118	52.09091	114.83397	222.16863	13.67776	0.2058930	2.6259255	23	1	32 days	0.62	Williams	1999 VF ₁₁
1999 VH ₁₁	15.0	0.15	19991029	37.05628	138.38100	229.22279	4.19120	0.1279328	2.7463563	39	1	54 days	0.51	Williams	1999 VH ₁₁
1999 VJ ₁₁	14.4	0.15	19990810	8.97858	324.24734	52.33341	6.44132	0.1329589	2.5365901	52	2	1995–1999	0.57	M-v 5 Williams	36864 1999 VJ ₁₁
1999 VL ₁₁	18.0	0.15	19991118	35.30892	302.71383	58.19581	35.29057	0.2155524	1.8049477	44	1	37 days	0.54	Williams	1999 VL ₁₁
1999 VO ₁₁	18.4	0.15	19990810	308.30647	71.50139	68.30359	15.81066	0.6342037	2.2553041	108	1	34 days	0.56	M-v 5 Williams	1999 VO ₁₁
1999 VP ₁₁	18.4	0.15	19990810	5.12435	61.46285	208.26719	17.29756	0.5832786	1.0843646	83	1	30 days	0.60	M-v 7 Nakano	1999 VP ₁₁
1999 VQ ₁₁	17.5	0.15	19990810	342.58006	352.98835	26.96418	7.93927	0.5949746	2.8069131	75	1	34 days	0.73	M-v 6 Williams	1999 VQ ₁₁
1999 VR ₁₁	14.7	0.15	19991118	54.70526	251.97309	92.56421	3.16860	0.0824154	2.8993128	53	1	33 days	0.82	Williams	1999 VR ₁₁
1999 VS ₁₁	16.6	0.15	19991118	335.86931	41.21229	52.71347	5.92647	0.2010702	2.3651087	45	1	40 days	0.54	Williams	1999 VS ₁₁
1999 VU ₁₁	14.9	0.15	19991118	14.03818	80.37241	292.46924	8.62137	0.1633684	3.0827828	18	1	24 days	0.75	Williams	1999 VU ₁₁
1999 VX ₁₁	15.1	0.15	19991118	10.70200	357.95522	39.55123	5.49379	0.1580930	3.1245516	54	1	39 days	0.87	Williams	1999 VX ₁₁
1999 VV ₁₁	12.5	0.15	19991118	352.24378	329.52789	46.32551	13.96386	0.1068238	2.9659266	19	1	21 days	0.47	Williams	1999 VV ₁₁
1999 VX ₁₁	12.7	0.15	19991118	324.89339	307.69458	108.87853	9.98545	0.1570179	2.8682250	21	1	21 days	0.59	Williams	1999 VX ₁₁
1999 VY ₁₁	13.8	0.15	19991118	12.84138	87.10556	281.83216	9.11794	0.3755440	3.0412023	35	1	35 days	0.45	Williams	1999 VY ₁₁
1999 VB ₁₂	12.7	0.15	19991118	256.97387	182.32786	337.55756	8.38858	0.1124651	2.5601783	15	1	30 days	0.29	Williams	1999 VB ₁₂
1999 VC ₁₂	15.9	0.15	19990810	349.50438	109.66414	269.39737	4.83992	0.4100588	2.6743698	50	1	39 days	0.59	M-v 5 Williams	1999 VC ₁₂

1999 VD ₁₂	13.7	0.15	19991118	350.05368	182.58759	241.86921	13.89398	0.2052129	3.1636100	35	1	39 days	0.52	Williams	1999 VD ₁₂
1999 VE ₁₂	12.5	0.15	19991118	313.69374	70.46108	29.23901	9.74585	0.0456974	3.0544476	29	1	40 days	0.38	Williams	1999 VE ₁₂
1999 VH ₁₂	15.2	0.15	19991118	34.53225	286.72514	58.82312	12.25351	0.3194722	2.6446259	36	1	32 days	0.58	Williams	1999 VH ₁₂
1999 VJ ₁₂	16.4	0.15	19991118	53.39676	350.27415	348.67415	4.44672	0.2353454	2.2055877	31	1	34 days	0.49	Williams	1999 VJ ₁₂
1999 VL ₁₂	17.0	0.15	19991118	125.89230	40.76242	234.51356	20.19504	0.2359981	1.5938288	51	1	24 days	0.52	Nakano	1999 VL ₁₂
1999 VN ₁₂	15.2	0.15	19991118	33.00561	274.43346	97.37695	2.98136	0.1620678	2.3985762	37	1	33 days	0.49	Williams	1999 VN ₁₂
1999 VT ₁₂	15.4	0.15	19991118	21.14597	327.17250	62.65388	6.01627	0.1799408	2.2596764	42	1	32 days	0.42	Williams	1999 VT ₁₂
1999 VU ₁₂	13.8	0.15	19991118	21.64116	328.44193	65.77129	9.65505	0.1171316	2.7276295	59	1	33 days	0.49	Williams	1999 VU ₁₂
1999 VW ₁₂	15.8	0.15	19991118	20.87856	61.36843	324.50633	2.47904	0.1629603	2.3304045	21	1	42 days	0.42	Williams	1999 VW ₁₂
1999 VX ₁₂	13.0	0.15	19991118	27.37770	32.72976	335.33419	19.62682	0.0666520	3.2194854	18	1	41 days	0.45	Williams	1999 VX ₁₂
1999 VE ₁₄	15.8	0.15	19991118	25.62868	137.10035	242.16742	22.20196	0.2486136	2.3140963	27	1	42 days	0.65	Williams	1999 VE ₁₄
1999 VL ₁₄	15.9	0.15	19991118	50.71015	317.61539	61.58359	23.33064	0.0836205	1.9134047	16	1	42 days	0.36	Williams	1999 VL ₁₄
1999 VC ₁₉	15.6	0.15	19991118	175.57693	355.56640	259.81150	6.12063	0.0857018	2.2829534	27	1	26 days	0.46	Williams	1999 VC ₁₉
1999 VD ₁₉	16.5	0.15	19991118	27.88651	313.50587	57.03936	5.26951	0.2507734	2.4619400	38	1	39 days	0.49	Williams	1999 VD ₁₉
1999 VG ₁₉	14.5	0.15	19991118	355.69819	205.37035	229.84831	9.82665	0.1287544	2.7920357	12	1	28 days	0.38	Williams	1999 VG ₁₉
1999 VH ₁₉	14.8	0.15	19991118	19.01175	156.64227	261.34759	12.53837	0.2209592	2.6640194	14	1	29 days	0.42	Williams	1999 VH ₁₉
1999 VK ₁₉	14.8	0.15	19991118	13.28942	173.28542	237.47085	11.67057	0.1634614	2.5879420	18	1	29 days	0.42	Williams	1999 VK ₁₉
1999 VL ₁₉	15.8	0.15	19991029	12.34422	137.22594	238.23701	1.70700	0.1864771	2.5599824	13	1	25 days	0.36	Williams	1999 VL ₁₉
1999 VP ₁₉	16.1	0.15	19991118	35.63689	312.93297	46.61792	6.19087	0.1969433	2.2947117	24	1	34 days	0.48	Williams	1999 VP ₁₉
1999 VR ₁₉	15.7	0.15	19991118	29.07011	174.22722	205.67562	2.79963	0.1566292	2.2382204	39	1	35 days	0.36	Williams	1999 VR ₁₉
1999 VS ₁₉	13.3	0.15	19991029	0.46291	184.80518	230.54505	11.55761	0.1464804	3.1377628	35	1	52 days	0.41	Williams	1999 VS ₁₉
1999 VT ₁₉	15.2	0.15	19991118	4.26351	98.06608	291.46247	11.60906	0.3324228	3.1503708	37	1	33 days	0.94	Williams	1999 VT ₁₉
1999 VU ₁₉	15.0	0.15	19991118	206.09560	149.69627	52.14234	6.16281	0.0799973	2.3149585	41	1	33 days	0.63	Williams	1999 VU ₁₉
1999 VV ₁₉	15.1	0.15	19991118	59.87716	217.92375	112.69332	3.69759	0.1894323	2.1444520	31	1	33 days	0.70	Williams	1999 VV ₁₉
1999 VX ₁₉	13.6	0.15	19991118	69.04732	220.56518	90.84270	3.76714	0.2818986	3.0847926	44	1	38 days	0.60	Williams	1999 VX ₁₉
1999 VY ₁₉	16.2	0.15	19991118	56.90940	278.89021	59.45634	3.27574	0.2112891	2.3946133	27	1	29 days	0.63	Williams	1999 VY ₁₉
1999 VB ₂₀	15.2	0.15	19991118	336.38494	338.98665	101.23549	2.26167	0.1205424	3.0387688	33	1	38 days	0.78	Williams	1999 VB ₂₀
1999 VE ₂₀	18.6	0.15	19991118	347.59860	344.69266	90.02808	2.11604	0.2366230	1.9033905	26	1	38 days	1.14	Williams	1999 VE ₂₀
1999 VH ₂₀	13.6	0.15	19991118	13.58855	83.60721	288.46733	10.74133	0.1850369	2.6555994	18	1	27 days	0.44	Williams	1999 VH ₂₀
1999 VK ₂₀	13.3	0.15	19991118	344.44487	81.98737	340.83591	15.30761	0.2360174	3.0948641	17	1	30 days	0.48	Williams	1999 VK ₂₀
1999 VL ₂₀	14.1	0.15	19991118	348.79564	112.19658	306.76808	11.10869	0.2488350	2.6263072	17	1	30 days	0.47	Williams	1999 VL ₂₀
1999 VM ₂₀	12.8	0.15	19991118	310.52795	139.72149	320.08445	12.70453	0.1258882	2.6741147	17	1	30 days	0.52	Williams	1999 VM ₂₀
1999 VN ₂₀	12.7	0.15	19991118	245.51054	164.97989	0.57482	22.50033	0.0915327	2.5867253	17	1	31 days	0.65	Williams	1999 VN ₂₀
1999 VO ₂₀	12.9	0.15	19990810	311.38603	149.04674	282.10416	14.26000	0.0986743	2.5836682	26	1	141 days	0.45	M-v 5 D Williams	1999 VO ₂₀
1999 VP ₂₀	13.8	0.15	19991118	315.14442	161.27245	307.78994	9.81852	0.2367690	2.6972722	24	1	30 days	0.66	Williams	1999 VP ₂₀
1999 VQ ₂₀	14.6	0.15	19991118	33.89891	359.99950	352.83533	10.79260	0.2189631	2.3783133	14	1	17 days	0.41	Williams	1999 VQ ₂₀
1999 VS ₂₀	16.6	0.15	19991118	90.37658	263.63187	50.85850	22.13947	0.0745400	1.9812936	39	1	39 days	0.39	Williams	1999 VS ₂₀
1999 VT ₂₀	15.7	0.15	19991118	325.09571	106.98468	2.03035	3.62281	0.1341966	2.2581058	14	1	36 days	0.44	Nakano	1999 VT ₂₀
1999 VU ₂₀	14.4	0.15	19990810	249.97679	106.46891	48.24909	4.09358	0.0818682	2.2513104	30	3	1982–1999	0.69	M-v 5 Williams	36864 1999 VU ₂₀
1999 VV ₂₀	14.4	0.15	19991118	337.80060	37.35405	56.43405	15.88631	0.1086122	2.8508675	16	1	31 days	0.72	Williams	1999 VV ₂₀
1999 VW ₂₀	15.0	0.15	19991118	356.97529	143.94909	256.00497	10.48944	0.1594223	2.4269143	31	1	28 days	0.58	Williams	1999 VW ₂₀
1999 VY ₂₀	17.1	0.15	19991118	7.76843	350.74777	45.64581	26.25698	0.2053001	2.1825477	32	1	19 days	0.58	Williams	1999 VY ₂₀
1999 VZ ₂₀	15.0	0.15	19991118	16.74520	324.30365	71.86042	10.43357	0.0606369	2.5772117	53	1	38 days	0.65	Williams	1999 VZ ₂₀
1999 VA ₂₁	15.6	0.15	19990810	74.20385	63.80591	236.25400	20.10085	0.0595797	1.9179992	55	2	1993–1999	0.52	M-v 5 Williams	36864 1999 VA ₂₁
1999 VB ₂₁	14.5	0.15	19991118	298.07500	62.50203	84.82581	7.98705	0.1387748	2.3373500	33	1	39 days	0.53	Williams	1999 VB ₂₁
1999 VC ₂₁	15.6	0.15	19991118	320.04334	30.82953	79.12365	2.21390	0.1480591	2.6815758	47	1	26 days	0.42	Williams	1999 VC ₂₁
1999 VE ₂₁	13.7	0.15	19991118	40.46101	147.86713	207.73902	15.40768	0.1121209	3.0965375	28	1	30 days	0.80	Williams	1999 VE ₂₁
1999 VN ₂₁	14.7	0.15	19991118	356.23106	4.62652	48.44015	5.83246	0.1627258	2.6344453	42	1	38 days	0.48	Williams	1999 VN ₂₁
1999 VP ₂₁	13.3	0.15	19991118	359.61865	358.83729	48.02503	18.68973	0.1288802	3.1947227	42	1	38 days	0.65	Williams	1999 VP ₂₁
1999 VR ₂₁	14.2	0.15	19990810	238.18021	328.60985	194.89451	6.41711	0.1350288	2.5560678	34	2	1995–1999	0.64	M-v 5 Williams	36864 1999 VR ₂₁
1999 VU ₂₁	14.6	0.15	19991118	169.71348	157.83266	81.92929	7.09680	0.0702591	2.3971052	35	1	29 days	1.09	Williams	1999 VU ₂₁
1999 VX ₂₁	17.6	0.15	19991118	28.10558	161.45331	209.09407	3.54273	0.2467281	2.1802711	24	1	25 days	0.52	Williams	1999 VX ₂₁
1999 VY ₂₁	15.4	0.15	19991118	190.62374	52.55362	175.58715	2.36078	0.0918175	2.2442119	10	1	18 days	0.71	Williams	1999 VY ₂₁

1999 VZ ₂₁	16.9	0.15	19991118	50.59456	146.30878	195.16295	1.81079	0.2385369	2.3663584	23	1	33 days	0.81	Williams	1999 VZ ₂₁
1999 VC ₂₂	15.3	0.15	19991118	11.67433	254.89292	139.64697	3.22486	0.1823868	2.4542308	17	1	22 days	0.47	Williams	1999 VC ₂₂
1999 VE ₂₂	16.2	0.15	19991118	131.42305	235.14298	58.27840	4.87771	0.0771784	2.1954218	21	1	25 days	0.46	Williams	1999 VE ₂₂
1999 VF ₂₂	20.5	0.15	19991118	42.09786	271.02525	4.07514	3.91373	0.7380297	1.3117073	62	1	23 days	0.58	Williams	1999 VF ₂₂
1999 VH ₂₂	13.2	0.15	19991118	301.63042	58.61184	42.42856	14.82223	0.1917361	3.1673581	21	1	22 days	0.55	Williams	1999 VH ₂₂
1999 VK ₂₂	16.1	0.15	19991118	13.19812	131.88868	243.57505	7.62793	0.3201776	2.4321731	40	1	45 days	0.48	Williams	1999 VK ₂₂
1999 VL ₂₂	12.2	0.15	19991029	97.09561	24.81988	261.80601	8.53487	0.0585875	3.0709816	34	1	39 days	0.55	Williams	1999 VL ₂₂
1999 VM ₂₂	13.4	0.15	19991118	47.97683	331.17827	7.86710	7.15990	0.1027106	2.7710727	24	1	30 days	0.53	Williams	1999 VM ₂₂
1999 VN ₂₂	15.4	0.15	19991118	355.34314	131.70075	277.74546	3.00148	0.2414825	2.3493319	38	1	38 days	0.48	Williams	1999 VN ₂₂
1999 VO ₂₂	13.8	0.15	19991118	9.05159	14.20160	8.77607	8.42629	0.2275841	3.1603698	18	1	30 days	0.30	Nakano	1999 VO ₂₂
1999 VQ ₂₂	13.7	0.15	19991029	309.09914	222.79983	234.85090	11.88416	0.1447573	2.5479775	27	1	39 days	0.47	Williams	1999 VQ ₂₂
1999 VS ₂₂	14.9	0.15	19991118	2.63886	152.89876	247.49976	5.45771	0.1608473	2.2742343	22	1	31 days	0.37	Williams	1999 VS ₂₂
1999 VU ₂₂	15.6	0.15	19991118	338.02177	250.91078	178.86252	10.30037	0.1244405	3.0557323	12	1	16 days	0.23	Williams	1999 VU ₂₂
1999 VV ₂₂	13.9	0.15	19991118	273.44007	316.97419	221.44066	36.26639	0.1335639	2.7489820	18	1	24 days	0.36	Williams	1999 VV ₂₂
1999 VW ₂₂	13.9	0.15	19991118	126.73694	136.78510	129.74243	15.60130	0.0154289	2.6743460	14	1	27 days	0.70	Williams	1999 VW ₂₂
1999 VY ₂₂	15.1	0.15	19990810	352.63034	244.36562	139.25498	2.31900	0.1978200	2.5166929	30	3	1975–1999	0.65	M-v 4 Williams	36865 1999 VY ₂₂
1999 VZ ₂₂	14.8	0.15	19990810	3.15555	273.82165	103.68803	4.46998	0.1070597	2.2738053	51	3	1995–1999	0.41	M-v 3 Williams	36865 1999 VZ ₂₂
1999 VA ₂₃	14.4	0.15	19991118	180.58304	348.41720	229.41270	14.41939	0.0467593	2.6945159	31	1	29 days	0.63	Williams	1999 VA ₂₃
1999 VC ₂₃	15.8	0.15	19991118	8.67734	331.02164	70.73601	12.62958	0.2128149	2.5901628	35	1	29 days	0.47	Williams	1999 VC ₂₃
1999 VD ₂₃	16.8	0.15	19991118	53.75023	218.93138	119.94092	3.06570	0.2266095	2.4020628	15	1	22 days	1.02	Williams	1999 VD ₂₃
1999 VG ₂₃	16.1	0.15	19991118	41.47504	85.36357	258.76220	4.44854	0.2328678	2.3523372	22	1	33 days	0.94	Williams	1999 VG ₂₃
1999 VK ₂₃	16.5	0.15	19991118	355.79138	346.76351	67.20302	7.02992	0.2339950	2.3452800	27	1	25 days	0.56	Williams	1999 VK ₂₃
1999 VL ₂₃	15.0	0.15	19991118	346.94492	211.00992	222.20807	23.61432	0.2645686	2.2650509	36	1	34 days	0.44	Williams	1999 VL ₂₃
1999 VM ₂₃	18.9	0.15	19991118	16.18762	63.71454	342.72534	0.76599	0.1405511	2.0900798	11	1	24 days	0.80	Williams	1999 VM ₂₃
1999 VN ₂₃	16.4	0.15	19991118	20.30117	309.01781	58.84425	6.75355	0.4856331	2.7988638	32	1	27 days	0.48	Williams	1999 VN ₂₃
1999 VS ₂₃	13.7	0.15	19991118	335.67180	316.93826	122.16527	4.20669	0.1850538	2.5378768	16	1	21 days	0.65	Williams	1999 VS ₂₃
1999 VU ₂₃	12.8	0.15	19991118	319.02183	274.14274	186.71521	11.01261	0.1390443	2.5653840	16	1	24 days	0.46	Williams	1999 VU ₂₃
1999 VX ₂₃	15.6	0.15	19991118	12.90088	130.60855	274.07393	6.26189	0.1901192	2.5844850	16	1	23 days	0.58	Nakano	1999 VX ₂₃
1999 VY ₂₃	14.2	0.15	19991118	126.91485	235.80306	53.17377	7.03152	0.0681831	2.6131663	32	1	31 days	0.55	Williams	1999 VY ₂₃
1999 VE ₂₄	14.3	0.15	19991118	17.65117	333.98589	50.70818	12.12745	0.2053105	3.1234632	39	1	38 days	0.37	Williams	1999 VE ₂₄
1999 VH ₂₄	13.6	0.15	19991118	55.26798	115.98066	188.06223	7.13516	0.3414247	2.5326622	6	1	12 days	0.49	Williams	1999 VH ₂₄
1999 VJ ₂₄	13.3	0.15	19991118	2.02471	352.18456	48.88782	10.35006	0.2038351	2.4615857	25	1	27 days	0.81	Williams	1999 VJ ₂₄
1999 VN ₂₄	13.9	0.15	19991118	334.85198	286.80991	176.34721	22.90975	0.2958532	2.3154778	12	1	15 days	0.33	Williams	1999 VN ₂₄
1999 VP ₂₄	15.2	0.15	19991118	64.00189	22.86083	280.76673	7.66118	0.2276860	2.2852208	12	1	15 days	0.39	Williams	1999 VP ₂₄
1999 VQ ₂₄	11.0	0.15	19991118	74.23819	277.41826	96.40624	13.44409	0.0841808	5.1948842	28	1	25 days	0.36	Williams	1999 VQ ₂₄
1999 VR ₂₄	16.5	0.15	19991118	36.97055	144.72195	229.95115	1.13154	0.1505468	2.4032566	23	1	26 days	0.47	Williams	1999 VR ₂₄
1999 VU ₂₄	14.4	0.15	19991118	357.81741	3.62364	67.91939	26.19857	0.2199133	2.3059347	13	1	32 days	1.34	Williams	1999 VU ₂₄
1999 VV ₂₄	15.2	0.15	19991118	53.16010	98.92379	252.60177	9.39889	0.2363751	2.2800115	24	1	25 days	0.39	Williams	1999 VV ₂₄
1999 VY ₂₄	14.3	0.15	19990810	259.64407	197.50964	328.69603	3.13262	0.1470656	2.5655431	29	4	1972–1999	0.84	M-v 4 Williams	36865 1999 VY ₂₄
1999 VZ ₂₄	13.7	0.15	19991118	345.46905	14.89163	77.15822	10.41077	0.1348581	2.7565361	22	1	27 days	0.44	Williams	1999 VZ ₂₄
1999 VB ₂₅	13.4	0.15	19991118	24.22969	306.44031	90.95289	13.86322	0.1708263	2.6926476	13	1	25 days	0.46	Williams	1999 VB ₂₅
1999 VD ₂₅	12.5	0.15	19991118	97.43461	247.95675	76.00853	16.19123	0.1170788	2.6560493	18	1	27 days	0.85	Williams	1999 VD ₂₅
1999 VF ₂₅	14.6	0.15	19991118	54.71170	112.64468	249.68286	10.63361	0.1574676	2.5714260	16	1	25 days	0.56	Williams	1999 VF ₂₅
1999 VG ₂₅	13.1	0.15	19991118	356.92658	41.05708	35.09656	3.94050	0.0718916	2.3788223	13	1	27 days	0.47	Williams	1999 VG ₂₅
1999 VH ₂₅	14.2	0.15	19991118	21.09874	19.75154	21.84410	3.24416	0.1680939	2.3299255	8	1	23 days	0.48	Nakano	1999 VH ₂₅
1999 VJ ₂₅	13.2	0.15	19991118	62.64334	76.03412	278.20088	3.47181	0.1471061	2.2947895	16	1	27 days	0.44	Williams	1999 VJ ₂₅
1999 VK ₂₅	14.9	0.15	19991118	65.00622	71.86648	272.63416	5.68845	0.2199853	2.5743319	18	1	27 days	0.64	Williams	1999 VK ₂₅
1999 VM ₂₅	13.1	0.15	19990810	349.50972	151.77188	261.76256	9.89924	0.2528355	2.7497706	44	4	1985–1999	0.64	M-v 1 Williams	36865 1999 VM ₂₅
1999 VN ₂₅	13.3	0.15	19991118	36.43197	66.82222	320.66410	3.16044	0.1126136	2.3007900	12	1	27 days	0.71	Williams	1999 VN ₂₅
1999 VO ₂₅	15.5	0.15	19991118	12.60965	89.21600	310.80315	1.19204	0.0988945	2.6849663	16	1	25 days	0.44	Williams	1999 VO ₂₅
1999 VQ ₂₅	14.4	0.15	19991118	78.13602	68.75821	246.80260	4.41157	0.0862012	2.7660258	59	1	38 days	0.45	Williams	1999 VQ ₂₅
1999 VR ₂₅	15.2	0.15	19991118	19.08299	224.89323	156.56918	5.24615	0.1337006	2.4453708	15	1	13 days	0.25	Marsden	1999 VR ₂₅
1999 VT ₂₅	21.5	0.15	19991118	290.85596	318.85063	222.25556	5.13003	0.5219273	1.1602705	39	1	21 days	0.76	Williams	1999 VT ₂₅

1999 DEC. 22

M.P.C. 37315

1999 VY ₂₅	15.3	0.15	19991118	34.77495	289.04427	92.67959	10.33030	0.2906021	2.6995623	31	1	24 days	0.58	Williams	1999 VY ₂₅
1999 VA ₂₆	14.9	0.15	19991118	309.64932	56.85826	63.96908	12.91775	0.2247547	3.0815945	27	1	24 days	0.42	Williams	1999 VA ₂₆
1999 VB ₂₆	15.2	0.15	19991118	336.28472	213.20205	238.57383	23.88305	0.1442244	2.2537248	30	1	41 days	0.34	Williams	1999 VB ₂₆
1999 VD ₂₆	15.1	0.15	19991118	321.50996	223.26671	243.72042	5.53687	0.1000905	2.5690874	34	1	35 days	0.44	Williams	1999 VD ₂₆
1999 VH ₂₆	15.2	0.15	19991118	276.13677	296.64821	224.73430	1.60254	0.1535695	2.3389004	18	1	35 days	0.50	Williams	1999 VH ₂₆
1999 VJ ₂₆	16.0	0.15	19991118	314.43945	53.36669	63.09144	2.95543	0.1258759	2.3138694	35	1	35 days	0.51	Williams	1999 VJ ₂₆
1999 VK ₂₆	13.4	0.15	19991118	144.46313	208.06453	62.38801	17.71216	0.1009088	3.1628454	14	1	35 days	0.48	Williams	1999 VK ₂₆
1999 VL ₂₆	15.5	0.15	19991118	16.03713	325.69577	73.55230	3.11508	0.1241464	2.6258526	25	1	35 days	0.53	Williams	1999 VL ₂₆
1999 VM ₂₆	16.2	0.15	19991118	41.44854	154.16657	213.60254	1.44215	0.1273887	2.5587977	18	1	35 days	0.55	Williams	1999 VM ₂₆
1999 VO ₂₆	14.3	0.15	19990810	359.50944	332.77065	61.27243	3.73035	0.0974788	2.7038296	33	3	1990–1999	0.60	M-v 4 Williams	36865 1999 VO ₂₆
1999 VR ₂₆	14.7	0.15	19991118	95.25206	262.92274	56.37958	2.86213	0.0607208	2.8655586	29	1	35 days	0.56	Williams	1999 VR ₂₆
1999 VS ₂₆	15.1	0.15	19991118	31.18627	328.78257	51.65576	3.07020	0.1274156	2.4855950	21	1	35 days	0.48	Williams	1999 VS ₂₆
1999 VU ₂₆	15.7	0.15	19991118	26.83782	130.74199	236.97509	4.23117	0.3261620	2.5656911	20	1	35 days	0.35	Williams	1999 VU ₂₆
1999 VY ₂₆	17.4	0.15	19991118	359.98765	186.52604	232.84755	5.73898	0.2548426	2.5403583	28	1	36 days	0.83	Williams	1999 VY ₂₆
1999 VZ ₂₆	15.8	0.15	19991118	305.86224	253.56635	233.95107	11.83230	0.1285646	2.6174001	17	1	36 days	0.51	Williams	1999 VZ ₂₆
1999 VB ₂₇	15.6	0.15	19991118	300.81830	268.71049	226.62410	1.43987	0.1464800	2.6682621	28	1	35 days	0.57	Williams	1999 VB ₂₇
1999 VC ₂₇	16.0	0.15	19991118	159.76876	197.92450	57.37313	3.89018	0.1646569	2.3041277	20	1	40 days	0.46	Williams	1999 VC ₂₇
1999 VE ₂₇	15.6	0.15	19991118	274.53098	287.43961	229.90047	5.30406	0.1017118	2.6344229	19	1	39 days	0.44	Williams	1999 VE ₂₇
1999 VK ₂₇	13.8	0.15	19991118	16.93420	6.06364	8.81334	8.02469	0.1168615	3.1152829	11	1	30 days	0.37	Williams	1999 VK ₂₇
1999 VO ₂₇	14.8	0.15	19991118	341.59783	44.96545	17.29100	7.29441	0.1089449	2.7935492	11	1	30 days	0.43	Williams	1999 VO ₂₇
1999 VS ₂₇	13.9	0.15	19991118	56.24551	108.24037	230.15841	9.87475	0.0447448	3.1662359	27	1	34 days	0.66	Williams	1999 VS ₂₇
1999 VX ₂₇	15.9	0.15	19991118	274.95990	106.82978	59.73781	5.03103	0.2071371	2.5881239	22	1	23 days	0.58	Williams	1999 VX ₂₇
1999 VY ₂₇	14.2	0.15	19991118	65.77312	26.79737	300.85583	15.61688	0.0888918	2.4492151	26	1	26 days	0.44	Williams	1999 VY ₂₇
1999 VA ₂₈	16.4	0.15	19991118	33.76001	137.87325	233.96900	8.29981	0.0978858	2.4056920	20	1	39 days	0.58	Williams	1999 VA ₂₈
1999 VB ₂₈	14.0	0.15	19991118	107.47240	9.00606	286.64179	0.78314	0.0883069	2.9459905	16	1	35 days	0.55	Williams	1999 VB ₂₈
1999 VF ₂₈	14.4	0.15	19991118	346.04890	196.81830	235.65474	5.12887	0.1471132	2.3371895	46	1	39 days	0.24	Williams	1999 VF ₂₈
1999 VG ₂₈	16.1	0.15	19991118	59.07908	104.45161	234.94761	5.71692	0.1396814	2.3830548	18	1	39 days	0.49	Williams	1999 VG ₂₈
1999 VH ₂₈	16.2	0.15	19991118	33.50042	135.83294	233.72952	2.87859	0.1445111	2.5466207	18	1	39 days	0.61	Williams	1999 VH ₂₈
1999 VQ ₂₈	15.6	0.15	19991118	12.01749	158.21875	237.82562	1.56932	0.2087024	2.4277219	24	1	39 days	0.25	Williams	1999 VQ ₂₈
1999 VT ₂₈	16.4	0.15	19991118	23.94955	336.40624	47.34282	4.20716	0.1304635	2.2590188	23	1	39 days	0.34	Williams	1999 VT ₂₈
1999 VU ₂₈	15.3	0.15	19991118	40.36807	29.87908	326.31195	0.66736	0.1997091	2.3876141	23	1	39 days	0.41	Williams	1999 VU ₂₈
1999 VV ₂₈	14.9	0.15	19991118	308.77126	235.86006	237.61094	7.43121	0.0780637	2.5636475	34	1	39 days	0.38	Williams	1999 VV ₂₈
1999 VW ₂₈	15.7	0.15	19991118	320.89811	78.40706	32.71694	2.07734	0.1937412	2.7581522	23	1	39 days	0.52	Williams	1999 VW ₂₈
1999 VX ₂₈	15.0	0.15	19991118	346.13851	30.57955	40.52284	3.71282	0.0714450	2.7936666	31	1	39 days	0.48	Williams	1999 VX ₂₈
1999 VY ₂₈	16.0	0.15	19991118	327.22157	214.25896	237.67642	5.70827	0.0623880	2.3033804	23	1	39 days	0.50	Williams	1999 VY ₂₈
1999 VZ ₂₈	15.1	0.15	19991118	58.65445	300.90605	44.73787	2.56507	0.1164720	2.9226440	20	1	39 days	0.72	Williams	1999 VZ ₂₈
1999 VA ₂₉	15.6	0.15	19991118	316.87024	58.95298	50.42819	4.31137	0.1268859	2.3037575	20	1	35 days	0.48	Williams	1999 VA ₂₉
1999 VE ₂₉	15.3	0.15	19991118	23.39641	329.59913	49.17676	2.90220	0.2247636	2.7591441	24	1	39 days	0.27	Williams	1999 VE ₂₉
1999 VH ₂₉	17.0	0.15	19991118	8.37311	178.21414	226.24878	3.06929	0.1449392	2.1891304	22	1	39 days	0.65	Williams	1999 VH ₂₉
1999 VJ ₂₉	16.4	0.15	19991118	11.66929	345.21882	53.67362	5.19736	0.1865550	2.4739415	28	1	40 days	0.46	Williams	1999 VJ ₂₉
1999 VK ₂₉	14.6	0.15	19991118	32.75792	318.79121	50.57355	2.56868	0.1922580	3.1728122	32	1	39 days	0.61	Williams	1999 VK ₂₉
1999 VL ₂₉	15.0	0.15	19991118	227.98374	138.05983	56.06778	9.89977	0.0694234	2.6509164	24	1	39 days	0.50	Williams	1999 VL ₂₉
1999 VO ₂₉	15.5	0.15	19991118	318.15258	63.65378	45.38109	6.20324	0.1241038	2.2676961	18	1	35 days	0.37	Williams	1999 VO ₂₉
1999 VP ₂₉	16.0	0.15	19991118	277.89017	95.65797	47.34249	7.47746	0.0372686	2.3278814	23	1	40 days	0.60	Williams	1999 VP ₂₉
1999 VQ ₂₉	14.6	0.15	19991118	257.23219	287.64602	238.74579	5.49284	0.0577127	3.0562351	19	1	39 days	0.60	Williams	1999 VQ ₂₉
1999 VR ₂₉	15.0	0.15	19991118	56.69827	301.68993	49.21721	2.70033	0.0959889	2.8998284	24	1	39 days	0.51	Williams	1999 VR ₂₉
1999 VS ₂₉	15.7	0.15	19991118	36.40688	318.46355	42.89359	3.10763	0.2224422	2.3925740	14	1	35 days	0.51	Williams	1999 VS ₂₉
1999 VU ₂₉	17.1	0.15	19991118	29.13740	106.82053	265.59577	1.65643	0.2163982	2.3990458	20	1	35 days	0.53	Williams	1999 VU ₂₉
1999 VV ₂₉	15.7	0.15	19991118	14.80698	43.74571	351.99883	0.68912	0.1886474	2.3898208	30	1	40 days	0.34	Williams	1999 VV ₂₉
1999 VW ₂₉	18.5	0.15	19991118	15.37364	152.41591	236.44777	7.09967	0.2917127	2.3439479	17	1	34 days	0.39	Williams	1999 VW ₂₉
1999 VX ₂₉	16.1	0.15	19991118	6.22198	156.64964	251.79860	2.47610	0.2095973	2.6263222	34	1	35 days	0.84	Williams	1999 VX ₂₉
1999 VA ₃₀	14.1	0.15	19991118	99.01645	243.21661	57.54719	2.29192	0.1788471	3.1298185	21	1	35 days	0.57	Williams	1999 VA ₃₀
1999 VB ₃₀	15.0	0.15	19991118	280.27227	290.67280	223.02834	2.91524	0.1464779	2.7002496	26	1	35 days	0.55	Williams	1999 VB ₃₀

1999 VD ₃₀	14.8	0.15	19991118	35.66013	310.39809	59.72419	6.07084	0.1592015	3.1298237	31	1	35 days	0.62	Williams	1999 VD ₃₀
1999 VG ₃₀	15.4	0.15	19991118	295.00659	88.85580	55.68238	8.43033	0.1788229	3.1931041	12	1	32 days	1.26	Williams	1999 VG ₃₀
1999 VJ ₃₀	15.8	0.15	19991118	56.20088	289.57283	53.62348	5.48348	0.1785910	2.2438578	16	1	35 days	0.55	Williams	1999 VJ ₃₀
1999 VL ₃₀	15.3	0.15	19991118	18.48737	148.89437	247.10253	5.16121	0.1309281	2.4041959	23	1	35 days	0.45	Williams	1999 VL ₃₀
1999 VM ₃₀	16.1	0.15	19991118	46.44990	346.37825	4.03597	1.08163	0.2318990	2.3734603	27	1	40 days	0.50	Williams	1999 VM ₃₀
1999 VP ₃₀	14.2	0.15	19991118	71.33418	94.97234	234.20797	15.46482	0.1680903	2.7277975	18	1	34 days	0.48	Williams	1999 VP ₃₀
1999 VQ ₃₀	15.0	0.15	19991118	350.58084	195.99145	237.26482	14.34431	0.1144258	2.8536154	29	1	36 days	0.62	Williams	1999 VQ ₃₀
1999 VS ₃₀	14.3	0.15	19991118	6.46405	173.92668	238.58301	5.13556	0.1174375	2.3915785	36	1	35 days	0.38	Williams	1999 VS ₃₀
1999 VT ₃₀	15.2	0.15	19991118	30.42091	129.17629	242.69098	11.07556	0.2547222	2.5757745	20	1	35 days	0.21	Williams	1999 VT ₃₀
1999 VU ₃₀	14.6	0.15	19991118	52.67140	292.25190	58.61742	11.49397	0.1822140	3.0126157	24	1	40 days	0.42	Williams	1999 VU ₃₀
1999 VV ₃₀	13.8	0.15	19991118	173.58587	192.64247	54.63564	5.32497	0.1423051	2.4432507	20	1	35 days	0.28	Williams	1999 VV ₃₀
1999 VW ₃₀	15.6	0.15	19991118	4.81023	358.35978	55.87090	5.22902	0.1965690	2.6731234	23	1	35 days	0.54	Williams	1999 VW ₃₀
1999 VX ₃₀	16.1	0.15	19991118	334.73395	121.56506	332.87186	0.65506	0.1216650	2.7631044	14	1	32 days	0.60	Williams	1999 VX ₃₀
1999 VY ₃₀	16.1	0.15	19991118	342.06850	35.32278	52.86042	5.75804	0.1991597	2.3600737	30	1	40 days	0.32	Williams	1999 VY ₃₀
1999 VZ ₃₀	14.7	0.15	19991118	48.63726	116.88262	239.45282	7.93770	0.1754913	2.7955335	20	1	35 days	0.39	Williams	1999 VZ ₃₀
1999 VA ₃₁	15.6	0.15	19991118	62.24851	103.80155	239.46475	10.81228	0.1544135	2.5942520	22	1	39 days	0.38	Williams	1999 VA ₃₁
1999 VD ₃₁	15.0	0.15	19991118	12.57212	322.42923	79.90464	0.91287	0.2080809	3.1306815	30	1	35 days	0.47	Williams	1999 VD ₃₁
1999 VG ₃₁	14.1	0.15	19991118	113.83762	242.47644	63.73979	10.33215	0.0195687	3.1061291	37	1	40 days	0.65	Williams	1999 VG ₃₁
1999 VH ₃₁	15.4	0.15	19991118	7.09582	348.43979	63.15622	10.81572	0.1822250	3.0997813	23	1	35 days	0.44	Williams	1999 VH ₃₁
1999 VL ₃₁	14.6	0.15	19991118	5.40549	226.20666	188.78571	1.45192	0.1672531	3.0470703	19	1	35 days	0.35	Williams	1999 VL ₃₁
1999 VM ₃₁	16.3	0.15	19991118	0.88045	359.01880	60.32114	6.22232	0.2534443	2.4056899	20	1	35 days	0.60	Williams	1999 VM ₃₁
1999 VN ₃₁	15.5	0.15	19991118	23.77560	168.08198	210.55883	1.79614	0.2920703	2.7488642	25	1	35 days	0.67	Williams	1999 VN ₃₁
1999 VP ₃₁	17.1	0.15	19991118	192.93712	340.11257	241.70801	2.52353	0.1083659	2.1984267	11	1	31 days	0.50	Williams	1999 VP ₃₁
1999 VU ₃₁	15.7	0.15	19991118	264.81196	287.06853	240.53606	2.59069	0.1642675	2.3241979	22	1	39 days	0.41	Williams	1999 VU ₃₁
1999 VV ₃₁	15.3	0.15	19991118	331.87421	45.81385	46.87312	6.41468	0.1539733	2.5218666	15	1	35 days	0.26	Williams	1999 VV ₃₁
1999 VY ₃₁	16.0	0.15	19991118	22.85556	332.65066	47.43538	3.11443	0.2048192	2.4896088	17	1	35 days	0.68	Williams	1999 VY ₃₁
1999 VA ₃₂	16.7	0.15	19991118	14.14855	154.01155	236.13841	9.07536	0.2743928	2.7530181	22	1	39 days	0.63	Williams	1999 VA ₃₂
1999 VC ₃₂	16.0	0.15	19991118	21.98932	120.07614	265.42661	0.82443	0.1649952	2.9169443	20	1	34 days	0.52	Williams	1999 VC ₃₂
1999 VD ₃₂	16.4	0.15	19991118	21.18417	153.66941	233.84468	5.56658	0.1443678	2.3144207	21	1	39 days	0.50	Williams	1999 VD ₃₂
1999 VF ₃₂	14.0	0.15	19991118	103.46801	247.95394	51.96758	12.15433	0.1121943	3.0086980	17	1	35 days	0.58	Williams	1999 VF ₃₂
1999 VG ₃₂	14.2	0.15	19991118	346.11857	200.83416	233.61476	10.13609	0.1330594	3.1495778	29	1	34 days	0.43	Williams	1999 VG ₃₂
1999 VJ ₃₂	15.9	0.15	19991118	343.05775	214.52437	232.08418	2.32666	0.2694150	3.0974676	33	1	39 days	0.46	Williams	1999 VJ ₃₂
1999 VL ₃₂	15.0	0.15	19991118	160.94398	200.07193	54.36931	4.43920	0.0500632	2.7840962	32	1	39 days	0.64	Williams	1999 VL ₃₂
1999 VO ₃₂	15.0	0.15	19991118	342.27867	125.55904	312.52283	1.02090	0.0638768	2.9308332	12	1	32 days	1.06	Williams	1999 VO ₃₂
1999 VP ₃₂	15.6	0.15	19991118	302.48439	239.97008	239.06364	13.14465	0.0388507	2.6503958	23	1	35 days	0.68	Williams	1999 VP ₃₂
1999 VS ₃₂	15.3	0.15	19991118	334.00403	221.56644	232.26522	0.22193	0.1646059	3.2185213	22	1	35 days	0.37	Williams	1999 VS ₃₂
1999 VT ₃₂	15.6	0.15	19991118	308.58705	58.27538	55.31548	4.68463	0.0474474	2.7815235	10	1	35 days	0.41	Williams	1999 VT ₃₂
1999 VV ₃₂	14.4	0.15	19991118	100.04586	246.48953	59.25814	1.92604	0.1166849	3.1821292	26	1	35 days	0.92	Williams	1999 VV ₃₂
1999 VW ₃₂	15.8	0.15	19991118	35.33547	152.17037	221.55013	2.77305	0.1140652	2.3202568	17	1	35 days	0.47	Williams	1999 VW ₃₂
1999 VX ₃₂	16.8	0.15	19991118	43.54201	129.95161	228.32503	4.80604	0.1725223	2.3347274	31	1	34 days	0.65	Williams	1999 VX ₃₂
1999 VZ ₃₂	15.1	0.15	19991118	249.40681	305.36338	240.06766	6.80080	0.1588354	2.7860871	21	1	35 days	0.55	Williams	1999 VZ ₃₂
1999 VA ₃₃	15.5	0.15	19991118	296.58480	269.28038	229.34077	0.80785	0.1465076	2.9925525	22	1	35 days	0.48	Williams	1999 VA ₃₃
1999 VC ₃₃	15.9	0.15	19991118	17.54590	126.67861	265.94219	2.23694	0.2109970	2.6115130	19	1	35 days	0.49	Williams	1999 VC ₃₃
1999 VE ₃₃	14.6	0.15	19991118	14.12950	0.61146	41.32178	3.92060	0.1293026	2.9254124	31	1	40 days	0.52	Williams	1999 VE ₃₃
1999 VF ₃₃	15.1	0.15	19991118	7.26724	0.43225	52.30089	9.43890	0.0575355	3.1165881	22	1	40 days	0.44	Williams	1999 VF ₃₃
1999 VH ₃₃	15.4	0.15	19991118	59.76783	98.76866	240.33419	11.81933	0.1925153	2.6672478	21	1	35 days	0.38	Williams	1999 VH ₃₃
1999 VJ ₃₃	14.7	0.15	19991118	148.97099	229.57795	38.28730	2.51152	0.0814208	2.9021558	23	1	40 days	0.61	Williams	1999 VJ ₃₃
1999 VK ₃₃	15.7	0.15	19991118	326.46859	47.57308	63.74807	1.45408	0.2298721	2.6406391	34	1	35 days	0.48	Williams	1999 VK ₃₃
1999 VL ₃₃	16.1	0.15	19991118	23.57965	154.49830	235.85276	1.46570	0.1089428	2.6578285	20	1	35 days	0.38	Williams	1999 VL ₃₃
1999 VM ₃₃	15.5	0.15	19991118	13.10652	169.65986	232.28288	2.44087	0.1581643	2.8907384	12	1	35 days	0.83	Williams	1999 VM ₃₃
1999 VN ₃₃	15.5	0.15	19991118	12.07391	343.18866	61.29807	4.99318	0.1162976	3.0654879	21	1	40 days	0.49	Williams	1999 VN ₃₃
1999 VP ₃₃	14.8	0.15	19991118	241.07708	308.95292	238.39318	12.39224	0.0646746	2.9878080	23	1	39 days	0.51	Williams	1999 VP ₃₃
1999 VQ ₃₃	15.0	0.15	19991118	17.21433	34.79228	1.56957	0.73996	0.1972528	3.1241296	16	1	35 days	0.48	Williams	1999 VQ ₃₃

1999 DEC. 22

M.P.C. 37317

1999 VS ₃₃	15.9	0.15	19991118	28.88225	266.51041	116.88327	0.89543	0.1439424	2.5945246	26	1	35 days	0.68	Williams	1999 VS ₃₃
1999 VT ₃₃	15.4	0.15	19991118	343.05979	214.21968	230.88350	6.53138	0.1343927	3.1541544	27	1	39 days	0.62	Williams	1999 VT ₃₃
1999 VW ₃₃	16.2	0.15	19991118	10.24031	333.69216	71.73317	4.01356	0.2249619	2.6342177	19	1	35 days	0.47	Williams	1999 VW ₃₃
1999 VX ₃₃	14.4	0.15	19991118	276.01495	103.56822	49.44138	10.02602	0.1273376	2.8036713	16	1	35 days	0.62	Williams	1999 VX ₃₃
1999 VY ₃₃	15.7	0.15	19991118	179.27704	190.20618	44.68592	3.73022	0.1831852	2.1863388	12	1	31 days	0.52	Williams	1999 VY ₃₃
1999 VZ ₃₃	16.5	0.15	19991118	264.19765	278.96453	238.35971	6.16592	0.0589959	2.3626691	18	1	39 days	0.48	Williams	1999 VZ ₃₃
1999 VA ₃₄	15.8	0.15	19991118	317.95768	250.89131	220.58695	2.03124	0.1246200	2.3952712	23	1	39 days	0.54	Williams	1999 VA ₃₄
1999 VB ₃₄	16.7	0.15	19991118	242.05717	321.25159	224.82689	3.75408	0.0969392	2.1834822	35	1	36 days	0.66	Williams	1999 VB ₃₄
1999 VD ₃₄	14.9	0.15	19991118	24.70121	320.34302	61.30019	9.04358	0.2407255	2.7918193	28	1	35 days	0.35	Williams	1999 VD ₃₄
1999 VE ₃₄	15.1	0.15	19991118	70.10202	98.94926	236.43326	4.76699	0.1449019	2.3543752	20	1	35 days	0.45	Williams	1999 VE ₃₄
1999 VF ₃₄	13.6	0.15	19991118	290.35389	93.94894	55.83980	5.91294	0.1486854	2.6945296	19	1	35 days	0.37	Williams	1999 VF ₃₄
1999 VH ₃₄	15.9	0.15	19991118	22.59425	140.55855	245.94984	1.12954	0.2189029	2.3631848	28	1	35 days	0.60	Williams	1999 VH ₃₄
1999 VK ₃₄	15.3	0.15	19991118	357.17575	180.36639	247.78654	14.24897	0.0829911	2.5666944	20	1	35 days	0.57	Williams	1999 VK ₃₄
1999 VN ₃₄	14.5	0.15	19991118	99.43726	59.03121	250.38678	14.06879	0.1643884	2.6265578	17	1	35 days	0.39	Williams	1999 VN ₃₄
1999 VO ₃₄	14.0	0.15	19991118	30.06665	136.91243	247.86867	11.11329	0.1622825	2.6797570	21	1	40 days	0.28	Williams	1999 VO ₃₄
1999 VP ₃₄	12.7	0.15	19991118	30.59071	139.54773	248.97527	11.80856	0.1137938	2.7405087	23	1	40 days	0.50	Williams	1999 VP ₃₄
1999 VR ₃₄	15.6	0.15	19991118	34.25994	121.38379	242.93746	14.69065	0.2921899	2.7117042	15	1	35 days	0.39	Williams	1999 VR ₃₄
1999 VT ₃₄	16.7	0.15	19991118	21.11055	144.14683	248.51458	4.77062	0.1873181	2.2843439	24	1	35 days	0.34	Williams	1999 VT ₃₄
1999 VW ₃₄	14.2	0.15	19991118	18.14566	133.50401	263.92406	2.42143	0.2174597	2.9684769	25	1	39 days	0.38	Williams	1999 VW ₃₄
1999 VX ₃₄	14.3	0.15	19991118	136.72964	32.31349	243.44936	5.48089	0.1876143	2.3044782	20	1	35 days	0.33	Williams	1999 VX ₃₄
1999 VD ₃₅	15.3	0.15	19991118	182.62980	181.59739	61.04243	6.95403	0.1101531	2.4404134	23	1	35 days	0.34	Williams	1999 VD ₃₅
1999 VK ₃₅	16.0	0.15	19991118	36.28378	292.35023	78.20448	3.66994	0.1890244	2.4654438	17	1	35 days	0.36	Williams	1999 VK ₃₅
1999 VP ₃₅	14.5	0.15	19991118	66.74730	114.99609	233.75671	5.91088	0.0835569	2.4569917	21	1	35 days	0.35	Williams	1999 VP ₃₅
1999 VR ₃₅	15.7	0.15	19991118	11.57601	340.53901	63.75400	7.27295	0.2539689	2.7619273	23	1	37 days	0.39	Williams	1999 VR ₃₅
1999 VY ₃₅	16.1	0.15	19991118	0.12348	198.03827	226.46703	3.05070	0.1990132	2.4186138	18	1	35 days	0.40	Williams	1999 VY ₃₅
1999 VB ₃₆	14.3	0.15	19991118	5.82322	149.16512	268.23913	1.37514	0.1738949	2.4368365	18	1	35 days	0.26	Williams	1999 VB ₃₆
1999 VC ₃₆	14.5	0.15	19991118	276.09242	276.09501	253.45507	7.27623	0.1583610	2.6053739	17	1	35 days	0.53	Williams	1999 VC ₃₆
1999 VD ₃₆	14.3	0.15	19991118	336.38989	208.42182	247.54494	13.30558	0.0980951	2.5961459	40	1	35 days	0.45	Williams	1999 VD ₃₆
1999 VJ ₃₆	16.1	0.15	19991118	4.00201	177.31320	242.00113	12.19672	0.2690986	2.6450119	12	1	33 days	0.33	Williams	1999 VJ ₃₆
1999 VL ₃₆	14.2	0.15	19991118	355.39525	195.24898	237.89129	3.06855	0.1040484	2.7813503	18	1	35 days	0.35	Williams	1999 VL ₃₆
1999 VN ₃₆	14.6	0.15	19991118	327.88854	64.42270	59.63990	7.64317	0.3026947	2.5696140	30	1	37 days	0.43	Williams	1999 VN ₃₆
1999 VO ₃₆	13.4	0.15	19991118	322.68064	51.54449	64.86822	13.60657	0.1453769	2.6909592	28	1	37 days	0.29	Williams	1999 VO ₃₆
1999 VQ ₃₆	16.0	0.15	19991118	60.85392	284.14871	61.85895	7.38045	0.1783855	2.3085525	19	1	34 days	0.58	Williams	1999 VQ ₃₆
1999 VR ₃₆	14.3	0.15	19991118	189.94810	167.80660	72.07348	6.98090	0.1680298	2.3420915	24	1	35 days	0.42	Williams	1999 VR ₃₆
1999 VT ₃₆	15.1	0.15	19991118	306.20473	54.23308	70.94228	7.16673	0.0533316	2.3764759	16	1	35 days	0.33	Williams	1999 VT ₃₆
1999 VU ₃₆	14.0	0.15	19991118	58.87887	284.21322	72.58837	10.72811	0.1123757	3.0443751	18	1	35 days	0.41	Williams	1999 VU ₃₆
1999 VV ₃₆	15.3	0.15	19991118	55.54829	262.53879	77.12191	5.58052	0.2890303	2.6218929	18	1	35 days	0.40	Williams	1999 VV ₃₆
1999 VY ₃₆	14.7	0.15	19991118	81.09827	72.53034	245.93184	9.97506	0.2597153	2.7510318	29	1	35 days	0.45	Williams	1999 VY ₃₆
1999 VZ ₃₆	14.9	0.15	19991118	38.34044	316.92149	67.09313	3.83254	0.0798768	2.6780870	15	1	35 days	0.58	Williams	1999 VZ ₃₆
1999 VG ₃₇	15.8	0.15	19991118	10.75353	160.19988	249.39216	6.27110	0.2123696	2.2718558	19	1	35 days	0.31	Williams	1999 VG ₃₇
1999 VH ₃₇	13.6	0.15	19991118	280.15404	273.26733	254.24181	7.54130	0.1364634	3.1003152	18	1	35 days	0.34	Williams	1999 VH ₃₇
1999 VJ ₃₇	15.2	0.15	19991118	76.79022	83.43940	250.44063	4.93196	0.1611180	2.3401093	18	1	35 days	0.36	Williams	1999 VJ ₃₇
1999 VM ₃₇	13.8	0.15	19991118	89.64866	87.09025	241.37211	8.85181	0.1046503	2.4834211	19	1	35 days	0.39	Williams	1999 VM ₃₇
1999 VO ₃₇	14.4	0.15	19991118	6.16813	353.83387	67.74558	15.41904	0.0600786	2.6069284	18	1	40 days	0.56	Williams	1999 VO ₃₇
1999 VP ₃₇	14.0	0.15	19991118	66.50641	110.45723	232.85851	5.09936	0.1877111	3.1569478	17	1	35 days	0.46	Williams	1999 VP ₃₇
1999 VS ₃₇	14.7	0.15	19991118	294.70145	72.53256	70.12671	2.78178	0.0616295	2.4993221	12	1	37 days	1.07	Williams	1999 VS ₃₇
1999 VW ₃₇	15.2	0.15	19991118	349.64352	188.97062	248.99427	6.72538	0.1499412	2.5601623	19	1	35 days	0.41	Williams	1999 VW ₃₇
1999 VC ₃₈	16.8	0.15	19991118	21.38007	132.88129	256.40222	1.17389	0.2085808	2.3636818	26	1	35 days	0.75	Williams	1999 VC ₃₈
1999 VN ₃₈	14.8	0.15	19991118	58.58484	270.23354	66.31519	6.15348	0.2374970	3.1541799	23	1	33 days	0.52	Williams	1999 VN ₃₈
1999 VO ₃₈	15.0	0.15	19991118	17.19696	327.86512	71.01169	5.16673	0.1168619	2.5563469	23	1	28 days	0.42	Williams	1999 VO ₃₈
1999 VP ₃₈	17.0	0.15	19991118	8.17927	340.98613	64.61639	6.97102	0.2669790	2.6095075	35	1	33 days	0.58	Williams	1999 VP ₃₈
1999 VS ₃₈	16.7	0.15	19991118	283.11361	77.01894	67.62227	1.45828	0.0754782	2.1915087	26	1	28 days	0.49	Williams	1999 VS ₃₈
1999 VV ₃₈	16.0	0.15	19991118	88.51291	257.99717	56.73445	7.05687	0.1493502	2.4584574	24	1	33 days	0.49	Williams	1999 VV ₃₈

1999 VX ₃₈	14.3	0.15	19991118	46.75126	309.82210	55.80563	2.41488	0.0919750	2.8807711	20	1	28 days	0.42	Williams	1999 VX ₃₈
1999 VZ ₃₈	15.8	0.15	19991118	29.34699	139.23869	239.61628	2.40304	0.1697427	2.3301976	23	1	28 days	0.26	Williams	1999 VZ ₃₈
1999 VB ₃₉	16.5	0.15	19991118	46.39689	284.19279	54.54770	4.24498	0.3266594	2.5508353	24	1	33 days	0.39	Williams	1999 VB ₃₉
1999 VC ₃₉	14.7	0.15	19991118	167.65505	8.31656	242.60800	6.17236	0.1137054	2.3565103	18	1	28 days	0.42	Williams	1999 VC ₃₉
1999 VD ₃₉	15.5	0.15	19991118	175.60203	2.52121	242.34420	8.22865	0.0737093	2.4176759	28	1	28 days	0.50	Williams	1999 VD ₃₉
1999 VG ₃₉	14.9	0.15	19991118	68.08787	98.69894	243.33634	3.97667	0.1056599	2.8618872	27	1	28 days	0.49	Williams	1999 VG ₃₉
1999 VJ ₃₉	16.5	0.15	19991118	340.74309	24.14625	65.47777	7.58406	0.2022176	2.4382326	38	1	33 days	0.56	Williams	1999 VJ ₃₉
1999 VM ₃₉	16.2	0.15	19991118	43.97406	278.76026	77.11231	2.31347	0.2059706	2.4383201	17	1	28 days	0.51	Williams	1999 VM ₃₉
1999 VO ₃₉	15.4	0.15	19991118	296.77492	81.08340	56.74588	14.03199	0.1202731	2.6911635	16	1	33 days	0.48	Williams	1999 VO ₃₉
1999 VQ ₃₉	16.6	0.15	19991118	26.22402	318.56774	57.35957	6.06865	0.2580228	2.5609363	20	1	28 days	0.49	Williams	1999 VQ ₃₉
1999 VW ₃₉	15.0	0.15	19990810	2.43322	318.70799	32.92538	12.20444	0.2011765	2.6831889	24	2	1993–1999	0.32	M-v 4 Williams	36865 1999 VW ₃₉
1999 VK ₄₀	16.2	0.15	19991118	51.73066	94.76388	247.18623	4.29611	0.1571150	2.3729511	23	1	29 days	0.57	Williams	1999 VK ₄₀
1999 VM ₄₀	14.7	0.15	19990810	347.27745	354.16802	51.54886	15.37256	0.4846457	2.3085110	78	1	55 days	0.47	M-v 5 Marsden	1999 VM ₄₀
1999 VO ₄₀	16.4	0.15	19991118	83.60394	276.40384	27.93696	5.80461	0.1497824	2.2092953	10	1	27 days	0.41	Williams	1999 VO ₄₀
1999 VF ₄₁	15.3	0.15	19991118	334.59519	21.28364	64.00098	11.04070	0.0770412	2.9350430	10	1	37 days	0.21	Williams	1999 VF ₄₁
1999 VS ₄₁	16.9	0.15	19991118	30.64036	309.48773	36.25338	13.60824	0.1881313	2.6371475	12	1	29 days	0.17	Williams	1999 VS ₄₁
1999 VB ₄₃	15.6	0.15	19991118	27.14850	251.71977	123.08426	2.24750	0.2248332	3.1755234	14	1	33 days	0.41	Williams	1999 VB ₄₃
1999 VD ₄₃	15.4	0.15	19991118	345.72631	344.89055	88.28595	3.94528	0.0486262	2.7695491	21	1	33 days	0.48	Williams	1999 VD ₄₃
1999 VF ₄₃	16.3	0.15	19991029	196.29157	146.45446	74.96622	6.13239	0.1831322	2.2267142	9	1	24 days	0.06	Williams	1999 VF ₄₃
1999 VO ₄₃	16.9	0.15	19991118	8.57325	24.82260	358.66783	1.63928	0.1710264	2.1656349	15	1	41 days	0.44	Williams	1999 VO ₄₃
1999 VW ₄₃	17.2	0.15	19991118	9.26407	346.89449	35.52743	2.92473	0.2577723	2.2672989	16	1	36 days	0.44	Williams	1999 VW ₄₃
1999 VX ₄₃	15.1	0.15	19991118	312.15038	63.62163	34.08652	6.35898	0.1657551	2.2593103	19	1	36 days	0.73	Williams	1999 VX ₄₃
1999 VX ₄₄	15.8	0.15	19991118	32.10490	105.40868	232.06248	12.49096	0.2972089	2.6822757	17	1	33 days	0.43	Williams	1999 VX ₄₄
1999 VH ₄₆	16.7	0.15	19991118	27.66434	126.74550	236.91997	10.85998	0.2560752	2.4102600	24	1	39 days	0.35	Williams	1999 VH ₄₆
1999 VL ₄₆	17.0	0.15	19990810	344.62789	164.54183	235.84069	14.01031	0.4289355	2.8868352	57	1	39 days	0.62	M-v 5 Williams	1999 VL ₄₆
1999 VQ ₄₆	18.1	0.15	19991118	287.37563	255.89873	235.70709	20.44697	0.0626682	1.9349443	20	1	34 days	0.43	Williams	1999 VQ ₄₆
1999 VW ₄₆	14.1	0.15	19991118	232.82728	325.02395	218.94675	23.69471	0.1939265	2.3730222	19	1	33 days	0.55	Williams	1999 VW ₄₆
1999 VX ₄₆	16.2	0.15	19991118	65.13303	268.41220	54.59263	10.04178	0.2315978	2.2637517	24	1	38 days	0.30	Williams	1999 VX ₄₆
1999 VY ₄₆	14.5	0.15	19991118	67.22471	276.08871	43.77905	19.44692	0.1453006	2.6068767	26	1	38 days	0.49	Williams	1999 VY ₄₆
1999 VC ₄₇	14.1	0.15	19991118	16.81350	336.45315	46.82060	14.23030	0.1887314	2.6215583	26	1	38 days	0.37	Williams	1999 VC ₄₇
1999 VE ₄₇	15.0	0.15	19991118	18.62221	331.31841	51.06723	14.49486	0.1639811	2.5467445	29	1	33 days	0.29	Williams	1999 VE ₄₇
1999 VT ₄₈	14.3	0.15	19991118	323.79713	92.51567	6.20030	10.13173	0.1498534	2.8918038	18	1	40 days	0.49	Williams	1999 VT ₄₈
1999 VU ₄₈	14.7	0.15	19991118	2.64899	32.63111	17.94843	7.24222	0.1032766	2.3415952	27	1	40 days	0.35	Williams	1999 VU ₄₈
1999 VV ₄₈	15.8	0.15	19991118	43.27595	87.76908	280.47069	4.65275	0.0247549	2.2354458	18	1	40 days	0.67	Williams	1999 VV ₄₈
1999 VC ₄₉	14.8	0.15	19991118	358.14499	138.19150	272.46893	5.73869	0.0826285	2.7604345	19	1	35 days	0.29	Williams	1999 VC ₄₉
1999 VF ₄₉	15.2	0.15	19991118	331.49208	204.18281	237.00211	13.99646	0.0776015	2.6717146	24	1	39 days	0.41	Williams	1999 VF ₄₉
1999 VG ₄₉	16.5	0.15	19991118	6.90018	138.08838	262.23230	3.75716	0.1347967	2.2368875	23	1	39 days	0.48	Williams	1999 VG ₄₉
1999 VR ₄₉	15.1	0.15	19991118	34.96295	100.27191	273.43960	5.22123	0.0480323	2.7213639	18	1	40 days	0.47	Williams	1999 VR ₄₉
1999 VT ₄₉	15.2	0.15	19991118	62.62099	79.90050	250.63600	3.22631	0.1736936	2.3340685	19	1	35 days	0.57	Williams	1999 VT ₄₉
1999 VB ₅₀	14.6	0.15	19991118	348.44941	33.61118	34.13792	7.39685	0.0896007	2.3433170	18	1	40 days	0.31	Williams	1999 VB ₅₀
1999 VG ₅₀	15.3	0.15	19991118	0.83585	166.66312	245.11940	13.63616	0.2037846	3.0813860	27	1	39 days	0.56	Williams	1999 VG ₅₀
1999 VH ₅₀	13.5	0.15	19991118	328.65917	50.59809	38.89683	10.53580	0.0587586	2.7704732	18	1	40 days	0.16	Williams	1999 VH ₅₀
1999 VJ ₅₀	15.8	0.15	19991118	7.81219	16.67468	29.90949	4.54944	0.1260396	2.7927917	23	1	40 days	0.60	Williams	1999 VJ ₅₀
1999 VN ₅₀	15.2	0.15	19991118	276.82369	114.24794	39.83598	6.19309	0.1240869	2.5511510	18	1	40 days	0.30	Williams	1999 VN ₅₀
1999 VP ₅₀	15.1	0.15	19991118	3.56374	50.18598	2.68096	1.76537	0.1346699	2.9330792	21	1	40 days	0.70	Williams	1999 VP ₅₀
1999 VT ₅₀	16.5	0.15	19991118	29.30736	105.62542	254.69143	3.46774	0.3312394	2.5701889	18	1	35 days	0.78	Williams	1999 VT ₅₀
1999 VU ₅₀	14.3	0.15	19991118	237.18123	307.18149	243.27536	10.95647	0.1056746	2.5569794	36	1	35 days	0.47	Williams	1999 VU ₅₀
1999 VW ₅₀	14.8	0.15	19991118	322.21763	54.63272	45.41856	8.59219	0.0526252	2.7366898	18	1	40 days	0.41	Williams	1999 VW ₅₀
1999 VX ₅₀	14.6	0.15	19991118	0.95770	273.04176	145.50285	1.13931	0.2077650	3.1946643	31	1	35 days	0.29	Williams	1999 VX ₅₀
1999 VM ₅₁	16.4	0.15	19991118	345.49085	42.31115	28.18259	9.14824	0.1834154	2.7103350	21	1	40 days	0.56	Williams	1999 VM ₅₁
1999 VQ ₅₁	15.3	0.15	19991118	352.93523	71.72649	350.74714	4.52827	0.1749954	3.0526868	22	1	35 days	0.56	Williams	1999 VQ ₅₁
1999 VR ₅₁	16.7	0.15	19991118	29.51230	0.58112	8.03846	4.96370	0.2042178	2.2997741	21	1	40 days	0.45	Williams	1999 VR ₅₁
1999 VX ₅₁	14.8	0.15	19991118	149.37321	213.11406	43.02920	6.66773	0.1274455	2.5372086	19	1	39 days	0.68	Williams	1999 VX ₅₁

1999 VY ₅₁	16.4	0.15	19991118	317.61178	77.91072	24.44530	3.95076	0.0853476	2.3345942	17	1	40 days	0.39	Williams	1999 VY ₅₁
1999 VA ₅₂	15.9	0.15	19991118	307.48266	189.83693	293.64188	1.14518	0.1753996	2.3222957	15	1	35 days	0.40	Williams	1999 VA ₅₂
1999 VC ₅₂	14.5	0.15	19991118	232.61655	189.50634	357.13411	3.43619	0.0588736	3.2590635	15	1	40 days	0.64	Williams	1999 VC ₅₂
1999 VF ₅₂	16.8	0.15	19991118	351.40045	25.28733	45.43898	14.56869	0.2325676	2.6430201	16	1	40 days	0.55	Williams	1999 VF ₅₂
1999 VG ₅₂	15.6	0.15	19991118	80.13849	60.08958	269.13744	3.31888	0.0776807	2.7839997	19	1	40 days	0.61	Williams	1999 VG ₅₂
1999 VK ₅₂	14.5	0.15	19991118	33.91377	333.03870	48.82876	11.97154	0.1179597	3.0442573	18	1	40 days	0.77	Williams	1999 VK ₅₂
1999 VQ ₅₂	15.0	0.15	19991118	9.99017	339.39746	73.78421	6.99899	0.2255188	2.5734539	16	1	34 days	0.41	Williams	1999 VQ ₅₂
1999 VR ₅₂	16.1	0.15	19991118	336.78513	217.16178	238.61937	19.19115	0.0910327	1.9592587	29	1	42 days	0.47	Williams	1999 VR ₅₂
1999 VT ₅₂	13.2	0.15	19991118	149.18986	198.39025	78.01902	14.58304	0.1359143	2.6491751	22	1	35 days	0.32	Williams	1999 VT ₅₂
1999 VX ₅₂	14.2	0.15	19991118	308.63598	257.74748	246.29967	5.25444	0.1115399	2.2757296	18	1	35 days	0.70	Williams	1999 VX ₅₂
1999 VY ₅₂	13.2	0.15	19991118	359.52582	185.53610	253.75840	13.47424	0.3753706	2.7755293	20	1	41 days	0.22	Williams	1999 VY ₅₂
1999 VM ₅₅	15.8	0.15	19991118	316.83390	237.04685	227.52843	4.37572	0.1825465	2.3827991	21	1	38 days	0.33	Williams	1999 VM ₅₅
1999 VB ₅₆	15.2	0.15	19991118	20.73062	159.15853	216.76895	9.04986	0.1394734	2.5745128	12	1	33 days	0.33	Williams	1999 VB ₅₆
1999 VE ₅₆	13.9	0.15	19991118	262.12604	110.76923	45.43462	9.16330	0.1584238	2.8058522	22	1	33 days	0.62	Williams	1999 VE ₅₆
1999 VF ₅₆	15.7	0.15	19991118	53.58934	266.67963	61.76461	2.12190	0.2044641	2.3782623	15	1	30 days	0.46	Williams	1999 VF ₅₆
1999 VN ₅₆	15.2	0.15	19991118	8.98783	345.89978	47.32843	7.19449	0.0985210	2.3782855	31	1	33 days	0.48	Williams	1999 VN ₅₆
1999 VU ₅₇	16.2	0.15	19991118	333.72332	222.00322	224.50639	4.09511	0.0964789	2.2004556	22	1	38 days	0.48	Williams	1999 VU ₅₇
1999 VW ₅₇	15.3	0.15	19991118	14.10155	171.75911	221.84826	4.67751	0.2012658	3.1350267	28	1	38 days	0.91	Williams	1999 VW ₅₇
1999 VY ₅₇	15.3	0.15	19991118	223.29743	142.54917	57.07646	3.91021	0.1154502	2.3532719	30	1	38 days	0.56	Williams	1999 VY ₅₇
1999 VZ ₅₇	15.5	0.15	19991118	304.98566	66.18628	54.28351	6.22630	0.1028593	2.2806310	23	1	38 days	0.43	Williams	1999 VZ ₅₇
1999 VA ₅₈	16.2	0.15	19991118	1.03195	195.51954	218.45199	3.96427	0.1294334	2.2990713	27	1	33 days	0.45	Williams	1999 VA ₅₈
1999 VD ₅₈	14.9	0.15	19991118	30.50040	325.66994	49.75596	5.19068	0.1210370	2.8134387	25	1	38 days	0.33	Williams	1999 VD ₅₈
1999 VF ₅₈	15.9	0.15	19991118	31.93386	313.75793	55.42216	3.47903	0.1767924	2.1791243	19	1	34 days	0.33	Williams	1999 VF ₅₈
1999 VG ₅₈	15.9	0.15	19991118	13.14435	346.33715	51.56247	12.50035	0.1104404	2.6800022	28	1	39 days	0.72	Williams	1999 VG ₅₈
1999 VH ₅₈	15.9	0.15	19991118	333.97032	222.38806	227.62911	11.81939	0.1579053	2.3334006	18	1	38 days	0.23	Williams	1999 VH ₅₈
1999 VJ ₅₈	14.1	0.15	19991118	158.95904	195.12242	55.40943	4.55559	0.1301138	2.2837793	20	1	34 days	0.32	Williams	1999 VJ ₅₈
1999 VL ₅₈	14.5	0.15	19991118	31.17022	315.33326	55.09645	1.80098	0.1814021	3.1494934	24	1	38 days	0.38	Williams	1999 VL ₅₈
1999 VM ₅₈	14.6	0.15	19991118	62.40076	282.79222	59.90809	3.11714	0.0897429	2.9248702	23	1	38 days	0.31	Williams	1999 VM ₅₈
1999 VO ₅₈	16.0	0.15	19991118	22.74094	329.13549	46.88805	5.68187	0.2410125	2.6021020	18	1	34 days	0.49	Williams	1999 VO ₅₈
1999 VQ ₅₈	13.6	0.15	19991118	346.94534	16.01273	52.69984	14.30664	0.0799524	3.1994066	27	1	38 days	0.32	Williams	1999 VQ ₅₈
1999 VR ₅₈	15.9	0.15	19991118	46.66229	297.02546	51.30921	5.27253	0.1888736	2.3161629	33	1	34 days	0.35	Williams	1999 VR ₅₈
1999 VT ₅₈	15.8	0.15	19991118	22.35498	311.10026	55.99623	4.10669	0.3512751	2.9942186	18	1	38 days	0.39	Williams	1999 VT ₅₈
1999 VW ₅₈	15.7	0.15	19991118	323.56315	51.87744	51.19245	1.41453	0.1731449	2.3486426	24	1	38 days	0.38	Williams	1999 VW ₅₈
1999 VZ ₅₈	16.2	0.15	19991118	340.22718	204.36414	228.76429	10.14995	0.0246307	2.3890804	17	1	38 days	0.44	Williams	1999 VZ ₅₈
1999 VB ₅₉	16.6	0.15	19991118	339.89171	211.17463	226.68253	2.85661	0.1059225	2.2169010	33	1	33 days	0.45	Williams	1999 VB ₅₉
1999 VC ₅₉	16.5	0.15	19991118	19.10511	337.51894	44.12197	2.75308	0.2210442	2.4249209	24	1	38 days	0.36	Williams	1999 VC ₅₉
1999 VG ₅₉	15.8	0.15	19991118	284.89324	271.20407	228.12117	8.84208	0.1097759	2.4563520	21	1	38 days	0.68	Williams	1999 VG ₅₉
1999 VH ₅₉	15.5	0.15	19991118	71.46068	80.12171	229.87239	15.50201	0.2474892	3.1811444	24	1	38 days	0.68	Williams	1999 VH ₅₉
1999 VN ₅₉	14.3	0.15	19991118	19.07768	343.72028	34.93588	3.23588	0.2285607	4.0003270	22	1	38 days	0.55	Williams	1999 VN ₅₉
1999 VV ₅₉	15.7	0.15	19991118	356.64624	185.12955	225.70160	3.46205	0.1463077	2.2464121	20	1	30 days	0.71	Williams	1999 VV ₅₉
1999 VO ₆₀	15.1	0.15	19991118	57.32463	120.00485	213.19343	6.63028	0.1411582	2.3998750	21	1	33 days	0.55	Williams	1999 VO ₆₀
1999 VQ ₆₀	13.9	0.15	19991118	97.82256	246.61686	48.93781	9.90400	0.0869794	2.7395849	27	1	38 days	0.47	Williams	1999 VQ ₆₀
1999 VS ₆₀	15.0	0.15	19991118	249.71130	99.72144	61.83893	2.99624	0.0669604	2.3061362	26	1	38 days	0.58	Williams	1999 VS ₆₀
1999 VU ₆₀	15.5	0.15	19991118	10.69725	341.14272	50.81740	7.65606	0.1161335	2.2920396	25	1	33 days	0.58	Williams	1999 VU ₆₀
1999 VW ₆₀	15.6	0.15	19991118	280.10518	76.16498	52.58152	7.51140	0.0355732	2.2602052	26	1	38 days	0.53	Williams	1999 VW ₆₀
1999 VZ ₆₀	14.4	0.15	19991118	6.53085	325.69903	70.46982	3.17975	0.1440208	3.0917520	26	1	33 days	0.53	Williams	1999 VZ ₆₀
1999 VF ₆₁	15.3	0.15	19991118	19.90306	319.25033	57.20448	3.20409	0.2100844	2.4031566	26	1	33 days	0.63	Williams	1999 VF ₆₁
1999 VK ₆₁	14.2	0.15	19991118	23.79701	326.98471	49.07473	10.50985	0.1044905	2.9950142	27	1	38 days	0.44	Williams	1999 VK ₆₁
1999 VQ ₆₂	15.8	0.15	19991118	341.87482	16.87380	53.46866	3.22483	0.1273575	2.8983651	17	1	33 days	0.57	Williams	1999 VQ ₆₂
1999 VV ₆₂	14.8	0.15	19991118	2.63774	351.26912	53.05046	10.91738	0.1798555	2.6527484	18	1	33 days	0.44	Williams	1999 VV ₆₂
1999 VW ₆₂	15.8	0.15	19991118	4.48481	351.76910	49.31009	8.24120	0.2333256	2.5902758	18	1	38 days	0.42	Williams	1999 VW ₆₂
1999 VY ₆₂	14.8	0.15	19991118	45.47863	296.92841	47.56139	13.73399	0.1845705	2.5892079	17	1	33 days	0.49	Williams	1999 VY ₆₂
1999 VC ₆₃	18.0	0.15	19991118	8.05506	345.60373	51.64736	4.86608	0.1931689	2.3419574	22	1	33 days	0.37	Williams	1999 VC ₆₃

1999 VF ₆₃	14.0	0.15	19991118	339.97046	30.87875	43.89097	9.72547	0.1438586	2.7664778	22	1	38 days	0.34	Williams	1999 VF ₆₃
1999 VG ₆₃	15.8	0.15	19991118	336.10306	14.06833	61.56706	1.22707	0.0833395	3.0659300	23	1	38 days	0.45	Williams	1999 VG ₆₃
1999 VL ₆₃	14.9	0.15	19991118	346.75570	202.03553	227.89503	10.03587	0.2273618	2.6419005	20	1	33 days	0.38	Williams	1999 VL ₆₃
1999 VO ₆₃	13.7	0.15	19991118	312.81183	219.59236	242.01117	0.88497	0.0724714	2.9241291	22	1	38 days	0.43	Williams	1999 VO ₆₃
1999 VR ₆₃	14.4	0.15	19991118	83.06610	267.14170	43.96539	10.68501	0.1258876	3.0701426	30	1	38 days	0.48	Williams	1999 VR ₆₃
1999 VU ₆₃	17.0	0.15	19991118	22.66298	152.87975	231.21199	0.52015	0.0573813	2.2941751	20	1	33 days	0.53	Williams	1999 VU ₆₃
1999 VE ₆₄	15.9	0.15	19991118	343.01127	9.36980	56.96363	5.84903	0.0346561	2.5258314	16	1	31 days	0.63	Williams	1999 VE ₆₄
1999 VF ₆₄	16.1	0.15	19991118	305.33256	69.81135	48.59600	18.16720	0.1547405	3.1369762	20	1	30 days	0.50	Williams	1999 VF ₆₄
1999 VH ₆₄	15.9	0.15	19991118	297.95326	58.23247	67.63310	3.00619	0.1346956	2.4390447	21	1	33 days	0.29	Williams	1999 VH ₆₄
1999 VJ ₆₄	16.2	0.15	19991118	42.88792	290.70487	57.88380	6.03371	0.1897870	3.0390425	11	1	32 days	0.26	Williams	1999 VJ ₆₄
1999 VL ₆₄	15.6	0.15	19991118	334.06137	324.84585	112.31789	1.50009	0.0384512	2.7931148	16	1	33 days	0.46	Williams	1999 VL ₆₄
1999 VM ₆₄	17.4	0.15	19991118	38.21402	284.93866	60.45170	5.90127	0.2807433	2.6158290	15	1	32 days	0.30	Williams	1999 VM ₆₄
1999 VN ₆₄	16.4	0.15	19991118	356.10269	354.51581	61.52731	4.70884	0.1627668	2.4661174	28	1	38 days	0.38	Williams	1999 VN ₆₄
1999 VO ₆₄	15.3	0.15	19991118	18.10991	319.89893	63.96024	1.81649	0.1672251	3.1843636	29	1	38 days	0.60	Williams	1999 VO ₆₄
1999 VR ₆₄	15.4	0.15	19991118	227.01404	118.84455	66.82651	2.83826	0.0435751	2.5232965	28	1	38 days	0.50	Williams	1999 VR ₆₄
1999 VS ₆₄	15.1	0.15	19991118	299.51447	61.32108	58.49087	5.38207	0.0972807	3.2315679	25	1	38 days	0.45	Williams	1999 VS ₆₄
1999 VT ₆₄	14.8	0.15	19991118	303.52765	73.44456	47.90603	18.88930	0.1479657	3.1700081	18	1	34 days	0.32	Williams	1999 VT ₆₄
1999 VU ₆₄	14.9	0.15	19991118	326.14713	39.28280	55.70985	2.72703	0.1530333	3.1087948	18	1	38 days	0.37	Williams	1999 VU ₆₄
1999 VW ₆₄	14.7	0.15	19991118	137.08455	37.39723	222.31653	7.20416	0.1888972	2.7517978	15	1	31 days	0.30	Williams	1999 VW ₆₄
1999 VB ₆₅	16.1	0.15	19991118	12.31719	167.54194	225.21300	14.39675	0.1697737	2.9712149	18	1	38 days	0.54	Williams	1999 VB ₆₅
1999 VD ₆₅	16.6	0.15	19991118	325.11178	236.84442	222.14367	3.05757	0.1738466	2.7349607	27	1	38 days	0.59	Williams	1999 VD ₆₅
1999 VF ₆₅	15.8	0.15	19991118	351.66863	1.40496	63.40755	0.87365	0.2291384	2.5292187	18	1	33 days	0.46	Williams	1999 VF ₆₅
1999 VJ ₆₅	16.5	0.15	19991118	259.62740	302.55883	219.47667	2.82234	0.1017235	2.3381436	20	1	38 days	0.48	Williams	1999 VJ ₆₅
1999 VK ₆₅	14.5	0.15	19991118	97.73798	77.13056	225.54092	10.50354	0.0909371	2.9788138	29	1	38 days	0.48	Williams	1999 VK ₆₅
1999 VM ₆₅	13.3	0.15	19991118	102.91401	237.68612	49.61510	17.15547	0.1963610	3.1417591	19	1	34 days	0.36	Williams	1999 VM ₆₅
1999 VR ₆₅	14.7	0.15	19991118	111.39352	198.59933	99.75282	0.94917	0.0061752	3.0079200	22	1	33 days	0.40	Williams	1999 VR ₆₅
1999 VS ₆₅	17.4	0.15	19991118	320.46326	245.95712	217.30352	3.97342	0.1514114	2.6082444	14	1	31 days	0.30	Williams	1999 VS ₆₅
1999 VT ₆₅	14.6	0.15	19991118	20.39050	166.85280	218.21635	7.21482	0.1111765	3.2215749	23	1	33 days	0.56	Williams	1999 VT ₆₅
1999 VY ₆₅	16.1	0.15	19991118	351.46645	207.36009	212.78804	5.26760	0.0705524	2.4018810	18	1	38 days	0.81	Williams	1999 VY ₆₅
1999 VZ ₆₅	15.1	0.15	19991118	295.97777	269.24642	212.55165	5.17068	0.0701357	2.2426817	36	1	38 days	0.49	Williams	1999 VZ ₆₅
1999 VA ₆₆	15.9	0.15	19991118	45.49382	287.62574	67.42501	4.29268	0.1048433	2.7108255	23	1	38 days	0.55	Williams	1999 VA ₆₆
1999 VF ₆₆	15.5	0.15	19991118	19.28462	332.72895	53.84022	16.24434	0.1254782	2.6464660	24	1	38 days	0.43	Williams	1999 VF ₆₆
1999 VH ₆₆	14.7	0.15	19991118	51.95570	277.66480	70.55577	3.00627	0.1116783	2.9192758	27	1	33 days	0.48	Williams	1999 VH ₆₆
1999 VJ ₆₆	15.3	0.15	19991118	355.68337	4.74415	53.41276	10.45357	0.1859924	2.7292299	24	1	38 days	0.36	Williams	1999 VJ ₆₆
1999 VL ₆₆	14.0	0.15	19991118	224.06532	143.85741	56.61547	12.96864	0.2015009	2.6942739	21	1	38 days	0.51	Williams	1999 VL ₆₆
1999 VO ₆₆	14.8	0.15	19991118	32.82317	296.73918	64.13911	5.13714	0.2295687	2.7502233	40	1	38 days	0.63	Williams	1999 VO ₆₆
1999 VP ₆₆	15.1	0.15	19991118	29.82633	151.12017	223.17367	6.06133	0.1190399	2.3337240	17	1	33 days	0.30	Williams	1999 VP ₆₆
1999 VR ₆₆	16.3	0.15	19991118	16.77668	166.50834	224.08187	5.62449	0.1204546	2.3881885	12	1	33 days	0.67	Williams	1999 VR ₆₆
1999 VS ₆₆	16.0	0.15	19991118	26.57855	318.74239	58.54572	5.57007	0.1431308	2.2380574	17	1	33 days	0.48	Williams	1999 VS ₆₆
1999 VB ₆₇	15.7	0.15	19991118	24.95370	314.27511	56.22703	13.78936	0.2622819	2.6424250	19	1	34 days	0.37	Williams	1999 VB ₆₇
1999 VC ₆₇	16.0	0.15	19991118	313.98649	35.88031	68.39643	4.36287	0.0593247	2.5953442	17	1	38 days	0.68	Williams	1999 VC ₆₇
1999 VE ₆₇	14.1	0.15	19991118	33.07480	136.36772	225.76761	8.80462	0.2194966	3.1991117	23	1	38 days	0.56	Williams	1999 VE ₆₇
1999 VG ₆₇	14.7	0.15	19991118	44.80788	292.11175	65.23685	2.98946	0.1164739	2.9459531	28	1	38 days	0.65	Williams	1999 VG ₆₇
1999 VL ₆₇	15.4	0.15	19991118	349.54128	353.58155	71.46624	3.12793	0.12761016	2.8677675	20	1	38 days	0.53	Williams	1999 VL ₆₇
1999 VP ₆₇	14.9	0.15	19991118	271.99465	102.84280	55.96414	10.62563	0.1533026	2.5235915	16	1	34 days	0.60	Williams	1999 VP ₆₇
1999 VQ ₆₇	14.1	0.15	19991118	190.67175	166.85914	57.05339	11.71614	0.0445238	3.2079228	27	1	34 days	0.46	Williams	1999 VQ ₆₇
1999 VR ₆₇	14.5	0.15	19991118	116.16589	235.82168	57.51250	12.57433	0.0420061	2.9797771	17	1	31 days	0.37	Williams	1999 VR ₆₇
1999 VS ₆₇	15.5	0.15	19991118	153.78356	175.45548	75.73561	2.71955	0.1253445	2.3331025	13	1	29 days	0.39	Williams	1999 VS ₆₇
1999 VU ₆₇	13.5	0.15	19991118	225.45035	140.29512	57.77396	12.59054	0.2170135	2.6594174	24	1	38 days	0.40	Williams	1999 VU ₆₇
1999 VW ₆₇	14.8	0.15	19991118	277.56813	276.65679	224.98090	7.82218	0.0376214	3.0610837	21	1	33 days	0.51	Williams	1999 VW ₆₇
1999 VY ₆₇	15.0	0.15	19991118	337.87909	23.38982	58.80191	11.29330	0.0970065	3.0816745	22	1	38 days	0.46	Williams	1999 VY ₆₇
1999 VZ ₆₇	14.6	0.15	19991118	26.36153	196.18571	186.62164	2.03461	0.1138981	2.7703125	17	1	33 days	0.71	Williams	1999 VZ ₆₇
1999 VC ₆₈	15.7	0.15	19991118	22.10283	325.70032	57.83954	9.86735	0.1933331	2.6894067	32	1	34 days	0.53	Williams	1999 VC ₆₈

1999 VG ₆₈	16.7	0.15	19991118	354.51567	297.85089	127.76526	0.66983	0.2073876	2.4322730	41	1	34 days	0.55	Williams	1999 VG ₆₈
1999 VH ₆₈	16.2	0.15	19991118	276.71621	86.34183	71.29888	3.03208	0.1465189	2.3754410	25	1	38 days	0.64	Williams	1999 VH ₆₈
1999 VL ₆₈	16.2	0.15	19991118	48.85375	144.12770	205.10822	2.13172	0.1995859	2.4035374	30	1	35 days	0.41	Williams	1999 VL ₆₈
1999 VM ₆₈	15.1	0.15	19991118	51.12111	284.44976	59.36162	13.06710	0.2246148	2.6490079	23	1	39 days	0.39	Williams	1999 VM ₆₈
1999 VN ₆₈	15.1	0.15	19991118	10.65592	344.70774	61.75211	17.14327	0.0937784	3.1360400	25	1	39 days	0.57	Williams	1999 VN ₆₈
1999 VO ₆₈	14.5	0.15	19991118	60.86719	278.17774	67.18847	10.50625	0.1454103	2.6620389	41	1	39 days	0.46	Williams	1999 VO ₆₈
1999 VP ₆₈	17.2	0.15	19991118	335.65916	218.02424	225.96378	3.92295	0.0884702	2.1992779	14	1	32 days	0.42	Williams	1999 VP ₆₈
1999 VS ₆₈	14.6	0.15	19991118	6.58935	352.70018	55.33514	15.73462	0.0832035	3.1731136	18	1	34 days	0.58	Williams	1999 VS ₆₈
1999 VU ₆₈	14.0	0.15	19991118	32.53718	202.25135	159.59498	0.69643	0.2504556	3.9368673	24	1	38 days	0.60	Williams	1999 VU ₆₈
1999 VZ ₆₈	17.4	0.15	19991118	83.89894	80.04575	231.04243	4.62162	0.1522256	2.2794362	15	1	30 days	0.41	Williams	1999 VZ ₆₈
1999 VQ ₆₉	14.7	0.15	19991118	146.49149	208.42737	41.32322	8.78906	0.2009895	2.2589298	12	1	33 days	1.09	Williams	1999 VQ ₆₉
1999 VR ₆₉	15.3	0.15	19991118	15.65669	341.23625	44.30578	9.07465	0.1729794	2.6264753	21	1	38 days	0.58	Williams	1999 VR ₆₉
1999 VB ₇₀	16.4	0.15	19991118	328.41092	30.89219	49.73219	13.02765	0.0176946	2.6161912	15	1	30 days	0.46	Williams	1999 VB ₇₀
1999 VC ₇₀	15.9	0.15	19991029	15.93733	192.90046	192.23197	1.69367	0.0789177	2.8446298	11	1	24 days	0.44	Williams	1999 VC ₇₀
1999 VD ₇₀	15.7	0.15	19991029	199.64148	70.22496	137.59379	1.30233	0.0675471	2.4442227	12	1	24 days	0.38	Williams	1999 VD ₇₀
1999 VG ₇₀	17.4	0.15	19991118	61.46451	101.18368	219.40855	2.67886	0.2484601	2.5909437	14	1	38 days	0.39	Williams	1999 VG ₇₀
1999 VK ₇₀	16.5	0.15	19991118	13.61544	347.58110	46.91776	6.99862	0.1085589	2.3679468	11	1	30 days	0.39	Williams	1999 VK ₇₀
1999 VM ₇₀	17.7	0.15	19991118	355.91495	345.12520	70.95131	4.12395	0.0890090	2.4091518	16	1	38 days	0.37	Williams	1999 VM ₇₀
1999 VP ₇₀	15.5	0.15	19991118	79.35113	107.94965	217.78400	1.25744	0.0590403	2.9047022	20	1	33 days	0.73	Williams	1999 VP ₇₀
1999 VU ₇₀	16.8	0.15	19991118	355.47897	6.13076	53.73533	5.22035	0.1990537	2.3283733	16	1	34 days	0.41	Williams	1999 VU ₇₀
1999 VV ₇₀	16.0	0.15	19991118	317.45636	295.86931	170.11741	1.27985	0.1219734	3.1064456	14	1	38 days	0.61	Williams	1999 VV ₇₀
1999 VA ₇₁	14.5	0.15	19991118	349.82413	353.91865	72.29081	3.72179	0.0149506	2.6353986	27	1	38 days	0.36	Williams	1999 VA ₇₁
1999 VH ₇₁	16.2	0.15	19991118	358.16647	213.42134	207.57826	2.07490	0.1616804	2.4595964	32	1	38 days	0.56	Williams	1999 VH ₇₁
1999 VN ₇₁	16.0	0.15	19991118	57.00962	101.72462	229.50448	7.48021	0.1899493	3.1196358	14	1	32 days	0.25	Williams	1999 VN ₇₁
1999 VQ ₇₁	16.0	0.15	19991118	22.84514	327.92766	57.51806	10.63332	0.0357486	3.0256310	14	1	33 days	0.44	Williams	1999 VQ ₇₁
1999 VS ₇₁	15.5	0.15	19991118	109.78809	90.80892	211.91017	2.60490	0.0143646	3.0455934	14	1	33 days	0.51	Williams	1999 VS ₇₁
1999 VU ₇₁	15.6	0.15	19991118	0.80175	349.18844	66.19378	2.77129	0.0810703	2.9248542	17	1	34 days	0.35	Williams	1999 VU ₇₁
1999 VV ₇₁	17.4	0.15	19991118	3.30810	354.52335	57.23097	9.35185	0.2551374	2.6629684	14	1	23 days	0.68	Williams	1999 VV ₇₁
1999 VW ₇₁	16.5	0.15	19991118	34.10670	124.21379	255.12943	10.69651	0.2137817	2.6326774	17	1	22 days	0.54	Williams	1999 VW ₇₁
1999 VA ₇₂	14.7	0.15	19991029	283.55289	88.05104	105.04573	3.19909	0.1461442	2.6209177	12	1	9 days	0.34	Williams	1999 VA ₇₂
1999 VB ₇₂	14.5	0.15	19991118	33.53528	302.69193	112.27166	7.06542	0.1462788	2.4627556	23	1	27 days	0.54	Williams	1999 VB ₇₂
1999 VD ₇₂	14.3	0.15	19991118	49.14261	287.89783	107.61574	13.17891	0.1807582	2.5521271	28	1	27 days	0.38	Williams	1999 VD ₇₂
1999 VE ₇₂	14.3	0.15	19991118	73.17290	276.36247	110.37819	15.54116	0.0500461	2.5815689	18	1	27 days	0.40	Williams	1999 VE ₇₂
1999 VF ₇₂	14.8	0.15	19991029	305.73730	238.54555	264.44877	1.91989	0.2527801	2.5695075	9	1	8 days	0.40	Williams	1999 VF ₇₂
1999 VG ₇₂	16.2	0.15	19991118	17.86322	145.85306	251.69365	2.78583	0.2122983	2.3509014	14	1	26 days	0.21	Williams	1999 VG ₇₂
1999 VH ₇₂	14.4	0.15	19991118	277.12543	265.14887	252.58867	9.70477	0.0456881	2.9717976	14	1	26 days	0.40	Williams	1999 VH ₇₂
1999 VJ ₇₂	14.2	0.15	19991118	36.36370	129.65494	268.08368	7.51955	0.2869133	2.7723927	27	1	26 days	0.67	Williams	1999 VJ ₇₂
1999 VK ₇₂	14.7	0.15	19991118	326.28671	31.89280	114.60417	4.38570	0.1433127	2.4397181	19	1	25 days	0.67	Williams	1999 VK ₇₂
1999 VO ₇₂	12.6	0.15	19991118	138.30435	22.52966	327.90325	9.66863	0.0909163	3.0795441	19	1	24 days	0.44	Williams	1999 VO ₇₂
1999 VP ₇₂	15.4	0.15	19991118	36.92099	355.83324	10.68825	2.85053	0.1994145	2.7691631	13	1	33 days	0.36	Williams	1999 VP ₇₂
1999 VR ₇₂	14.9	0.15	19991118	13.17263	329.80870	59.97237	9.75303	0.1896091	2.5843788	30	1	26 days	0.45	Williams	1999 VR ₇₂
1999 VS ₇₂	14.9	0.15	19991118	250.01887	273.01430	259.43754	2.59283	0.1380751	2.6859143	22	1	37 days	0.62	Williams	1999 VS ₇₂
1999 VT ₇₂	16.2	0.15	19991118	352.26508	171.35448	254.63135	5.45815	0.1591754	2.5702357	15	1	32 days	0.76	Williams	1999 VT ₇₂
1999 WC	14.3	0.15	19991118	102.01470	303.61558	349.05735	13.02728	0.1618014	2.5564441	26	1	26 days	0.50	Williams	1999 WC
1999 WE	16.3	0.15	19991118	348.07708	201.62175	234.62135	19.25451	0.0898916	1.9510864	23	1	27 days	0.47	Williams	1999 WE
1999 WG	12.8	0.15	19991118	45.64224	96.64054	274.80821	10.04330	0.1858761	2.6024862	8	1	23 days	0.74	Nakano	1999 WG
1999 WK	13.1	0.15	19991118	328.23843	65.98079	52.84377	9.66508	0.1550125	2.6243791	15	1	26 days	0.56	Williams	1999 WK
1999 WN	17.2	0.15	19991208	37.75685	265.47910	90.57811	4.13135	0.2645816	2.2578339	15	1	26 days	0.21	Nakano	1999 WN
1999 WO	15.9	0.15	19991118	82.90026	253.80646	67.52297	3.28831	0.2341439	2.3762252	19	1	21 days	0.33	Williams	1999 WO
1999 WQ	14.8	0.15	19991118	40.66503	102.15942	272.05515	10.55580	0.1875485	2.5864432	18	1	24 days	0.19	Williams	1999 WQ
1999 WT	16.3	0.15	19991118	355.57842	35.31312	32.59140	4.50716	0.2020700	2.3862755	20	1	22 days	0.52	Williams	1999 WT
1999 WV	16.3	0.15	19991118	5.68767	150.74622	268.14005	5.07894	0.1784294	2.2284703	20	1	22 days	0.33	Williams	1999 WV
1999 WX	15.3	0.15	19991118	19.82999	338.47086	83.51132	7.95118	0.0766414	2.3100053	23	1	21 days	0.36	Williams	1999 WX

1999 WC ₁	14.5	0.15	19991118	25.95083	218.08158	163.09724	16.41787	0.2893113	2.6161331	14	1	17 days	0.24	Williams	1999 WC ₁
1999 WE ₁	14.4	0.15	19991118	358.84004	190.89087	269.11373	3.40621	0.2814790	2.7322616	16	1	20 days	0.31	Williams	1999 WE ₁
1999 WF ₁	14.1	0.15	19991118	267.08030	57.72070	64.49613	6.13038	0.1109472	2.4475135	27	1	13 days	0.34	Marsden	1999 WF ₁
1999 WG ₁	16.3	0.15	19991118	0.78284	31.14043	13.47072	2.29325	0.2128589	2.5323162	31	1	7 days	0.37	E Williams	1999 WG ₁
1999 WH ₁	17.1	0.15	19991118	26.64506	335.76446	49.03553	4.10669	0.2442872	2.3324822	38	1	9 days	0.66	Williams	1999 WH ₁
1999 WJ ₁	15.8	0.15	19991118	72.62805	285.87572	61.65186	9.26654	0.1011616	2.4211417	21	1	7 days	0.58	Marsden	1999 WJ ₁
1999 WK ₁	14.7	0.15	19991118	61.91449	307.83690	55.08897	6.24799	0.0740802	2.7387501	16	1	10 days	0.45	Williams	1999 WK ₁
1999 WL ₁	16.3	0.15	19991118	335.15444	312.77139	153.04999	0.97560	0.1106520	2.2271014	23	1	10 days	0.29	Williams	1999 WL ₁
1999 WM ₁	14.8	0.15	19991118	4.99452	333.85126	79.78556	4.94420	0.1254810	2.3020987	52	1	11 days	0.52	Williams	1999 WM ₁
1999 WN ₁	14.4	0.15	19991118	195.84747	155.47701	71.36729	10.42730	0.0407153	2.9836479	23	1	9 days	0.46	Williams	1999 WN ₁
1999 WO ₁	15.0	0.15	19991118	222.88257	329.27994	254.01406	9.82964	0.2619298	2.3515757	16	1	9 days	0.38	Williams	1999 WO ₁
1999 WP ₁	15.3	0.15	19991118	25.78235	295.83958	96.65737	3.01333	0.2372892	2.4087022	21	1	9 days	0.36	Williams	1999 WP ₁
1999 WS ₁	13.9	0.15	19991118	33.45198	84.61199	229.72553	17.12796	0.5380111	3.1185059	47	1	18 days	0.43	Williams	1999 WS ₁
1999 WT ₁	14.2	0.15	19991118	199.60352	49.44147	161.10264	2.17057	0.0957656	2.2532027	22	1	12 days	0.81	Williams	1999 WT ₁
1999 WU ₁	16.1	0.15	19991118	21.29472	315.97322	61.64773	9.44873	0.1797386	2.2739918	30	1	18 days	0.70	Williams	1999 WU ₁
1999 WV ₁	15.1	0.15	19991118	326.47514	321.37927	134.51561	2.66563	0.1601382	2.3631582	19	1	12 days	0.52	Williams	1999 WV ₁
1999 WY ₁	15.6	0.15	19991118	32.79357	139.80437	236.56950	4.41844	0.1660742	2.2612944	16	1	12 days	0.31	Williams	1999 WY ₁
1999 WZ ₁	15.2	0.15	19991118	13.59824	148.89566	246.78791	7.52365	0.2873699	2.6904675	24	1	12 days	0.61	Williams	1999 WZ ₁
1999 WA ₂	15.8	0.15	19991118	48.50327	75.21458	293.86815	34.62002	0.4341389	1.9661174	32	1	28 days	0.42	Marsden	1999 WA ₂
1999 WB ₂	11.8	0.15	19991118	45.82518	7.96165	50.20652	13.01122	0.0743159	5.0611143	21	1	13 days	0.54	Williams	1999 WB ₂
1999 WC ₂	16.8	0.15	19991118	332.64343	287.45498	270.16705	29.29413	0.6326017	2.1711722	17	1	10 days	0.63	Williams	1999 WC ₂
1999 WD ₂	15.9	0.15	19991118	222.81692	126.31044	69.84152	4.35733	0.0182569	2.5397691	20	1	18 days	0.55	Williams	1999 WD ₂
1999 WE ₂	14.9	0.15	19991118	257.18258	276.03611	234.57535	10.33395	0.0412587	2.7585688	16	1	18 days	0.57	Williams	1999 WE ₂
1999 WG ₂	16.8	0.15	19991118	6.53145	213.35726	169.64505	1.67862	0.2038375	2.2727142	14	1	4 days	0.92	E Williams	1999 WG ₂
1999 WH ₂	16.7	0.15	19991118	21.24704	316.32749	42.15427	9.37491	0.1963029	2.5249722	22	1	13 days	1.26	Williams	1999 WH ₂
1999 WJ ₂	14.8	0.15	19991118	189.64610	342.12870	234.33004	5.26151	0.0722589	2.2362670	29	1	15 days	0.54	Williams	1999 WJ ₂
1999 WK ₂	14.7	0.15	19991118	190.37481	165.48661	52.04388	7.91197	0.1059175	2.1904102	22	1	15 days	0.43	Williams	1999 WK ₂
1999 WL ₂	16.0	0.15	19991118	241.67682	94.54660	76.36193	3.69630	0.0536980	2.1870607	18	1	10 days	0.74	Williams	1999 WL ₂
1999 WM ₂	15.3	0.15	19991118	302.01819	56.63761	71.92089	4.39262	0.0689778	2.2990876	17	1	11 days	0.64	Williams	1999 WM ₂
1999 WO ₂	13.5	0.15	19991118	307.93526	57.37065	72.20633	9.23903	0.1021451	2.7470782	16	1	11 days	0.64	E Williams	1999 WO ₂
1999 WP ₂	16.1	0.15	19991118	348.64049	10.96994	74.71190	7.10299	0.2700713	2.5720831	21	1	11 days	0.51	Williams	1999 WP ₂
1999 WQ ₂	13.5	0.15	19991118	320.19235	249.66349	197.70117	4.30851	0.0514950	2.7970372	20	1	10 days	0.65	E Williams	1999 WQ ₂
1999 WR ₂	16.7	0.15	19991118	22.87123	54.95049	328.48966	1.84132	0.2018021	2.3819653	36	1	16 days	0.63	Williams	1999 WR ₂
1999 WS ₂	15.9	0.15	19991118	38.14189	74.32872	287.52381	3.53119	0.0954621	2.1839598	28	1	12 days	0.36	Williams	1999 WS ₂
1999 WV ₂	14.5	0.15	19991118	339.31023	343.56885	112.61977	9.92312	0.0804722	2.7484915	16	1	6 days	0.42	E Williams	1999 WV ₂
1999 WW ₂	15.2	0.15	19991118	48.11745	278.25011	79.76149	3.86030	0.1964000	2.4450590	18	1	11 days	0.32	Williams	1999 WW ₂
1999 WY ₂	14.2	0.15	19991118	90.96679	156.84876	150.41836	1.46207	0.2372049	2.4126519	17	1	10 days	0.26	Williams	1999 WY ₂
1999 WZ ₂	15.2	0.15	19991118	238.19724	114.14366	81.18047	4.77844	0.0985762	2.3253659	13	1	10 days	0.63	Williams	1999 WZ ₂
1999 WA ₃	13.7	0.15	19991118	30.62282	318.35744	70.05722	15.60544	0.0948862	2.9792120	16	1	10 days	0.57	E Williams	1999 WA ₃
1999 WB ₃	15.8	0.15	19991118	0.67683	340.10959	82.51161	2.54130	0.2043268	2.6078131	17	1	10 days	0.65	Williams	1999 WB ₃
1999 WC ₃	15.1	0.15	19991118	300.22210	53.75678	86.28503	3.73048	0.1543360	2.4092564	19	1	10 days	0.33	Williams	1999 WC ₃
1999 WD ₃	15.2	0.15	19991118	248.62013	293.62640	258.32099	13.44352	0.1248673	2.5477161	35	1	15 days	0.62	Williams	1999 WD ₃
1999 WE ₃	15.9	0.15	19991118	1.15530	194.01021	195.30128	4.18434	0.1094301	2.3201054	15	1	12 days	0.37	Williams	1999 WE ₃
1999 WF ₃	16.5	0.15	19991118	17.88573	312.62092	80.57030	3.53958	0.1884723	2.3958671	33	1	18 days	0.53	Williams	1999 WF ₃
1999 WG ₃	15.3	0.15	19991118	331.75784	4.63530	87.48774	3.17322	0.0530855	2.8995152	14	1	17 days	0.59	E Williams	1999 WG ₃
1999 WH ₃	11.8	0.15	19991118	348.17311	19.53170	64.91780	14.26680	0.0454591	2.9752349	24	1	22 days	0.42	Williams	1999 WH ₃
1999 WJ ₃	14.3	0.15	19991118	335.87512	170.04378	282.58826	6.80204	0.0185214	2.3893232	10	1	12 days	0.62	Williams	1999 WJ ₃
1999 WK ₃	13.3	0.15	19991118	28.00798	156.15430	234.66030	12.35190	0.1831478	2.3425296	16	1	16 days	0.44	Williams	1999 WK ₃
1999 WL ₃	14.0	0.15	19991208	341.59141	16.94608	89.03898	11.76619	0.2041802	2.4405919	8	1	11 days	0.48	Nakano	1999 WL ₃
1999 WM ₃	12.1	0.15	19991118	68.20544	72.30009	274.31443	7.97072	0.1301020	3.0521254	11	1	12 days	0.54	Williams	1999 WM ₃
1999 WN ₃	14.0	0.15	19991208	38.23789	230.96247	150.24737	3.15774	0.2234409	3.4206526	10	1	10 days	0.64	Nakano	1999 WN ₃
1999 WO ₃	14.6	0.15	19991208	348.63113	219.45870	232.11805	4.66024	0.0789385	2.2743417	11	1	10 days	0.43	Nakano	1999 WO ₃
1999 WP ₃	14.9	0.15	19991208	36.13660	154.18394	237.19074	6.19886	0.1392849	2.3026389	6	1	11 days	0.50	Nakano	1999 WP ₃

1999 WQ ₃	14.9	0.15	19991208	73.26838	250.81383	90.49554	5.37133	0.2049647	2.2559262	18	1	12 days	0.55	Nakano	1999 WQ ₃
1999 WR ₃	14.0	0.15	19991208	35.03110	265.36467	118.14975	2.58595	0.2367338	2.8098576	14	1	10 days	0.54	Nakano	1999 WR ₃
1999 WS ₃	15.0	0.15	19991208	29.78095	165.04835	227.56983	2.56310	0.2117330	2.2890630	13	1	11 days	0.83	Nakano	1999 WS ₃
1999 WT ₃	13.8	0.15	19991118	359.78906	156.49087	271.30988	6.22950	0.0605886	2.3084908	14	1	12 days	0.67	Williams	1999 WT ₃
1999 WV ₃	13.3	0.15	19991118	93.97354	292.92927	28.52343	4.73865	0.1192370	2.2931312	10	1	12 days	0.60	Williams	1999 WV ₃
1999 WX ₃	14.8	0.15	19991208	8.27472	214.20812	212.02840	5.03140	0.1815140	2.3070023	11	1	11 days	0.81	Nakano	1999 WX ₃
1999 WY ₃	14.8	0.15	19991208	108.45008	219.36690	105.98000	2.84310	0.0447495	2.1918335	14	1	11 days	0.80	Nakano	1999 WY ₃
1999 WZ ₃	13.4	0.15	19991208	9.01015	224.22106	205.00504	1.37923	0.0735403	2.8811763	15	1	11 days	0.58	Nakano	1999 WZ ₃
1999 WA ₄	14.7	0.15	19991208	48.07105	352.31158	7.82082	2.56142	0.2521342	2.3193850	6	1	9 days	0.46	Nakano	1999 WA ₄
1999 WB ₄	15.0	0.15	19991208	11.82619	29.49667	27.53132	4.16502	0.1950181	2.4298360	10	1	12 days	0.60	Nakano	1999 WB ₄
1999 WC ₄	13.1	0.15	19991118	22.69074	75.81437	324.63623	4.24505	0.1307858	3.0348910	12	1	12 days	0.43	Williams	1999 WC ₄
1999 WD ₄	13.6	0.15	19991118	40.60738	329.32187	49.25869	11.06589	0.1241883	2.6371538	10	1	14 days	0.43	Williams	1999 WD ₄
1999 WF ₄	12.8	0.15	19991118	315.77669	261.46584	221.91678	8.77211	0.0323893	3.0586319	6	1	11 days	0.66	Williams	1999 WF ₄
1999 WH ₄	16.6	0.15	19991118	8.44771	321.85744	73.42522	2.58193	0.1873177	2.3887018	11	1	6 days	0.48	E Williams	1999 WH ₄
1999 WK ₄	14.1	0.15	19991208	72.64174	252.08045	101.49946	3.14909	0.1171333	2.4327044	13	1	11 days	0.58	Nakano	1999 WK ₄
1999 WM ₄	13.5	0.15	19991208	308.70094	210.23846	283.22231	6.35640	0.0804256	2.3493828	6	1	9 days	0.54	Nakano	1999 WM ₄
1999 WN ₄	14.9	0.15	19991208	18.36024	106.66007	299.40283	3.96160	0.2174086	2.3144394	10	1	12 days	0.40	Nakano	1999 WN ₄
1999 WO ₄	13.9	0.15	19991208	34.80826	236.05923	158.31397	4.06414	0.1360869	2.2636568	6	1	11 days	0.40	Nakano	1999 WO ₄
1999 WR ₄	14.5	0.15	19991208	30.21379	343.61962	57.30171	10.59139	0.0692299	2.9715331	10	1	9 days	0.60	Nakano	1999 WR ₄
1999 WS ₄	10.9	0.15	19991208	353.09813	141.69901	303.98430	6.74928	0.1796804	5.4429446	6	1	9 days	0.42	Nakano	1999 WS ₄
1999 WT ₄	9.5	0.15	19991118	311.04242	84.17201	44.77873	10.28949	0.0612326	5.1641568	9	1	12 days	0.64	Williams	1999 WT ₄
1999 WU ₄	13.5	0.15	19991208	111.31221	17.90756	293.88085	6.53606	0.1169910	2.3279897	6	1	9 days	0.35	Nakano	1999 WU ₄
1999 WV ₄	15.1	0.15	19991208	335.68053	4.92984	107.95608	5.97456	0.1506119	2.5297254	11	1	10 days	0.44	Nakano	1999 WV ₄
1999 WW ₄	11.8	0.15	19991208	107.43111	228.53416	101.45269	11.20212	0.0388090	3.1792489	10	1	10 days	0.30	E Nakano	1999 WW ₄
1999 WX ₄	14.5	0.15	19991208	27.32173	267.58217	132.16462	3.87926	0.2004941	2.6169119	11	1	10 days	0.42	Nakano	1999 WX ₄
1999 WZ ₄	14.0	0.15	19991208	343.25581	17.05129	82.76943	16.19027	0.0662496	2.5487552	14	1	10 days	0.35	Nakano	1999 WZ ₄
1999 WA ₅	14.7	0.15	19991208	29.95312	267.10119	123.98616	4.97100	0.2456638	2.3174800	11	1	9 days	0.46	Nakano	1999 WA ₅
1999 WC ₅	12.0	0.15	19991208	236.59724	125.51583	90.84757	13.29062	0.1204619	3.0283726	15	1	10 days	0.39	E Nakano	1999 WC ₅
1999 WD ₅	13.3	0.15	19991208	9.47758	177.73900	250.88295	12.04488	0.1617242	2.6894334	15	1	10 days	0.54	Nakano	1999 WD ₅
1999 WE ₅	19.4	0.15	19991118	334.54533	29.16854	59.57441	6.39660	0.2084620	2.3455797	9	1	8 days	0.17	Williams	1999 WE ₅
1999 WO ₅	17.1	0.15	19991118	50.62873	290.86138	64.54532	13.78057	0.1265797	2.6008776	9	1	9 days	0.19	Williams	1999 WO ₅
1999 WR ₅	16.6	0.15	19991118	305.88877	66.67152	34.44259	9.49145	0.1642115	2.5592151	9	1	6 days	0.29	Williams	1999 WR ₅
1999 WS ₅	16.4	0.15	19991118	337.91413	20.34993	36.55991	10.02282	0.0897979	2.5621638	12	1	7 days	0.19	Williams	1999 WS ₅
1999 WT ₅	15.4	0.15	19991118	253.41703	105.68165	39.41838	6.74948	0.0746117	2.4061134	9	1	6 days	0.10	E Williams	1999 WT ₅
1999 WW ₅	14.0	0.15	19991118	42.35465	196.99386	114.04375	13.88762	0.2052062	1.9850782	10	1	2 days	0.94	E Williams	1999 WW ₅
1999 WX ₅	13.8	0.15	19991118	351.60110	268.50422	120.82565	13.09806	0.1398207	2.0236171	12	1	2 days	0.60	E Williams	1999 WX ₅
1999 WC ₆	14.3	0.15	19991118	29.56593	210.97402	155.05605	2.63360	0.1998940	3.0995626	15	1	14 days	0.35	Williams	1999 WC ₆
1999 WD ₆	15.8	0.15	19991118	30.74794	302.23382	68.80566	13.42449	0.2013589	2.5504028	19	1	9 days	0.65	Williams	1999 WD ₆
1999 WE ₆	15.6	0.15	19991118	320.15160	348.46922	117.11093	3.49987	0.1115840	2.3974542	17	1	9 days	0.79	Williams	1999 WE ₆
1999 WF ₆	15.8	0.15	19991118	54.98782	263.54358	79.98467	7.43628	0.1729837	2.3955472	28	1	9 days	0.48	Williams	1999 WF ₆
1999 WG ₆	15.2	0.15	19991118	151.17593	43.00270	217.26161	6.49165	0.1223954	2.3065731	20	1	8 days	0.63	E Williams	1999 WG ₆
1999 WH ₆	14.6	0.15	19991118	135.45117	175.97670	94.26804	4.89390	0.1653253	2.2979387	20	1	9 days	0.63	Williams	1999 WH ₆
1999 WJ ₆	15.5	0.15	19991118	18.99684	256.46005	137.32474	2.64662	0.1007140	2.6239403	20	1	9 days	0.68	Williams	1999 WJ ₆
1999 WK ₆	15.8	0.15	19991118	306.76352	44.75540	70.13582	8.14142	0.0333103	2.2818276	39	1	9 days	0.51	Williams	1999 WK ₆
1999 WL ₆	14.2	0.15	19991118	86.55693	245.50512	84.52339	3.65103	0.0807005	2.8297851	16	1	9 days	0.55	Williams	1999 WL ₆
1999 WN ₆	14.4	0.15	19991118	6.35685	329.16518	87.20816	7.04174	0.1461140	3.0552121	16	1	9 days	0.82	Williams	1999 WN ₆
1999 WO ₆	15.2	0.15	19991118	335.70663	20.69292	76.99469	14.90730	0.1627032	2.8038654	21	1	9 days	0.78	Williams	1999 WO ₆
1999 WP ₆	14.3	0.15	19991118	326.41738	19.20669	91.99162	6.69013	0.1665418	3.1325451	12	1	8 days	0.33	E Williams	1999 WP ₆
1999 WQ ₆	15.2	0.15	19991118	24.96860	309.31260	81.20683	9.69146	0.1468415	2.5631623	19	1	9 days	1.04	Williams	1999 WQ ₆
1999 WR ₆	14.8	0.15	19991118	87.06973	234.15302	84.32184	9.17157	0.1712203	2.4835463	15	1	9 days	1.33	Williams	1999 WR ₆
1999 WT ₆	14.7	0.15	19991118	44.31330	234.31923	123.16721	2.88036	0.2309403	2.5870984	16	1	15 days	0.50	Williams	1999 WT ₆
1999 WU ₆	14.4	0.15	19991118	69.21317	254.70363	75.34184	13.56682	0.2275001	2.6210195	21	1	11 days	0.66	Williams	1999 WU ₆
1999 WV ₆	14.8	0.15	19991118	304.98511	335.61992	152.44042	1.73751	0.0752151	2.6938230	18	1	9 days	0.64	Williams	1999 WV ₆

1999 WW ₆	15.8	0.15	19991118	328.37995	258.32629	205.90827	1.90897	0.1232321	2.2364257	18	1	9 days	0.35	Williams	1999 WW ₆
1999 WX ₆	14.0	0.15	19991118	34.66671	147.01135	235.81307	9.05393	0.1148091	3.0457391	18	1	9 days	0.38	Williams	1999 WX ₆
1999 WZ ₆	15.4	0.15	19991118	297.14695	40.32350	93.73951	5.50548	0.0635928	2.2837255	17	1	9 days	0.55	Williams	1999 WZ ₆
1999 WA ₇	13.6	0.15	19991118	241.15819	43.98148	142.00996	2.77236	0.0102959	2.8864551	21	1	15 days	0.73	Williams	1999 WA ₇
1999 WC ₇	14.6	0.15	19991118	117.21720	197.55664	93.74746	5.86991	0.1854642	2.3192683	14	1	15 days	0.80	Williams	1999 WC ₇
1999 WD ₇	15.5	0.15	19991118	273.32278	260.70168	260.74634	6.75586	0.0869703	2.2734570	8	1	8 days	0.30	E Williams	1999 WD ₇
1999 WE ₇	15.7	0.15	19991118	358.47292	15.90436	50.06118	5.05606	0.1520977	2.3261106	21	1	15 days	0.33	Williams	1999 WE ₇
1999 WF ₇	16.8	0.15	19991118	359.13500	147.10935	277.15460	2.60756	0.2949004	2.4838670	15	1	9 days	0.40	Williams	1999 WF ₇
1999 WH ₇	15.8	0.15	19991118	354.91053	164.71493	266.78238	1.46470	0.1766173	2.5474910	13	1	9 days	0.49	Williams	1999 WH ₇
1999 WJ ₇	12.8	0.15	19991118	352.33027	151.53394	291.56469	2.89511	0.3295237	4.6508659	13	1	9 days	0.50	Williams	1999 WJ ₇
1999 WK ₇	13.2	0.15	19991118	178.37723	357.44467	251.44783	8.10748	0.0831790	3.2117260	16	1	9 days	0.94	Williams	1999 WK ₇
1999 WL ₇	16.3	0.15	19991118	355.88283	174.11625	255.21167	3.28885	0.2038464	2.3273339	14	1	9 days	0.35	Williams	1999 WL ₇
1999 WM ₇	14.1	0.15	19991118	47.16054	320.45555	46.35420	2.33389	0.1277152	2.9729152	16	1	15 days	0.68	Williams	1999 WM ₇
1999 WO ₇	15.5	0.15	19991118	319.58278	29.45064	90.66577	4.83667	0.1508695	2.4604599	13	1	9 days	0.66	Williams	1999 WO ₇
1999 WP ₇	15.1	0.15	19991118	254.45253	41.22935	141.35801	1.92865	0.0874917	2.3255519	16	1	9 days	0.57	Williams	1999 WP ₇
1999 WQ ₇	13.8	0.15	19991118	284.40743	27.71285	135.19127	2.07264	0.1564387	3.1142038	16	1	9 days	0.70	Williams	1999 WQ ₇
1999 WR ₇	14.5	0.15	19991118	301.13249	54.70012	83.52903	5.31609	0.1100393	2.4873012	16	1	9 days	0.26	Williams	1999 WR ₇
1999 WT ₇	14.1	0.15	19991118	147.12631	54.21929	215.99368	3.65903	0.2291455	2.3293271	15	1	9 days	1.07	Williams	1999 WT ₇
1999 WU ₇	13.1	0.15	19991118	146.33312	191.52294	110.60219	13.59708	0.1039632	2.7111913	16	1	9 days	0.54	E Williams	1999 WU ₇
1999 WV ₇	15.8	0.15	19991118	353.36626	186.50077	264.15897	19.71559	0.1362371	1.9193824	29	1	16 days	0.47	Williams	1999 WV ₇
1999 WW ₇	14.1	0.15	19991118	281.86985	272.30392	272.50714	1.14817	0.1458346	2.3671420	14	1	9 days	0.86	Williams	1999 WW ₇
1999 WX ₇	15.2	0.15	19991118	337.52521	219.54106	264.14049	7.11834	0.1843909	2.4387615	22	1	9 days	0.44	Williams	1999 WX ₇
1999 WY ₇	13.6	0.15	19991118	319.21612	244.83339	267.95660	12.01933	0.1832537	2.6876959	20	1	8 days	0.49	E Williams	1999 WY ₇
1999 WA ₈	13.4	0.15	19991118	296.04438	192.52360	297.03011	8.84521	0.1361491	3.1458578	31	1	14 days	0.73	Williams	1999 WA ₈
1999 WB ₈	15.0	0.15	19991118	241.27475	122.24501	68.51330	11.71232	0.1334676	2.4592470	28	1	10 days	1.20	Williams	1999 WB ₈
1999 WD ₈	16.6	0.15	19991118	329.51169	27.71466	74.69145	5.48371	0.1717177	2.3443900	17	1	10 days	0.39	Williams	1999 WD ₈
1999 WE ₈	16.1	0.15	19991118	23.08149	294.35647	89.99316	2.79245	0.2119748	2.3162940	25	1	10 days	0.43	Williams	1999 WE ₈
1999 WG ₈	15.0	0.15	19991118	30.43568	296.27212	81.80865	4.08467	0.1699902	2.2330983	19	1	10 days	0.46	Williams	1999 WG ₈
1999 WH ₈	13.5	0.15	19991208	252.10649	234.03475	321.05708	4.44972	0.1281539	2.5221131	8	1	9 days	0.63	Nakano	1999 WH ₈
1999 WJ ₈	14.6	0.15	19991208	238.28829	78.35782	130.61509	6.38182	0.0716828	2.3662199	17	1	11 days	0.87	Nakano	1999 WJ ₈
1999 WK ₈	15.2	0.15	19991118	228.60307	153.36717	48.33202	6.60195	0.1718084	2.4353474	32	1	14 days	0.71	Williams	1999 WK ₈
1999 WM ₈	15.3	0.15	19991118	35.31466	10.70996	336.57203	3.27293	0.2913904	2.5457405	28	1	8 days	0.37	Williams	1999 WM ₈
1999 WN ₈	14.3	0.15	19991118	65.56609	293.70757	28.77535	11.29377	0.1732415	3.0749695	21	1	3 days	0.92	E Williams	1999 WN ₈
1999 WO ₈	15.3	0.15	19991118	57.72214	151.87919	204.44014	6.20724	0.1040902	2.3664139	19	1	9 days	0.56	Williams	1999 WO ₈
1999 WP ₈	15.3	0.15	19991118	75.65948	242.58484	97.65413	11.79238	0.0832404	3.0261948	9	1	8 days	0.51	Williams	1999 WP ₈
1999 WQ ₈	14.9	0.15	19991118	68.33433	252.37904	94.57741	10.97394	0.0908630	2.9685141	11	1	8 days	0.36	Williams	1999 WQ ₈
1999 WR ₈	12.1	0.15	19991118	331.36275	318.42664	142.33614	7.04039	0.0831174	5.3061671	15	1	7 days	0.54	E Williams	1999 WR ₈
1999 WT ₈	16.6	0.15	19991118	305.55961	67.57644	76.61992	23.26196	0.2457026	2.2882978	15	1	7 days	0.45	Williams	1999 WT ₈
1999 WV ₈	15.8	0.15	19991118	5.41509	253.46592	160.37716	4.22483	0.2378480	2.5928547	17	1	9 days	0.26	Williams	1999 WV ₈
1999 WW ₈	13.3	0.15	19991118	338.36198	15.41431	82.70600	16.39789	0.2256859	3.1915169	24	1	7 days	0.26	E Williams	1999 WW ₈
1999 WY ₈	14.1	0.15	19991118	333.66440	337.95421	117.60116	6.25621	0.0940486	2.5909639	19	1	7 days	0.54	E Williams	1999 WY ₈
1999 WA ₉	16.0	0.15	19991118	13.33489	266.90117	141.75254	4.96937	0.0781594	2.7323433	7	1	9 days	0.52	Williams	1999 WA ₉
1999 WB ₉	16.0	0.15	19991118	348.31078	188.73697	258.75022	4.56630	0.2473405	2.3653253	17	1	7 days	0.39	Williams	1999 WB ₉
1999 WF ₉	14.6	0.15	19991118	18.13256	86.49950	50.16474	10.92606	0.1772206	2.4743524	19	1	14 days	0.44	Williams	1999 WF ₉
1999 WH ₉	15.0	0.15	19991118	100.12940	242.82096	50.34897	9.83943	0.2439809	2.5200688	20	1	8 days	0.59	Williams	1999 WH ₉
1999 WJ ₉	14.8	0.15	19991118	16.02675	221.83128	120.66843	6.56474	0.2148116	2.0471319	29	1	6 days	0.37	Williams	1999 WJ ₉
1999 WK ₉	14.9	0.15	19991118	74.89372	200.51666	120.39824	7.98026	0.2243194	2.5332390	14	1	7 days	0.72	Williams	1999 WK ₉
1999 WM ₉	15.3	0.15	19991118	330.93292	244.79850	205.41275	5.42133	0.0683466	2.7531098	9	1	5 days	0.41	E Williams	1999 WM ₉
1999 WO ₉	14.7	0.15	19991118	51.47842	212.29533	132.68357	7.88921	0.1685600	2.4505392	13	1	5 days	0.28	Williams	1999 WO ₉
1999 WQ ₉	12.0	0.15	19991208	356.04235	342.24033	106.28444	9.27263	0.2433350	2.7729319	11	1	10 days	0.40	Nakano	1999 WQ ₉
1999 WR ₉	11.8	0.15	19991208	33.60336	109.07480	287.47620	5.79556	0.2754267	3.9102145	6	1	10 days	0.65	E Nakano	1999 WR ₉
1999 WU ₉	13.6	0.15	19991208	21.25856	139.62344	274.92112	13.59634	0.2432484	2.6014152	10	1	10 days	0.74	Nakano	1999 WU ₉
1999 WV ₉	10.8	0.15	19991208	353.11470	21.00504	79.92478	11.68153	0.0307064	2.9149053	6	1	10 days	0.12	Nakano	1999 WV ₉

1999 WW ₉	15.2	0.15	19991208	25.26633	289.60001	104.78737	3.82098	0.3015706	2.2979880	13	1	10 days	0.26	Nakano	1999 WW ₉
1999 WX ₉	13.4	0.15	19991208	342.20381	202.75052	271.40256	12.62779	0.1009528	2.6386740	15	1	10 days	0.40	Nakano	1999 WX ₉
1999 WZ ₉	14.0	0.15	19991208	38.14839	15.28112	21.90886	3.18267	0.1840254	2.5594606	6	1	10 days	0.47	Nakano	1999 WZ ₉
1999 WA ₁₀	13.7	0.15	19991208	14.78627	331.75627	90.75798	14.94673	0.1526213	2.4568112	15	1	10 days	0.37	Nakano	1999 WA ₁₀
1999 WB ₁₀	13.9	0.15	19991208	317.77730	255.15313	254.38421	16.70860	0.2358070	2.9473088	11	1	10 days	0.50	Nakano	1999 WB ₁₀
1999 WC ₁₀	11.9	0.15	19991208	316.50529	121.72018	41.71695	4.56163	0.2559181	3.1967946	6	1	10 days	0.71	Nakano	1999 WC ₁₀
1999 WD ₁₀	13.3	0.15	19991208	325.03081	65.46752	77.66759	3.79339	0.1821369	2.5978676	11	1	10 days	0.58	Nakano	1999 WD ₁₀
1999 WE ₁₀	12.4	0.15	19991118	227.41632	151.71304	82.75938	8.41562	0.1216546	2.7523785	9	1	7 days	0.41	E Williams	1999 WE ₁₀
1999 WG ₁₀	16.7	0.15	19991118	51.63114	289.82747	32.38872	6.21147	0.1470840	2.4034811	9	1	10 days	0.19	Williams	1999 WG ₁₀
1999 WH ₁₀	16.8	0.15	19991118	60.58945	259.44358	43.36560	1.95532	0.2440454	2.1556584	12	1	10 days	0.22	Williams	1999 WH ₁₀
1999 WJ ₁₀	15.8	0.15	19991118	358.43123	180.99473	207.71574	10.18294	0.0928990	2.9584506	14	1	23 days	0.38	Williams	1999 WJ ₁₀
1999 WN ₁₀	15.7	0.15	19991118	314.86316	44.25770	39.20957	11.04345	0.1070671	3.0249413	12	1	10 days	0.24	Williams	1999 WN ₁₀
1999 WO ₁₀	16.7	0.15	19991118	7.28268	337.41973	44.12868	9.51168	0.1438049	2.7299266	9	1	10 days	0.16	Williams	1999 WO ₁₀
1999 WQ ₁₀	16.9	0.15	19991118	11.40975	178.87750	226.73384	4.64713	0.0730917	2.7573611	21	1	14 days	0.29	Williams	1999 WQ ₁₀
1999 WS ₁₀	17.8	0.15	19991118	255.53681	307.71079	232.74752	6.33969	0.1605693	2.3233013	21	1	14 days	0.27	Williams	1999 WS ₁₀
1999 WT ₁₀	17.6	0.15	19991118	317.73986	29.91576	79.54336	4.03616	0.0965059	2.5554210	21	1	14 days	0.16	Williams	1999 WT ₁₀
1999 WU ₁₀	18.5	0.15	19991118	328.90366	9.22195	91.67785	2.30326	0.1560284	2.4477660	12	1	8 days	0.23	Williams	1999 WU ₁₀
1999 WV ₁₀	17.9	0.15	19991118	144.22480	68.37979	201.24799	1.75285	0.0906099	2.1420672	18	1	14 days	0.20	Williams	1999 WV ₁₀
1999 WY ₁₀	14.4	0.15	19991118	131.94278	222.79843	73.54270	13.06695	0.0203311	3.1973960	15	1	9 days	0.40	Williams	1999 WY ₁₀
1999 WZ ₁₀	17.0	0.15	19991118	339.96426	114.25787	321.37198	0.45190	0.1269674	2.1269835	14	1	7 days	0.30	E Williams	1999 WZ ₁₀
1999 WB ₁₁	17.0	0.15	19991118	15.07415	314.97111	79.51523	3.50795	0.2097712	2.3477440	47	1	12 days	0.40	Williams	1999 WB ₁₁
1999 WC ₁₁	16.3	0.15	19991118	344.69422	8.13430	68.20140	12.91038	0.0771013	2.5885997	43	1	8 days	0.55	Williams	1999 WC ₁₁
1999 WD ₁₁	16.5	0.15	19991118	301.07432	317.97317	170.99152	1.50055	0.1056539	3.1692362	24	1	12 days	0.26	Williams	1999 WD ₁₁
1999 WE ₁₁	15.9	0.15	19991118	162.62477	163.01405	92.26090	2.90650	0.0348038	3.0118087	21	1	12 days	0.33	Williams	1999 WE ₁₁
1999 WF ₁₁	16.5	0.15	19991118	37.17003	183.32609	189.58832	1.72688	0.1135503	2.9389320	21	1	12 days	0.14	Williams	1999 WF ₁₁
1999 WG ₁₁	14.4	0.15	19991118	78.38859	246.82612	79.56939	4.81870	0.1237918	2.7397974	51	1	12 days	0.42	Williams	1999 WG ₁₁
1999 WH ₁₁	15.0	0.15	19991118	238.91918	121.98746	71.16851	9.83774	0.1434630	2.4381204	42	1	12 days	0.34	Williams	1999 WH ₁₁
1999 WK ₁₁	18.2	0.15	19991118	75.81338	220.07092	72.93157	7.35920	0.4535156	2.1155330	21	1	13 days	0.80	Williams	1999 WK ₁₁
1999 WL ₁₁	13.9	0.15	19991208	70.74258	294.43780	50.86856	14.48341	0.1243292	2.5317150	13	1	11 days	0.30	Nakano	1999 WL ₁₁
1999 WN ₁₁	16.2	0.15	19991208	13.49554	48.58516	1.12618	3.60231	0.2404183	2.3399755	8	1	11 days	0.37	Nakano	1999 WN ₁₁
1999 WR ₁₁	17.8	0.15	19991118	27.97653	317.57590	31.00703	14.87680	0.1808033	2.5602907	9	1	7 days	0.26	Williams	1999 WR ₁₁
1999 WV ₁₁	16.9	0.15	19991118	222.02507	131.27121	45.58962	6.54040	0.1083560	2.2207260	9	1	10 days	0.14	Williams	1999 WV ₁₁
1999 WW ₁₁	13.9	0.15	19991118	6.87323	186.76155	236.85373	3.60614	0.0410132	5.1606838	10	1	9 days	0.65	E Williams	1999 WW ₁₁
1999 WA ₁₂	15.6	0.15	19991118	290.43915	62.07718	81.20212	6.18141	0.0337013	2.7902480	16	1	10 days	0.54	Williams	1999 WA ₁₂
1999 WB ₁₂	17.0	0.15	19991118	78.83570	243.63061	88.13255	3.39832	0.1615418	2.3984105	15	1	10 days	0.44	Williams	1999 WB ₁₂
1999 WD ₁₂	16.3	0.15	19991118	165.27250	183.34489	79.52814	8.48721	0.0544721	2.2799241	16	1	10 days	0.51	Williams	1999 WD ₁₂
1999 WE ₁₂	16.2	0.15	19991118	25.65554	150.29864	248.00572	9.85690	0.1171952	2.9695992	9	1	10 days	0.69	Williams	1999 WE ₁₂
1999 WF ₁₂	15.4	0.15	19991118	77.10810	256.66595	80.93708	9.39011	0.1473137	3.1005568	16	1	10 days	0.46	Williams	1999 WF ₁₂
1999 WG ₁₂	15.8	0.15	19991118	17.41166	329.64385	83.11714	6.42729	0.0140700	2.6947804	14	1	10 days	0.48	Williams	1999 WG ₁₂
1999 WH ₁₂	18.0	0.15	19991118	292.81664	62.28887	82.02654	6.63172	0.0688229	2.2517873	9	1	9 days	0.26	E Williams	1999 WH ₁₂
1999 WJ ₁₂	17.4	0.15	19991118	38.07171	144.88879	236.84741	2.99112	0.1193799	2.3004712	9	1	9 days	0.08	E Williams	1999 WJ ₁₂
1999 WK ₁₂	17.6	0.15	19991118	26.60116	283.50624	103.22734	1.93323	0.2228660	2.3704185	14	1	10 days	0.38	Williams	1999 WK ₁₂
1999 WL ₁₂	17.1	0.15	19991118	14.18309	155.44196	216.46415	5.52985	0.1444620	2.3571765	9	1	9 days	0.11	Williams	1999 WL ₁₂
1999 WQ ₁₂	18.3	0.15	19991118	18.66126	149.99467	214.85869	4.78576	0.1941155	2.3401953	9	1	9 days	0.18	Williams	1999 WQ ₁₂
1999 WR ₁₂	16.1	0.15	19991118	345.49574	213.24547	203.38644	1.62265	0.2623274	2.8585056	11	1	6 days	0.30	E Williams	1999 WR ₁₂
1999 WS ₁₂	17.1	0.15	19991118	0.22087	343.13311	49.56200	4.48923	0.2135701	2.6381271	9	1	6 days	0.18	Williams	1999 WS ₁₂
1999 WV ₁₂	15.9	0.15	19991118	103.50374	116.18890	185.73011	1.80105	0.1272302	2.9051860	9	1	9 days	0.44	Williams	1999 WV ₁₂
1999 WW ₁₂	17.2	0.15	19991118	235.57853	111.12789	86.25720	3.33889	0.1645658	2.3165068	21	1	12 days	0.53	Williams	1999 WW ₁₂
1999 WZ ₁₂	15.7	0.15	19991118	315.09898	157.15447	320.77185	12.20264	0.1906755	2.7629920	12	1	12 days	0.50	Williams	1999 WZ ₁₂
1999 WA ₁₃	14.1	0.15	19991118	325.53901	122.63059	334.95722	12.93085	0.1101693	2.8801826	21	1	15 days	0.33	Williams	1999 WA ₁₃
1999 WB ₁₃	14.7	0.15	19991118	227.29188	55.75556	144.15566	6.47273	0.0712311	2.3318329	10	1	7 days	0.68	Williams	1999 WB ₁₃
1999 WE ₁₃	17.7	0.15	19991118	54.58053	100.20053	241.87294	3.06553	0.1180261	2.3446053	9	1	7 days	0.10	Williams	1999 WE ₁₃
1999 WG ₁₃	17.9	0.15	19991118	342.98973	17.32288	53.24909	5.07261	0.1009019	2.2657086	10	1	7 days	0.35	E Williams	1999 WG ₁₃

1999 WK ₁₃	17.7	0.15	19991118	9.00115	312.35149	78.58943	34.27521	0.3630636	1.8427907	122	1	14 days	0.72	Marsden	1999 WK ₁₃
1999 WL ₁₃	14.8	0.15	19991118	292.52052	157.79259	344.91900	1.69833	0.0872772	2.2486643	15	1	10 days	0.37	Williams	1999 WL ₁₃
1999 WM ₁₃	14.6	0.15	19991118	5.84158	191.93274	227.42677	4.80386	0.2209168	3.1745408	16	1	8 days	0.74	Williams	1999 WM ₁₃
1999 WN ₁₃	16.2	0.15	19991118	8.00399	320.50803	91.47609	5.86603	0.2580437	2.5614873	16	1	8 days	0.45	Williams	1999 WN ₁₃
1999 WP ₁₃	14.4	0.15	19991118	61.39589	104.17734	239.10363	12.41399	0.2304950	2.7469720	11	1	8 days	0.51	Williams	1999 WP ₁₃
1999 WR ₁₃	13.5	0.15	19991118	273.28049	72.07367	103.20545	8.00058	0.1500236	2.8399231	17	1	14 days	0.57	Williams	1999 WR ₁₃
1999 WS ₁₃	14.0	0.15	19991118	325.83365	51.16499	65.38316	24.15740	0.3332780	2.4548885	19	1	7 days	0.29	Williams	1999 WS ₁₃
1999 WA ₁₄	14.0	0.15	19991118	282.51697	80.47599	54.87694	11.44396	0.0884176	3.0599845	22	1	14 days	0.64	Williams	1999 WA ₁₄
1999 WT ₁₄	14.9	0.15	19991118	314.14649	243.64316	236.94520	13.66969	0.1974782	3.1287100	20	1	14 days	0.38	Williams	1999 WT ₁₄
1999 WV ₁₄	15.6	0.15	19991118	105.86188	61.15748	235.62502	6.29192	0.1249273	2.7136053	15	1	10 days	0.64	Williams	1999 WV ₁₄
1999 WB ₁₅	14.8	0.15	19991118	12.31530	342.91183	31.70968	6.92612	0.0369449	2.7059775	10	1	8 days	0.42	E Williams	1999 WB ₁₅
1999 WH ₁₅	16.9	0.15	19991118	353.96831	188.37965	227.28001	2.43731	0.1156669	2.6105362	9	1	8 days	0.19	E Williams	1999 WH ₁₅
1999 WU ₁₅	18.0	0.15	19991118	60.56381	273.93326	54.62958	16.14298	0.1817886	2.6231150	9	1	8 days	0.21	E Williams	1999 WU ₁₅
1999 WX ₁₅	16.7	0.15	19991118	356.18058	345.94847	68.65872	2.88764	0.1631529	3.0423946	9	1	13 days	0.20	Williams	1999 WX ₁₅
1999 WB ₁₆	17.2	0.15	19991118	261.50749	86.78721	75.52221	2.28421	0.1265299	2.4140886	9	1	13 days	0.14	Williams	1999 WB ₁₆
1999 WE ₁₇	16.8	0.15	19991118	344.61242	200.02903	210.03075	9.60060	0.1374598	2.9555106	9	1	8 days	0.20	E Williams	1999 WE ₁₇
1999 WF ₁₇	15.6	0.15	19991118	350.55753	359.85575	46.66390	4.08614	0.1750909	2.5418406	10	1	7 days	0.20	E Williams	1999 WF ₁₇
1999 WJ ₁₇	15.1	0.15	19991118	227.96983	301.62841	222.53512	6.03687	0.0618424	2.2984618	14	1	10 days	0.51	Williams	1999 WJ ₁₇
1999 WL ₁₇	16.8	0.15	19991118	63.36998	102.78760	219.91439	20.92616	0.0568663	1.9069987	12	1	8 days	0.68	E Williams	1999 WL ₁₇
1999 WM ₁₇	16.7	0.15	19991118	7.58975	156.16242	221.30319	11.48310	0.2629975	2.6094835	10	1	7 days	0.34	E Williams	1999 WM ₁₇
1999 WV ₁₇	13.8	0.15	19991118	345.73627	200.40022	214.92920	14.15338	0.2150742	2.7204458	11	1	7 days	0.12	E Williams	1999 WV ₁₇
1999 WB ₁₈	19.5	0.15	19991118	358.41451	180.87323	232.62575	4.59028	0.2177849	2.3826068	9	1	12 days	0.19	Williams	1999 WB ₁₈
1999 WD ₁₈	17.8	0.15	19991118	9.69015	173.94501	225.43811	5.70006	0.1076873	2.6123406	9	1	12 days	0.12	Williams	1999 WD ₁₈
1999 WE ₁₈	17.4	0.15	19991118	36.58870	124.09492	235.39305	7.11675	0.1666893	2.2461796	12	1	12 days	0.40	Williams	1999 WE ₁₈
1999 WF ₁₈	13.5	0.15	19991118	33.31459	315.31490	116.32910	14.31416	0.1550596	2.5827202	17	1	9 days	0.62	E Williams	1999 WF ₁₈
1999 WG ₁₈	14.7	0.15	19991118	83.78571	259.26684	68.32356	3.51429	0.1230277	2.3092053	10	1	9 days	0.62	Williams	1999 WG ₁₈
1999 WH ₁₈	14.6	0.15	19991118	294.71019	80.59854	69.33133	10.12406	0.1728671	2.3747284	10	1	8 days	0.78	Williams	1999 WH ₁₈
1999 WJ ₁₈	13.4	0.15	19991118	5.30191	346.38843	76.47703	22.20494	0.1066666	3.2246024	9	1	8 days	0.61	E Williams	1999 WJ ₁₈
1999 WK ₁₈	12.4	0.15	19991118	159.49555	144.17901	117.99637	2.32821	0.3793422	2.9446973	12	1	8 days	0.59	Williams	1999 WK ₁₈
1999 WL ₁₈	16.1	0.15	19991118	15.88508	277.18397	126.57936	1.81569	0.1734908	2.3418542	10	1	8 days	0.60	Williams	1999 WL ₁₈
1999 XA	13.4	0.15	19991118	352.63738	346.40550	37.07342	11.80974	0.2256922	2.3392548	19	1	2 days	0.68	E Williams	1999 XA
1999 XB	13.5	0.15	19991118	116.63495	211.55236	33.32753	14.33485	0.0951014	1.8574183	12	1	2 days	0.84	E Williams	1999 XB
1999 XC	13.1	0.15	19991118	49.55749	221.55345	71.93520	6.35649	0.2832207	2.2606412	13	1	2 days	1.04	E Williams	1999 XC
1999 XD	13.0	0.15	19991118	349.38983	327.62665	53.70874	16.06822	0.1954245	2.4501249	9	1	2 days	1.03	E Williams	1999 XD
1999 XE	16.1	0.15	19991118	85.22441	115.93699	193.36403	1.84547	0.2209630	2.6330397	15	1	10 days	0.15	Williams	1999 XE
1999 XG	13.0	0.15	19991118	40.05944	260.77445	49.79143	12.34714	0.2187480	2.4743200	11	1	2 days	0.84	E Williams	1999 XG
1999 XJ	17.2	0.15	19991118	351.51678	346.29047	91.95021	2.27023	0.1955139	2.4312740	14	1	7 days	0.70	E Williams	1999 XJ
1999 XL	12.8	0.15	19991118	28.98885	309.37710	18.22511	16.95616	0.0781936	3.1660915	22	1	8 days	0.46	E Williams	1999 XL
1999 XN	17.1	0.15	19991118	77.53983	171.06846	151.48237	1.38277	0.1665248	3.0250825	15	1	5 days	0.19	E Williams	1999 XN
1999 XO	17.9	0.15	19991118	78.67498	237.58593	80.67324	4.05086	0.1932703	2.3455757	9	1	5 days	0.16	E Williams	1999 XO
1999 XS	16.2	0.15	19991118	271.75596	286.31127	236.18546	3.84550	0.0586764	2.3562136	14	1	6 days	0.38	E Williams	1999 XS
1999 XV	14.7	0.15	19991208	34.81525	294.44915	72.53975	23.25396	0.1008199	1.9493851	15	1	13 days	0.42	Williams	1999 XV
1999 XW	12.1	0.15	19991208	30.30571	326.35457	80.87252	12.84481	0.1290630	3.2058737	9	1	9 days	0.43	Nakano	1999 XW
1999 XX	15.3	0.15	19991208	16.78567	13.86119	46.90195	3.42718	0.1582700	2.3848269	9	1	9 days	0.62	Nakano	1999 XX
1999 XY	14.8	0.15	19991208	353.88089	179.47737	273.73221	4.56635	0.1985170	2.3720884	16	1	9 days	0.37	Nakano	1999 XY
1999 XZ	12.4	0.15	19991208	307.50387	242.63752	296.55646	4.44595	0.3610360	2.6381873	6	1	9 days	0.09	Nakano	1999 XZ
1999 XA ₁	12.3	0.15	19991118	279.61545	257.89881	286.14664	9.47249	0.1782346	2.9840344	7	1	8 days	0.57	E Williams	1999 XA ₁
1999 XC ₁	11.5	0.15	19991118	299.00554	49.48564	110.37095	6.93645	0.0812735	3.1605809	12	1	6 days	0.77	Williams	1999 XC ₁
1999 XD ₁	14.9	0.15	19991208	18.66839	346.89910	71.30346	6.44625	0.1708356	2.2252796	10	1	9 days	0.58	Nakano	1999 XD ₁
1999 XF ₁	13.7	0.15	19991208	343.69106	1.46778	108.32785	8.02826	0.0665879	2.3077793	16	1	9 days	0.61	Nakano	1999 XF ₁
1999 XG ₁	13.5	0.15	19991208	46.67009	269.20234	112.21501	5.98382	0.2376746	2.6434885	16	1	9 days	0.73	Nakano	1999 XG ₁
1999 XH ₁	12.6	0.15	19991208	221.32491	150.03797	79.77252	10.99474	0.0268749	2.9953062	10	1	9 days	0.39	Nakano	1999 XH ₁
1999 XN ₁	14.9	0.15	19991118	354.47845	275.00251	114.19356	5.08457	0.2612489	2.7397799	15	1	7 days	0.53	E Williams	1999 XN ₁

1999 XP ₁	13.6	0.15	19991118	331.96299	7.70252	59.14535	6.53413	0.2193002	2.7296780	12	1	7 days	0.47	E Williams	1999 XP ₁
1999 XR ₁	14.4	0.15	19991118	285.93920	90.30324	94.57572	24.55243	0.2046430	2.7251377	15	1	5 days	0.49	E Williams	1999 XR ₁
1999 XS ₁	14.3	0.15	19991208	353.65132	131.84227	311.41903	8.28443	0.1296141	2.7886617	24	1	11 days	0.70	Williams	1999 XS ₁
1999 XT ₁	13.1	0.15	19991118	99.19226	56.62572	222.96503	25.48670	0.2202345	3.1495974	12	1	4 days	0.46	E Williams	1999 XT ₁
1999 XU ₁	16.2	0.15	19991208	295.16800	56.94363	73.67793	6.70565	0.0550490	2.2392398	22	1	9 days	0.59	Williams	1999 XU ₁
1999 XX ₁	15.8	0.15	19991118	7.31648	156.49761	250.52064	3.88707	0.2215236	2.3563943	20	1	5 days	0.47	Williams	1999 XX ₁
1999 XY ₁	14.0	0.15	19991208	24.52816	292.37584	94.48417	18.41683	0.2337741	2.5299777	14	1	11 days	0.51	Williams	1999 XY ₁
1999 XZ ₁	12.6	0.15	19991118	40.36798	152.98698	203.45512	9.91652	0.2811817	2.9335213	9	1	2 days	0.30	E Williams	1999 XZ ₁
1999 XB ₂	13.4	0.15	19991118	57.84053	162.12204	176.46001	10.00846	0.2662412	2.7465131	9	1	2 days	0.57	E Williams	1999 XB ₂
1999 XF ₂	15.5	0.15	19991208	56.20734	242.75889	118.33879	2.62133	0.1462167	2.1863601	18	1	6 days	0.36	Nakano	1999 XF ₂
1999 XH ₂	13.8	0.15	19991118	122.67666	216.20700	38.54610	12.59699	0.1244856	2.6521450	12	1	12 days	0.45	Williams	1999 XH ₂
1999 XO ₂	17.0	0.15	19991208	53.55592	149.76385	210.48826	2.18294	0.1008907	2.6681755	18	1	9 days	0.31	E Williams	1999 XO ₂
1999 XP ₂	17.7	0.15	19991208	285.15567	73.11137	83.89570	3.22802	0.1541191	2.3457343	18	1	9 days	0.20	E Williams	1999 XP ₂
1999 XR ₂	13.4	0.15	19991118	41.68680	18.60325	323.83899	4.30095	0.1660783	2.0882995	12	1	3 days	0.64	E Williams	1999 XR ₂
1999 XS ₂	12.8	0.15	19991118	130.27921	352.63720	254.04690	13.11084	0.2893195	2.3195985	16	1	5 days	0.72	E Williams	1999 XS ₂
1999 XU ₂	14.3	0.15	19991208	0.31775	151.82577	258.58262	6.35702	0.1477468	2.2484865	16	1	9 days	0.35	E Williams	1999 XU ₂
1999 XV ₂	13.1	0.15	19991208	226.47970	290.91857	258.64183	7.95529	0.1543108	2.3267385	11	1	9 days	0.48	E Williams	1999 XV ₂
1999 XW ₂	13.2	0.15	19991118	276.99229	230.84648	258.86547	10.53153	0.0781173	2.4950782	16	1	5 days	0.31	E Williams	1999 XW ₂
1999 XZ ₂	15.4	0.15	19991118	11.89672	317.96875	78.50231	9.93518	0.2007388	2.6998647	12	1	2 days	0.29	E Williams	1999 XZ ₂
1999 XA ₃	15.8	0.15	19991208	27.77621	222.12254	151.07445	3.64047	0.2668042	3.0140076	12	1	8 days	0.41	Williams	1999 XA ₃
1999 XB ₃	15.3	0.15	19991208	332.38830	284.74027	171.48851	2.96827	0.1396032	3.0835975	17	1	8 days	0.61	Williams	1999 XB ₃
1999 XC ₃	16.1	0.15	19991118	346.18919	331.09671	105.30267	3.86185	0.1973160	2.5160100	18	1	3 days	0.37	E Williams	1999 XC ₃
1999 XD ₃	17.1	0.15	19991118	331.60466	269.99276	204.29033	4.20679	0.3575853	2.5212997	13	1	2 days	0.58	E Williams	1999 XD ₃
1999 XE ₃	16.0	0.15	19991118	298.52013	283.14226	210.10112	5.38111	0.1425283	2.4048850	13	1	2 days	0.38	E Williams	1999 XE ₃
1999 XF ₃	16.9	0.15	19991118	341.55031	238.09190	205.97457	4.67636	0.2042144	2.2522879	13	1	2 days	0.41	E Williams	1999 XF ₃
1999 XG ₃	15.0	0.15	19991118	106.14004	208.06038	90.47996	8.03030	0.1065269	2.2565702	12	1	2 days	0.39	E Williams	1999 XG ₃
1999 XH ₃	15.7	0.15	19991118	300.01930	52.32755	85.48677	7.16899	0.1964465	2.4172558	13	1	2 days	0.37	E Williams	1999 XH ₃
1999 XQ ₃	17.9	0.15	19991118	335.98497	259.97427	215.01396	4.93304	0.4216735	2.5065979	12	1	2 days	0.94	E Williams	1999 XQ ₃
1999 XR ₃	14.0	0.15	19991118	302.03359	55.24703	79.76747	10.64771	0.1874123	3.2449600	13	1	2 days	0.45	E Williams	1999 XR ₃
1999 XS ₃	15.9	0.15	19991118	322.17875	32.31614	85.56243	6.85924	0.2549640	2.4224567	13	1	2 days	0.55	E Williams	1999 XS ₃
1999 XY ₃	18.1	0.15	19991118	338.06366	284.10656	196.69567	3.80266	0.4904998	2.8672056	12	1	2 days	0.80	E Williams	1999 XY ₃
1999 XB ₄	15.3	0.15	19991118	291.54669	38.58515	96.87867	5.62729	0.0822603	2.3981922	39	1	4 days	0.61	E Williams	1999 XB ₄
1999 XC ₄	16.1	0.15	19991118	323.68587	256.49511	208.08670	6.68983	0.1312270	2.5119638	11	1	2 days	0.73	E Williams	1999 XC ₄
1999 XE ₄	15.4	0.15	19991118	28.13012	207.37127	168.93497	2.96493	0.1975198	2.4525618	13	1	2 days	0.26	E Williams	1999 XE ₄
1999 XF ₄	14.9	0.15	19991118	112.10303	116.66130	178.44996	1.66568	0.0856879	2.8251277	13	1	3 days	1.14	E Williams	1999 XF ₄
1999 XG ₄	16.7	0.15	19991118	45.31473	236.92202	112.23253	1.04160	0.2203611	2.3492847	12	1	3 days	0.59	E Williams	1999 XG ₄
1999 XH ₄	15.0	0.15	19991118	280.80357	3.70758	133.97380	2.35921	0.0241199	3.0706198	12	1	3 days	0.55	E Williams	1999 XH ₄
1999 XJ ₄	15.5	0.15	19991118	151.90439	148.47304	107.41584	3.02216	0.1896982	2.3265621	12	1	3 days	0.79	E Williams	1999 XJ ₄
1999 XK ₄	17.5	0.15	19991118	31.36006	243.89414	125.47297	2.15444	0.2036574	2.3197069	16	1	3 days	0.61	E Williams	1999 XK ₄
1999 XL ₄	14.2	0.15	19991208	13.44155	319.46572	82.56554	5.89875	0.1614488	3.1285474	22	1	8 days	0.33	Williams	1999 XL ₄
1999 XM ₄	15.5	0.15	19991118	21.88981	198.49774	183.00826	2.38400	0.2217893	2.4253026	13	1	2 days	0.21	E Williams	1999 XM ₄
1999 XO ₄	17.1	0.15	19991208	343.30482	357.39475	93.39487	3.30754	0.2259295	2.4563226	18	1	8 days	0.52	Williams	1999 XO ₄
1999 XP ₄	15.0	0.15	19991118	71.96954	209.10389	105.32798	3.38872	0.2597543	2.8417280	15	1	3 days	0.58	E Williams	1999 XP ₄
1999 XR ₄	13.7	0.15	19991118	46.14508	170.32949	114.84409	3.57979	0.7018442	3.1789436	13	1	2 days	0.62	E Williams	1999 XR ₄
1999 XS ₄	15.0	0.15	19991118	44.44411	144.89730	215.31313	5.61993	0.1372348	3.1936333	15	1	3 days	0.45	E Williams	1999 XS ₄
1999 XT ₄	15.1	0.15	19991118	141.82967	178.99313	92.31363	3.61799	0.0650521	2.4478113	13	1	3 days	0.30	E Williams	1999 XT ₄
1999 XV ₄	17.5	0.15	19991118	340.15759	334.21371	109.57880	1.78848	0.1465430	2.0891363	12	1	3 days	0.57	E Williams	1999 XV ₄
1999 XW ₄	16.3	0.15	19991118	27.97726	218.16437	162.75455	2.08992	0.1356214	2.6139729	13	1	3 days	0.58	E Williams	1999 XW ₄
1999 XY ₄	15.8	0.15	19991118	347.60134	269.59661	168.36195	1.60003	0.2310549	3.1513727	19	1	5 days	0.50	E Williams	1999 XY ₄
1999 XZ ₄	15.2	0.15	19991118	308.40896	15.73429	103.26502	2.83297	0.0944038	2.9901737	16	1	5 days	0.37	E Williams	1999 XZ ₄
1999 XA ₅	14.8	0.15	19991118	71.81274	176.27223	146.92908	2.30318	0.2040171	2.9863690	15	1	5 days	0.75	E Williams	1999 XA ₅
1999 XB ₅	16.5	0.15	19991118	32.25533	257.45518	110.93806	3.54537	0.2201649	2.4891582	18	1	3 days	0.43	E Williams	1999 XB ₅
1999 XC ₅	15.8	0.15	19991118	355.52227	347.64144	77.16592	11.90519	0.2298399	2.6925665	16	1	3 days	0.75	E Williams	1999 XC ₅

1999 XD ₅	14.9	0.15	19991118	209.76418	356.83566	218.24973	5.78505	0.1155472	2.3366194	18	1	3 days	0.34	E Williams	1999 XD ₅
1999 XE ₅	16.7	0.15	19991118	30.76091	263.80671	109.88145	2.61097	0.1885710	2.2452993	21	1	5 days	0.38	E Williams	1999 XE ₅
1999 XG ₅	14.1	0.15	19991118	148.54013	179.00556	82.99386	6.27892	0.1722375	2.9944548	16	1	5 days	3.35	E Williams	1999 XG ₅
1999 XH ₅	17.3	0.15	19991208	4.41363	342.22496	78.17446	6.50270	0.1384502	2.2251484	19	1	8 days	0.41	E Williams	1999 XH ₅
1999 XJ ₅	15.7	0.15	19991118	31.95077	283.94005	87.06962	6.08480	0.2065589	3.1202174	12	1	3 days	0.52	E Williams	1999 XJ ₅
1999 XK ₅	15.6	0.15	19991118	73.87452	239.00714	77.95580	3.78090	0.2316715	2.4876373	15	1	4 days	0.74	E Williams	1999 XK ₅
1999 XM ₅	14.8	0.15	19991118	318.97502	54.71594	66.05464	14.73205	0.2391520	3.0848876	16	1	4 days	0.35	E Williams	1999 XM ₅
1999 XN ₅	14.9	0.15	19991118	66.05876	110.35547	219.77399	1.16756	0.1957818	2.9232615	21	1	4 days	0.42	E Williams	1999 XN ₅
1999 XO ₅	16.9	0.15	19991118	5.84272	341.95386	68.63987	2.06170	0.1267341	2.2643168	21	1	4 days	0.47	E Williams	1999 XO ₅
1999 XQ ₅	13.7	0.15	19991208	26.65457	140.01723	269.74719	15.26394	0.1347337	2.7022275	16	1	5 days	0.32	Williams	1999 XQ ₅
1999 XR ₅	17.5	0.15	19991208	4.74996	332.61975	86.59415	3.41386	0.2057055	2.3654791	18	1	8 days	0.67	E Williams	1999 XR ₅
1999 XS ₅	15.7	0.15	19991118	144.59594	181.59048	83.84073	2.85582	0.1714259	2.3012315	21	1	4 days	0.63	E Williams	1999 XS ₅
1999 XV ₅	16.0	0.15	19991118	326.89242	27.25048	66.65851	8.35453	0.0144214	2.6048548	19	1	4 days	0.59	E Williams	1999 XV ₅
1999 XW ₅	17.0	0.15	19991208	13.94234	67.01064	340.42985	0.95128	0.2010677	2.2418898	25	1	9 days	0.36	Williams	1999 XW ₅
1999 XX ₅	13.9	0.15	19991208	289.70581	99.15015	53.76034	5.15738	0.1441069	2.8466281	27	1	10 days	0.84	E Williams	1999 XX ₅
1999 XY ₅	16.0	0.15	19991208	167.01963	0.72540	254.91530	3.50140	0.1754748	2.2891211	17	1	9 days	0.82	E Williams	1999 XY ₅
1999 XZ ₅	17.6	0.15	19991118	10.31750	153.51583	246.98487	9.32998	0.2823853	2.3404301	21	1	5 days	0.52	E Williams	1999 XZ ₅
1999 XB ₆	17.3	0.15	19991208	37.57496	303.93175	72.42798	0.04682	0.1774491	2.1538296	25	1	10 days	0.64	Williams	1999 XB ₆
1999 XC ₆	16.8	0.15	19991118	10.76234	333.81294	73.71778	1.74178	0.1294573	2.6247136	17	1	4 days	0.75	Williams	1999 XC ₆
1999 XD ₆	16.6	0.15	19991118	298.83168	69.65746	65.88042	4.89580	0.1163053	2.3591027	18	1	4 days	0.61	E Williams	1999 XD ₆
1999 XE ₆	15.6	0.15	19991118	76.97266	266.49310	62.85212	7.80185	0.1448727	2.3439641	17	1	4 days	0.38	Williams	1999 XE ₆
1999 XF ₆	14.9	0.15	19991118	26.05712	147.98390	235.14347	1.82794	0.2204170	3.9700441	15	1	4 days	0.81	E Williams	1999 XF ₆
1999 XG ₆	15.9	0.15	19991118	186.79394	168.53761	70.58156	4.34796	0.1487323	2.2586672	18	1	4 days	0.69	E Williams	1999 XG ₆
1999 XJ ₆	15.5	0.15	19991118	89.37398	69.39410	245.99378	19.17213	0.1744583	2.6394808	13	1	3 days	0.84	E Williams	1999 XJ ₆
1999 XK ₆	15.5	0.15	19991118	45.53273	283.59388	62.11395	5.63324	0.3103425	2.7878029	18	1	4 days	0.42	E Williams	1999 XK ₆
1999 XL ₆	15.5	0.15	19991208	1.85170	56.62996	6.10471	2.56323	0.2206275	3.1067334	12	1	9 days	0.30	Williams	1999 XL ₆
1999 XR ₆	16.3	0.15	19991208	356.54557	157.22252	274.23155	3.31618	0.0825832	2.2246972	22	1	9 days	0.55	Williams	1999 XR ₆
1999 XT ₆	14.5	0.15	19991208	61.48426	293.24644	51.76050	9.38147	0.1794042	2.7202956	16	1	9 days	0.26	Williams	1999 XT ₆
1999 XU ₆	16.9	0.15	19991208	27.48206	73.36034	312.39511	1.52693	0.2131912	2.4064997	25	1	9 days	0.42	Williams	1999 XU ₆
1999 XW ₆	16.5	0.15	19991118	313.55228	83.83359	42.94603	3.76648	0.1943115	2.6788194	20	1	4 days	0.48	E Williams	1999 XW ₆
1999 XX ₆	16.2	0.15	19991118	290.69695	118.12379	32.86349	2.87933	0.1766929	2.3720911	12	1	3 days	0.35	E Williams	1999 XX ₆
1999 XY ₆	15.6	0.15	19991208	333.08610	62.42010	44.40227	6.82860	0.1832286	2.5777875	20	1	9 days	0.35	Williams	1999 XY ₆
1999 XZ ₆	15.0	0.15	19991208	358.74329	98.84935	329.89185	2.83239	0.1010149	2.9922598	12	1	9 days	0.39	Williams	1999 XZ ₆
1999 XA ₇	14.3	0.15	19991118	7.98508	157.19485	256.25680	9.62447	0.0585777	3.0541131	21	1	5 days	0.33	E Williams	1999 XA ₇
1999 XC ₇	16.7	0.15	19991118	344.72058	54.08542	31.68096	2.12063	0.2191174	2.6085099	13	1	3 days	0.38	E Williams	1999 XC ₇
1999 XD ₇	14.6	0.15	19991208	157.21961	201.89619	62.08849	26.95897	0.1758179	2.6844653	12	1	9 days	0.47	E Williams	1999 XD ₇
1999 XF ₇	17.0	0.15	19991118	5.01150	31.08271	23.59238	2.07867	0.1800475	2.4354057	12	1	3 days	0.42	E Williams	1999 XF ₇
1999 XJ ₇	13.5	0.15	19991118	35.14088	273.34464	100.36804	7.34095	0.1260804	2.3180468	12	1	3 days	0.41	E Williams	1999 XJ ₇
1999 XK ₇	13.4	0.15	19991118	21.27314	164.39306	225.49668	12.40557	0.1870670	2.5166343	12	1	3 days	0.40	E Williams	1999 XK ₇
1999 XL ₇	12.1	0.15	19991118	22.26094	323.80558	69.55104	15.81354	0.1191932	3.1559076	17	1	5 days	0.20	E Williams	1999 XL ₇
1999 XM ₇	12.8	0.15	19991118	18.02285	311.46848	90.57656	5.33857	0.1109118	2.8070813	17	1	5 days	0.38	E Williams	1999 XM ₇
1999 XN ₇	14.5	0.15	19991118	323.92416	329.26258	143.15722	2.61106	0.1472077	2.3326898	12	1	4 days	0.65	E Williams	1999 XN ₇
1999 XO ₇	12.4	0.15	19991208	19.13451	67.36514	3.83364	12.37722	0.1574346	2.6648698	12	1	10 days	0.20	Williams	1999 XO ₇
1999 XP ₇	12.7	0.15	19991118	2.24628	20.80060	65.96709	7.94056	0.2489717	2.5435554	12	1	7 days	0.20	E Williams	1999 XP ₇
1999 XQ ₇	13.2	0.15	19991208	44.09153	23.84172	11.39389	5.88141	0.2068778	2.3086648	17	1	9 days	0.45	E Williams	1999 XQ ₇
1999 XR ₇	11.7	0.15	19991208	27.85077	12.17733	53.92026	16.11417	0.1105937	2.9413973	12	1	10 days	0.23	Williams	1999 XR ₇
1999 XS ₇	12.8	0.15	19991208	42.52458	2.72352	44.87726	14.54625	0.1486272	2.6596912	12	1	10 days	0.25	Williams	1999 XS ₇
1999 XT ₇	13.2	0.15	19991208	23.78836	78.85561	341.28344	12.63878	0.1817302	2.5595576	12	1	10 days	0.45	Williams	1999 XT ₇
1999 XU ₇	14.0	0.15	19991118	352.85719	86.65344	13.03351	4.70994	0.2943730	2.5916738	12	1	7 days	0.55	E Williams	1999 XU ₇
1999 XV ₇	16.1	0.15	19991208	36.12983	359.12677	15.43532	6.40752	0.2743414	2.2751896	28	1	10 days	0.84	Williams	1999 XV ₇
1999 XW ₇	15.2	0.15	19991118	320.26634	224.88751	261.64481	1.54361	0.0681669	2.4746448	9	1	4 days	0.44	Williams	1999 XW ₇
1999 XX ₇	14.2	0.15	19991118	22.64624	57.02281	285.92771	4.79299	0.2442177	2.4191794	14	1	3 days	0.63	E Williams	1999 XX ₇
1999 XY ₇	15.2	0.15	19991118	9.01198	339.11100	39.46107	12.48121	0.1875525	2.4475758	19	1	10 days	0.65	Williams	1999 XY ₇

1999 XZ ₇	16.0	0.15	19991118	65.94138	24.78669	336.85142	18.32761	0.0864077	1.9861061	25	1	4 days	0.40	Williams	1999 XZ ₇
1999 XA ₈	15.6	0.15	19991208	333.52897	108.82128	354.94199	14.20726	0.2065169	3.0883162	9	1	7 days	0.49	Williams	1999 XA ₈
1999 XB ₈	12.2	0.15	19991118	274.05768	149.70811	78.57470	36.62801	0.7793272	3.1510825	11	1	3 days	0.79	E Williams	1999 XB ₈
1999 XC ₈	14.0	0.15	19991118	258.12969	92.13480	103.37331	2.15029	0.1288080	2.3590716	14	1	8 days	0.54	Nakano	1999 XC ₈
1999 XE ₈	15.5	0.15	19991208	19.01792	286.39179	128.31775	2.85043	0.2206780	2.4360224	15	1	8 days	0.34	Nakano	1999 XE ₈
1999 XF ₈	12.7	0.15	19991118	277.15888	105.38822	98.28014	14.00398	0.3128941	3.2999570	15	1	8 days	0.38	Nakano	1999 XF ₈
1999 XG ₈	15.1	0.15	19991208	42.45499	144.61704	241.26948	4.68199	0.1850110	2.2817646	14	1	8 days	0.47	Nakano	1999 XG ₈
1999 XH ₈	13.9	0.15	19991208	43.10973	307.90686	93.84261	11.74250	0.0292814	2.6339851	15	1	8 days	0.49	E Nakano	1999 XH ₈
1999 XJ ₈	14.0	0.15	19991208	75.13205	256.87901	93.78175	6.52891	0.1911167	2.7734948	10	1	8 days	0.59	Nakano	1999 XJ ₈
1999 XK ₈	14.1	0.15	19991208	336.93030	29.70999	87.27305	13.37808	0.1370418	2.6251768	10	1	8 days	0.55	Nakano	1999 XK ₈
1999 XM ₈	13.7	0.15	19991118	176.13962	5.12875	280.50366	14.48935	0.2276720	2.4104690	14	1	6 days	0.76	E Williams	1999 XM ₈
1999 XN ₈	13.4	0.15	19991118	132.28311	213.29854	110.00306	13.67850	0.0821266	2.6701297	18	1	6 days	0.35	E Williams	1999 XN ₈
1999 XU ₈	15.9	0.15	19991208	72.42307	258.83527	90.98135	23.89890	0.1210691	1.9725073	25	1	10 days	0.58	Williams	1999 XU ₈
1999 XW ₈	16.0	0.15	19991208	27.82079	285.67363	70.83427	28.80664	0.4164158	2.6394733	25	1	11 days	0.49	Williams	1999 XW ₈
1999 XZ ₈	15.0	0.15	19991208	7.02784	338.24430	69.76849	26.05148	0.2324686	2.3061339	24	1	10 days	0.46	Williams	1999 XZ ₈
1999 XF ₉	15.6	0.15	19991118	109.80219	75.19370	241.23263	1.46123	0.0389086	3.1214212	9	1	5 days	0.63	E Williams	1999 XF ₉
1999 XG ₉	16.6	0.15	19991118	43.11286	120.73775	248.22229	2.77310	0.1660550	2.3079657	15	1	6 days	0.95	E Williams	1999 XG ₉
1999 XL ₉	16.0	0.15	19991118	32.63722	131.05779	250.57837	6.82486	0.1883746	2.7329845	18	1	6 days	0.37	E Williams	1999 XL ₉
1999 XO ₉	17.2	0.15	19991118	45.77588	110.37623	252.58600	8.98424	0.2219476	2.5806993	10	1	6 days	0.42	E Williams	1999 XO ₉
1999 XT ₉	18.4	0.15	19991118	355.87065	356.67808	78.05232	9.07283	0.2441590	2.7172738	14	1	5 days	0.60	E Williams	1999 XT ₉
1999 XV ₉	16.5	0.15	19991208	114.50603	238.63159	93.67219	4.29711	0.1556174	2.2784356	9	1	8 days	0.09	E Williams	1999 XV ₉
1999 XW ₉	16.5	0.15	19991208	107.86464	250.00968	83.99867	3.03677	0.2436020	2.4371195	9	1	8 days	0.16	E Williams	1999 XW ₉
1999 XY ₉	17.4	0.15	19991118	301.72997	58.84438	63.82684	6.87475	0.1285623	2.4347754	10	1	2 days	0.34	E Williams	1999 XY ₉
1999 XZ ₉	17.4	0.15	19991208	20.44747	317.43483	76.68962	5.49811	0.2204686	2.3729577	22	1	7 days	0.25	E Williams	1999 XZ ₉
1999 XA ₁₀	16.4	0.15	19991118	119.57389	278.22887	42.82670	1.13598	0.1900078	2.1609526	9	1	2 days	0.20	E Williams	1999 XA ₁₀
1999 XB ₁₀	16.5	0.15	19991118	229.12578	165.88129	79.57149	2.60484	0.1780894	2.5607952	9	1	2 days	0.19	E Williams	1999 XB ₁₀
1999 XC ₁₀	16.8	0.15	19991118	166.21108	187.76428	97.20705	25.26264	0.0986956	1.8953976	16	1	3 days	0.31	E Williams	1999 XC ₁₀
1999 XD ₁₀	15.7	0.15	19991118	132.77573	19.23864	289.71491	9.31892	0.2587871	2.1399684	9	1	2 days	0.09	E Williams	1999 XD ₁₀
1999 XF ₁₀	14.7	0.15	19991208	356.55485	130.65991	285.15575	9.05463	0.1259147	3.0024484	15	1	8 days	0.56	E Williams	1999 XF ₁₀
1999 XJ ₁₀	15.4	0.15	19991118	332.55120	188.03738	258.86168	12.93465	0.2028495	3.2325791	13	1	3 days	0.64	E Williams	1999 XJ ₁₀
1999 XL ₁₀	16.1	0.15	19991208	25.51083	110.07659	263.41959	10.35897	0.2496752	2.5194941	17	1	8 days	0.41	Williams	1999 XL ₁₀
1999 XR ₁₀	14.7	0.15	19991208	121.28524	311.33788	331.93249	6.55210	0.1093467	2.3242299	19	1	8 days	0.68	Williams	1999 XR ₁₀
1999 XS ₁₀	15.9	0.15	19991208	23.52165	24.82307	3.05910	6.64620	0.1155418	2.2769573	13	1	5 days	0.41	E Williams	1999 XS ₁₀
1999 XT ₁₀	15.4	0.15	19991208	285.16922	235.11465	263.64373	10.84769	0.0899725	2.5483702	17	1	8 days	0.81	Williams	1999 XT ₁₀
1999 XW ₁₀	14.2	0.15	19991208	134.24604	301.36111	330.89701	4.88914	0.1202380	2.2367516	17	1	8 days	0.34	Williams	1999 XW ₁₀
1999 XX ₁₀	14.5	0.15	19991118	4.65828	148.01518	253.34236	15.40592	0.2461136	3.2051496	16	1	3 days	0.51	E Williams	1999 XX ₁₀
1999 XY ₁₀	14.0	0.15	19991208	67.15613	66.00005	266.42641	10.22888	0.1255899	3.0694878	19	1	8 days	0.71	Williams	1999 XY ₁₀
1999 XZ ₁₀	13.0	0.15	19991208	119.69431	245.65006	40.02662	24.07878	0.0923252	3.2167784	18	1	8 days	0.48	Williams	1999 XZ ₁₀
1999 XA ₁₁	14.9	0.15	19991208	305.68251	101.73383	29.99219	13.22043	0.2005869	2.9295371	12	1	8 days	0.93	E Williams	1999 XA ₁₁
1999 XB ₁₁	16.0	0.15	19991208	56.08567	332.63147	18.79037	7.23001	0.1032532	2.3318264	16	1	8 days	0.70	Williams	1999 XB ₁₁
1999 XC ₁₁	16.1	0.15	19991208	10.63509	23.75132	19.48236	6.25398	0.1979552	2.4926123	16	1	8 days	0.55	Williams	1999 XC ₁₁
1999 XF ₁₁	16.1	0.15	19991208	28.30895	12.57457	0.05671	4.69624	0.2503833	2.5610825	12	1	8 days	0.38	Williams	1999 XF ₁₁
1999 XG ₁₁	15.6	0.15	19991208	22.68876	98.81829	291.20432	5.70093	0.1207052	2.3629735	20	1	8 days	0.49	Williams	1999 XG ₁₁
1999 XH ₁₁	15.5	0.15	19991208	343.71185	143.05221	298.08390	4.92707	0.1364967	2.2966238	16	1	5 days	0.25	E Williams	1999 XH ₁₁
1999 XL ₁₁	15.6	0.15	19991208	92.36377	21.91083	274.31691	7.54430	0.2645105	2.3514652	12	1	8 days	0.47	Williams	1999 XL ₁₁
1999 XM ₁₁	15.8	0.15	19991208	13.73913	91.01903	304.45216	3.99029	0.3010425	2.5594320	17	1	8 days	0.17	Williams	1999 XM ₁₁
1999 XN ₁₁	15.5	0.15	19991208	24.74104	5.44071	24.40255	7.56374	0.0872295	2.4790863	17	1	8 days	0.32	Williams	1999 XN ₁₁
1999 XO ₁₁	15.6	0.15	19991208	320.00183	186.00722	291.91753	5.08400	0.1932202	2.3059893	17	1	8 days	0.25	Williams	1999 XO ₁₁
1999 XP ₁₁	14.5	0.15	19991208	17.13959	48.99911	349.87211	5.48332	0.0696180	2.7421832	17	1	8 days	0.32	Williams	1999 XP ₁₁
1999 XQ ₁₁	14.9	0.15	19991208	352.17286	114.53213	305.57803	9.39984	0.0685631	2.9781524	15	1	8 days	0.72	Williams	1999 XQ ₁₁
1999 XS ₁₁	13.4	0.15	19991118	42.40643	10.40728	345.80820	10.62512	0.1170779	3.3253786	11	1	2 days	0.57	E Williams	1999 XS ₁₁
1999 XT ₁₁	13.4	0.15	19991208	316.45140	167.73182	291.21389	11.25179	0.0450633	3.1820481	20	1	8 days	0.43	Williams	1999 XT ₁₁
1999 XU ₁₁	12.8	0.15	19991208	6.67626	139.67747	264.72637	13.82549	0.1316678	3.0547574	20	1	7 days	0.34	Williams	1999 XU ₁₁

1999 XV ₁₁	14.8	0.15	19991208	17.52095	90.58102	304.78847	6.67321	0.1349836	2.2794713	19	1	7 days	0.53	Williams	1999 XV ₁₁
1999 XW ₁₁	16.0	0.15	19991208	47.65188	29.31654	319.88827	5.76829	0.2125632	2.2653729	19	1	7 days	0.57	Williams	1999 XW ₁₁
1999 XX ₁₁	15.0	0.15	19991208	310.30114	122.48274	355.40408	7.12034	0.1091873	2.2809100	20	1	7 days	0.54	Williams	1999 XX ₁₁
1999 XY ₁₁	15.0	0.15	19991208	334.95194	208.13840	250.50509	24.49380	0.2278357	2.2778599	24	1	9 days	0.33	Williams	1999 XY ₁₁
1999 XZ ₁₁	16.5	0.15	19991208	356.87765	109.01982	313.47207	5.96045	0.1513269	2.4435206	12	1	7 days	0.55	Williams	1999 XZ ₁₁
1999 XA ₁₂	15.1	0.15	19991208	10.74203	99.52233	300.66948	10.22096	0.1957839	2.6346482	13	1	4 days	0.42	E Williams	1999 XA ₁₂
1999 XB ₁₂	14.2	0.15	19991208	265.74902	231.08303	287.44283	11.71937	0.0894181	2.6273856	19	1	8 days	0.50	Williams	1999 XB ₁₂
1999 XC ₁₂	14.2	0.15	19991208	315.64669	136.44011	336.75804	9.43379	0.1504576	3.2123165	13	1	4 days	0.49	E Williams	1999 XC ₁₂
1999 XD ₁₂	16.7	0.15	19991208	349.33553	115.43778	325.89328	6.72711	0.2737087	2.3584604	12	1	4 days	0.44	E Williams	1999 XD ₁₂
1999 XK ₁₂	13.8	0.15	19991118	63.98170	257.15005	113.07842	13.11911	0.1449072	2.4233349	19	1	2 days	0.58	E Williams	1999 XK ₁₂
1999 XV ₁₂	14.0	0.15	19991118	65.07204	148.56754	187.53433	8.80510	0.2665961	2.9719706	14	1	2 days	0.70	E Williams	1999 XV ₁₂
1999 XW ₁₂	15.0	0.15	19991118	86.22894	167.57395	163.39266	7.24858	0.1190025	2.4127435	12	1	2 days	0.61	E Williams	1999 XW ₁₂
1999 XX ₁₂	13.8	0.15	19991118	240.99396	341.17937	225.85294	16.82086	0.1592000	2.7334726	17	1	2 days	0.61	E Williams	1999 XX ₁₂
1999 XF ₁₃	13.1	0.15	19991118	256.94267	85.52111	83.13810	14.14739	0.1152740	2.6149012	17	1	3 days	0.42	E Williams	1999 XF ₁₃
1999 XG ₁₃	15.2	0.15	19991118	58.33380	265.26620	83.86645	12.36922	0.0694712	2.4007622	11	1	2 days	0.46	E Williams	1999 XG ₁₃
1999 XH ₁₃	13.4	0.15	19991118	122.48011	83.20548	201.58593	11.23538	0.0826742	2.7859007	11	1	2 days	1.05	E Williams	1999 XH ₁₃
1999 XK ₁₃	14.9	0.15	19991118	33.76960	231.92653	142.44782	6.04751	0.1163633	2.3023043	12	1	2 days	0.45	E Williams	1999 XK ₁₃
1999 XL ₁₃	15.2	0.15	19991118	331.06203	285.00945	170.80261	5.42800	0.1380756	2.2418796	12	1	2 days	0.49	E Williams	1999 XL ₁₃
1999 XM ₁₃	14.5	0.15	19991118	76.48897	159.29841	175.29686	7.22940	0.0687167	2.7456261	13	1	3 days	0.65	E Williams	1999 XM ₁₃
1999 XN ₁₃	13.6	0.15	19991118	50.66911	240.98679	112.58113	9.93452	0.1363830	2.7483184	13	1	2 days	0.37	E Williams	1999 XN ₁₃
1999 XO ₁₃	13.5	0.15	19991118	41.17247	126.35083	265.78314	13.73722	0.2357746	3.1527430	16	1	3 days	1.15	E Williams	1999 XO ₁₃
1999 XP ₁₃	14.8	0.15	19991118	124.52502	102.30294	194.88664	9.01687	0.1099240	2.3348736	11	1	2 days	0.58	E Williams	1999 XP ₁₃
1999 XR ₁₃	10.2	0.15	19991118	130.06982	185.46745	84.87493	16.95342	0.1890596	3.2927023	12	1	2 days	0.64	E Williams	1999 XR ₁₃
1999 XS ₁₃	13.2	0.15	19991118	336.24492	271.41280	185.96884	7.75873	0.2401190	2.6370495	15	1	4 days	0.37	E Williams	1999 XS ₁₃
1999 XU ₁₃	15.3	0.15	19991118	268.45701	9.83944	164.72651	7.30003	0.1163144	2.2471268	13	1	2 days	0.57	E Williams	1999 XU ₁₃
1999 XV ₁₃	15.8	0.15	19991118	344.74022	341.45486	107.25460	11.00244	0.2801245	2.7964630	19	1	3 days	0.58	E Williams	1999 XV ₁₃
1999 XW ₁₄	16.3	0.15	19991208	275.65539	79.73652	90.39648	24.07120	0.0732271	1.9495455	24	1	9 days	0.47	Williams	1999 XW ₁₄
1999 XA ₁₅	14.1	0.15	19991118	119.48066	218.23838	78.39741	21.32377	0.0675513	2.3896365	17	1	5 days	0.35	E Williams	1999 XA ₁₅
1999 XC ₁₅	15.0	0.15	19991208	312.46922	43.34848	99.39076	27.73193	0.0696373	1.9170371	26	1	9 days	0.23	Williams	1999 XC ₁₅
1999 XG ₁₅	14.8	0.15	19991208	308.81495	333.00156	167.07284	0.69352	0.1867446	3.2687733	15	1	11 days	0.38	Williams	1999 XG ₁₅
1999 XH ₁₅	15.1	0.15	19991208	61.18469	132.58024	211.86476	0.94171	0.2172932	2.9877315	15	1	11 days	0.42	Williams	1999 XH ₁₅
1999 XJ ₁₅	14.1	0.15	19991208	100.94205	307.65169	359.59542	2.45024	0.2126286	2.4544590	12	1	8 days	1.81	Williams	1999 XJ ₁₅
1999 XK ₁₅	15.2	0.15	19991208	338.03341	201.29492	258.11257	10.92484	0.1261579	2.5240741	12	1	8 days	0.50	Williams	1999 XK ₁₅
1999 XL ₁₅	15.4	0.15	19991208	56.12301	110.77606	240.90993	5.02574	0.2370826	2.2917850	14	1	8 days	0.58	Williams	1999 XL ₁₅
1999 XM ₁₅	12.8	0.15	19991208	25.22897	62.38996	330.45310	2.68161	0.1918087	3.9553192	7	1	8 days	1.85	E Williams	1999 XM ₁₅
1999 XN ₁₅	15.3	0.15	19991208	45.37973	222.23325	151.36248	3.32030	0.1667151	2.3938920	6	1	8 days	0.38	Williams	1999 XN ₁₅
1999 XO ₁₅	13.3	0.15	19991118	96.66264	154.75964	153.68768	3.71125	0.2550201	3.0371854	9	1	2 days	0.51	E Williams	1999 XO ₁₅
1999 XP ₁₅	17.0	0.15	19991118	12.01746	301.07938	101.55718	3.88374	0.2972703	2.4093914	10	1	2 days	0.62	Williams	1999 XP ₁₅
1999 XQ ₁₅	15.3	0.15	19991208	60.58671	127.26348	233.00092	5.87800	0.1355365	2.3138520	13	1	8 days	0.44	Williams	1999 XQ ₁₅
1999 XR ₁₅	16.0	0.15	19991208	2.23023	316.59840	115.92737	4.12917	0.1502615	2.2017237	11	1	8 days	0.30	Williams	1999 XR ₁₅
1999 XS ₁₅	12.2	0.15	19991208	149.52043	201.49984	107.13534	14.53210	0.0521088	2.8669035	9	1	4 days	0.40	E Nakano	1999 XS ₁₅
1999 XT ₁₅	13.4	0.15	19991208	207.95123	142.47405	112.17844	8.70202	0.0375016	2.7717680	13	1	4 days	1.49	E Nakano	1999 XT ₁₅
1999 XU ₁₅	14.1	0.15	19991118	30.71430	305.03068	101.47703	15.23106	0.2080240	2.6744483	16	1	4 days	0.36	E Williams	1999 XU ₁₅
1999 XV ₁₅	13.5	0.15	19991208	16.94850	326.00525	98.63482	10.70320	0.2932883	2.6547656	13	1	3 days	1.37	E Williams	1999 XV ₁₅
1999 XX ₁₅	14.7	0.15	19991118	38.57591	285.58982	100.45393	2.26878	0.2821381	2.4802821	12	1	5 days	0.27	E Williams	1999 XX ₁₅
1999 XE ₁₆	15.5	0.15	19991208	325.90273	71.77854	63.73244	7.56615	0.1600704	2.3536888	10	1	4 days	0.13	Williams	1999 XE ₁₆
1999 XG ₁₆	15.1	0.15	19991208	33.73131	294.06443	61.10678	30.42007	0.3596704	2.6158246	18	1	9 days	0.23	Williams	1999 XG ₁₆
1999 XH ₁₇	16.5	0.15	19991208	11.16216	349.33432	94.43902	26.47171	0.1225348	1.9214090	23	1	8 days	0.51	Williams	1999 XH ₁₇
1999 XT ₁₇	11.8	0.15	19991118	309.25370	52.09306	31.68948	10.97199	0.1616099	3.0586354	13	1	9 days	0.30	E Williams	1999 XT ₁₇
1999 XZ ₁₇	14.0	0.15	19991118	10.64946	160.95683	204.42077	13.32571	0.1556664	2.6707159	12	1	9 days	0.50	E Williams	1999 XZ ₁₇
1999 XB ₁₈	13.5	0.15	19991118	19.60108	328.06701	26.73910	10.96217	0.1209336	2.9716599	11	1	10 days	0.35	Williams	1999 XB ₁₈
1999 XG ₁₈	15.4	0.15	19991118	338.38341	15.64047	45.64256	5.46192	0.1977696	2.3911069	13	1	10 days	0.41	Williams	1999 XG ₁₈
1999 XJ ₁₈	16.0	0.15	19991118	348.63466	11.54203	33.81399	3.33903	0.1751669	2.4314569	14	1	12 days	0.40	Williams	1999 XJ ₁₈

1999 XK ₁₈	16.0	0.15	19991118	346.51077	180.00767	233.78547	1.95306	0.2344485	2.3127129	15	1	11 days	0.61	Williams	1999 XK ₁₈
1999 XO ₁₈	15.1	0.15	19991118	357.18628	308.78227	85.14603	3.35822	0.1947037	2.4087083	13	1	10 days	0.42	Williams	1999 XO ₁₈
1999 XP ₁₈	13.2	0.15	19991118	356.74797	343.69455	48.31704	8.02627	0.0844599	2.6079087	13	1	10 days	0.56	Williams	1999 XP ₁₈
1999 XR ₁₈	14.0	0.15	19991118	29.25439	316.84383	36.94427	16.38609	0.0965638	2.5224284	13	1	6 days	0.21	E Williams	1999 XR ₁₈
1999 XV ₁₈	15.2	0.15	19991118	357.59807	187.95165	209.75435	8.56837	0.1856848	2.4984454	13	1	10 days	0.43	Williams	1999 XV ₁₈
1999 XE ₁₉	15.1	0.15	19991118	0.64314	342.25007	42.06132	10.54225	0.2102369	2.6885789	12	1	10 days	0.78	Williams	1999 XE ₁₉
1999 XN ₁₉	15.0	0.15	19991118	349.75455	18.51158	23.40214	7.12664	0.1497723	2.4676294	13	1	10 days	0.48	Williams	1999 XN ₁₉
1999 XO ₁₉	15.6	0.15	19991118	6.93375	143.19197	237.04953	4.55325	0.1521567	2.3085721	13	1	10 days	0.41	Williams	1999 XO ₁₉
1999 XU ₁₉	14.0	0.15	19991118	8.38015	347.97713	33.56972	11.32815	0.1569666	2.6256314	13	1	10 days	0.48	Williams	1999 XU ₁₉
1999 XG ₂₀	14.2	0.15	19991118	280.83739	85.72321	52.36998	13.48086	0.1604642	2.7512060	12	1	3 days	0.58	E Williams	1999 XG ₂₀
1999 XH ₂₀	13.1	0.15	19991118	103.73234	225.38203	54.54463	11.32711	0.1622549	2.7228029	11	1	3 days	0.44	E Williams	1999 XH ₂₀
1999 XK ₂₀	14.8	0.15	19991118	45.03566	266.57465	62.82402	5.22727	0.2823943	2.6611084	13	1	3 days	0.58	E Williams	1999 XK ₂₀
1999 XL ₂₀	15.1	0.15	19991118	312.29021	19.67102	94.76327	3.23654	0.2277344	2.5282027	12	1	3 days	0.31	E Williams	1999 XL ₂₀
1999 XM ₂₀	14.5	0.15	19991118	301.11248	56.57797	67.77878	6.34758	0.1973314	2.6270966	13	1	3 days	0.90	E Williams	1999 XM ₂₀
1999 XN ₂₀	14.6	0.15	19991118	102.61703	111.88883	176.36308	3.18004	0.1227190	2.2891088	10	1	3 days	0.67	E Williams	1999 XN ₂₀
1999 XO ₂₀	14.1	0.15	19991118	128.69595	203.45771	65.00309	7.46177	0.0754796	2.4166366	11	1	3 days	0.48	E Williams	1999 XO ₂₀
1999 XP ₂₀	12.7	0.15	19991118	77.17933	120.90828	184.33091	3.87270	0.1837434	2.6169778	13	1	3 days	0.53	E Williams	1999 XP ₂₀
1999 XQ ₂₀	13.7	0.15	19991118	64.83217	253.34239	53.29523	12.58365	0.2704762	3.0004740	13	1	3 days	0.60	E Williams	1999 XQ ₂₀
1999 XU ₂₀	13.4	0.15	19991118	23.25084	181.84663	192.67082	4.25247	0.1295060	3.0821573	13	1	3 days	0.63	E Williams	1999 XU ₂₀
1999 XY ₂₀	14.1	0.15	19991118	351.79765	357.36871	48.74486	7.85186	0.1597853	2.4612820	12	1	10 days	0.79	Williams	1999 XY ₂₀
1999 XB ₂₁	15.1	0.15	19991118	347.57254	346.96285	72.14851	4.93072	0.0750260	2.3402671	12	1	3 days	0.55	E Williams	1999 XB ₂₁
1999 XD ₂₁	14.0	0.15	19991118	339.99429	340.23217	108.74819	8.14221	0.2170479	3.1848327	13	1	3 days	0.39	E Williams	1999 XD ₂₁
1999 XJ ₂₁	14.1	0.15	19991118	296.80387	290.84348	204.08660	11.23515	0.1821828	2.6465231	12	1	3 days	1.16	E Williams	1999 XJ ₂₁
1999 XM ₂₁	15.1	0.15	19991118	31.71280	181.69259	194.56344	8.26592	0.0989369	2.6787429	12	1	3 days	0.50	E Williams	1999 XM ₂₁
1999 XO ₂₁	14.5	0.15	19991118	26.28174	219.99602	164.64224	6.47627	0.1296000	2.7221315	12	1	3 days	0.44	E Williams	1999 XO ₂₁
1999 XL ₂₂	14.6	0.15	19991208	336.76032	350.35094	95.83868	3.80625	0.1601484	3.0478899	13	1	6 days	0.68	Williams	1999 XL ₂₂
1999 XP ₂₂	15.2	0.15	19991208	9.90818	335.49726	66.29050	6.96650	0.1485830	2.3145668	17	1	8 days	0.42	Williams	1999 XP ₂₂
1999 XU ₂₂	15.8	0.15	19991208	349.59864	11.61896	61.31114	10.91677	0.2764964	2.7999938	14	1	6 days	0.26	Williams	1999 XU ₂₂
1999 XX ₂₂	13.9	0.15	19991208	220.11280	146.00165	46.88686	13.89139	0.1046399	2.6913833	17	1	8 days	0.36	E Williams	1999 XX ₂₂
1999 XY ₂₂	13.0	0.15	19991118	42.96194	288.87197	55.45612	6.57536	0.1616689	3.2652920	15	1	3 days	0.57	E Williams	1999 XY ₂₂
1999 XZ ₂₂	14.4	0.15	19991118	315.84724	45.25897	61.66096	4.70780	0.2021176	2.8480627	16	1	3 days	0.61	E Williams	1999 XZ ₂₂
1999 XB ₂₃	16.3	0.15	19991208	10.33571	344.89241	49.78875	15.16886	0.2012522	2.6195610	12	1	6 days	0.57	E Williams	1999 XB ₂₃
1999 XE ₂₃	15.8	0.15	19991208	40.96415	306.71674	35.77321	4.69343	0.2596684	2.3093361	13	1	6 days	0.69	E Williams	1999 XE ₂₃
1999 XF ₂₃	13.9	0.15	19991118	294.57624	248.70898	230.08103	5.99045	0.1310943	2.5238568	12	1	3 days	0.64	E Williams	1999 XF ₂₃
1999 XG ₂₃	14.1	0.15	19991118	3.87061	358.39660	33.38477	10.29430	0.2007701	2.9373700	12	1	3 days	0.58	E Williams	1999 XG ₂₃
1999 XJ ₂₃	15.2	0.15	19991118	21.33232	136.12692	233.27072	11.86257	0.1318346	2.4468870	13	1	3 days	0.37	E Williams	1999 XJ ₂₃
1999 XM ₂₃	15.0	0.15	19991208	8.82854	289.91800	114.21816	3.07212	0.0746085	2.8531590	11	1	6 days	0.49	E Williams	1999 XM ₂₃
1999 XQ ₂₃	16.4	0.15	19991208	28.05690	284.48309	97.58776	1.98376	0.0913088	2.1842370	12	1	6 days	1.02	E Williams	1999 XQ ₂₃
1999 XT ₂₃	14.7	0.15	19991208	43.82781	218.96912	125.95676	1.29516	0.2419044	2.9815438	14	1	6 days	0.80	E Williams	1999 XT ₂₃
1999 XU ₂₃	15.4	0.15	19991208	342.11175	207.17826	229.30261	9.02528	0.1816108	2.7026199	13	1	6 days	0.45	E Williams	1999 XU ₂₃
1999 XV ₂₃	14.3	0.15	19991118	67.62807	339.69513	328.10724	1.78095	0.2454515	2.4498571	11	1	3 days	0.68	E Williams	1999 XV ₂₃
1999 XW ₂₃	13.8	0.15	19991118	53.55877	95.85842	238.65868	9.44302	0.1408511	2.9757032	13	1	3 days	0.39	E Williams	1999 XW ₂₃
1999 XX ₂₃	15.3	0.15	19991118	12.96852	142.84910	245.55058	5.70895	0.1367855	2.3459496	13	1	3 days	0.48	E Williams	1999 XX ₂₃
1999 XY ₂₃	15.0	0.15	19991118	70.30812	77.85881	234.32117	9.02486	0.1988360	2.4520757	12	1	3 days	0.36	E Williams	1999 XY ₂₃
1999 XZ ₂₃	14.6	0.15	19991208	284.73597	101.35114	33.21763	3.97514	0.0626750	2.2667641	17	1	8 days	0.23	E Williams	1999 XZ ₂₃
1999 XA ₂₄	14.8	0.15	19991208	301.43612	235.19876	245.08049	5.31945	0.0814763	2.2482415	17	1	8 days	0.38	E Williams	1999 XA ₂₄
1999 XB ₂₄	14.0	0.15	19991208	346.66746	193.24182	231.48823	14.43671	0.0719161	3.1046703	14	1	8 days	0.58	E Williams	1999 XB ₂₄
1999 XL ₂₄	14.8	0.15	19991208	326.82826	228.48233	240.10638	4.47762	0.2359378	2.7213685	14	1	6 days	0.27	E Williams	1999 XL ₂₄
1999 XP ₂₄	15.8	0.15	19991208	324.70742	34.80541	77.63532	5.09682	0.2310352	2.6701183	13	1	6 days	0.45	E Williams	1999 XP ₂₄
1999 XQ ₂₄	14.5	0.15	19991208	30.68014	308.28376	59.68202	18.50952	0.2250573	3.2513138	13	1	6 days	0.68	E Williams	1999 XQ ₂₄
1999 XS ₂₄	15.0	0.15	19991208	302.56593	281.96911	215.20820	5.80909	0.2061724	2.6309538	14	1	6 days	0.40	E Williams	1999 XS ₂₄
1999 XU ₂₄	15.0	0.15	19991208	1.32395	347.98528	67.59962	10.13580	0.0242976	2.5499766	13	1	6 days	0.51	E Williams	1999 XU ₂₄
1999 XW ₂₄	15.6	0.15	19991208	354.28886	342.09964	85.97217	3.72137	0.1895613	2.5673367	13	1	6 days	0.52	E Williams	1999 XW ₂₄

1999 XX ₂₄	16.0	0.15	19991208	18.04415	331.73108	63.49849	7.35555	0.1268007	2.4264735	16	1	6 days	0.52	E Williams	1999 XX ₂₄
1999 XY ₂₄	14.6	0.15	19991208	255.25758	303.53128	235.13869	21.99775	0.1579647	2.3324600	17	1	6 days	0.35	E Williams	1999 XY ₂₄
1999 XZ ₂₄	15.7	0.15	19991208	26.28817	139.40316	240.19588	9.33418	0.2269243	2.3130511	14	1	6 days	0.21	E Williams	1999 XZ ₂₄
1999 XA ₂₅	14.0	0.15	19991208	312.96386	49.99239	60.88389	10.44450	0.0618259	2.4763514	13	1	6 days	0.17	E Williams	1999 XA ₂₅
1999 XB ₂₅	13.2	0.15	19991208	226.25942	127.18060	64.35155	12.09006	0.0317224	3.4293904	14	1	6 days	0.38	E Williams	1999 XB ₂₅
1999 XC ₂₅	16.5	0.15	19991208	58.84503	261.55565	71.66672	7.95071	0.2539334	2.3227891	14	1	6 days	0.56	E Williams	1999 XC ₂₅
1999 XD ₂₅	16.0	0.15	19991208	7.99546	247.63548	161.31417	2.11795	0.2013193	2.3735190	14	1	6 days	0.29	E Williams	1999 XD ₂₅
1999 XF ₂₅	13.2	0.15	19991208	356.70030	198.33323	224.17146	12.21610	0.1017722	3.2010245	14	1	6 days	0.26	E Williams	1999 XF ₂₅
1999 XG ₂₅	15.5	0.15	19991208	19.47976	326.80022	70.60157	11.50717	0.1161137	2.2880632	14	1	6 days	0.50	E Williams	1999 XG ₂₅
1999 XH ₂₅	13.3	0.15	19991208	358.26011	304.56527	116.31963	2.75767	0.0886552	3.1394398	14	1	6 days	0.25	E Williams	1999 XH ₂₅
1999 XJ ₂₅	14.7	0.15	19991208	356.18612	2.38809	62.81718	15.64335	0.1419692	2.6044779	14	1	6 days	0.32	E Williams	1999 XJ ₂₅
1999 XK ₂₅	15.3	0.15	19991208	29.65333	315.17102	63.01003	15.24371	0.1763388	2.7920061	14	1	6 days	0.46	E Williams	1999 XK ₂₅
1999 XM ₂₅	15.2	0.15	19991208	345.88126	281.91770	158.85635	1.37982	0.1960843	3.2252506	14	1	6 days	0.52	E Williams	1999 XM ₂₅
1999 XQ ₂₅	16.1	0.15	19991208	21.60400	317.26634	72.38575	9.93904	0.2019679	2.5651963	14	1	6 days	0.55	E Williams	1999 XQ ₂₅
1999 XR ₂₅	15.1	0.15	19991208	295.11507	310.95535	193.96508	3.69564	0.1648855	2.3268652	14	1	6 days	0.40	E Williams	1999 XR ₂₅
1999 XS ₂₅	14.9	0.15	19991118	102.32607	210.01624	96.55744	3.64656	0.0730350	2.1939130	12	1	2 days	0.26	E Williams	1999 XS ₂₅
1999 XW ₂₅	17.2	0.15	19991208	22.72703	315.64513	79.20792	5.50587	0.1492331	2.3000480	13	1	6 days	0.57	E Williams	1999 XW ₂₅
1999 XX ₂₅	16.4	0.15	19991208	338.92759	14.56367	78.17681	7.44886	0.1181839	2.1787673	11	1	3 days	0.39	E Williams	1999 XX ₂₅
1999 XZ ₂₅	15.2	0.15	19991208	66.14235	259.40457	78.74678	9.12398	0.1856110	2.2539262	13	1	3 days	0.29	E Williams	1999 XZ ₂₅
1999 XD ₂₆	13.9	0.15	19991208	4.29759	350.72984	53.42517	10.82108	0.0686563	3.0829148	16	1	8 days	0.44	E Williams	1999 XD ₂₆
1999 XE ₂₆	15.8	0.15	19991208	350.71482	196.23392	231.79092	7.64883	0.2031047	2.4022974	15	1	8 days	0.43	E Williams	1999 XE ₂₆
1999 XG ₂₆	13.9	0.15	19991208	310.02599	244.20523	239.47945	8.72046	0.2589505	2.8962467	12	1	6 days	0.54	E Williams	1999 XG ₂₆
1999 XK ₂₆	14.0	0.15	19991118	98.30437	284.73019	354.69989	2.49229	0.2574950	2.1787974	11	1	3 days	0.57	E Williams	1999 XK ₂₆
1999 XL ₂₆	15.9	0.15	19991208	326.16354	229.51595	241.21126	5.66696	0.2761643	2.6548761	12	1	6 days	0.61	E Williams	1999 XL ₂₆
1999 XN ₂₆	14.7	0.15	19991208	145.27928	11.06092	243.32102	1.87548	0.1920274	2.4107030	16	1	8 days	0.65	E Williams	1999 XN ₂₆
1999 XS ₂₆	16.6	0.15	19991208	351.07823	197.49501	235.30241	3.05941	0.2612965	2.6894982	13	1	6 days	0.47	E Williams	1999 XS ₂₆
1999 XT ₂₆	16.0	0.15	19991208	62.85775	98.96316	243.25058	4.15192	0.1137563	2.2493082	13	1	6 days	0.52	E Williams	1999 XT ₂₆
1999 XU ₂₆	15.4	0.15	19991208	123.58168	172.82768	100.25881	2.01306	0.2371938	2.1934616	13	1	6 days	0.72	E Williams	1999 XU ₂₆
1999 XY ₂₆	14.6	0.15	19991208	92.95318	178.38851	126.82674	2.86731	0.1414527	2.8190923	11	1	6 days	0.60	E Williams	1999 XY ₂₆
1999 XZ ₂₆	14.5	0.15	19991208	11.60915	290.64023	109.11562	2.72452	0.1481224	3.1141900	13	1	6 days	0.40	E Williams	1999 XZ ₂₆
1999 XC ₂₇	16.2	0.15	19991208	45.21133	275.19382	82.55723	4.01727	0.1692621	2.4109573	14	1	6 days	0.46	E Williams	1999 XC ₂₇
1999 XE ₂₇	15.9	0.15	19991208	41.25570	307.41540	57.58051	14.73518	0.1354859	2.5398981	13	1	6 days	0.61	E Williams	1999 XE ₂₇
1999 XH ₂₇	14.9	0.15	19991208	349.17886	3.47004	66.76901	15.45411	0.0246157	2.5428645	12	1	6 days	0.79	E Williams	1999 XH ₂₇
1999 XJ ₂₇	15.2	0.15	19991208	27.62958	310.14439	69.28988	12.57810	0.1903423	2.8008516	13	1	6 days	0.26	E Williams	1999 XJ ₂₇
1999 XM ₂₇	16.2	0.15	19991208	349.75653	213.59002	227.78492	5.44778	0.2540422	2.4136956	13	1	6 days	0.29	E Williams	1999 XM ₂₇
1999 XN ₂₇	15.9	0.15	19991208	11.06067	205.87130	200.71521	2.75192	0.1448029	2.5302364	12	1	6 days	0.44	E Williams	1999 XN ₂₇
1999 XO ₂₇	15.0	0.15	19991208	352.90178	326.58013	105.69477	2.24016	0.2433773	3.2416846	13	1	6 days	0.44	E Williams	1999 XO ₂₇
1999 XP ₂₇	16.2	0.15	19991208	63.33654	265.73252	64.68774	5.76381	0.2274045	2.4527997	11	1	6 days	0.48	E Williams	1999 XP ₂₇
1999 XT ₂₇	14.7	0.15	19991208	105.28921	146.76007	158.11205	2.36683	0.0878068	2.8307417	13	1	6 days	0.58	E Williams	1999 XT ₂₇
1999 XU ₂₇	16.6	0.15	19991208	292.55592	63.64014	82.25522	7.05574	0.1455152	2.2642967	11	1	6 days	0.71	E Williams	1999 XU ₂₇
1999 XX ₂₇	14.4	0.15	19991118	315.68527	38.12761	71.73331	24.43646	0.1482105	3.1754505	11	1	3 days	0.49	E Williams	1999 XX ₂₇
1999 XZ ₂₇	15.5	0.15	19991208	123.09264	253.62048	18.86601	2.83875	0.1823551	2.1078537	12	1	6 days	0.57	E Williams	1999 XZ ₂₇
1999 XK ₂₈	17.2	0.15	19991208	350.36828	347.82643	93.29061	3.39722	0.1902820	2.3300957	10	1	3 days	0.33	E Williams	1999 XK ₂₈
1999 XL ₂₈	14.7	0.15	19991208	316.55557	34.87966	74.36568	11.31252	0.0279789	3.0683569	16	1	6 days	0.32	E Williams	1999 XL ₂₈
1999 XM ₂₈	15.5	0.15	19991208	9.82412	331.01165	80.27849	8.71986	0.1518949	3.0350334	12	1	3 days	0.62	E Williams	1999 XM ₂₈
1999 XN ₂₈	15.0	0.15	19991208	306.76943	5.78847	127.30286	2.90023	0.1457667	2.9456636	12	1	3 days	0.30	E Williams	1999 XN ₂₈
1999 XO ₂₈	16.8	0.15	19991208	35.58821	166.64158	199.86065	2.41871	0.2804853	2.4949630	11	1	3 days	0.36	E Williams	1999 XO ₂₈
1999 XP ₂₈	14.8	0.15	19991208	74.37191	187.20605	137.52011	2.66353	0.2252047	2.7957749	16	1	3 days	0.53	E Williams	1999 XP ₂₈
1999 XQ ₂₈	16.0	0.15	19991208	114.36218	215.46322	86.93479	6.45973	0.0923069	2.3329106	12	1	3 days	0.44	E Williams	1999 XQ ₂₈
1999 XR ₂₈	16.4	0.15	19991208	328.46363	1.33273	109.41606	3.70793	0.1763075	2.6747601	12	1	3 days	0.48	E Williams	1999 XR ₂₈
1999 XT ₂₈	14.8	0.15	19991208	337.80881	355.65776	96.26527	5.78698	0.0779607	2.7661884	13	1	3 days	0.38	E Williams	1999 XT ₂₈
1999 XU ₂₈	14.0	0.15	19991208	43.64486	283.79347	79.74123	12.41126	0.2112473	2.3436152	14	1	9 days	0.40	Williams	1999 XU ₂₈
1999 XX ₂₈	16.7	0.15	19991208	44.02407	166.07276	195.86697	2.82835	0.2214300	2.5414624	13	1	3 days	0.41	E Williams	1999 XX ₂₈

1999 XZ ₂₈	18.0	0.15	19991208	5.82270	337.95097	81.87695	8.02091	0.1732347	2.3324591	15	1	6 days	0.46	E Williams	1999 XZ ₂₈
1999 XA ₂₉	16.8	0.15	19991208	333.06758	354.32241	114.33928	3.73667	0.2194480	2.8941546	12	1	3 days	0.56	E Williams	1999 XA ₂₉
1999 XC ₂₉	15.8	0.15	19991208	346.06579	217.72367	229.66941	8.89591	0.1772782	3.0967980	13	1	3 days	0.57	E Williams	1999 XC ₂₉
1999 XE ₂₉	14.8	0.15	19991118	32.32542	271.76803	113.00580	4.48408	0.0789536	2.6650380	13	1	4 days	0.45	E Williams	1999 XE ₂₉
1999 XG ₂₉	14.2	0.15	19991118	52.50683	116.58054	225.53315	11.50076	0.2691051	3.1447762	13	1	4 days	1.11	E Williams	1999 XG ₂₉
1999 XH ₂₉	12.3	0.15	19991118	255.17731	98.90120	89.03795	12.32975	0.1891431	3.2152762	17	1	6 days	0.38	E Williams	1999 XH ₂₉
1999 XO ₂₉	15.7	0.15	19991118	30.57477	285.82181	97.88524	6.64433	0.1209589	2.3378954	13	1	4 days	0.39	E Williams	1999 XO ₂₉
1999 XQ ₂₉	14.9	0.15	19991118	54.66436	173.42136	164.09446	2.35359	0.2705577	2.4139482	13	1	4 days	0.87	E Williams	1999 XQ ₂₉
1999 XR ₂₉	15.6	0.15	19991118	58.97645	240.86878	98.34610	4.53320	0.2148380	2.2963698	13	1	4 days	0.37	E Williams	1999 XR ₂₉
1999 XU ₃₀	15.7	0.15	19991208	17.98668	312.81124	103.50069	13.50628	0.1406167	2.5257541	14	1	9 days	0.50	Williams	1999 XU ₃₀
1999 XV ₃₀	15.8	0.15	19991208	69.10207	225.87394	100.44098	3.56472	0.2492760	2.8266819	12	1	3 days	0.39	E Williams	1999 XV ₃₀
1999 XW ₃₀	15.6	0.15	19991208	67.11533	143.88081	191.00714	2.79802	0.2244789	2.4540247	11	1	3 days	1.08	E Williams	1999 XW ₃₀
1999 XX ₃₀	15.2	0.15	19991208	51.98650	138.33156	209.36922	4.69115	0.2582179	2.7542797	10	1	3 days	0.78	E Williams	1999 XX ₃₀
1999 XP ₃₁	12.9	0.15	19991118	58.38845	259.56303	114.95690	15.67714	0.2607258	2.9544268	13	1	2 days	0.42	E Williams	1999 XP ₃₁
1999 XR ₃₁	13.2	0.15	19991118	194.27862	158.05187	119.29818	18.46866	0.2218538	2.5106222	13	1	2 days	0.70	E Williams	1999 XR ₃₁
1999 XF ₃₂	13.4	0.15	19991118	141.18461	49.24107	264.20417	6.50258	0.2031509	2.3963078	13	1	2 days	0.52	E Williams	1999 XF ₃₂
1999 XG ₃₂	14.6	0.15	19991118	78.52933	97.73136	266.67953	5.34431	0.1702843	2.3822770	13	1	2 days	0.67	E Williams	1999 XG ₃₂
1999 XL ₃₂	14.2	0.15	19991118	267.13858	113.64763	116.37718	16.66959	0.2775068	2.4441349	11	1	2 days	0.60	E Williams	1999 XL ₃₂
1999 XM ₃₂	15.7	0.15	19991118	6.95562	182.04523	267.67690	5.08905	0.1312408	2.2220661	12	1	2 days	0.36	E Williams	1999 XM ₃₂
1999 XN ₃₂	13.9	0.15	19991118	236.95759	123.19797	116.23292	16.59455	0.1100564	2.2569032	13	1	2 days	0.50	E Williams	1999 XN ₃₂
1999 XO ₃₂	14.5	0.15	19991118	294.52445	5.01940	174.93907	1.08820	0.1118412	2.2125339	13	1	2 days	0.59	E Williams	1999 XO ₃₂
1999 XR ₃₂	13.8	0.15	19991118	74.18728	94.55341	282.22978	10.47266	0.1378455	2.3335509	12	1	2 days	1.11	E Williams	1999 XR ₃₂
1999 XB ₃₃	14.1	0.15	19991208	13.44281	337.56145	112.21351	3.82561	0.2345059	2.4963619	13	1	3 days	0.31	E Williams	1999 XB ₃₃
1999 XG ₃₃	14.4	0.15	19991208	348.05680	208.80358	279.52747	5.53261	0.1692432	2.2301009	13	1	3 days	0.44	E Williams	1999 XG ₃₃
1999 XM ₃₃	16.0	0.15	19991208	7.71398	342.04948	125.20812	4.47376	0.1055477	2.4018222	12	1	3 days	0.50	E Williams	1999 XM ₃₃
1999 XN ₃₃	15.1	0.15	19991208	58.18762	121.28334	275.62423	1.81697	0.2080020	2.4236963	13	1	3 days	0.33	E Williams	1999 XN ₃₃
1999 XO ₃₃	13.0	0.15	19991208	328.95116	36.74531	119.01553	14.86964	0.0847280	2.5689413	13	1	3 days	0.27	E Williams	1999 XO ₃₃
1999 XQ ₃₃	14.8	0.15	19991208	265.91680	104.11111	110.53774	27.27069	0.0637920	1.9133122	14	1	9 days	0.46	Williams	1999 XQ ₃₃
1999 XR ₃₃	12.9	0.15	19991208	201.17503	341.41473	306.05472	9.99155	0.2063085	2.1315735	12	1	3 days	0.47	E Williams	1999 XR ₃₃
1999 XA ₃₄	13.2	0.15	19991208	213.88565	320.67698	316.43765	9.12628	0.1289032	2.4701292	10	1	3 days	0.84	E Williams	1999 XA ₃₄
1999 XC ₃₄	14.4	0.15	19991208	161.69891	208.07396	108.25181	7.60769	0.1518371	2.0571926	12	1	3 days	0.41	E Williams	1999 XC ₃₄
1999 XF ₃₄	13.6	0.15	19991208	342.04172	31.57101	121.25579	25.28073	0.2551705	2.9371587	13	1	3 days	0.57	E Williams	1999 XF ₃₄
1999 XN ₃₄	13.5	0.15	19991118	340.15220	211.77472	288.07702	17.48381	0.2264707	3.1282387	12	1	2 days	0.28	E Williams	1999 XN ₃₄
1999 XT ₃₄	14.5	0.15	19991208	6.96588	171.66456	299.50966	9.92113	0.1708989	2.8556172	14	1	3 days	0.35	E Williams	1999 XT ₃₄
1999 XA ₃₅	14.6	0.15	19991208	309.96876	84.30008	108.55783	5.73954	0.2399247	2.4052801	10	1	3 days	0.80	E Williams	1999 XA ₃₅
1999 XM ₃₅	15.9	0.15	19991118	246.87567	105.10825	81.18019	3.89478	0.1265713	2.3094078	47	1	5 days	0.68	E Williams	1999 XM ₃₅
1999 XN ₃₅	15.4	0.15	19991118	52.77674	308.27254	55.20317	23.29382	0.3341485	2.2561795	32	1	4 days	0.71	Williams	1999 XN ₃₅
1999 XO ₃₅	17.1	0.15	19991208	16.67321	292.30294	82.87610	20.40588	0.5704906	2.5152535	119	1	8 days	0.85	Marsden	1999 XO ₃₅
1999 XP ₃₅	18.8	0.15	19991208	351.45220	198.16130	263.66929	21.30895	0.1878993	1.4438786	39	1	7 days	0.89	E Williams	1999 XP ₃₅
1999 XQ ₃₅	15.2	0.15	19991208	353.62607	76.51340	81.47389	29.20560	0.5272383	3.6492132	14	1	6 days	0.81	Williams	1999 XQ ₃₅
1999 XR ₃₅	17.0	0.15	19991208	325.74078	82.23807	61.22139	18.38889	0.4800477	2.2304149	15	1	3 days	0.42	Williams	1999 XR ₃₅
1999 XS ₃₅	17.3	0.15	19991118	0.35198	333.16298	49.01870	19.47964	0.9480807	18.2539035	159	1	9 days	0.70	Williams	1999 XS ₃₅
1999 XU ₃₅	13.8	0.15	19991208	5.80182	304.68210	112.12961	5.95704	0.1839960	3.1691687	16	1	11 days	0.36	Marsden	1999 XU ₃₅
1999 XV ₃₅	15.1	0.15	19991208	49.89881	211.64820	175.51893	6.21226	0.0118482	2.7328089	9	1	8 days	0.66	E Williams	1999 XV ₃₅
1999 XW ₃₅	13.1	0.15	19991208	335.47450	40.62750	76.09041	16.57340	0.2048636	2.5380106	13	1	3 days	0.29	Williams	1999 XW ₃₅
1999 XY ₃₅	13.0	0.15	19991208	284.54137	122.84450	87.91002	21.51350	0.3385000	2.6536090	7	1	4 days	0.29	E Williams	1999 XY ₃₅
1999 XZ ₃₅	13.3	0.15	19991208	260.66151	279.75725	289.94148	9.97189	0.1414230	2.4238623	8	1	4 days	0.58	E Williams	1999 XZ ₃₅
1999 XA ₃₆	15.5	0.15	19991208	9.73064	317.26566	104.25238	2.98313	0.2017842	2.3902479	20	1	6 days	0.24	Nakano	1999 XA ₃₆
1999 XB ₃₆	12.9	0.15	19991208	280.50035	249.92598	311.77228	7.49197	0.2451317	2.2462840	9	1	4 days	0.48	E Williams	1999 XB ₃₆
1999 XF ₃₆	14.2	0.15	19991208	21.06280	73.59908	342.06912	4.04473	0.2695058	2.5663912	9	1	4 days	0.42	E Williams	1999 XF ₃₆
1999 XG ₃₆	12.9	0.15	19991208	269.59843	154.88321	54.27229	7.49716	0.2010756	2.4082988	9	1	4 days	0.63	E Williams	1999 XG ₃₆
1999 XK ₃₆	15.8	0.15	19991208	25.36796	303.37667	83.49801	8.52439	0.3021798	2.6611085	17	1	7 days	0.57	Williams	1999 XK ₃₆
1999 XL ₃₆	15.5	0.15	19991208	16.50714	150.53403	266.63166	8.70918	0.1884689	2.4838209	11	1	3 days	0.73	E Williams	1999 XL ₃₆

1999 XM ₃₆	13.6	0.15	19991208	24.50541	359.42933	22.42706	15.28160	0.1245341	2.6321465	16	1	8 days	0.41	Williams	1999 XM ₃₆
1999 XN ₃₆	12.9	0.15	19991208	66.24954	301.01937	19.52891	14.47910	0.2623944	2.6042728	12	1	5 days	0.48	E Williams	1999 XN ₃₆
1999 XO ₃₆	13.1	0.15	19991208	313.44948	96.69272	39.35075	26.57218	0.2828029	2.8585928	16	1	7 days	0.42	E Williams	1999 XO ₃₆
1999 XP ₃₆	12.6	0.15	19991208	24.47578	4.06372	21.37190	10.90756	0.1840759	2.5615567	12	1	5 days	0.26	E Williams	1999 XP ₃₆
1999 XQ ₃₆	13.8	0.15	19991208	15.36750	45.54629	357.49498	6.45694	0.0803484	2.2605508	16	1	8 days	0.40	Williams	1999 XQ ₃₆
1999 XR ₃₆	12.2	0.15	19991208	253.02185	161.16783	357.89253	12.38202	0.0353880	2.9108292	12	1	5 days	0.46	E Williams	1999 XR ₃₆
1999 XS ₃₆	12.6	0.15	19991208	42.23604	1.62258	11.78798	11.03370	0.0260073	3.1068204	16	1	8 days	0.45	Williams	1999 XS ₃₆
1999 XT ₃₆	14.0	0.15	19991208	15.76375	28.10640	12.97223	8.37064	0.1130897	2.5066143	16	1	8 days	0.49	Williams	1999 XT ₃₆
1999 XU ₃₆	13.8	0.15	19991208	45.51095	90.05290	274.16582	13.45739	0.1384815	2.5368774	12	1	5 days	0.31	E Williams	1999 XU ₃₆
1999 XV ₃₆	14.0	0.15	19991208	52.74707	344.37419	9.25973	7.43730	0.1715900	2.3188061	11	1	5 days	0.38	E Williams	1999 XV ₃₆
1999 XX ₃₆	13.9	0.15	19991208	4.37558	129.98814	287.27470	10.11546	0.2340318	2.7288476	12	1	7 days	0.34	E Williams	1999 XX ₃₆
1999 XY ₃₆	13.5	0.15	19991208	328.14590	85.76738	29.93978	12.06153	0.2647498	2.8145594	12	1	5 days	0.48	E Williams	1999 XY ₃₆
1999 XZ ₃₆	15.2	0.15	19991208	62.44201	260.72149	91.59793	3.98098	0.1948797	2.4526407	20	1	7 days	0.71	E Williams	1999 XZ ₃₆
1999 XA ₃₇	15.2	0.15	19991208	48.85373	169.38116	206.01822	6.02437	0.1595509	2.2941064	26	1	7 days	0.62	Williams	1999 XA ₃₇
1999 XB ₃₇	12.0	0.15	19991208	346.42595	47.08269	32.92313	13.50688	0.0663109	3.1914306	12	1	5 days	0.30	E Williams	1999 XB ₃₇
1999 XC ₃₇	14.5	0.15	19991118	31.56161	180.82641	190.18847	7.80882	0.1970038	2.2254790	7	1	4 days	0.20	E Williams	1999 XC ₃₇
1999 XD ₃₇	13.5	0.15	19991118	4.33076	317.19538	93.89151	12.85609	0.1847988	2.6472204	7	1	4 days	0.30	E Williams	1999 XD ₃₇
1999 XE ₃₇	12.0	0.15	19991118	63.44869	237.92224	99.63320	11.92875	0.1752735	3.0517184	7	1	4 days	0.29	E Williams	1999 XE ₃₇
1999 XF ₃₇	13.1	0.15	19991118	72.57937	176.96203	155.08495	15.08257	0.1310993	2.6062222	14	1	4 days	0.25	E Williams	1999 XF ₃₇
1999 XG ₃₇	14.6	0.15	19991118	11.24297	226.53925	178.05722	13.29229	0.1895563	2.6592812	7	1	3 days	0.30	E Williams	1999 XG ₃₇
1999 XH ₃₇	14.1	0.15	19991118	288.43325	343.60804	162.32796	14.74853	0.0994134	2.3248404	7	1	3 days	0.85	E Williams	1999 XH ₃₇
1999 XK ₃₇	12.8	0.15	19991118	296.45827	40.46279	113.00730	17.71285	0.2621704	2.8690995	7	1	3 days	0.41	E Williams	1999 XK ₃₇
1999 XL ₃₇	13.4	0.15	19991118	6.55108	286.46256	126.25664	15.51872	0.0800634	2.6094670	7	1	3 days	0.53	E Williams	1999 XL ₃₇
1999 XM ₃₇	15.0	0.15	19991208	29.25248	87.22146	300.92616	5.72558	0.1370060	2.3082722	16	1	8 days	0.45	Williams	1999 XM ₃₇
1999 XN ₃₇	15.1	0.15	19991208	25.67597	27.26147	7.68480	6.91291	0.1410606	2.3462231	15	1	5 days	0.50	E Williams	1999 XN ₃₇
1999 XO ₃₇	13.3	0.15	19991208	74.35829	228.26625	107.09102	18.19159	0.1940028	2.7434656	8	1	7 days	0.29	Williams	1999 XO ₃₇
1999 XP ₃₇	13.2	0.15	19991208	309.76897	285.32107	223.31003	8.10841	0.1213361	2.7556223	6	1	7 days	0.48	Williams	1999 XP ₃₇
1999 XQ ₃₇	14.4	0.15	19991118	28.46438	288.40123	88.89079	15.46869	0.2503482	2.6485718	8	1	6 days	0.51	E Williams	1999 XQ ₃₇
1999 XS ₃₇	14.6	0.15	19991208	345.93876	50.33324	25.46827	6.65418	0.1632615	2.4009192	21	1	10 days	0.62	Williams	1999 XS ₃₇
1999 XV ₃₇	16.1	0.15	19991208	6.78811	102.15096	311.69107	9.46234	0.2304236	2.5142068	13	1	5 days	0.23	Williams	1999 XV ₃₇
1999 XW ₃₇	15.2	0.15	19991208	215.47365	156.97166	76.00136	8.42711	0.2400000	2.3261817	9	1	5 days	0.15	E Nakano	1999 XW ₃₇
1999 XX ₃₇	14.2	0.15	19991118	281.57595	3.96965	173.47744	1.14500	0.1307729	3.2520064	14	1	5 days	0.48	E Williams	1999 XX ₃₇
1999 XA ₃₈	16.2	0.15	19991208	66.81135	58.76250	276.07578	5.36530	0.2731741	2.2385425	11	1	6 days	0.29	Williams	1999 XA ₃₈
1999 XB ₃₈	15.4	0.15	19991208	342.54840	188.05555	265.15171	8.89094	0.0806510	3.0225235	15	1	6 days	0.38	E Williams	1999 XB ₃₈
1999 XC ₃₈	16.6	0.15	19991208	39.95844	299.90496	70.42600	12.90988	0.2873795	2.5255093	14	1	8 days	0.49	Williams	1999 XC ₃₈
1999 XD ₃₈	14.5	0.15	19991118	48.71552	202.17142	179.49054	1.97999	0.0221713	2.8359984	12	1	5 days	0.53	E Williams	1999 XD ₃₈
1999 XE ₃₈	15.7	0.15	19991118	330.80332	73.40064	36.30804	6.85395	0.2106000	2.4546456	7	1	7 days	0.48	E Williams	1999 XE ₃₈
1999 XF ₃₈	14.6	0.15	19991118	326.93372	158.23812	319.78236	4.29735	0.2346556	2.6302569	8	1	7 days	0.44	E Williams	1999 XF ₃₈
1999 XJ ₃₈	16.1	0.15	19991118	52.05973	166.16833	200.64652	1.35111	0.1095794	2.2064056	14	1	5 days	0.37	E Williams	1999 XJ ₃₈
1999 XS ₃₈	14.0	0.15	19991208	99.25970	247.39006	78.64866	11.51127	0.1323279	2.7388271	20	1	3 days	0.56	E Williams	1999 XS ₃₈
1999 XT ₃₈	15.0	0.15	19991208	347.50782	48.83829	47.00548	1.77730	0.1317085	2.8492244	11	1	3 days	0.91	E Williams	1999 XT ₃₈
1999 XB ₃₉	13.6	0.15	19991208	31.54329	254.16417	126.70668	3.57297	0.1887908	2.7018112	14	1	9 days	0.39	Williams	1999 XB ₃₉
1999 XE ₃₉	12.5	0.15	19991118	116.27737	91.72018	196.80663	6.58483	0.2107432	3.2727754	13	1	5 days	0.57	E Williams	1999 XE ₃₉
1999 XF ₃₉	16.2	0.15	19991118	351.79542	299.89950	134.45645	4.14203	0.1907898	2.7322748	13	1	5 days	0.48	E Williams	1999 XF ₃₉
1999 XG ₄₀	14.4	0.15	19991208	328.35146	115.93169	342.81906	1.88595	0.1957859	3.2111574	17	1	5 days	0.44	E Williams	1999 XG ₄₀
1999 XJ ₄₀	15.2	0.15	19991208	329.60279	158.18374	291.29594	2.21217	0.0787343	2.7832748	17	1	5 days	0.53	E Williams	1999 XJ ₄₀
1999 XL ₄₀	15.2	0.15	19991208	131.85155	26.66577	248.32835	6.79497	0.1079210	2.3377365	14	1	5 days	0.45	E Williams	1999 XL ₄₀
1999 XN ₄₀	15.4	0.15	19991208	61.17581	314.06890	8.12644	1.76167	0.2732859	2.9611763	11	1	5 days	0.68	E Williams	1999 XN ₄₀
1999 XO ₄₀	15.7	0.15	19991208	36.81196	321.29890	41.54194	3.88333	0.2210945	2.4025817	14	1	5 days	0.36	E Williams	1999 XO ₄₀
1999 XR ₄₀	15.7	0.15	19991208	49.60401	331.40958	31.22628	2.07236	0.0541516	2.3357550	14	1	5 days	0.38	E Williams	1999 XR ₄₀
1999 XU ₄₀	17.0	0.15	19991208	18.63420	118.38767	267.29346	2.95497	0.2974866	2.4874546	14	1	5 days	0.50	E Williams	1999 XU ₄₀
1999 XV ₄₀	14.0	0.15	19991208	31.42399	134.18380	239.34429	21.55347	0.1366397	3.2338974	14	1	5 days	0.41	E Williams	1999 XV ₄₀
1999 XX ₄₀	16.7	0.15	19991208	352.61391	30.93936	40.73318	3.70186	0.2129286	2.4210630	14	1	5 days	0.42	E Williams	1999 XX ₄₀

1999 XY ₄₀	15.2	0.15	19991208	311.22266	230.83600	245.21429	6.52421	0.1188599	2.8052552	14	1	5 days	0.36	E Williams	1999 XY ₄₀
1999 XZ ₄₀	16.2	0.15	19991208	21.09816	145.09543	242.86621	11.85842	0.1821619	2.5563769	14	1	5 days	0.39	E Williams	1999 XZ ₄₀
1999 XA ₄₁	14.6	0.15	19991208	65.24294	309.34724	18.32061	1.17726	0.1948517	3.0488230	14	1	5 days	0.53	E Williams	1999 XA ₄₁
1999 XJ ₄₁	14.7	0.15	19991208	9.53179	188.07873	216.15143	9.82029	0.0552126	2.9761851	13	1	5 days	0.66	E Williams	1999 XJ ₄₁
1999 XT ₄₁	16.9	0.15	19991208	24.45939	135.01372	253.73764	5.94792	0.1125320	2.2576190	12	1	5 days	0.55	E Williams	1999 XT ₄₁
1999 XU ₄₁	15.7	0.15	19991208	45.95056	80.28450	270.08460	2.74439	0.2171239	2.5893212	13	1	5 days	0.54	E Williams	1999 XU ₄₁
1999 XV ₄₁	16.7	0.15	19991208	26.79597	75.64335	298.63082	1.68547	0.2571516	2.6727209	12	1	5 days	0.57	E Williams	1999 XV ₄₁
1999 XW ₄₁	16.6	0.15	19991208	8.86677	136.56613	266.51296	2.07042	0.2983931	2.7699902	14	1	5 days	0.51	E Williams	1999 XW ₄₁
1999 XZ ₄₁	14.1	0.15	19991208	32.88738	138.07858	240.14243	12.70172	0.1010779	2.5964213	14	1	5 days	0.17	E Williams	1999 XZ ₄₁
1999 XA ₄₂	17.4	0.15	19991208	335.80534	59.06057	45.98761	0.49560	0.2796756	2.3483682	14	1	5 days	0.54	E Williams	1999 XA ₄₂
1999 XC ₄₂	15.3	0.15	19991208	105.54989	243.18255	43.97246	5.94076	0.2544086	2.2892150	14	1	5 days	0.38	E Williams	1999 XC ₄₂
1999 XD ₄₂	13.8	0.15	19991208	111.18231	242.53154	43.76495	7.80513	0.1817738	3.2050565	13	1	5 days	0.42	E Williams	1999 XD ₄₂
1999 XF ₄₂	16.3	0.15	19991208	81.03721	357.58525	335.07448	1.91885	0.0557573	2.2248612	13	1	6 days	0.69	E Williams	1999 XF ₄₂
1999 XG ₄₂	14.7	0.15	19991208	129.15159	222.99889	48.09009	11.57462	0.2448435	2.2813356	14	1	6 days	0.70	E Williams	1999 XG ₄₂
1999 XH ₄₂	15.9	0.15	19991208	340.37888	147.79758	307.52329	1.65604	0.2523036	2.4478047	14	1	5 days	0.42	E Williams	1999 XH ₄₂
1999 XJ ₄₂	15.2	0.15	19991208	359.37347	170.93636	247.77493	9.35861	0.0920967	2.9498709	14	1	5 days	0.35	E Williams	1999 XJ ₄₂
1999 XL ₄₂	16.6	0.15	19991208	179.90132	201.33841	37.85934	3.26221	0.0888582	2.2198082	12	1	5 days	0.59	E Williams	1999 XL ₄₂
1999 XO ₄₂	14.3	0.15	19991208	155.38538	251.85194	9.28660	1.50818	0.0202681	2.8853652	14	1	5 days	0.62	E Williams	1999 XO ₄₂
1999 XQ ₄₂	16.2	0.15	19991208	47.55154	346.00201	12.23230	1.46054	0.1512506	2.5047796	13	1	5 days	0.51	E Williams	1999 XQ ₄₂
1999 XR ₄₂	15.8	0.15	19991208	64.11003	68.70723	259.54412	1.58989	0.2537989	2.1624305	13	1	5 days	0.30	E Williams	1999 XR ₄₂
1999 XW ₄₂	16.5	0.15	19991208	19.40765	144.23637	247.98404	1.25769	0.2092207	2.4107772	12	1	5 days	0.37	E Williams	1999 XW ₄₂
1999 XX ₄₂	15.2	0.15	19991208	58.18588	89.17850	259.19253	4.19114	0.1018039	3.1964736	13	1	5 days	0.57	E Williams	1999 XX ₄₂
1999 XY ₄₂	15.1	0.15	19991208	73.39586	96.86849	243.26352	23.80429	0.0445452	2.7031434	14	1	5 days	0.76	E Williams	1999 XY ₄₂
1999 XZ ₄₂	16.4	0.15	19991208	343.51936	73.33452	18.52221	1.88941	0.2797137	2.7165657	14	1	5 days	0.28	E Williams	1999 XZ ₄₂
1999 XB ₄₃	16.3	0.15	19991208	7.54527	15.65487	35.68108	2.37715	0.227178	2.3379651	14	1	5 days	0.31	E Williams	1999 XB ₄₃
1999 XD ₄₃	14.2	0.15	19991208	3.41780	164.09305	250.91154	8.10028	0.0752801	2.9634322	14	1	5 days	0.41	E Williams	1999 XD ₄₃
1999 XF ₄₃	14.8	0.15	19991208	42.18122	41.66714	252.94359	3.78209	0.6666736	3.4739994	13	1	5 days	0.55	E Williams	1999 XF ₄₃
1999 XG ₄₃	17.0	0.15	19991208	1.99064	157.06687	262.56442	1.52069	0.2341454	2.5284398	14	1	5 days	0.37	E Williams	1999 XG ₄₃
1999 XH ₄₃	16.1	0.15	19991208	283.94900	268.97725	249.53633	3.79810	0.1921640	2.4592465	12	1	5 days	0.59	E Williams	1999 XH ₄₃
1999 XL ₄₃	15.3	0.15	19991208	102.44563	22.89814	280.98793	1.89723	0.1274195	2.4753470	13	1	5 days	0.59	E Williams	1999 XL ₄₃
1999 XO ₄₃	16.1	0.15	19991208	22.31689	76.55330	314.01661	1.20259	0.1898122	2.3958300	14	1	6 days	0.25	Williams	1999 XO ₄₃
1999 XP ₄₃	14.8	0.15	19991208	52.96927	323.17944	29.65740	4.66448	0.1428737	2.7990809	14	1	6 days	0.27	E Williams	1999 XP ₄₃
1999 XQ ₄₃	15.3	0.15	19991208	90.54725	317.94273	349.30336	1.82482	0.2075171	2.2823288	14	1	6 days	0.51	E Williams	1999 XQ ₄₃
1999 XR ₄₃	14.8	0.15	19991118	334.32612	184.82297	264.25424	5.11408	0.1405767	3.0842858	17	1	31 days	1.05	Williams	1999 XR ₄₃
1999 XS ₄₃	15.4	0.15	19991208	284.41304	264.83609	259.47778	5.91439	0.2515314	2.7240342	11	1	6 days	0.71	E Williams	1999 XS ₄₃
1999 XU ₄₃	14.8	0.15	19991208	43.76630	45.02551	315.91567	2.13686	0.1830645	2.5717565	14	1	6 days	0.26	Williams	1999 XU ₄₃
1999 XV ₄₃	15.3	0.15	19991208	82.04613	298.13037	19.71209	3.13727	0.1808458	2.5788058	14	1	6 days	0.34	E Williams	1999 XV ₄₃
1999 XW ₄₃	16.1	0.15	19991118	28.56626	101.77827	278.70085	3.35252	0.1080380	2.6314821	19	1	31 days	0.47	Williams	1999 XW ₄₃
1999 XX ₄₃	12.9	0.15	19991208	240.17113	271.09302	275.00147	4.21908	0.0818622	3.2392300	20	1	7 days	0.41	E Williams	1999 XX ₄₃
1999 XA ₄₄	17.1	0.15	19991208	33.65467	344.51734	28.28520	2.94135	0.2126963	2.3497757	14	1	6 days	0.53	E Williams	1999 XA ₄₄
1999 XB ₄₄	14.6	0.15	19991208	290.65861	129.53377	13.51736	2.77068	0.1283702	3.2309697	12	1	6 days	0.64	E Williams	1999 XB ₄₄
1999 XC ₄₄	16.8	0.15	19991208	320.78086	132.31984	343.33372	1.99101	0.1620664	2.4287753	13	1	6 days	0.45	Williams	1999 XC ₄₄
1999 XD ₄₄	15.9	0.15	19991208	349.97277	39.89127	38.59995	3.47224	0.2069751	2.6160878	14	1	6 days	0.39	E Williams	1999 XD ₄₄
1999 XE ₄₄	15.6	0.15	19991208	84.00610	37.71984	270.11214	4.11984	0.2620072	2.3656800	13	1	6 days	0.43	Williams	1999 XE ₄₄
1999 XF ₄₄	15.4	0.15	19991208	318.32370	82.77953	43.99922	4.96715	0.2396610	2.6374138	14	1	6 days	0.36	Williams	1999 XF ₄₄
1999 XL ₄₄	13.6	0.15	19991208	86.12507	338.19637	324.50198	1.16907	0.2755257	2.8658636	14	1	5 days	0.39	E Williams	1999 XL ₄₄
1999 XM ₄₄	16.2	0.15	19991208	337.61446	187.91818	267.75637	2.24022	0.1894202	2.5609236	14	1	5 days	0.55	E Williams	1999 XM ₄₄
1999 XN ₄₄	16.3	0.15	19991208	30.60711	333.21509	48.05346	4.67751	0.1614664	2.4010237	14	1	6 days	0.56	Williams	1999 XN ₄₄
1999 XO ₄₄	16.2	0.15	19991208	151.40873	215.72343	47.14083	4.27313	0.1431084	2.2928535	11	1	5 days	0.71	E Williams	1999 XO ₄₄
1999 XQ ₄₄	15.1	0.15	19991208	215.10857	317.82920	253.05154	6.08145	0.0678387	2.2893837	13	1	5 days	0.38	E Williams	1999 XQ ₄₄
1999 XR ₄₄	16.2	0.15	19991208	49.29648	343.65728	4.70791	1.00607	0.2404949	2.4876197	12	1	5 days	0.64	E Williams	1999 XR ₄₄
1999 XT ₄₄	16.1	0.15	19991208	286.06386	109.76487	50.25986	2.82673	0.2080256	2.4358219	13	1	5 days	0.47	E Williams	1999 XT ₄₄
1999 XU ₄₄	15.8	0.15	19991208	319.19724	75.17969	54.72152	5.02714	0.2747456	2.5152836	13	1	5 days	0.47	E Williams	1999 XU ₄₄

1999 XW ₄₄	17.0	0.15	19991208	344.53021	197.57986	246.66033	4.97824	0.1545906	2.3616099	11	1	5 days	0.46	E Williams	1999 XW ₄₄
1999 XZ ₄₄	16.9	0.15	19991208	12.21457	157.55154	250.03461	3.29704	0.1167198	2.2874847	14	1	5 days	0.44	E Williams	1999 XZ ₄₄
1999 XA ₄₅	16.0	0.15	19991208	28.64587	136.31567	244.42251	13.52790	0.1892723	2.5963319	13	1	5 days	0.40	E Williams	1999 XA ₄₅
1999 XD ₄₅	14.8	0.15	19991208	344.33475	18.48434	62.51682	7.19707	0.0769460	2.3457494	14	1	5 days	0.22	E Williams	1999 XD ₄₅
1999 XF ₄₅	14.8	0.15	19991208	110.23972	231.86023	63.02759	12.94397	0.1558708	2.4200201	14	1	5 days	0.42	E Williams	1999 XF ₄₅
1999 XG ₄₅	16.2	0.15	19991208	66.35579	217.95069	105.72675	3.28333	0.2667010	2.3572056	13	1	5 days	0.47	E Williams	1999 XG ₄₅
1999 XJ ₄₅	15.5	0.15	19991208	15.54326	326.22317	67.45999	18.60111	0.2453399	3.1220092	14	1	5 days	0.49	E Williams	1999 XJ ₄₅
1999 XL ₄₅	16.3	0.15	19991208	53.15565	294.22262	69.87613	5.37075	0.0603377	2.1552721	12	1	5 days	0.71	E Williams	1999 XL ₄₅
1999 XN ₄₅	15.8	0.15	19991208	331.57979	228.23410	240.69798	4.03145	0.2505199	3.2326299	15	1	5 days	0.33	E Williams	1999 XN ₄₅
1999 XP ₄₅	14.0	0.15	19991208	92.94606	67.42285	247.17044	12.63389	0.1077776	3.0702943	14	1	6 days	0.20	Williams	1999 XP ₄₅
1999 XS ₄₅	16.1	0.15	19991208	336.99355	68.50380	33.75761	2.86201	0.2601120	2.8608819	13	1	6 days	0.56	E Williams	1999 XS ₄₅
1999 XT ₄₅	14.8	0.15	19991208	153.84879	318.49490	302.04239	1.88206	0.1607385	2.3538690	14	1	6 days	0.38	Williams	1999 XT ₄₅
1999 XX ₄₅	14.7	0.15	19991208	75.23798	242.47665	57.65399	16.40998	0.4006585	2.9470540	17	1	6 days	0.57	Williams	1999 XX ₄₅
1999 XZ ₄₅	16.4	0.15	19991208	2.85047	168.77505	250.59962	11.63356	0.1097184	2.6050263	11	1	6 days	0.50	Williams	1999 XZ ₄₅
1999 XA ₄₆	15.5	0.15	19991208	88.34970	37.27869	264.87211	4.72435	0.2890135	2.3868464	14	1	6 days	0.49	E Williams	1999 XA ₄₆
1999 XD ₄₆	16.2	0.15	19991208	322.08702	79.48592	35.38175	2.37554	0.1704410	2.9863711	14	1	6 days	0.66	Williams	1999 XD ₄₆
1999 XF ₄₆	15.8	0.15	19991208	330.49696	154.03059	315.58678	0.98025	0.2335343	3.2169842	14	1	6 days	0.34	Williams	1999 XF ₄₆
1999 XL ₄₆	16.8	0.15	19991208	345.78508	48.17589	38.06053	1.48407	0.1907193	2.5681500	13	1	6 days	0.38	E Williams	1999 XL ₄₆
1999 XR ₄₆	17.0	0.15	19991208	48.14773	264.99985	90.18141	2.71356	0.2090374	2.5008468	12	1	2 days	0.54	E Williams	1999 XR ₄₆
1999 XU ₄₆	15.2	0.15	19991208	326.19195	103.02486	12.79726	1.61513	0.2292002	3.1141652	13	1	6 days	0.51	E Williams	1999 XU ₄₆
1999 XW ₄₆	14.4	0.15	19991208	194.38157	206.14551	23.36119	1.96623	0.0594435	3.0211414	14	1	6 days	0.41	E Williams	1999 XW ₄₆
1999 XY ₄₆	14.3	0.15	19991208	335.08869	192.27332	264.83898	3.34982	0.1505582	3.1919035	14	1	6 days	0.34	Williams	1999 XY ₄₆
1999 XZ ₄₆	15.1	0.15	19991208	305.74576	132.42470	355.09247	1.36524	0.0984764	2.9664013	14	1	6 days	0.55	E Williams	1999 XZ ₄₆
1999 XA ₄₇	14.8	0.15	19991208	96.99512	269.07925	30.30670	3.32178	0.2543377	2.5720187	13	1	6 days	0.42	E Williams	1999 XA ₄₇
1999 XB ₄₇	14.8	0.15	19991208	354.57996	171.66680	257.95616	7.58405	0.0788660	3.0223461	14	1	6 days	0.37	Williams	1999 XB ₄₇
1999 XE ₄₇	15.8	0.15	19991208	292.39649	99.27628	42.63942	4.20817	0.0919322	2.7293196	13	1	6 days	0.45	E Williams	1999 XE ₄₇
1999 XF ₄₇	16.0	0.15	19991118	87.11437	270.97182	48.84379	5.14903	0.1116104	2.3415302	11	1	3 days	0.45	E Williams	1999 XF ₄₇
1999 XH ₄₇	14.1	0.15	19991208	68.98894	286.78701	55.92892	8.83966	0.1026284	3.2334997	13	1	6 days	0.62	E Williams	1999 XH ₄₇
1999 XJ ₄₇	17.2	0.15	19991208	341.59918	193.94662	260.15384	3.71265	0.1987059	2.4381302	13	1	6 days	0.51	Williams	1999 XJ ₄₇
1999 XM ₄₇	15.1	0.15	19991208	61.73732	315.96220	13.01945	1.63746	0.2889393	3.1302953	13	1	6 days	0.67	E Williams	1999 XM ₄₇
1999 XN ₄₇	17.3	0.15	19991208	30.59216	332.07570	48.37682	2.31558	0.2077809	2.4928032	12	1	6 days	0.36	Williams	1999 XN ₄₇
1999 XO ₄₇	14.4	0.15	19991208	79.61294	62.42322	247.74074	14.32716	0.2951617	3.2646957	14	1	6 days	0.61	E Williams	1999 XO ₄₇
1999 XP ₄₇	14.0	0.15	19991208	51.79462	38.98484	318.42428	1.26247	0.1513150	3.1037399	14	1	6 days	0.25	Williams	1999 XP ₄₇
1999 XR ₄₇	16.0	0.15	19991208	359.56681	2.36801	64.26737	15.15944	0.2358300	2.6674290	13	1	6 days	0.38	Williams	1999 XR ₄₇
1999 XY ₄₇	15.5	0.15	19991118	118.04989	220.17116	69.95300	7.64127	0.1279348	2.3249021	15	1	5 days	0.32	E Williams	1999 XY ₄₇
1999 XZ ₄₇	15.7	0.15	19991118	350.62193	356.94415	74.19550	4.03900	0.1025498	2.2473877	16	1	5 days	0.35	E Williams	1999 XZ ₄₇
1999 XC ₄₈	15.8	0.15	19991208	166.92427	178.21218	74.96238	7.02268	0.1849440	2.1828873	10	1	5 days	0.44	E Williams	1999 XC ₄₈
1999 XD ₄₈	16.7	0.15	19991208	359.29085	349.61522	77.42579	6.79690	0.1401642	2.3314800	13	1	2 days	0.27	E Williams	1999 XD ₄₈
1999 XF ₄₈	16.2	0.15	19991208	37.70685	260.06573	100.45888	2.52022	0.2861478	3.1525187	9	1	5 days	0.29	E Williams	1999 XF ₄₈
1999 XG ₄₈	18.1	0.15	19991208	346.25138	247.53279	202.92655	2.20526	0.2561770	2.7483663	14	1	5 days	0.78	E Williams	1999 XG ₄₈
1999 XH ₄₈	16.0	0.15	19991208	239.46981	99.33187	98.19382	3.18132	0.1330385	2.4772218	12	1	5 days	0.31	E Williams	1999 XH ₄₈
1999 XJ ₄₈	15.5	0.15	19991208	257.62900	97.24961	81.76657	6.48804	0.1079843	2.5698261	16	1	5 days	0.44	E Williams	1999 XJ ₄₈
1999 XK ₄₈	16.2	0.15	19991208	11.99133	332.56527	74.74197	9.77845	0.2105311	2.8871112	13	1	5 days	0.32	E Williams	1999 XK ₄₈
1999 XL ₄₈	16.7	0.15	19991208	26.70590	235.58774	151.96394	1.49523	0.1955384	2.4827634	13	1	5 days	0.28	E Williams	1999 XL ₄₈
1999 XS ₄₈	15.5	0.15	19991208	354.39036	107.68670	326.17699	1.93757	0.1754218	2.7375478	14	1	6 days	0.28	Williams	1999 XS ₄₈
1999 XV ₄₈	15.9	0.15	19991208	123.10167	36.28133	264.55632	3.94204	0.0165383	2.3884517	14	1	6 days	0.40	E Williams	1999 XV ₄₈
1999 XX ₄₈	15.3	0.15	19991118	12.32829	152.38698	253.35256	6.62739	0.0741826	2.3711081	13	1	5 days	0.23	E Williams	1999 XX ₄₈
1999 XZ ₄₈	14.5	0.15	19991208	18.34281	332.36068	63.66625	15.02422	0.2309921	3.1300925	17	1	10 days	0.33	Williams	1999 XZ ₄₈
1999 XA ₄₉	14.6	0.15	19991208	230.54626	322.34220	249.89275	12.05189	0.2520784	2.6286876	14	1	6 days	0.34	Williams	1999 XA ₄₉
1999 XB ₄₉	14.3	0.15	19991118	98.72158	49.77513	248.64064	8.40185	0.2270806	2.4775872	13	1	5 days	0.46	E Williams	1999 XB ₄₉
1999 XC ₄₉	15.3	0.15	19991208	309.38890	235.78912	252.80077	8.09121	0.1317542	3.0794554	14	1	6 days	0.40	Williams	1999 XC ₄₉
1999 XF ₄₉	16.0	0.15	19991208	48.29979	21.28998	342.90729	1.59425	0.1460337	2.4559527	11	1	6 days	0.41	E Williams	1999 XF ₄₉
1999 XJ ₄₉	16.1	0.15	19991208	312.52293	101.19620	42.44721	3.71527	0.2769207	2.7206706	12	1	6 days	0.45	E Williams	1999 XJ ₄₉

1999 XK ₄₉	16.9	0.15	19991208	60.89514	46.82389	307.50003	1.81394	0.1140455	2.2290131	13	1	6 days	0.54	Williams	1999 XK ₄₉
1999 XL ₄₉	14.7	0.15	19991208	81.05201	78.34133	251.33083	10.55323	0.1307386	2.9945982	13	1	6 days	0.52	Williams	1999 XL ₄₉
1999 XM ₄₉	14.5	0.15	19991208	64.96234	14.62402	339.40575	1.34694	0.0668987	2.9160915	17	1	10 days	0.47	Williams	1999 XM ₄₉
1999 XO ₄₉	15.5	0.15	19991208	190.26530	184.67158	53.62768	5.41567	0.0514931	2.2423919	13	1	6 days	0.34	E Williams	1999 XO ₄₉
1999 XQ ₄₉	16.8	0.15	19991208	12.59957	22.44518	30.60286	1.84430	0.1051518	2.2090162	17	1	10 days	0.41	Williams	1999 XQ ₄₉
1999 XS ₄₉	16.2	0.15	19991208	306.32234	93.42313	50.21999	1.77162	0.2209314	2.8370357	10	1	6 days	0.42	E Williams	1999 XS ₄₉
1999 XW ₄₉	15.3	0.15	19991208	81.15075	269.72991	59.67770	3.02739	0.1346522	2.9489390	12	1	6 days	0.70	E Williams	1999 XW ₄₉
1999 XX ₄₉	14.8	0.15	19991208	299.60918	161.83433	342.89899	0.93516	0.1653586	3.0425950	14	1	6 days	0.46	Williams	1999 XX ₄₉
1999 XY ₄₉	17.0	0.15	19991208	48.94235	303.96322	63.56027	7.02843	0.1252679	2.2050283	14	1	6 days	0.49	Williams	1999 XY ₄₉
1999 XB ₅₀	16.2	0.15	19991208	40.92482	296.59994	67.45793	13.33360	0.2369553	2.5192208	13	1	6 days	0.40	Williams	1999 XB ₅₀
1999 XE ₅₀	17.2	0.15	19991208	8.02612	346.99110	70.00456	7.11708	0.1639784	2.2645646	14	1	6 days	0.38	Williams	1999 XE ₅₀
1999 XN ₅₀	15.8	0.15	19991208	329.50003	233.47078	233.72107	8.22016	0.1575511	3.2366735	10	1	5 days	0.38	E Williams	1999 XN ₅₀
1999 XO ₅₀	16.3	0.15	19991208	338.72355	236.43163	220.54544	4.05618	0.1848748	3.2177151	9	1	5 days	0.54	E Williams	1999 XO ₅₀
1999 XP ₅₀	16.2	0.15	19991208	67.63156	241.26744	83.41558	6.31483	0.2949873	2.4509801	11	1	2 days	0.29	E Williams	1999 XP ₅₀
1999 XR ₅₀	16.0	0.15	19991208	318.05565	278.15145	203.25662	2.62100	0.1487705	2.7810595	11	1	5 days	0.38	E Williams	1999 XR ₅₀
1999 XS ₅₀	17.3	0.15	19991208	30.53363	274.17227	108.03282	2.21357	0.2057306	2.4188547	12	1	5 days	0.29	E Williams	1999 XS ₅₀
1999 XT ₅₀	14.4	0.15	19991208	151.61604	185.02681	79.81862	9.12853	0.2003829	2.5679293	15	1	5 days	0.22	E Williams	1999 XT ₅₀
1999 XC ₅₁	14.7	0.15	19991118	311.38983	297.08626	194.74548	1.42864	0.2093068	2.7886935	13	1	5 days	0.25	E Williams	1999 XC ₅₁
1999 XJ ₅₁	14.9	0.15	19991118	1.60472	348.70756	69.57851	15.74625	0.2356930	2.7149132	13	1	5 days	0.29	E Williams	1999 XJ ₅₁
1999 XE ₅₃	15.7	0.15	19991118	41.63062	129.70745	222.85995	1.71651	0.2831949	2.4814985	13	1	5 days	0.41	E Williams	1999 XE ₅₃
1999 XM ₅₃	15.2	0.15	19991118	22.75638	314.75186	73.54870	12.95100	0.1940979	2.7134526	13	1	5 days	0.45	E Williams	1999 XM ₅₃
1999 XS ₅₃	17.4	0.15	19991208	351.72110	261.53713	180.69855	1.75105	0.2257995	2.3937183	16	1	5 days	0.48	E Williams	1999 XS ₅₃
1999 XT ₅₃	18.4	0.15	19991208	2.22493	183.56184	240.82533	8.19799	0.3546354	2.7668512	12	1	5 days	0.73	E Williams	1999 XT ₅₃
1999 XV ₅₃	17.2	0.15	19991208	332.09169	249.01421	226.50100	3.89047	0.2626830	2.6989652	13	1	5 days	0.64	E Williams	1999 XV ₅₃
1999 XX ₅₃	15.6	0.15	19991208	354.61025	257.54925	175.17959	2.37929	0.0285004	2.7256105	16	1	5 days	0.62	E Williams	1999 XX ₅₃
1999 XY ₅₃	16.4	0.15	19991208	50.21262	152.63683	196.46949	2.58830	0.2664968	2.6182575	15	1	5 days	0.31	E Williams	1999 XY ₅₃
1999 XA ₅₄	14.7	0.15	19991208	62.88928	236.71218	112.58478	3.06026	0.1343892	2.9330789	19	1	9 days	0.30	E Williams	1999 XA ₅₄
1999 XB ₅₄	15.0	0.15	19991208	25.60756	257.89446	132.76478	2.39393	0.1785919	3.0990457	16	1	5 days	0.23	E Williams	1999 XB ₅₄
1999 XC ₅₄	14.7	0.15	19991208	213.52833	144.92229	71.89528	23.69998	0.0771082	3.0826875	12	1	5 days	0.27	E Williams	1999 XC ₅₄
1999 XD ₅₄	15.7	0.15	19991208	224.78852	351.70115	221.12829	5.24352	0.1429351	2.4056967	12	1	5 days	0.31	E Williams	1999 XD ₅₄
1999 XH ₅₄	15.4	0.15	19991118	355.29643	303.76495	126.44901	2.05989	0.2192769	3.1835194	13	1	5 days	0.52	E Williams	1999 XH ₅₄
1999 XS ₅₄	16.1	0.15	19991118	30.78822	167.05994	205.13420	2.07256	0.2462105	2.4621824	13	1	5 days	0.26	E Williams	1999 XS ₅₄
1999 XH ₅₅	13.4	0.15	19991118	39.20072	311.12531	70.84613	22.61304	0.0484188	3.1127449	13	1	5 days	0.26	E Williams	1999 XH ₅₅
1999 XH ₅₆	14.2	0.15	19991208	31.61924	310.92349	71.10935	13.55497	0.2228419	2.9506779	13	1	3 days	0.40	E Williams	1999 XH ₅₆
1999 XO ₅₆	14.0	0.15	19991118	26.03028	297.40626	85.68574	4.27166	0.2302372	3.0026630	16	1	7 days	0.22	E Williams	1999 XO ₅₆
1999 XQ ₅₆	15.1	0.15	19991208	289.02029	85.02770	75.99257	5.22073	0.1700466	2.2682271	17	1	6 days	0.14	Williams	1999 XQ ₅₆
1999 XZ ₅₆	13.8	0.15	19991118	6.70114	289.72548	123.97222	1.63768	0.2238428	3.2852374	13	1	5 days	0.23	E Williams	1999 XZ ₅₆
1999 XC ₅₇	13.8	0.15	19991118	284.39522	39.17272	119.12450	2.51950	0.1507846	2.9481262	13	1	5 days	0.39	E Williams	1999 XC ₅₇
1999 XH ₅₉	14.5	0.15	19991208	7.92675	354.47316	68.55396	12.13719	0.0532021	3.2007546	11	1	5 days	0.63	E Williams	1999 XH ₅₉
1999 XJ ₅₉	15.4	0.15	19991208	338.78805	201.53414	260.70424	3.92780	0.1675688	2.6021932	15	1	5 days	0.39	E Williams	1999 XJ ₅₉
1999 XW ₆₁	16.1	0.15	19991208	80.84077	275.31345	37.80281	3.76412	0.2451025	2.2433548	11	1	6 days	0.44	E Williams	1999 XW ₆₁
1999 XZ ₆₁	16.4	0.15	19991208	15.79786	71.76221	332.07830	1.73476	0.1601192	2.4036538	13	1	6 days	0.37	Williams	1999 XZ ₆₁
1999 XB ₆₂	15.7	0.15	19991208	121.53979	32.35520	256.65510	3.93621	0.1580352	2.2478671	12	1	6 days	0.38	Williams	1999 XB ₆₂
1999 XC ₆₂	17.3	0.15	19991208	34.33778	257.49067	121.53775	1.67645	0.1732202	2.2743264	15	1	5 days	0.45	E Williams	1999 XC ₆₂
1999 XL ₆₃	15.4	0.15	19991208	153.54439	139.79906	128.82626	2.12286	0.0615102	3.1996443	10	1	5 days	0.48	E Williams	1999 XL ₆₃
1999 XS ₆₄	14.6	0.15	19991208	206.90794	333.49129	258.62600	6.45017	0.1653401	2.2774660	15	1	5 days	0.29	E Williams	1999 XS ₆₄
1999 XG ₆₆	18.4	0.15	19991118	354.11989	5.71489	70.08310	1.99796	0.2710317	2.3833645	12	1	3 days	0.67	E Williams	1999 XG ₆₆
1999 XL ₇₁	15.9	0.15	19991208	260.96972	23.98315	173.89431	2.15516	0.1984732	2.3801191	12	1	6 days	0.65	Williams	1999 XL ₇₁
1999 XH ₇₂	12.1	0.15	19991208	223.52713	139.68206	80.55272	14.80978	0.0494763	2.9518831	14	1	3 days	0.29	E Williams	1999 XH ₇₂
1999 XN ₇₂	14.2	0.15	19991208	26.94933	143.11479	258.09144	12.05943	0.1823879	3.1284097	21	1	4 days	0.44	Williams	1999 XN ₇₂
1999 XX ₇₃	15.0	0.15	19991208	8.09560	182.73776	241.48106	2.04738	0.3149958	3.0036522	15	1	7 days	0.25	Nakano	1999 XX ₇₃
1999 XG ₇₄	15.1	0.15	19991208	331.04688	248.36011	239.75917	3.50115	0.2442605	2.7153740	17	1	4 days	0.35	E Williams	1999 XG ₇₄
1999 XU ₇₅	14.3	0.15	19991208	17.85520	323.65465	84.81311	9.36237	0.3112920	3.1400117	14	1	3 days	0.42	E Williams	1999 XU ₇₅

1999 XX ₇₇	14.4	0.15	19991208	325.05439	48.49296	69.53669	10.32661	0.1408284	3.0480448	16	1	6 days	0.54	Williams	1999 XX ₇₇
1999 XY ₇₇	16.9	0.15	19991208	2.16946	14.96909	54.62288	0.92648	0.2512721	2.3787842	11	1	6 days	0.81	E Williams	1999 XY ₇₇
1999 XC ₇₈	15.6	0.15	19991208	74.08671	270.42738	69.67299	6.81368	0.1657906	2.2223100	13	1	6 days	0.39	E Williams	1999 XC ₇₈
1999 XY ₇₉	15.1	0.15	19991208	318.94563	45.03895	84.80555	6.43881	0.1449794	2.8217653	15	1	6 days	0.46	Nakano	1999 XY ₇₉
1999 XZ ₇₉	15.0	0.15	19991208	71.03979	257.77986	92.88338	3.36601	0.1289569	2.6119679	13	1	6 days	0.50	Nakano	1999 XZ ₇₉
1999 XA ₈₀	15.6	0.15	19991208	29.86714	251.95147	146.15045	0.91633	0.1268072	2.6117645	14	1	6 days	0.56	Nakano	1999 XA ₈₀
1999 XC ₈₀	15.7	0.15	19991208	19.95898	213.80679	197.55629	1.21809	0.1149201	2.6314416	24	1	7 days	0.92	E Williams	1999 XC ₈₀
1999 XU ₈₂	13.3	0.15	19991208	290.50503	265.20711	266.93443	9.66790	0.1034806	2.8616230	21	1	3 days	0.69	E Williams	1999 XU ₈₂
1999 XJ ₈₃	14.4	0.15	19991208	351.77413	13.03846	87.87140	3.61875	0.1028004	2.2574858	14	1	3 days	0.34	E Williams	1999 XJ ₈₃
1999 XJ ₈₄	14.8	0.15	19991208	341.58657	24.64832	96.10243	13.35527	0.1680790	2.5767020	17	1	5 days	0.71	E Williams	1999 XJ ₈₄
1999 XG ₈₅	13.5	0.15	19991208	18.30113	332.65915	91.47412	12.69905	0.2365442	2.5405046	15	1	3 days	0.30	E Williams	1999 XG ₈₅
1999 XJ ₈₅	15.5	0.15	19991208	254.47524	303.17761	283.87455	4.06943	0.2475116	2.1361372	20	1	4 days	0.61	E Williams	1999 XJ ₈₅
1999 XR ₈₅	13.8	0.15	19991208	6.80852	249.62860	197.18023	1.64002	0.2154416	2.6948924	11	1	2 days	0.98	E Williams	1999 XR ₈₅
1999 XS ₈₅	13.4	0.15	19991208	49.56699	289.78492	107.42234	13.91973	0.1478217	2.9795898	14	1	2 days	1.00	E Williams	1999 XS ₈₅
1999 XY ₈₅	13.3	0.15	19991208	254.62079	99.11781	121.55819	3.74701	0.1189014	2.9334633	14	1	2 days	0.67	E Williams	1999 XY ₈₅
1999 XA ₈₆	13.5	0.15	19991208	262.59691	307.69926	277.47963	9.37449	0.2214925	3.1235201	22	1	6 days	0.54	E Williams	1999 XA ₈₆
1999 XC ₈₆	14.5	0.15	19991118	150.31183	25.91432	274.60485	3.19819	0.0532092	2.1799991	18	1	5 days	0.55	E Williams	1999 XC ₈₆
1999 XE ₈₆	14.5	0.15	19991118	297.66093	72.28916	100.58747	9.30301	0.1435316	2.5605104	13	1	5 days	0.44	E Williams	1999 XE ₈₆
1999 XK ₈₆	13.8	0.15	19991118	70.20315	83.60824	286.11842	9.24286	0.1343989	2.5642911	16	1	5 days	0.33	E Williams	1999 XK ₈₆
1999 XL ₈₆	15.7	0.15	19991208	341.88230	31.88095	93.94948	14.95808	0.1997062	2.6247688	18	1	3 days	0.36	E Williams	1999 XL ₈₆
1999 XN ₈₆	13.8	0.15	19991208	5.26314	198.14389	252.77614	4.56774	0.1111381	2.2507658	17	1	6 days	0.75	E Williams	1999 XN ₈₆
1999 XQ ₈₆	13.1	0.15	19991208	61.45828	271.49299	103.28878	13.14137	0.2262132	2.6292499	20	1	6 days	0.33	E Williams	1999 XQ ₈₆
1999 XR ₈₆	14.7	0.15	19991208	246.15575	129.68789	107.89539	20.48367	0.1790536	3.2455949	13	1	2 days	0.59	E Williams	1999 XR ₈₆
1999 XS ₈₆	15.2	0.15	19991208	46.02704	297.02960	103.11503	4.37043	0.1408276	2.2897348	13	1	2 days	0.39	E Williams	1999 XS ₈₆
1999 XU ₈₆	13.8	0.15	19991118	87.80147	86.45997	282.44628	7.44156	0.0371314	2.8946382	11	1	3 days	0.57	E Williams	1999 XU ₈₆
1999 XX ₈₆	13.1	0.15	19991118	96.09216	70.67011	286.19543	9.38163	0.0365909	2.4686588	13	1	5 days	0.45	E Williams	1999 XX ₈₆
1999 XY ₈₆	13.6	0.15	19991208	173.04293	187.00612	102.90888	15.57426	0.1855357	2.4951348	13	1	5 days	0.32	E Williams	1999 XY ₈₆
1999 XZ ₈₆	14.6	0.15	19991208	336.52303	216.55037	286.88325	13.06465	0.2650796	3.2440247	13	1	2 days	0.76	E Williams	1999 XZ ₈₆
1999 XB ₈₇	15.3	0.15	19991118	82.00125	243.30669	113.13441	5.81775	0.1606108	2.2070277	11	1	3 days	0.50	E Williams	1999 XB ₈₇
1999 XC ₈₇	13.6	0.15	19991208	259.53320	109.76513	107.09873	14.18297	0.0878171	2.8733639	16	1	2 days	0.45	E Williams	1999 XC ₈₇
1999 XS ₉₀	13.9	0.15	19991208	297.85482	63.57120	101.61358	8.02090	0.0488290	2.3184237	13	1	2 days	0.56	E Williams	1999 XS ₉₀
1999 XT ₉₀	12.3	0.15	19991208	175.83770	13.63116	270.93278	15.13890	0.1082773	2.5309654	13	1	2 days	0.61	E Williams	1999 XT ₉₀
1999 XB ₉₁	15.4	0.15	19991208	244.86382	307.35397	280.32472	10.68156	0.1073175	2.5212808	10	1	5 days	0.46	E Williams	1999 XB ₉₁
1999 XG ₉₁	11.6	0.15	19991118	74.33928	271.88558	108.06522	26.03778	0.1113940	5.1331834	12	1	5 days	0.64	E Williams	1999 XG ₉₁
1999 XL ₉₁	16.2	0.15	19991118	5.09662	355.69796	86.39049	5.17689	0.1775477	2.3351359	15	1	5 days	0.46	E Williams	1999 XL ₉₁
1999 XR ₉₁	14.2	0.15	19991208	204.55450	160.84123	106.49725	11.84115	0.1476388	2.4613877	21	1	7 days	0.46	E Williams	1999 XR ₉₁
1999 XE ₉₃	13.6	0.15	19991118	232.11556	324.37784	279.11463	9.98689	0.1353215	2.6797240	13	1	3 days	0.40	E Williams	1999 XE ₉₃
1999 XG ₉₃	12.7	0.15	19991118	266.73365	292.17647	281.52914	8.02860	0.1609812	2.5648856	11	1	3 days	0.83	E Williams	1999 XG ₉₃
1999 XH ₉₃	15.6	0.15	19991118	6.87612	333.91076	105.74761	5.84645	0.2646772	2.5270185	12	1	3 days	0.44	E Williams	1999 XH ₉₃
1999 XJ ₉₃	14.1	0.15	19991118	346.02300	199.82470	278.88793	11.67470	0.2675902	2.6724727	13	1	3 days	0.28	E Williams	1999 XJ ₉₃
1999 XK ₉₃	15.0	0.15	19991208	76.01248	281.74675	103.70310	11.12384	0.0379868	2.6220778	13	1	2 days	0.37	E Williams	1999 XK ₉₃
1999 XL ₉₃	15.1	0.15	19991118	18.23502	340.12245	89.83968	5.60203	0.1030434	2.1723519	13	1	5 days	0.62	E Williams	1999 XL ₉₃
1999 XN ₉₃	14.0	0.15	19991208	112.15711	233.62644	101.41791	11.61591	0.2243091	2.7274936	12	1	5 days	0.49	E Williams	1999 XN ₉₃
1999 XO ₉₃	15.2	0.15	19991118	320.51776	59.19493	84.56145	6.58159	0.1057148	2.2789727	11	1	5 days	0.65	E Williams	1999 XO ₉₃
1999 XP ₉₃	12.8	0.15	19991208	126.51473	236.58523	100.25953	16.60115	0.0722127	2.9849258	15	1	3 days	0.40	E Williams	1999 XP ₉₃
1999 XQ ₉₃	13.1	0.15	19991118	21.00349	334.03020	102.19378	16.37785	0.0601417	2.5093930	13	1	3 days	0.47	E Williams	1999 XQ ₉₃
1999 XT ₉₃	13.2	0.15	19991118	34.09607	137.16705	291.41844	13.64282	0.0512896	3.2176502	13	1	3 days	0.53	E Williams	1999 XT ₉₃
1999 XU ₉₃	14.4	0.15	19991118	325.17204	41.88706	102.49612	12.77716	0.1443015	2.5522386	13	1	3 days	0.35	E Williams	1999 XU ₉₃
1999 XF ₉₄	14.9	0.15	19991118	47.35736	275.08003	104.93664	23.29205	0.2880108	2.2604003	12	1	3 days	0.38	E Williams	1999 XF ₉₄
1999 XM ₉₄	15.0	0.15	19991118	319.32409	246.18470	271.45097	1.21725	0.1945142	2.3562154	12	1	3 days	0.63	E Williams	1999 XM ₉₄
1999 XP ₉₄	14.8	0.15	19991118	40.75113	307.09065	105.71622	12.26381	0.1224506	2.4073822	12	1	3 days	0.52	E Williams	1999 XP ₉₄
1999 XQ ₉₄	13.0	0.15	19991118	338.34184	199.78920	298.13866	17.02430	0.0761327	3.1374592	13	1	3 days	0.48	E Williams	1999 XQ ₉₄
1999 XR ₉₄	14.1	0.15	19991208	301.55386	99.89352	98.24426	7.34522	0.2374772	2.5279794	12	1	2 days	0.81	E Williams	1999 XR ₉₄

1999 DEC. 22

M.P.C. 37339

1999 XT ₉₄	15.1	0.15	19991208	31.73571	10.20164	53.92028	1.51201	0.2017729	2.2981105	13	1	2 days	0.59	E Williams	1999 XT ₉₄
1999 XU ₉₄	14.6	0.15	19991208	359.16800	74.82061	39.76043	1.76162	0.1283100	2.4100345	11	1	2 days	0.54	E Williams	1999 XU ₉₄
1999 XD ₉₅	14.1	0.15	19991208	95.60497	24.31914	258.70153	10.86090	0.2146130	2.9736396	17	1	6 days	1.07	E Williams	1999 XD ₉₅
1999 XE ₉₅	15.0	0.15	19991208	346.75069	11.39357	106.60563	10.62286	0.1384477	3.1582035	6	1	3 days	0.25	Marsden	1999 XE ₉₅
1999 XK ₉₅	13.6	0.15	19991208	190.88696	216.20355	45.70228	7.57319	0.1028558	2.2973030	9	1	5 days	0.60	E Williams	1999 XK ₉₅
1999 XM ₉₅	14.2	0.15	19991208	16.39498	45.70699	21.71394	5.68520	0.1256774	2.3067368	8	1	5 days	0.49	Williams	1999 XM ₉₅
1999 XN ₉₅	13.1	0.15	19991208	278.11249	255.62837	288.13706	16.59363	0.0980960	2.5086359	9	1	5 days	0.38	E Williams	1999 XN ₉₅
1999 XO ₉₅	13.3	0.15	19991208	331.64003	162.50432	318.99532	7.13923	0.0521064	2.3131330	9	1	5 days	0.26	E Williams	1999 XO ₉₅
1999 XS ₉₅	12.8	0.15	19991208	343.80079	59.25216	55.46607	9.06032	0.1585935	2.8552646	9	1	3 days	0.34	E Williams	1999 XS ₉₅
1999 XU ₉₅	13.4	0.15	19991208	50.96534	319.36174	66.98209	12.21571	0.1708741	3.1100545	9	1	3 days	0.34	Williams	1999 XU ₉₅
1999 XW ₉₅	13.8	0.15	19991208	23.99540	123.57793	279.49028	23.56301	0.3231306	2.7399401	9	1	6 days	0.47	Williams	1999 XW ₉₅
1999 XX ₉₅	12.9	0.15	19991208	293.67611	143.47005	33.74706	5.18659	0.1723662	2.2568427	9	1	3 days	0.27	Williams	1999 XX ₉₅
1999 XY ₉₅	13.0	0.15	19991208	294.94765	167.69622	20.41455	5.19345	0.2554991	2.6697067	9	1	3 days	0.55	E Williams	1999 XY ₉₅
1999 XZ ₉₅	11.9	0.15	19991208	59.58096	312.74954	76.55193	15.97936	0.0765360	3.0240625	12	1	4 days	0.46	Williams	1999 XZ ₉₅
1999 XA ₉₆	14.4	0.15	19991208	343.78837	109.57323	6.73275	4.14073	0.2310725	2.3055846	9	1	3 days	0.46	E Williams	1999 XA ₉₆
1999 XB ₉₆	13.8	0.15	19991208	68.05608	338.12302	25.74775	6.19902	0.1806965	2.2428961	12	1	5 days	0.78	E Williams	1999 XB ₉₆
1999 XC ₉₆	15.4	0.15	19991208	93.50254	10.79834	334.83676	6.89853	0.1254882	2.2747604	12	1	5 days	0.64	E Williams	1999 XC ₉₆
1999 XD ₉₈	14.8	0.15	19991208	51.97370	102.78747	261.83729	12.18139	0.2216634	2.5682131	17	1	7 days	0.34	E Williams	1999 XD ₉₈
1999 XT ₉₈	13.0	0.15	19991208	255.97758	116.20997	80.92297	13.52956	0.0732444	3.0334729	16	1	7 days	0.65	E Williams	1999 XT ₉₈
1999 XY ₉₈	15.2	0.15	19991208	341.87970	99.67777	8.54927	2.20949	0.1630401	2.3921092	15	1	7 days	0.45	E Williams	1999 XY ₉₈
1999 XV ₁₀₀	14.5	0.15	19991208	38.29840	102.77355	286.60903	5.25993	0.2583892	2.5749112	14	1	7 days	0.61	Williams	1999 XV ₁₀₀
1999 XJ ₁₀₁	13.6	0.15	19991118	58.96549	82.15838	289.79538	11.19282	0.1912672	2.5473887	13	1	7 days	0.66	E Williams	1999 XJ ₁₀₁
1999 XT ₁₀₁	15.9	0.15	19991118	3.80298	118.09778	323.49680	2.73919	0.1257415	2.2113190	13	1	7 days	0.51	E Williams	1999 XT ₁₀₁
1999 XW ₁₀₁	14.5	0.15	19991118	22.29014	345.79645	65.78177	4.80725	0.2635421	2.7297827	13	1	7 days	0.60	E Williams	1999 XW ₁₀₁
1999 XC ₁₀₃	14.9	0.15	19991118	23.62873	112.77047	299.76467	3.24849	0.2440862	2.7773130	12	1	7 days	0.54	E Williams	1999 XC ₁₀₃
1999 XD ₁₀₃	15.3	0.15	19991118	73.06430	281.80811	79.38006	7.56596	0.1508955	2.3013261	11	1	7 days	0.45	E Williams	1999 XD ₁₀₃
1999 XX ₁₀₃	15.3	0.15	19991208	329.56572	61.60769	40.48380	11.71853	0.1732270	2.7586615	13	1	5 days	0.50	E Williams	1999 XX ₁₀₃
1999 XB ₁₀₄	15.0	0.15	19991208	26.46433	346.44735	45.47533	6.87080	0.2346138	2.3221706	9	1	6 days	0.51	Williams	1999 XB ₁₀₄
1999 XC ₁₀₄	15.1	0.15	19991208	18.13442	350.36292	77.87243	9.10795	0.2161225	2.2115260	9	1	3 days	0.18	Nakano	1999 XC ₁₀₄
1999 XD ₁₀₄	14.5	0.15	19991208	1.11872	165.66238	291.58022	12.41492	0.2361996	2.6359879	12	1	9 days	0.23	Williams	1999 XD ₁₀₄
1999 XE ₁₀₄	14.1	0.15	19991208	53.21918	319.65792	62.99810	2.75999	0.0455494	3.1379035	8	1	3 days	0.37	E Williams	1999 XE ₁₀₄
1999 XO ₁₀₄	14.5	0.15	19991208	334.44218	41.75095	97.50645	32.74442	0.2010074	2.6324363	14	1	8 days	0.31	Williams	1999 XO ₁₀₄
1999 XR ₁₀₄	13.9	0.15	19991208	14.27538	317.08500	81.21879	24.99915	0.2938058	2.3298326	17	1	7 days	0.21	Williams	1999 XR ₁₀₄
1999 XX ₁₀₄	16.0	0.15	19991208	296.30433	291.85504	246.35946	1.42634	0.1390451	2.2318337	7	1	3 days	0.41	E Williams	1999 XX ₁₀₄
1999 XY ₁₀₄	13.5	0.15	19991208	60.62846	311.43165	7.35732	3.51074	0.2970686	2.8559532	11	1	5 days	0.54	E Williams	1999 XY ₁₀₄
1999 XA ₁₀₅	12.4	0.15	19991208	63.99988	160.53241	174.08806	11.44707	0.1059448	3.0240495	7	1	3 days	0.75	E Williams	1999 XA ₁₀₅
1999 XC ₁₀₅	12.7	0.15	19991208	320.89679	353.90654	125.88941	11.20708	0.2251399	3.2202534	7	1	3 days	0.88	E Williams	1999 XC ₁₀₅
1999 XD ₁₀₅	13.1	0.15	19991208	331.52336	318.19010	137.89378	10.93111	0.1005858	3.1000520	7	1	3 days	0.79	E Williams	1999 XD ₁₀₅
1999 XE ₁₀₅	14.2	0.15	19991208	33.05422	203.69788	167.96728	9.66961	0.2461901	2.6200760	7	1	3 days	0.76	E Williams	1999 XE ₁₀₅
1999 XJ ₁₀₅	14.9	0.15	19991208	23.50872	145.81121	259.03769	22.19901	0.1723242	2.1374344	8	1	2 days	0.31	Williams	1999 XJ ₁₀₅
1999 XN ₁₀₅	14.6	0.15	19991208	34.54166	345.99731	42.74930	6.77100	0.1697374	2.4650439	14	1	5 days	0.36	E Williams	1999 XN ₁₀₅
1999 XR ₁₀₅	14.7	0.15	19991208	313.92288	264.71985	235.40191	12.69933	0.1422745	2.7363188	9	1	3 days	0.19	E Williams	1999 XR ₁₀₅
1999 XW ₁₀₅	16.0	0.15	19991208	23.23034	306.82249	114.94850	3.07905	0.2321985	2.5084460	7	1	4 days	0.87	E Williams	1999 XW ₁₀₅
1999 XC ₁₀₆	15.2	0.15	19991208	30.32083	171.38589	252.60126	0.41814	0.1048228	2.3211832	7	1	4 days	0.77	E Williams	1999 XC ₁₀₆
1999 XD ₁₀₆	16.3	0.15	19991118	14.45268	301.35126	84.35782	24.69774	0.5716973	3.0399935	26	1	28 days	0.49	Williams	1999 XD ₁₀₆
1999 XE ₁₀₆	17.3	0.15	19991208	21.27406	142.53561	276.67302	18.60229	0.1212909	1.9472803	7	1	2 days	0.47	Marsden	1999 XE ₁₀₆
1999 XK ₁₀₆	14.8	0.15	19991208	275.26309	227.95261	272.97951	4.99920	0.0879099	2.2312258	11	1	9 days	0.60	E Williams	1999 XK ₁₀₆
1999 XL ₁₀₆	14.7	0.15	19991208	355.42937	172.08300	238.87200	13.97325	0.0842156	2.5246686	11	1	9 days	0.33	E Williams	1999 XL ₁₀₆
1999 XM ₁₀₆	14.9	0.15	19991208	63.01781	87.99121	239.16547	12.98083	0.1450192	2.5499729	11	1	9 days	0.35	E Williams	1999 XM ₁₀₆
1999 XN ₁₀₆	13.6	0.15	19991208	30.83074	123.29402	238.07546	10.31008	0.1693568	3.1443495	11	1	9 days	0.32	E Williams	1999 XN ₁₀₆
1999 XO ₁₀₆	15.1	0.15	19991208	24.06578	118.07636	251.69245	12.89933	0.2208563	2.5958862	11	1	9 days	0.34	E Williams	1999 XO ₁₀₆
1999 XQ ₁₀₆	15.3	0.15	19991208	254.83741	271.54039	253.23801	5.06908	0.1239595	2.3785134	11	1	9 days	0.98	E Williams	1999 XQ ₁₀₆
1999 XW ₁₀₆	15.6	0.15	19991208	10.31576	4.36760	31.41596	11.02352	0.2500528	2.6756976	11	1	9 days	0.34	E Williams	1999 XW ₁₀₆

1999 XZ ₁₀₆	14.9	0.15	19991208	75.93859	74.50111	248.10994	13.24633	0.1028112	2.5689966	11	1	8 days	0.50	E Williams	1999 XZ ₁₀₆
1999 XN ₁₀₇	14.3	0.15	19991208	44.03434	347.40496	3.50595	2.18298	0.1777892	3.0258932	13	1	9 days	0.47	E Williams	1999 XN ₁₀₇
1999 XQ ₁₀₇	14.1	0.15	19991208	64.76022	293.33114	28.18413	10.88325	0.2149885	2.9671322	11	1	8 days	0.50	E Williams	1999 XQ ₁₀₇
1999 XR ₁₀₇	16.1	0.15	19991208	352.96962	31.25167	36.22578	7.71740	0.2010756	2.3523163	11	1	8 days	0.42	E Williams	1999 XR ₁₀₇
1999 XR ₁₀₈	17.0	0.15	19991208	2.27513	144.56836	270.60835	2.78047	0.1770526	2.3549789	11	1	8 days	0.71	E Williams	1999 XR ₁₀₈
1999 XU ₁₁₀	14.6	0.15	19991208	302.85173	226.81500	263.30445	6.15884	0.1618960	2.5901257	11	1	7 days	0.36	E Williams	1999 XU ₁₁₀
1999 XD ₁₁₁	17.2	0.15	19991208	32.20403	320.16207	59.79177	2.99996	0.1539837	2.4474852	11	1	7 days	0.65	E Williams	1999 XD ₁₁₁
1999 XV ₁₁₁	15.3	0.15	19991208	90.37184	44.41308	273.51970	3.12732	0.2175888	2.2835380	14	1	6 days	0.47	Williams	1999 XV ₁₁₁
1999 XW ₁₁₁	15.5	0.15	19991208	51.90636	295.16229	61.03899	5.06549	0.2315401	2.5311613	18	1	6 days	0.63	E Williams	1999 XW ₁₁₁
1999 XX ₁₁₁	13.7	0.15	19991208	70.64330	265.97408	67.97495	17.23475	0.2423426	3.1259840	15	1	6 days	0.29	E Williams	1999 XX ₁₁₁
1999 XY ₁₁₁	16.7	0.15	19991208	14.29881	104.27153	308.00134	0.66906	0.1812941	2.3618862	14	1	6 days	0.67	E Williams	1999 XY ₁₁₁
1999 XZ ₁₁₁	16.5	0.15	19991208	357.31781	26.25059	50.63512	2.77304	0.1661291	2.4686869	15	1	6 days	0.63	E Williams	1999 XZ ₁₁₁
1999 XA ₁₁₂	14.5	0.15	19991208	280.59554	195.15448	330.25435	1.04045	0.1186480	3.1382702	12	1	6 days	0.65	E Williams	1999 XA ₁₁₂
1999 XB ₁₁₂	14.6	0.15	19991208	30.82070	318.03766	67.59890	14.91567	0.2176459	3.2963216	22	1	7 days	0.52	E Williams	1999 XB ₁₁₂
1999 XC ₁₁₂	15.3	0.15	19991208	41.24850	10.11865	0.96451	1.11697	0.2221562	2.6082361	20	1	6 days	0.40	E Williams	1999 XC ₁₁₂
1999 XD ₁₁₂	14.3	0.15	19991208	280.41388	101.90968	63.56107	10.27534	0.1158549	3.2284565	11	1	6 days	0.66	E Williams	1999 XD ₁₁₂
1999 XE ₁₁₂	15.6	0.15	19991208	41.51775	298.67868	68.26960	8.94955	0.2578793	2.4134037	13	1	6 days	0.41	E Williams	1999 XE ₁₁₂
1999 XF ₁₁₂	14.9	0.15	19991208	239.16737	262.60570	306.48727	1.15030	0.1752404	2.2541695	11	1	6 days	0.46	E Williams	1999 XF ₁₁₂
1999 XG ₁₁₂	15.9	0.15	19991208	37.81091	323.06060	62.30257	4.26668	0.1218317	2.3728553	13	1	6 days	0.44	E Williams	1999 XG ₁₁₂
1999 XS ₁₁₃	13.4	0.15	19991208	317.66519	117.30251	5.34246	15.72549	0.2170611	3.2969306	13	1	2 days	0.59	E Williams	1999 XS ₁₁₃
1999 XB ₁₁₄	14.7	0.15	19991208	334.46061	112.13319	353.23596	13.53793	0.2905590	2.9736135	14	1	2 days	0.44	Williams	1999 XB ₁₁₄
1999 XC ₁₁₅	13.9	0.15	19991208	323.06231	171.86100	287.69716	15.42123	0.1451668	3.0713458	12	1	2 days	0.66	E Williams	1999 XC ₁₁₅
1999 XP ₁₂₇	14.7	0.15	19991208	118.20502	28.48294	271.02715	6.81533	0.1586727	3.1208219	17	1	7 days	0.61	E Williams	1999 XP ₁₂₇
1999 XS ₁₂₇	16.9	0.15	19991208	21.69810	278.69611	131.03423	22.78864	0.1220214	1.8886483	7	1	2 days	0.26	E Williams	1999 XS ₁₂₇
1999 XQ ₁₃₄	14.2	0.15	19991208	329.10741	28.16508	84.48172	26.05014	0.2332361	2.4047431	15	1	12 days	0.43	Williams	1999 XQ ₁₃₄
1999 XU ₁₃₄	15.1	0.15	19991208	68.75569	262.07848	92.55972	23.93789	0.1083798	1.9656955	15	1	10 days	0.28	Williams	1999 XU ₁₃₄
1999 XZ ₁₃₄	14.8	0.15	19991208	11.02468	330.95827	90.72819	27.21587	0.1144028	2.7524132	15	1	9 days	0.46	Williams	1999 XZ ₁₃₄
1999 XO ₁₃₅	16.0	0.15	19991208	337.62504	253.47643	254.27684	20.00311	0.4969882	3.0980601	16	1	7 days	0.43	Williams	1999 XO ₁₃₅
1999 XR ₁₃₅	16.2	0.15	19991208	52.19426	126.47451	255.50669	18.18551	0.1089649	1.9527718	13	1	7 days	0.28	Williams	1999 XR ₁₃₅
1999 XW ₁₃₅	16.1	0.15	19991208	22.80387	136.08645	268.42105	18.39353	0.0743551	2.0076214	16	1	3 days	0.50	Williams	1999 XW ₁₃₅
1999 XX ₁₃₅	14.1	0.15	19991208	0.84483	160.18684	270.23884	17.55512	0.0796843	1.9381335	24	1	3 days	0.30	Williams	1999 XX ₁₃₅
1999 XB ₁₃₆	16.3	0.15	19991208	46.14888	74.78178	308.22290	16.34797	0.1924931	1.9170405	19	1	2 days	0.62	Williams	1999 XB ₁₃₆
1999 XK ₁₃₆	20.4	0.15	19991208	11.37535	301.50270	64.18229	2.66645	0.7041231	2.3897134	66	1	5 days	0.66	Williams	1999 XK ₁₃₆
1999 XL ₁₃₆	19.9	0.15	19991208	329.71347	274.36089	270.95177	9.13626	0.6610128	1.8664782	43	1	3 days	0.60	Williams	1999 XL ₁₃₆
1999 XM ₁₃₆	15.5	0.15	19991208	24.07471	86.87831	318.32049	26.05017	0.4521162	2.7491808	19	1	3 days	0.43	Williams	1999 XM ₁₃₆
1999 XN ₁₃₆	14.2	0.15	19991208	349.58944	41.97183	71.10861	24.15663	0.3794605	2.4648043	45	1	2 days	0.46	Williams	1999 XN ₁₃₆
2040 P-L	16.8	0.15	19990810	357.83511	342.97434	1.03298	4.81935	0.2442826	2.1944166	84	3	1960–1999	0.76	M-v 4 Williams	36941 2040 P-L
2054 P-L	14.4	0.15	19990810	176.26828	329.36643	227.19643	4.75104	0.1434656	2.3209973	75	3	1960–1999	0.55	M-v 4 Williams	36941 2054 P-L
2072 P-L	15.9	0.15	19990810	300.99613	115.59275	353.25609	6.64393	0.1457611	2.3117277	36	4	1960–1999	0.60	M-v 1 Williams	30094 2072 P-L
2100 P-L	14.1	0.15	19990810	107.68800	75.63634	193.30069	16.80642	0.0473496	2.8618574	50	3	1960–1999	0.68	M-v 3 Williams	36941 2100 P-L
2110 P-L	15.7	0.15	19990810	100.45594	23.64166	299.85631	1.91341	0.1482866	2.6155851	35	5	1960–1999	1.01	M-v 2 Williams	32785 2110 P-L
2221 P-L	16.6	0.15	19990810	72.62779	72.68145	236.76323	3.57785	0.1234663	2.1819236	27	4	1960–1999	0.73	M-v 2 Williams	36941 2221 P-L
2508 P-L	15.1	0.15	19990810	333.60557	351.01751	10.19517	6.37739	0.2501759	2.3312580	51	5	1951–1999	0.71	M-v 2 Williams	36941 2508 P-L
2565 P-L	14.9	0.15	19990810	127.44665	297.59053	23.71365	4.83077	0.0228918	2.4339476	47	3	1960–1999	0.69	M-v 4 Williams	36119 2565 P-L
2579 P-L	13.8	0.15	19990810	164.39623	216.56089	26.98049	7.95815	0.1718668	2.2984903	20	3	1960–1999	0.43	M-v 4 Williams	18130 2579 P-L
2588 P-L	15.1	0.15	19990810	272.32226	93.81272	18.10030	6.18351	0.1725664	2.3218348	47	2	1960–1999	0.51	M-v 4 Williams	36941 2588 P-L
2589 P-L	13.5	0.15	19990810	303.68899	18.89908	145.38348	3.23252	0.1521751	2.5999568	54	3	1960–1999	0.67	M-v 3 Williams	36941 2589 P-L
2613 P-L	14.5	0.15	19990810	332.54660	220.08670	192.88461	4.51630	0.1480329	3.1324122	72	4	1960–1999	0.57	M-v 2 Williams	36941 2613 P-L
2646 P-L	14.8	0.15	19990810	4.79009	21.68110	18.79865	5.31068	0.1599694	2.6377735	21	4	1960–1999	0.56	M-v 2 Williams	36578 2646 P-L
2665 P-L	16.3	0.15	19990810	13.25631	160.44960	171.15341	3.95753	0.2583244	2.4752109	55	3	1960–1999	0.72	M-v 4 Williams	36942 2665 P-L
2731 P-L	14.5	0.15	19990810	40.90226	205.19742	183.96638	10.89156	0.1428535	3.0886738	23	3	1960–1999	0.63	M-v 3 Williams	33324 2731 P-L
3040 P-L	13.9	0.15	19990810	37.19884	57.81662	288.32531	8.03033	0.2218241	2.6394272	31	6	1960–1999	0.63	M-v 1 Williams	32091 3040 P-L
3092 P-L	14.4	0.15	19990810	55.98177	2.69630	295.17373	7.37490	0.2381563	2.6496027	42	3	1960–1999	0.57	M-v 4 Williams	36942 3092 P-L

3093 P-L	13.5	0.15	19990810	83.80057	305.22159	300.79756	12.32212	0.0840385	2.8871590	37	3	1960-1999	0.56	M-v	2	Williams	36942	3093 P-L
3503 P-L	14.1	0.15	19990810	70.91591	57.16614	244.68121	11.37607	0.1521723	2.6435917	67	3	1960-1999	0.63	M-v	3	Williams	36942	3503 P-L
3504 P-L	14.8	0.15	19990810	336.93856	40.28689	331.13100	11.49303	0.1979278	2.6632470	60	2	1960-1999	0.49	M-v	3	Williams	36942	3504 P-L
3541 P-L	12.5	0.15	19990810	33.98948	34.57979	307.37528	8.42176	0.2996170	3.1047846	25	5	1960-1999	0.54	M-v	3	Williams	36120	3541 P-L
3563 P-L	14.0	0.15	19990810	314.22233	87.71090	342.97682	16.15333	0.2081996	3.1447771	34	2	1960-1999	0.49	M-v	4	Williams	36942	3563 P-L
4026 P-L	13.2	0.15	19990810	152.45661	249.29336	359.74016	13.27632	0.1255084	2.6259240	60	5	1960-1999	0.72	M-v	2	Williams	36942	4026 P-L
4032 P-L	14.8	0.15	19990810	354.51051	125.07678	326.56481	4.94678	0.1275114	2.2944379	35	3	1960-1999	0.64	M-v	4	Williams	32785	4032 P-L
4037 P-L	14.4	0.15	19990810	282.45703	97.30725	358.02851	6.85063	0.0865572	2.3198095	70	4	1960-1999	0.49	M-v	3	Williams	36942	4037 P-L
4060 P-L	14.1	0.15	19990810	196.34607	289.25210	241.86861	1.60338	0.0337036	2.6530287	82	4	1960-1999	0.76	M-v	4	Williams	36942	4060 P-L
4080 P-L	13.5	0.15	19990810	183.16033	20.48105	208.76532	3.94497	0.1073561	3.0920896	30	3	1960-1999	0.75	M-v	4	Williams	33053	4080 P-L
4104 P-L	15.8	0.15	19990810	343.74941	172.04626	209.25877	6.09295	0.1231867	2.3219222	48	2	1960-1999	0.54	M-v	3	Williams	36942	4104 P-L
4115 P-L	14.8	0.15	19990810	24.76709	168.85502	223.45248	1.06027	0.0992264	2.6266339	30	5	1960-1999	0.67	M-v	1	Williams	36120	4115 P-L
4274 P-L	15.3	0.15	19990810	254.18060	248.79482	280.56270	2.14783	0.0728653	2.2997634	17	4	1960-1999	0.57	M-v	2	Williams	29668	4274 P-L
4315 P-L	15.0	0.15	19990810	93.48914	58.75617	211.21033	1.45173	0.0220647	2.8721217	20	3	1960-1999	0.36	M-v	2	Williams	36942	4315 P-L
4517 P-L	13.7	0.15	19990810	71.49317	322.48444	9.84845	6.86390	0.1772370	2.3007090	43	5	1960-1999	0.77	M-v	3	Williams	36579	4517 P-L
4526 P-L	13.6	0.15	19990810	328.05742	136.70980	358.30068	2.34489	0.1419907	2.4346981	75	5	1960-1999	0.63	M-v	2	Williams	36942	4526 P-L
4565 P-L	14.9	0.15	19600923	48.18532	308.46169	8.64476	9.83238	0.0241474	3.1360247	8	1	4 days	0.48		E	Williams	36867	4565 P-L
4572 P-L	11.4	0.15	19990810	28.11748	43.42756	16.84842	9.06591	0.0819560	5.3280631	35	5	1960-1999	0.67	M-v	1	Williams	35743	4572 P-L
4597 P-L	15.0	0.15	19990810	10.01963	252.91238	167.72472	3.73016	0.1999238	2.3005075	15	3	1960-1999	0.51	M-v	3	Williams	35048	4597 P-L
4636 P-L	13.6	0.15	19990810	208.98224	130.81988	13.26123	14.09823	0.0711499	3.1533565	43	3	1960-1999	0.69	M-v	4	Williams	36579	4636 P-L
4646 P-L	12.7	0.15	19990810	329.52922	288.91195	186.07993	10.83188	0.1208348	3.0854048	93	3	1960-1999	0.71	M-v	3	Williams	36942	4646 P-L
4647 P-L	15.3	0.15	19990810	110.58525	76.59558	194.58027	1.51227	0.1238849	2.1790388	72	3	1960-1999	0.64	M-v	4	Williams	36942	4647 P-L
4778 P-L	15.2	0.15	19990810	162.95784	87.58009	171.90972	4.50685	0.1216900	2.1652305	30	3	1960-1999	0.61	M-v	4	Williams	32785	4778 P-L
4810 P-L	14.6	0.15	19990810	331.30345	93.39757	5.61652	12.12135	0.1202380	3.1015314	27	3	1960-1999	0.64	M-v	4	Williams	33325	4810 P-L
4845 P-L	13.8	0.15	19990810	3.03839	242.81890	172.00415	10.97738	0.1129811	3.1027473	37	4	1960-1999	0.77	M-v	2	Williams	32785	4845 P-L
5565 P-L	14.4	0.15	19990810	11.23433	353.93521	35.82885	6.26682	0.1814321	2.1801847	36	3	1960-1999	0.87	M-v	3	Williams	36579	5565 P-L
6056 P-L	15.1	0.15	19990810	325.33127	198.01794	199.03727	8.53308	0.1395646	2.4753058	55	3	1960-1999	0.58	M-v	3	Williams	36942	6056 P-L
6103 P-L	14.9	0.15	19990810	0.54540	58.46013	0.84845	5.13306	0.2157163	3.1075701	24	4	1960-1999	0.52	M-v	1	Williams	33129	6103 P-L
6111 P-L	14.0	0.15	19990810	61.90718	338.77853	352.37206	9.75978	0.1274616	3.0994015	26	3	1960-1999	0.75	M-v	3	Williams	32785	6111 P-L
6326 P-L	13.8	0.15	19990810	286.70345	203.11124	236.66406	1.13844	0.1231497	3.1448091	43	2	1960-1999	0.50	M-v	4	Williams	36942	6326 P-L
6513 P-L	13.9	0.15	19990810	211.44659	245.95978	2.32553	12.70571	0.1591972	2.5879461	28	4	1960-1999	0.69	M-v	2	Williams	33383	6513 P-L
6529 P-L	14.1	0.15	19990810	51.68012	203.30059	126.50271	2.23394	0.1563575	3.1075675	52	3	1960-1999	0.52	M-v	3	Williams	36942	6529 P-L
6594 P-L	14.8	0.15	19990810	73.58261	195.32761	177.77991	6.35702	0.0719447	2.4332862	53	4	1960-1999	0.86	M-v	2	Williams	33589	6594 P-L
6602 P-L	16.1	0.15	19990810	338.42677	2.60218	11.68950	6.56860	0.1373631	2.1931562	91	3	1960-1999	0.68	M-v	4	Williams	36942	6602 P-L
6617 P-L	14.7	0.15	19990810	275.70775	87.52726	18.72493	6.48484	0.1077660	2.4690540	47	2	1960-1999	0.53	M-v	4	Williams	36942	6617 P-L
6622 P-L	14.8	0.15	19990810	213.53032	0.32287	160.04050	3.04432	0.1099669	2.3177956	45	2	1960-1999	0.61	M-v	4	Williams	36942	6622 P-L
6634 P-L	13.5	0.15	19990810	319.60299	20.38014	80.61875	3.65518	0.1210510	3.1061261	48	4	1960-1999	0.59	M-v	2	Williams	36942	6634 P-L
6735 P-L	14.6	0.15	19990810	342.80489	27.31482	12.35161	5.15544	0.1634320	3.1249761	12	3	1960-1999	0.47	M-v	4	Williams	36867	6735 P-L
6818 P-L	14.5	0.15	19990810	98.52816	234.06569	70.33270	3.50681	0.1962020	2.6204931	40	3	1960-1999	0.77	M-v	4	Williams	36121	6818 P-L
7606 P-L	16.1	0.15	19990810	7.23409	249.42049	83.43403	3.04348	0.2616314	2.3235318	40	3	1960-1999	0.58	M-v	4	Williams	36942	7606 P-L
9509 P-L	14.6	0.15	19990810	31.29963	124.86043	187.93554	10.89630	0.2553414	2.6512391	79	4	1960-1999	0.67	M-v	2	Williams	36942	9509 P-L
1043 T-1	14.8	0.15	19990810	307.04279	220.63964	222.86526	2.17991	0.1840400	2.3991721	54	4	1971-1999	0.61	M-v	2	Williams	36867	1043 T-1
1056 T-1	14.2	0.15	19990810	199.24520	217.34819	346.26102	11.57130	0.1337308	2.6466491	32	5	1971-1999	0.76	M-v	1	Williams	36942	1056 T-1
1182 T-1	13.3	0.15	19990810	319.11252	208.26445	188.63426	12.98387	0.1637351	2.6675167	126	3	1971-1999	0.61	M-v	2	Williams	36942	1182 T-1
1222 T-1	14.2	0.15	19990810	19.27448	354.82948	347.17991	11.29013	0.2339114	2.4389717	58	4	1971-1999	0.58	M-v	2	Williams	36942	1222 T-1
2024 T-1	15.0	0.15	19990810	327.25589	205.28255	182.09501	12.91403	0.1222942	2.6706307	80	3	1971-1999	0.57	M-v	3	Williams	36942	2024 T-1
2153 T-1	13.6	0.15	19990810	78.51565	210.15983	130.80389	3.04026	0.0831081	2.9305744	54	3	1971-1999	0.72	M-v	4	Williams	36122	2153 T-1
2183 T-1	15.4	0.15	19990810	304.49671	28.14653	67.83952	2.24637	0.1496265	2.3968003	65	3	1971-1999	0.56	M-v	4	Williams	36942	2183 T-1
2312 T-1	14.2	0.15	19990810	77.58862	10.86562	36.13877	2.56284	0.0505473	2.8661517	40	6	1949-1999	1.06	M-v	1	Williams	36122	2312 T-1
3041 T-1	14.3	0.15	19990810	52.61749	338.30025	333.03221	5.42865	0.1990742	2.6915213	53	3	1971-1999	0.57	M-v	4	Williams	36942	3041 T-1
3109 T-1	15.6	0.15	19990810	107.21025	32.81803	246.90657	2.88732	0.1317009	2.4254329	24	3	1971-1999	0.84	M-v	4	Williams	24115	3109 T-1
3195 T-1	14.7	0.15	19990810	280.72038	99.92980	338.89342	4.75593	0.1210356	2.2312338	101	3	1971-1999	0.58	M-v	3	Williams	36942	3195 T-1
3243 T-1	15.2	0.15	19990810	355.09794	347.90766	357.79404	3.92073	0.1423067	2.2504422	104	4	1971-1999	0.80	M-v	2	Williams	36942	3243 T-1

3770 T-1	15.3	0.15	19990810	134.74917	28.86925	191.20426	6.23520	0.1289192	2.2451095	89	3	1971-1999	0.63	M-v	3	Williams	36943	3770 T-1
4172 T-1	15.6	0.15	19990810	164.48943	113.78832	130.64578	1.69592	0.1310305	2.4094443	28	4	1971-1999	1.00	M-v	2	Williams	33129	4172 T-1
4206 T-1	14.5	0.15	19990810	277.94533	37.74050	140.55588	2.75188	0.1756516	2.3734697	40	5	1971-1999	0.65	M-v	2	Williams	36943	4206 T-1
4406 T-1	14.3	0.15	19990810	256.89646	156.00708	18.76945	15.06322	0.0088144	2.6223616	45	4	1971-1999	0.87	M-v	2	Williams	36943	4406 T-1
4841 T-1	13.8	0.15	19990810	108.40144	295.21325	20.27337	13.27692	0.1786230	2.6427011	46	3	1971-1999	0.67	M-v	3	Williams	36122	4841 T-1
1043 T-2	15.3	0.15	19990810	253.13237	163.96770	306.71232	2.03830	0.1726983	2.4015289	45	2	1973-1999	0.89	M-v	4	Williams	36943	1043 T-2
1059 T-2	14.3	0.15	19990810	66.48688	52.19678	209.43078	3.85990	0.0427488	2.4089723	104	3	1973-1999	0.69	M-v	2	Williams	36943	1059 T-2
1108 T-2	14.6	0.15	19990810	34.53836	313.39944	353.24367	6.35844	0.1308714	2.3966805	114	3	1973-1999	0.72	M-v	3	Williams	36943	1108 T-2
1198 T-2	14.9	0.15	19990810	335.30189	86.73774	303.73657	1.04714	0.0586800	2.6507504	55	2	1973-1999	0.82	M-v	5	Williams	36868	1198 T-2
1242 T-2	14.0	0.15	19990810	186.17159	33.80381	184.14190	13.87806	0.1952320	2.6057672	50	4	1973-1999	0.89	M-v	3	Williams	36943	1242 T-2
1247 T-2	17.2	0.15	19990810	321.98136	213.00723	196.20520	2.56523	0.1699906	2.3935095	34	2	1973-1999	0.68	M-v	5	Williams	36869	1247 T-2
1259 T-2	13.4	0.15	19990810	337.24335	91.32953	31.98070	2.35950	0.0445054	2.8919032	55	3	1973-1999	0.95	M-v	3	Williams	36943	1259 T-2
1320 T-2	14.4	0.15	19990810	85.90147	317.01032	358.90955	9.80515	0.0985060	2.9420163	33	4	1973-1999	0.99	M-v	2	Williams	36123	1320 T-2
1329 T-2	14.1	0.15	19990810	322.46209	208.95017	218.62831	1.90626	0.1858862	2.9850574	42	2	1973-1999	0.77	M-v	5	Williams	36869	1329 T-2
1474 T-2	15.4	0.15	19990810	61.03885	67.75548	224.66183	2.63209	0.1666025	2.1843497	97	3	1973-1999	0.82	M-v	2	Williams	36943	1474 T-2
1503 T-2	16.1	0.15	19990810	293.29748	229.61068	216.40940	2.14185	0.1528531	2.3924861	58	3	1973-1999	0.76	M-v	2	Williams	36943	1503 T-2
2039 T-2	13.8	0.15	19990810	226.58371	189.07278	359.85887	6.58595	0.0509834	2.3599220	45	3	1973-1999	0.79	M-v	3	Marsden	36581	2039 T-2
2076 T-2	15.5	0.15	19990810	179.45860	60.91800	180.80550	2.96219	0.1031847	2.1540327	47	6	1973-1999	0.85	M-v	2	Williams	32537	2076 T-2
2085 T-2	14.5	0.15	19990810	263.95890	149.91357	349.60383	4.50633	0.1287761	2.6323719	48	3	1973-1999	0.83	M-v	4	Williams	36943	2085 T-2
2104 T-2	14.6	0.15	19990810	59.21719	118.41719	251.30645	1.15733	0.1108331	2.9224164	59	4	1973-1999	0.94	M-v	3	Williams	33130	2104 T-2
2168 T-2	14.1	0.15	19990810	37.84157	185.14610	198.22760	1.63785	0.1198502	2.9346289	80	5	1973-1999	0.77	M-v	2	Williams	36581	2168 T-2
2638 T-2	11.7	0.15	19990810	325.04868	41.52267	52.70324	2.33078	0.0315823	5.1963934	57	3	1973-1999	0.90	M-v	4	Williams	36943	2638 T-2
3063 T-2	14.4	0.15	19990810	336.02992	79.36335	9.70016	14.80780	0.0786737	2.6052973	27	4	1973-1999	1.03	M-v	2	Williams	32786	3063 T-2
3156 T-2	12.0	0.15	19990810	343.96336	27.85202	49.18014	2.40465	0.0483383	5.1598926	43	3	1973-1999	0.68	M-v	4	Williams	36943	3156 T-2
3159 T-2	13.9	0.15	19990810	12.44297	210.89507	170.11501	11.82369	0.1229074	2.6277442	22	3	1973-1999	0.97	M-v	4	Williams	17653	3159 T-2
3270 T-2	14.7	0.15	19990810	240.12302	65.00735	72.65684	3.34598	0.1354039	2.3905016	74	4	1973-1999	0.62	M-v	2	Williams	36943	3270 T-2
4041 T-2	16.0	0.15	19990810	21.28264	336.38864	28.06580	2.34813	0.0932992	2.6331457	46	3	1973-1999	0.93	M-v	5	Williams	29651	4041 T-2
4072 T-2	16.6	0.15	19990810	38.18281	284.51179	34.40951	4.65970	0.1891828	2.1835827	42	3	1973-1999	0.77	M-v	3	Williams	36943	4072 T-2
4091 T-2	14.3	0.15	19990810	34.39204	205.48392	109.41283	3.43280	0.1956805	2.6496384	64	3	1973-1999	0.74	M-v	3	Williams	36943	4091 T-2
4184 T-2	15.5	0.15	19990810	325.60470	339.04962	66.82892	1.90510	0.1662200	2.3935637	42	2	1973-1999	0.72	M-v	5	Williams	36870	4184 T-2
4230 T-2	14.2	0.15	19990810	87.38479	246.13512	91.35153	3.39188	0.0988272	2.9198902	49	3	1973-1999	0.85	M-v	5	Williams	33130	4230 T-2
5030 T-2	11.1	0.15	19990810	0.06470	156.27981	289.89233	10.95253	0.1351276	5.2172196	23	3	1973-1999	0.74	M-v	2	Williams	15258	5030 T-2
5036 T-2	14.0	0.15	19990810	306.07513	181.26585	262.21258	8.46723	0.0372870	2.6351422	58	3	1973-1999	0.48	M-v	3	Williams	36943	5036 T-2
5104 T-2	14.6	0.15	19990810	337.16475	173.01574	252.75476	7.67249	0.0137317	2.9558864	37	3	1973-1999	0.89	M-v	3	Williams	22701	5104 T-2
5159 T-2	11.2	0.15	19990810	33.38593	92.99521	323.56986	10.54397	0.0082513	5.1497081	51	5	1973-1999	0.70	M-v	1	Williams	35743	5159 T-2
5161 T-2	13.8	0.15	19990810	280.74415	87.50008	338.42545	12.28095	0.1705037	2.6784102	79	3	1973-1999	0.60	M-v	1	Williams	36943	5161 T-2
1036 T-3	13.4	0.15	19990810	333.46986	124.19531	334.05057	9.11454	0.1943586	3.0658488	42	4	1977-1999	0.75	M-v	1	Williams	36124	1036 T-3
1039 T-3	14.3	0.15	19990810	69.18569	323.05693	346.41597	12.80421	0.1298187	2.6601120	33	4	1977-1999	0.65	M-v	2	Williams	36943	1039 T-3
1078 T-3	14.1	0.15	19990810	303.57949	268.85477	237.47130	14.05811	0.0702019	2.6085703	31	5	1954-1999	0.81	M-v	2	Williams	36581	1078 T-3
1079 T-3	14.2	0.15	19990810	37.55877	57.72875	243.79620	11.78827	0.1638151	2.6935863	40	2	1977-1999	0.70	M-v	4	Williams	36943	1079 T-3
1158 T-3	13.1	0.15	19990810	172.98869	327.06235	259.67547	10.01166	0.1065132	3.0689993	60	3	1977-1999	0.69	M-v	3	Williams	36944	1158 T-3
1168 T-3	14.4	0.15	19990810	328.60040	49.71764	355.94273	13.32875	0.1623233	2.6853423	79	3	1977-1999	0.68	M-v	3	Williams	36944	1168 T-3
1177 T-3	12.6	0.15	19990810	216.55747	244.23006	284.69822	7.53703	0.1632820	3.1303953	71	3	1977-1999	0.71	M-v	3	Williams	36944	1177 T-3
1194 T-3	13.9	0.15	19990810	70.35878	8.90769	312.13136	6.18270	0.1287774	2.3493586	29	4	1977-1999	0.75	M-v	2	Williams	36581	1194 T-3
2077 T-3	15.4	0.15	19990810	227.39424	210.21993	3.43494	9.05815	0.2031904	2.3173545	38	5	1977-1999	0.88	M-v	2	Williams	32787	2077 T-3
2139 T-3	12.7	0.15	19990810	261.77918	255.81725	254.22413	3.57702	0.0586851	2.6448284	41	2	1977-1999	0.67	M-v	6	Williams	36871	2139 T-3
2315 T-3	15.5	0.15	19990810	310.13515	194.79768	221.46435	1.94612	0.1437762	2.3814979	71	3	1977-1999	0.73	M-v	3	Williams	36944	2315 T-3
2416 T-3	13.9	0.15	19990810	270.63084	197.04711	274.43180	1.40157	0.1664300	2.3792399	82	3	1977-1999	0.60	M-v	4	Williams	36944	2416 T-3
2634 T-3	15.1	0.15	19990810	207.17156	325.34698	232.17159	2.55706	0.0835248	2.6487311	27	2	1977-1999	0.58	M-v	5	Williams	36871	2634 T-3
2676 T-3	14.9	0.15	19990810	170.32892	39.82909	212.13588	3.98999	0.1155858	2.3261896	60	5	1977-1999	0.85	M-v	2	Williams	36124	2676 T-3
3039 T-3	14.8	0.15	19990810	350.33559	259.92388	144.60198	3.30144	0.1021277	2.6632386	34	3	1977-1999	0.80	M-v	4	Williams	26417	3039 T-3
3084 T-3	16.9	0.15	19990810	359.21030	299.22671	36.43575	0.98409	0.1634033	2.1535838	36	3	1977-1999	0.81	M-v	4	Williams	36494	3084 T-3
3191 T-3	15.8	0.15	19990810	330.12237	20.39839	39.50666	7.39042	0.1138405	2.3641752	39	2	1977-1999	0.81	M-v	4	Williams	36871	3191 T-3

3195 T-3	14.6	0.15	19990810	122.90097	79.89663	188.59242	11.18266	0.1674016	2.6426099	27	4	1977-1999	0.93	M-v	3	Williams	36125	3195 T-3
3378 T-3	15.0	0.15	19990810	310.85048	8.54914	138.06696	0.87936	0.1596957	2.3210949	62	5	1977-1999	0.83	M-v	2	Williams	32787	3378 T-3
3424 T-3	15.1	0.15	19990810	90.27198	173.44702	152.37760	2.29472	0.0324067	2.6317109	73	6	1971-1999	0.81	M-v	1	Williams	33385	3424 T-3
3465 T-3	13.8	0.15	19990810	80.03753	294.85210	22.62627	11.02732	0.1448026	3.0493989	29	3	1977-1999	0.66	M-v	4	Williams	36125	3465 T-3
3535 T-3	14.7	0.15	19990810	291.48151	37.86411	24.48408	2.42362	0.1879787	2.3923510	62	5	1955-1999	0.79	M-v	1	Williams	36582	3535 T-3
3574 T-3	13.7	0.15	19990810	352.67666	231.30470	185.43107	10.34253	0.0734742	3.0671267	38	4	1977-1999	0.71	M-v	2	Williams	36944	3574 T-3
4039 T-3	15.1	0.15	19990810	79.49406	148.65100	120.16287	2.63024	0.0989653	2.1460492	90	3	1977-1999	0.68	M-v	3	Williams	36944	4039 T-3
4046 T-3	14.3	0.15	19990810	202.89239	166.83336	112.17462	5.13600	0.1532677	2.2798626	56	5	1977-1999	0.95	M-v	2	Williams	33385	4046 T-3
4064 T-3	13.5	0.15	19990810	31.35396	217.03831	171.18141	10.94691	0.1062164	3.0451489	48	4	1977-1999	0.76	M-v	1	Williams	36582	4064 T-3
4072 T-3	13.7	0.15	19990810	316.22926	293.60488	159.44456	5.86321	0.1303371	3.0866074	57	3	1977-1999	0.75	M-v	4	Williams	36944	4072 T-3
4079 T-3	14.4	0.15	19990810	274.24974	142.88834	38.11463	10.79544	0.0411127	2.9948182	40	3	1977-1999	0.78	M-v	4	Williams	36125	4079 T-3
4093 T-3	15.8	0.15	19990810	202.04695	160.37496	50.05899	7.12764	0.0766873	2.3406756	18	3	1977-1999	0.60	M-v	5	Williams	26186	4093 T-3
4138 T-3	13.4	0.15	19990810	309.90458	11.02603	35.09714	19.17303	0.1769767	3.1422547	32	3	1977-1999	0.56	M-v	3	Williams	36582	4138 T-3
4220 T-3	13.5	0.15	19990810	282.28445	47.68199	30.96586	22.21578	0.1301191	3.1465873	49	3	1977-1999	0.77	M-v	3	Williams	36944	4220 T-3
4303 T-3	14.0	0.15	19990810	326.51758	60.00367	43.38499	9.55259	0.1066255	3.0532628	24	3	1977-1999	0.81	M-v	4	Williams	27565	4303 T-3
4432 T-3	15.9	0.15	19990810	332.70141	237.55441	138.00912	5.17896	0.2368985	2.3867063	46	2	1977-1999	0.74	M-v	4	Williams	36495	4432 T-3
5078 T-3	12.3	0.15	19990810	79.26172	222.03123	67.62105	10.76167	0.0468941	3.1124869	39	3	1977-1999	0.87	M-v	3	Williams	36944	5078 T-3
5122 T-3	15.0	0.15	19990810	60.05445	192.66450	112.37205	6.94655	0.2478122	2.3575080	53	3	1977-1999	0.84	M-v	2	Williams	36944	5122 T-3
5124 T-3	14.8	0.15	19990810	226.69694	58.31624	102.96789	7.18161	0.0594381	2.3650729	36	3	1977-1999	0.77	M-v	4	Williams	36944	5124 T-3

1998 SP₅₁ = 1998 UW₃₉ (A. Doppler, *MPC* 33785)1999 RD₂₀ = 1999 RN₁₉₈ (A. Doppler, *MPC* 36582)1999 VO₂₀ = 1999 OF₃ (G. V. Williams)

EPHEMERIDES

P/1999 X1 (Hug-Bell)				Elements <i>MPC</i> 37026					
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 12 08		08 25.00	+19 54.0	1.609	2.381	131.7	18.0	18.3	
1999 12 18		08 21.83	+20 58.6	1.567	2.425	142.8	14.2	18.3	
1999 12 28		08 15.78	+22 13.0	1.546	2.470	154.5	9.9	18.4	
2000 01 07		08 07.58	+23 30.8	1.549	2.516	166.6	5.2	18.5	
2000 01 17		07 58.34	+24 44.7	1.580	2.562	176.0	1.6	18.6	
2000 01 27		07 49.35	+25 48.4	1.640	2.609	167.3	4.8	18.7	
2000 02 06		07 41.78	+26 38.4	1.727	2.657	155.7	8.8	18.9	
2000 02 16		07 36.51	+27 13.9	1.839	2.704	144.4	12.3	19.1	
2000 02 26		07 33.95	+27 35.9	1.973	2.752	133.8	15.0	19.4	
2000 03 07		07 34.16	+27 46.3	2.123	2.800	123.9	17.1	19.6	
2000 03 17		07 36.96	+27 46.9	2.287	2.849	114.6	18.5	19.8	
2000 03 27		07 42.05	+27 39.3	2.461	2.897	105.8	19.4	20.1	
2000 04 06		07 49.05	+27 24.6	2.640	2.945	97.6	19.7	20.3	
2000 04 16		07 57.64	+27 03.5	2.823	2.993	89.8	19.6	20.5	
2000 04 26		08 07.48	+26 36.4	3.007	3.040	82.3	19.1	20.7	
2000 05 06		08 18.31	+26 03.9	3.188	3.088	75.2	18.4	20.9	

C/1999 J3 (LINEAR)				Elements <i>MPC</i> 36212					
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
2000 01 07		00 10.79	-64 53.8	2.223	1.990	63.6	26.3	16.7	
2000 01 17		00 18.28	-63 24.6	2.409	2.113	69.0	24.0	17.2	
2000 01 27		00 28.62	-62 12.0	2.577	2.235	59.0	22.2	17.5	
2000 02 06		00 41.05	-61 14.5	2.725	2.357	58.0	20.8	17.9	
2000 02 16		00 55.14	-60 31.4	2.856	2.478	58.0	19.8	18.2	
2000 02 26		01 10.60	-60 02.2	2.969	2.597	58.8	19.0	18.5	
2000 03 07		01 27.34	-59 46.4	3.066	2.716	60.4	18.5	18.8	

2000 03 17	01 45.27	-59 44.1	3.149	2.833	62.7	18.2	19.0	
2000 03 27	02 04.40	-59 54.9	3.220	2.950	65.5	17.9	19.2	
2000 04 06	02 24.79	-60 18.4	3.281	3.065	68.8	17.7	19.4	
2000 04 16	02 46.51	-60 54.2	3.336	3.179	72.4	17.5	19.6	
2000 04 26	03 09.67	-61 41.3	3.387	3.292	76.0	17.3	19.8	
2000 05 06	03 34.40	-62 38.2	3.438	3.404	79.6	17.0	20.0	
2000 05 16	04 00.84	-63 43.3	3.491	3.514	83.0	16.6	20.2	
2000 05 26	04 29.09	-64 54.2	3.549	3.624	86.1	16.2	20.3	
2000 06 05	04 59.27	-66 08.3	3.615	3.733	88.7	15.8	20.5	
2000 06 15	05 31.38	-67 22.8	3.691	3.840	90.7	15.3	20.7	
2000 06 25	06 05.36	-68 34.8	3.779	3.947	92.0	14.9	20.8	
2000 07 05	06 41.03	-69 41.9	3.878	4.053	92.5	14.5	21.0	
2000 07 15	07 18.0	-70 42.4	3.991	4.157	92.3	14.1	21.2	
2000 07 25	07 55.9	-71 34.9	4.115	4.261	91.3	13.8	21.4	

29P/Schwassmann-Wachmann 1

				Elements <i>MPC</i> 23105					
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
2000 01 07		16 36.87	-29 45.3	6.884	6.102	34.8	5.3	16.0	19.6
2000 01 17		16 44.72	-30 03.8	6.781	6.100	43.1	6.3	16.0	19.6
2000 01 27		16 52.06	-30 21.4	6.660	6.097	51.5	7.3	16.0	19.6
2000 02 06		16 58.76	-30 38.1	6.525	6.094	60.1	8.1	15.9	19.6
2000 02 16		17 04.70	-30 54.0	6.378	6.091	68.8	8.7	15.9	19.5
2000 02 26		17 09.75	-31 09.2	6.222	6.088	77.7	9.1	15.8	19.5
2000 03 07		17 13.80	-31 23.6	6.060	6.085	86.7	9.4	15.8	19.5
2000 03 17		17 16.74	-31 37.1	5.898	6.082	95.9	9.4	15.7	19.4
2000 03 27		17 18.48	-31 49.6	5.738	6.079	105.4	9.1	15.6	19.3
2000 04 06		17 18.95	-32 00.8	5.585	6.076	115.0	8.6	15.6	19.2
2000 04 16		17 18.14	-32 10.1	5.444	6.073	124.8	7.8	15.5	19.2
2000 04 26		17 16.09	-32 17.0	5.319	6.069	134.7	6.8	15.5	19.1
2000 05 06		17 12.90	-32 20.8	5.215	6.066	144.7	5.5	15.4	18.9
2000 05 16		17 08.76	-32 20.8	5.134	6.063	154.7	4.1	15.4	18.8
2000 05 26		17 03.92	-32 16.7	5.080	6.060	164.0	2.6	15.4	18.7
2000 06 05		16 58.69	-32 08.2	5.054	6.057	170.3	1.6	15.3	18.6

2000 06 15	16 53.43	-31 55.6	5.058	6.054	167.4	2.1	15.3	18.7
2000 06 25	16 48.48	-31 39.6	5.091	6.051	158.9	3.5	15.4	18.8
2000 07 05	16 44.16	-31 21.2	5.152	6.048	149.2	4.9	15.4	18.9
2000 07 15	16 40.73	-31 01.6	5.238	6.045	139.3	6.3	15.4	19.0
2000 07 25	16 38.36	-30 41.9	5.345	6.041	129.5	7.5	15.5	19.1
2000 08 04	16 37.18	-30 23.2	5.470	6.038	119.8	8.4	15.5	19.2
2000 08 14	16 37.23	-30 06.3	5.608	6.035	110.3	9.1	15.6	19.3
2000 08 24	16 38.51	-29 51.7	5.756	6.032	101.0	9.5	15.6	19.3
2000 09 03	16 40.96	-29 39.5	5.910	6.029	92.0	9.6	15.7	19.4
2000 09 13	16 44.53	-29 29.9	6.064	6.026	83.1	9.5	15.7	19.4
2000 09 23	16 49.12	-29 22.6	6.215	6.022	74.4	9.2	15.8	19.5
2000 10 03	16 54.63	-29 17.2	6.360	6.019	65.8	8.7	15.8	19.5
2000 10 13	17 00.96	-29 13.5	6.495	6.016	57.3	8.0	15.9	19.5
2000 10 23	17 08.01	-29 10.9	6.618	6.013	49.0	7.2	15.9	19.5
2000 11 02	17 15.68	-29 09.1	6.726	6.010	40.8	6.2	15.9	19.5
2000 11 12	17 23.85	-29 07.5	6.816	6.007	32.7	5.1	16.0	19.5

129P/Shoemaker-Levy 3Elements *MPC* 30739

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
2000 01 07		16 38.85	-25 47.7	4.764	3.991	34.4	8.0	20.4	22.0
2000 01 17		16 50.31	-26 09.8	4.688	4.011	41.9	9.4	20.4	22.0
2000 01 27		17 01.12	-26 28.6	4.598	4.030	49.6	10.7	20.4	22.0
2000 02 06		17 11.17	-26 44.5	4.494	4.050	57.5	11.8	20.3	22.0
2000 02 16		17 20.27	-26 57.9	4.377	4.069	65.5	12.8	20.3	22.0
2000 02 26		17 28.29	-27 09.2	4.252	4.088	73.8	13.4	20.3	22.0
2000 03 07		17 35.06	-27 18.9	4.120	4.107	82.3	13.9	20.2	21.9
2000 03 17		17 40.39	-27 27.4	3.985	4.125	91.1	14.0	20.2	21.9
2000 03 27		17 44.15	-27 34.8	3.850	4.143	100.1	13.7	20.1	21.8
2000 04 06		17 46.18	-27 41.6	3.719	4.161	109.5	13.1	20.0	21.7
2000 04 16		17 46.38	-27 47.3	3.596	4.179	119.2	12.1	20.0	21.6
2000 04 26		17 44.73	-27 51.8	3.486	4.196	129.3	10.7	19.9	21.5
2000 05 06		17 41.28	-27 54.3	3.393	4.213	139.7	8.9	19.9	21.4
2000 05 16		17 36.23	-27 54.0	3.322	4.230	150.4	6.8	19.9	21.2
2000 05 26		17 29.91	-27 50.1	3.275	4.247	161.2	4.4	19.9	21.1
2000 06 05		17 22.77	-27 42.2	3.257	4.263	171.6	2.0	19.9	21.0
2000 06 15		17 15.37	-27 30.2	3.268	4.279	173.9	1.4	19.9	20.9
2000 06 25		17 08.29	-27 15.0	3.308	4.295	164.2	3.7	19.9	21.1
2000 07 05		17 02.05	-26 57.6	3.377	4.310	153.5	6.0	20.0	21.3
2000 07 15		16 57.06	-26 39.7	3.471	4.325	142.9	8.1	20.1	21.4
2000 07 25		16 53.59	-26 22.6	3.587	4.340	132.7	9.9	20.1	21.6
2000 08 04		16 51.80	-26 07.4	3.722	4.355	122.7	11.3	20.2	21.7
2000 08 14		16 51.72	-25 55.0	3.871	4.369	113.1	12.3	20.3	21.9
2000 08 24		16 53.28	-25 45.6	4.030	4.383	103.8	12.9	20.4	22.0
2000 09 03		16 56.38	-25 39.0	4.194	4.397	94.9	13.2	20.5	22.1
2000 09 13		17 00.91	-25 34.9	4.361	4.410	86.2	13.2	20.6	22.2
2000 09 23		17 06.70	-25 32.7	4.526	4.423	77.7	12.8	20.7	22.3
2000 10 03		17 13.62	-25 31.8	4.686	4.436	69.5	12.2	20.8	22.3
2000 10 13		17 21.51	-25 31.4	4.839	4.448	61.4	11.4	20.9	22.4
2000 10 23		17 30.24	-25 31.0	4.981	4.460	53.4	10.3	21.0	22.4
2000 11 02		17 39.69	-25 29.8	5.110	4.472	45.6	9.1	21.0	22.4
2000 11 12		17 49.72	-25 27.3	5.224	4.483	37.8	7.8	21.1	22.4
2000 11 22		18 00.20	-25 23.0	5.321	4.494	30.1	6.3	21.2	22.4

135P/Shoemaker-Levy 8Elements *MPC* 34126

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
2000 01 07		16 50.59	-20 09.4	3.505	2.726	32.3	11.1	18.4	22.1
2000 01 17		17 08.72	-20 22.0	3.433	2.729	38.3	12.9	18.4	22.1
2000 01 27		17 26.41	-20 25.6	3.351	2.734	44.3	14.6	18.4	22.1
2000 02 06		17 43.53	-20 20.3	3.261	2.740	50.4	16.1	18.3	22.1
2000 02 16		17 59.91	-20 06.9	3.162	2.747	56.7	17.5	18.3	22.1
2000 02 26		18 15.39	-19 45.9	3.058	2.755	63.1	18.7	18.2	22.1
2000 03 07		18 29.81	-19 18.4	2.947	2.765	69.7	19.7	18.2	22.0
2000 03 17		18 42.99	-18 45.5	2.832	2.775	76.6	20.4	18.1	22.0
2000 03 27		18 54.74	-18 08.5	2.715	2.786	83.6	20.8	18.1	21.9
2000 04 06		19 04.87	-17 28.9	2.596	2.799	91.0	20.9	18.0	21.8
2000 04 16		19 13.18	-16 48.2	2.479	2.812	98.7	20.7	18.0	21.7
2000 04 26		19 19.48	-16 08.1	2.366	2.826	106.8	19.9	17.9	21.6
2000 05 06		19 23.58	-15 30.4	2.259	2.841	115.4	18.7	17.8	21.5
2000 05 16		19 25.34	-14 56.7	2.161	2.857	124.4	17.0	17.8	21.4
2000 05 26		19 24.73	-14 28.7	2.077	2.874	133.9	14.7	17.8	21.2
2000 06 05		19 21.83	-14 07.5	2.009	2.891	143.9	11.9	17.7	21.0
2000 06 15		19 16.92	-13 54.2	1.962	2.910	154.1	8.8	17.7	20.9
2000 06 25		19 10.52	-13 48.7	1.938	2.929	164.0	5.5	17.8	20.7
2000 07 05		19 03.32	-13 50.9	1.940	2.948	171.0	3.1	17.8	20.6
2000 07 15		18 56.17	-13 59.8	1.969	2.969	167.4	4.3	17.9	20.7
2000 07 25		18 49.84	-14 13.8	2.023	2.990	158.1	7.3	18.0	20.9
2000 08 04		18 45.00	-14 31.5	2.102	3.011	148.1	10.3	18.2	21.2
2000 08 14		18 42.10	-14 51.2	2.203	3.033	138.1	12.9	18.4	21.4
2000 08 24		18 41.35	-15 11.3	2.323	3.056	128.5	15.0	18.5	21.6
2000 09 03		18 42.77	-15 30.6	2.457	3.079	119.3	16.6	18.7	21.8
2000 09 13		18 46.29	-15 47.6	2.603	3.103	110.5	17.7	18.9	22.0
2000 09 23		18 51.71	-16 01.3	2.757	3.127	102.2	18.3	19.1	22.1
2000 10 03		18 58.81	-16 10.8	2.917	3.151	94.1	18.5	19.3	22.3
2000 10 13		19 07.39	-16 15.3	3.079	3.175	86.3	18.3	19.5	22.4
2000 10 23		19 17.20	-16 14.2	3.241	3.200	78.8	17.8	19.7	22.5

C/1997 J2 (Meunier-Dupouy)Elements *MPC* 35204

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
2000 01 17		22 42.28	-45 24.9	7.448	6.754	42.4	5.6	16.2	
2000 01 27		22 49.04	-45 03.5	7.568	6.823	38.3	5.1	16.2	
2000 02 06		22 56.21	-44 45.6	7.668	6.892	35.8	4.8	16.3	
2000 02 16		23 03.65	-44 32.0	7.747	6.961	35.1	4.7	16.4	
2000 02 26		23 11.28	-44 23.4	7.804	7.031	36.3	4.8	16.4	
2000 03 07		23 18.99	-44 20.5	7.842	7.100	39.1	5.1	16.5	
2000 03 17		23 26.68	-44 24.0	7.859	7.168	43.3	5.5	16.5	
2000 03 27		23 34.28	-44 34.4	7.860	7.237	48.5	5.9	16.6	
2000 04 06		23 41.69	-44 52.2	7.844	7.306	54.3	6.4	16.6	
2000 04 16		23 48.82	-45 18.0	7.815	7.375	60.6	6.8	16.6	
2000 04 26		23 55.59	-45 52.1	7.775	7.443	67.2	7.2	16.7	
2000 05 06		00 01.90	-46 34.6	7.728	7.512	74.0	7.4	16.7	
2000 05 16		00 07.64	-47 25.7	7.675	7.580	80.8	7.6	16.7	
2000 05 26		00 12.71	-48 25.1	7.622	7.649	87.7	7.6	16.7	
2000 06 05		00 16.99	-49 32.2	7.571	7.717	94.5	7.5	16.8	
2000 06 15		00 20.35	-50 46.3	7.526	7.785	101.1	7.4	16.8	
2000 06 25		00 22.66	-52 06.0	7.490	7.853	107.3	7.1	16.8	
2000 07 05		00 23.78	-53 29.7	7.467	7.921	113.1	6.8	16.9	

2000 07 15	00 23.59	-54 55.3	7.458	7.988	118.2	6.4	16.9
2000 07 25	00 22.00	-56 20.4	7.468	8.056	122.3	6.1	16.9
2000 08 04	00 18.95	-57 42.4	7.497	8.124	125.2	5.9	17.0
2000 08 14	00 14.47	-58 58.4	7.547	8.191	126.6	5.7	17.0
2000 08 24	00 08.67	-60 05.8	7.617	8.258	126.5	5.6	17.1
2000 09 03	00 01.78	-61 02.3	7.709	8.325	124.8	5.7	17.1
2000 09 13	23 54.15	-61 46.2	7.820	8.393	121.7	5.9	17.2
2000 09 23	23 46.23	-62 16.6	7.948	8.460	117.6	6.0	17.3
2000 10 03	23 38.48	-62 33.3	8.093	8.526	112.5	6.2	17.3
2000 10 13	23 31.38	-62 37.1	8.250	8.593	106.9	6.4	17.4
2000 10 23	23 25.32	-62 29.2	8.417	8.660	100.9	6.5	17.5
2000 11 02	23 20.57	-62 11.4	8.590	8.726	94.6	6.5	17.6

C/1998 U5 (LINEAR)				Elements				MPC	35206
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
2000 01 17		17 15.36	-17 30.7	5.652	4.904	37.2	7.0	18.7	
2000 01 27		17 18.77	-17 51.4	5.625	4.998	46.4	8.2	18.7	
2000 02 06		17 21.31	-18 10.1	5.578	5.090	55.9	9.2	18.8	
2000 02 16		17 22.82	-18 27.1	5.513	5.183	65.6	10.0	18.9	
2000 02 26		17 23.16	-18 42.8	5.434	5.274	75.5	10.5	18.9	
2000 03 07		17 22.21	-18 57.4	5.347	5.365	85.7	10.6	18.9	
2000 03 17		17 19.86	-19 11.0	5.258	5.455	96.2	10.4	19.0	
2000 03 27		17 16.04	-19 23.7	5.171	5.545	107.0	9.9	19.0	
2000 04 06		17 10.74	-19 35.3	5.094	5.634	118.1	9.0	19.0	
2000 04 16		17 04.03	-19 45.4	5.033	5.723	129.4	7.8	19.1	
2000 04 26		16 56.08	-19 53.9	4.995	5.812	141.0	6.3	19.1	
2000 05 06		16 47.15	-20 00.2	4.984	5.899	152.8	4.5	19.2	
2000 05 16		16 37.58	-20 04.4	5.006	5.987	164.6	2.6	19.3	
2000 05 26		16 27.79	-20 06.4	5.062	6.073	176.3	0.6	19.4	
2000 06 05		16 18.19	-20 06.8	5.154	6.160	171.5	1.4	19.5	
2000 06 15		16 09.17	-20 06.2	5.282	6.245	159.9	3.2	19.6	
2000 06 25		16 01.07	-20 05.6	5.442	6.331	148.5	4.8	19.7	
2000 07 05		15 54.09	-20 05.7	5.631	6.416	137.4	6.2	19.8	
2000 07 15		15 48.38	-20 07.5	5.844	6.500	126.5	7.2	20.0	
2000 07 25		15 43.99	-20 11.3	6.076	6.584	116.0	8.0	20.1	
2000 08 04		15 40.89	-20 17.6	6.321	6.668	105.7	8.4	20.2	
2000 08 14		15 39.02	-20 26.5	6.574	6.751	95.7	8.6	20.4	
2000 08 24		15 38.27	-20 38.0	6.829	6.834	86.0	8.5	20.5	
2000 09 03		15 38.55	-20 51.9	7.082	6.916	76.5	8.2	20.6	
2000 09 13		15 39.73	-21 08.0	7.328	6.998	67.1	7.6	20.8	
2000 09 23		15 41.68	-21 25.9	7.563	7.080	57.8	6.9	20.9	
2000 10 03		15 44.29	-21 45.3	7.782	7.161	48.7	6.0	21.0	

OPPOSITION DATA

Planet	Opposition	α_{2000}	δ_{2000}	V	$\dot{\alpha}$	$\dot{\delta}$	ϕ_{MIN}	MPC
1999 VC ₃₀	1999 11 22.0	03 48.44	+19 18.4	18.1	-0.90	- 2.1	0.2/21.9	37217
(9173)	1999 11 22.0	03 48.45	+31 51.4	17.4	-1.03	- 2.0	3.7/24.1	32418
1996 CO ₂	1999 11 22.0	03 48.60	+04 38.5	17.2	-0.84	- 1.4	4.8/19.6	37269
(12900)	1999 11 22.1	03 48.54	+15 48.9	18.9	-0.81	- 2.6	1.2/21.4	37091
1998 HY ₁₃	1999 11 22.1	03 48.62	+15 23.2	18.1	-1.18	- 1.2	2.1/21.5	37148
1993 FN ₄₉	1999 11 22.1	03 48.84	+21 16.3	18.0	-1.02	- 2.9	0.4/22.4	37264
1998 ON ₁₁	1999 11 22.1	03 49.03	+19 58.8	17.0	-0.90	- 3.2	0.0/22.2	37282
(12678)	1999 11 22.2	03 49.14	+16 29.8	18.1	-0.99	- 3.5	1.3/21.6	37032

(12846)	1999 11 22.2	03 49.28	+14 16.8	18.0	-0.83	- 4.6	1.9/21.1	37076
1997 LB ₁	1999 11 22.3	03 49.36	+02 51.1	17.6	-0.94	+ 2.7	6.5/20.3	37142
(9625)	1999 11 22.3	03 49.37	+20 17.6	16.7	-0.99	- 6.3	0.1/22.4	32895
(12396)	1999 11 22.3	03 49.42	+12 15.0	16.7	-1.03	+ 2.6	2.6/21.4	36711
1997 EY ₄₅	1999 11 22.3	03 49.60	+17 45.0	16.7	-1.09	- 1.6	1.0/22.0	37273
(12952)	1999 11 22.4	03 50.21	+18 32.6	18.9	-0.88	- 3.0	0.5/22.2	37106
1997 LN ₄	1999 11 22.4	03 50.28	+14 24.1	19.2	-0.94	- 3.6	1.9/21.5	33949
2839 P-L	1999 11 22.5	03 50.46	+24 35.0	18.9	-1.01	- 2.6	1.5/23.3	30797
1998 HH ₄₃	1999 11 22.5	03 50.50	+11 43.7	19.2	-1.07	- 2.1	3.0/21.3	32328
(12688)	1999 11 22.5	03 50.69	+34 04.9	17.8	-1.06	- 5.0	4.4/25.4	37034
(12344)	1999 11 22.5	03 50.69	+18 40.1	16.8	-1.03	- 0.7	0.5/22.4	36697
1998 KW ₂₅	1999 11 22.5	03 50.70	+14 06.4	17.8	-1.06	- 1.9	2.7/21.7	32277
3234 T-2	1999 11 22.6	03 50.73	+19 01.6	17.0	-1.06	- 0.2	0.5/22.5	37251
1997 EF	1999 11 22.6	03 50.83	+18 42.5	17.5	-1.07	- 1.9	0.5/22.4	37272
1991 PX ₆	1999 11 22.6	03 50.86	+21 06.2	18.3	-1.11	- 2.7	0.4/22.8	37260
1996 XX ₂₆	1999 11 22.6	03 50.89	+06 52.4	18.9	-1.01	- 0.9	4.3/20.7	36889
(8894)	1999 11 22.6	03 50.93	+33 22.9	17.3	-1.28	- 3.0	5.3/25.0	31921
1997 EE ₂₉	1999 11 22.7	03 51.10	+20 53.9	18.1	-1.07	- 3.3	0.3/22.8	37273
(12780)	1999 11 22.7	03 51.11	+28 39.2	18.0	-0.93	- 2.0	2.8/24.1	37059
1998 OR ₈	1999 11 22.7	03 51.12	+17 56.6	17.7	-0.74	- 2.8	0.7/22.3	37282
1994 TJ ₁₁	1999 11 22.7	03 51.21	+12 38.3	19.0	-0.84	- 6.2	3.2/21.1	33245
1981 EP ₂₁	1999 11 22.7	03 51.35	+35 29.9	20.6	-1.16	- 1.8	4.7/25.3	26919
2184 T-1	1999 11 22.7	03 51.49	+08 52.1	19.0	-0.99	- 4.1	4.6/20.7	29650
(12243)	1999 11 22.7	03 51.54	+34 58.9	16.6	-1.01	- 3.4	5.0/25.6	36671
1996 HE ₁	1999 11 22.8	03 51.47	+21 31.5	17.0	-0.95	+ 1.3	0.4/23.0	37269
1991 GV ₃	1999 11 22.8	03 51.55	+24 49.0	17.6	-1.22	- 1.5	1.9/23.5	37260
1999 VO ₃₀	1999 11 22.8	03 51.58	+19 16.3	17.8	-1.15	- 4.2	0.4/22.7	37217
1992 YR ₂	1999 11 22.8	03 51.61	+18 44.6	17.5	-1.10	- 1.2	0.5/22.6	37263
1983 XE	1999 11 22.8	03 51.70	+19 38.8	16.0	-0.92	- 7.4	0.2/22.7	37257
1999 VL ₉	1999 11 22.8	03 51.79	+18 51.2	17.7	-0.91	- 7.6	0.4/22.6	37203
(12731)	1999 11 22.8	03 51.85	+15 13.8	17.1	-1.02	- 4.1	1.9/22.0	37046
1999 WD	1999 11 22.8	03 51.88	+18 54.3	17.8	-0.95	- 2.3	0.4/22.7	37237
1999 XJ ₃₇	1999 11 22.9	03 52.00	+07 56.1	16.3	-1.11	+ 5.1	5.1/22.0	37248
1997 CD ₂₂	1999 11 22.9	03 52.13	+15 20.6	17.8	-1.08	- 2.8	2.0/22.2	37137
(12183)	1999 11 22.9	03 52.16	+18 15.7	17.8	-0.81	- 2.6	0.5/22.6	36655
1992 EQ ₁₃	1999 11 22.9	03 52.32	+24 36.9	17.7	-0.98	- 4.3	1.7/23.8	37262
1997 GX ₂₁	1999 11 23.0	03 52.38	+16 31.2	17.0	-0.92	- 1.7	1.3/22.4	37274
1999 XP ₅	1999 11 23.0	03 52.67	+17 34.4	17.5	-1.07	- 1.8	1.4/22.7	37245
(9131)	1999 11 23.0	03 52.77	+19 54.0	17.3	-1.11	- 4.1	0.1/23.0	32204
1998 QC ₇₅	1999 11 23.1	03 52.90	+19 44.9	18.2	-0.77	- 4.2	0.1/23.0	37285
1995 BT	1999 11 23.1	03 52.97	+50 54.5	17.5	-1.18	- 3.7	9.8/30.1	36884
(9490)	1999 11 23.1	03 53.17	+25 33.4	17.5	-0.93	- 2.7	1.6/24.1	32651
1997 AS ₂	1999 11 23.2	03 53.43	+62 25.1	17.6	-1.81	-10.3	18.3/09.1	36797
(11027)	1999 11 23.2	03 53.50	+22 28.4	16.6	-1.17	- 3.7	1.0/23.6	35219
1998 QP ₁₆	1999 11 23.2	03 53.56	+06 51.0	18.4	-0.83	- 3.3	4.2/20.9	37283
(12552)	1999 11 23.3	03 53.72	+40 08.1	16.9	-1.03	- 2.7	6.0/27.0	36755
(9433)	1999 11 23.3	03 53.81	+11 12.3	18.2	-1.02	- 3.6	3.4/21.8	32637
(12862)	1999 11 23.3	03 53.83	+11 47.2	18.3	-1.03	- 1.2	3.1/22.1	37081
1999 VF ₁₉	1999 11 23.3	03 54.02	+19 34.1	17.8	-0.95	- 4.8	0.3/23.3	37208
(9176)	1999 11 23.4	03 54.06	+14 42.9	15.8	-0.92	- 3.5	2.2/22.4	32418
1993 FX ₂₁	1999 11 23.4	03 54.18	+17 05.9	18.0	-0.97	- 3.8	1.2/22.9	37263

1998 QK ₃₈	1999 11 23.4	03 54.46 +20 46.9 17.9	-0.84 - 2.5	0.1/23.6	37284	(8854)	1999 11 24.3	03 58.23 +16 51.8 17.9	-1.13 - 1.6	1.4/23.9	31912
1993 FM ₂₈	1999 11 23.5	03 54.42 +22 47.3 17.6	-1.05 - 3.6	1.1/23.9	37263	1999 VS ₁₂	1999 11 24.3	03 58.24 +19 15.5 16.1	-1.22 + 4.0	0.6/24.3	37206
1998 NS	1999 11 23.5	03 54.47 +32 54.8 19.7	-1.13 - 4.9	4.0/25.9	32525	1995 SB ₃₁	1999 11 24.4	03 58.29 +29 01.2 18.1	-1.23 - 2.4	3.3/25.7	37267
1995 YF ₁	1999 11 23.5	03 54.52 +25 48.4 17.6	-0.95 - 4.7	1.7/24.6	37269	1998 QL ₅₉	1999 11 24.4	03 58.42 +30 31.1 19.9	-1.01 - 1.9	2.9/26.0	35711
1994 PN ₁	1999 11 23.5	03 54.64 -14 52.1 16.5	-1.02 + 6.9	14.6/21.0	37265	1999 VR ₁₂	1999 11 24.4	03 58.56 +15 49.0 15.7	-0.94 + 0.6	1.6/23.9	37206
1995 WX ₄₂	1999 11 23.5	03 54.72 +03 22.6 16.1	-1.06 + 4.2	7.4/22.0	37268	1998 OA ₁	1999 11 24.4	03 58.59 +27 58.0 18.9	-0.92 - 4.2	2.3/25.9	37157
1981 EV ₂₈	1999 11 23.5	03 54.74 +12 42.8 18.3	-0.84 - 5.1	2.5/22.1	36874	(12671)	1999 11 24.4	03 58.74 +31 41.0 17.4	-1.23 - 2.5	4.2/26.2	37030
1995 QT ₃	1999 11 23.6	03 54.88 +25 16.8 19.1	-1.19 - 3.7	1.9/24.4	36516	1999 VQ ₁₂	1999 11 24.5	03 58.75 +13 10.4 16.0	-0.92 - 6.5	2.5/23.1	37206
1997 FR ₄	1999 11 23.6	03 54.93 +23 41.5 18.4	-1.09 - 2.6	1.3/24.1	37139	(10635)	1999 11 24.5	03 58.92 +02 32.2 18.0	-0.81 - 2.9	5.8/21.5	34472
(12357)	1999 11 23.6	03 54.96 +04 28.4 17.0	-0.79 - 3.6	5.3/20.7	36701	(9155)	1999 11 24.5	03 58.98 +22 40.3 16.8	-0.89 - 2.0	0.7/24.9	32413
(12488)	1999 11 23.6	03 55.00 +21 26.8 17.5	-0.97 - 3.4	0.4/23.8	36736	1994 PC ₉	1999 11 24.5	03 58.99 +20 09.7 17.4	-0.98 - 2.9	0.1/24.5	37265
1998 JT ₁	1999 11 23.6	03 55.06 +16 09.9 17.6	-1.09 - 2.1	1.6/23.0	37151	1997 ET ₄₁	1999 11 24.5	03 59.10 +22 46.4 17.5	-1.06 - 4.2	1.1/25.0	37138
(12303)	1999 11 23.6	03 55.15 +13 55.8 18.3	-1.05 - 2.8	2.3/22.7	36687	1999 VP ₃₉	1999 11 24.6	03 59.15 +19 28.3 18.4	-1.19 - 0.9	0.4/24.5	37225
1999 VO ₁₂	1999 11 23.6	03 55.25 +15 16.7 16.1	-0.97 - 2.1	2.0/22.9	37206	1995 LK	1999 11 24.6	03 59.18 +57 48.6 17.7	-1.79 - 9.3	14.1/06.0	36885
1999 VN ₉	1999 11 23.6	03 55.35 +20 35.6 16.8	-1.12 - 4.8	0.1/23.7	37312	(12371)	1999 11 24.6	03 59.22 +18 48.0 17.4	-1.09 - 4.7	0.7/24.3	36705
(9111)	1999 11 23.7	03 55.29 +01 22.9 15.6	-1.01 + 0.6	9.2/21.3	32199	1991 XD	1999 11 24.7	03 59.52 +16 49.5 15.0	-1.82 +18.9	2.1/24.9	37261
4737 P-L	1999 11 23.7	03 55.34 +42 45.5 18.8	-1.25 + 1.7	8.7/26.7	34265	1998 RZ ₅₀	1999 11 24.7	03 59.62 +03 14.7 18.9	-0.75 - 3.9	4.5/21.5	34021
(12667)	1999 11 23.7	03 55.68 +31 10.6 16.8	-1.21 + 2.0	4.0/24.9	37029	(9675)	1999 11 24.7	03 59.74 +01 39.1 18.2	-0.77 - 2.8	5.4/21.5	32907
1998 HW ₅₀	1999 11 23.7	03 55.70 +27 19.9 17.3	-1.24 - 3.1	3.0/24.9	37150	1994 PA ₂₃	1999 11 24.7	03 59.86 +20 54.7 17.6	-1.01 - 2.4	0.1/24.8	37125
1999 VP ₁₂	1999 11 23.7	03 55.73 +13 58.2 16.5	-0.96 - 3.4	2.8/22.7	37206	(12786)	1999 11 24.7	03 59.96 +28 46.8 17.6	-1.17 - 3.6	3.1/26.1	37061
1999 WB	1999 11 23.8	03 55.69 +17 00.9 16.8	-0.93 - 9.4	1.3/23.0	37237	1999 TD ₃₄	1999 11 24.7	04 00.00 +29 31.2 16.5	-1.26 + 2.0	3.6/25.8	37307
1242 T-2	1999 11 23.8	03 55.70 +03 19.5 18.5	-0.89 - 4.6	5.3/20.5	37342	(12492)	1999 11 24.8	03 59.99 +16 25.8 17.0	-0.91 - 1.9	1.3/24.2	36737
(12505)	1999 11 23.8	03 55.82 +10 18.5 16.2	-1.14 - 1.7	4.8/22.5	36742	1999 VP ₂₆	1999 11 24.8	04 00.21 +21 55.2 17.5	-1.13 - 0.1	0.6/25.0	37215
1999 VO ₃₃	1999 11 23.8	03 56.03 +18 17.2 18.5	-0.96 - 3.8	0.8/23.5	37219	(12390)	1999 11 24.8	04 00.26 +12 06.2 16.2	-1.87 +15.0	4.5/25.0	36710
1999 VJ ₁₁	1999 11 23.8	03 56.06 +22 12.7 16.9	-1.10 + 0.4	0.8/24.1	37312	2634 T-3	1999 11 24.9	04 00.42 +19 54.3 18.7	-0.97 - 3.6	0.2/24.8	37342
(12478)	1999 11 23.8	03 56.18 +15 24.0 17.3	-1.07 - 2.9	2.2/23.1	36733	1999 VO ₂₆	1999 11 24.9	04 00.43 +20 42.1 17.1	-1.00 - 1.1	0.0/24.9	37315
1999 VO ₉	1999 11 23.9	03 56.48 +19 49.4 16.0	-1.06 - 3.4	0.3/23.9	37203	1998 HL ₉₃	1999 11 24.9	04 00.43 +21 15.2 17.6	-1.14 - 4.8	0.3/25.0	37279
(12790)	1999 11 24.0	03 56.57 +15 51.4 18.3	-1.06 - 1.8	1.7/23.3	37061	1997 EP ₂₅	1999 11 24.9	04 00.55 +24 36.8 16.8	-1.15 - 2.6	1.8/25.5	37273
1990 HE	1999 11 24.0	03 56.77 +43 56.4 16.9	-2.10 + 8.2	10.9/25.2	37259	(12612)	1999 11 24.9	04 00.58 +12 55.9 17.7	-0.99 - 3.6	2.8/23.7	36772
1999 TW ₂₇	1999 11 24.0	03 56.86 +22 35.7 16.2	-0.99 - 3.6	1.1/24.4	37307	1999 PC ₁	1999 11 24.9	04 00.67 +36 31.5 17.3	-1.12 - 5.5	5.3/28.2	37290
1998 PP ₁	1999 11 24.0	03 56.90 +31 07.0 16.7	-0.90 - 4.3	3.4/26.1	35709	4647 P-L	1999 11 25.0	04 00.76 +18 41.3 18.1	-1.15 - 3.7	0.8/24.7	37341
1996 LF	1999 11 24.0	03 56.91 +13 12.8 17.6	-0.90 + 1.0	2.1/23.2	37270	1991 LY ₁	1999 11 25.0	04 01.04 +19 24.3 18.4	-0.83 - 1.8	0.3/24.9	37117
1999 VK ₁₁	1999 11 24.0	03 56.92 +20 33.4 17.4	-1.10 - 3.9	0.1/24.1	37205	(9340)	1999 11 25.0	04 01.07 +18 30.3 18.1	-0.81 - 2.0	0.6/24.7	32615
1997 ER ₄₀	1999 11 24.0	03 56.95 +01 42.7 19.7	-0.87 - 4.6	6.2/20.5	30786	1999 VN ₂₆	1999 11 25.0	04 01.08 +19 49.7 17.6	-0.98 - 4.0	0.4/24.9	37215
1994 PA ₁₃	1999 11 24.0	03 56.95 +22 04.8 18.3	-1.00 - 3.2	0.6/24.4	37124	1998 KF ₂₈	1999 11 25.0	04 01.09 +26 56.8 18.2	-1.17 - 4.8	2.4/26.2	37153
1998 NH	1999 11 24.1	03 56.96 +01 15.3 17.4	-0.91 + 0.3	7.6/21.5	37157	5153 T-2	1999 11 25.1	04 01.30 +21 44.4 17.6	-1.01 - 6.8	0.5/25.3	37252
(12617)	1999 11 24.1	03 57.16 +27 38.1 16.7	-1.11 - 0.1	2.8/25.1	36774	1989 UA ₁	1999 11 25.1	04 01.32 +29 58.4 16.4	-1.25 - 1.5	4.7/27.0	37258
1999 VN ₃₀	1999 11 24.1	03 57.19 +19 55.0 17.9	-1.09 - 4.3	0.2/24.1	37217	1998 QO ₄	1999 11 25.1	04 01.35 +37 08.7 18.2	-0.97 - 4.2	5.0/28.3	37283
1997 CO ₁	1999 11 24.1	03 57.23 +22 50.3 17.8	-1.11 - 3.4	0.9/24.5	37135	1999 VA ₂₇	1999 11 25.1	04 01.47 +19 03.1 18.1	-1.05 - 3.5	0.6/24.9	37215
1997 GH ₇	1999 11 24.1	03 57.27 +18 26.5 18.7	-0.98 - 1.8	0.7/23.9	37140	1996 XZ ₃₁	1999 11 25.1	04 01.61 +14 37.7 17.7	-1.16 - 0.5	2.4/24.4	37271
1995 QC ₃	1999 11 24.1	03 57.31 +30 44.6 17.8	-1.31 - 4.1	4.4/27.0	37267	1978 VO ₃	1999 11 25.2	04 01.84 +18 27.0 17.8	-1.11 - 4.2	1.0/24.9	37112
1999 VT ₁	1999 11 24.1	03 57.38 +11 27.5 16.9	-0.83 - 5.0	3.0/22.5	37310	(9432)	1999 11 25.2	04 02.01 +08 23.1 17.8	-1.03 - 2.5	4.9/23.4	32637
1996 GE ₆	1999 11 24.2	03 57.41 +20 14.7 16.8	-0.94 + 0.1	0.1/24.2	37269	1999 VM ₆	1999 11 25.2	04 02.01 +13 06.2 18.1	-0.86 - 1.2	2.6/24.2	37311
(9064)	1999 11 24.2	03 57.58 +09 09.8 17.7	-1.01 - 1.6	4.0/22.6	36498	(10638)	1999 11 25.2	04 02.09 +12 14.7 18.3	-0.79 - 2.6	2.3/23.9	34473
1998 MA ₈	1999 11 24.2	03 57.76 +25 12.4 17.2	-0.93 - 7.2	1.5/25.3	37281	(12414)	1999 11 25.3	04 02.05 +20 24.8 17.1	-1.12 - 1.9	0.1/25.3	36717
1993 TX ₁₄	1999 11 24.2	03 57.77 +18 15.9 18.5	-0.87 - 2.4	0.8/23.9	37264	(9229)	1999 11 25.3	04 02.15 +21 42.8 16.9	-0.92 - 2.9	0.4/25.5	32430
(12629)	1999 11 24.3	03 57.97 +02 33.8 16.8	-0.94 - 5.4	7.6/21.0	36777	1999 WG ₉	1999 11 25.3	04 02.17 +02 50.7 17.2	-1.03 + 3.8	7.6/23.9	37242
1999 VF ₂₆	1999 11 24.3	03 58.00 +19 46.3 17.3	-1.04 - 4.1	0.3/24.2	37214	1998 PA ₁	1999 11 25.3	04 02.18 +20 04.2 16.9	-0.87 - 4.7	0.2/25.2	37283
1981 EN ₃	1999 11 24.3	03 58.10 +09 16.3 18.3	-0.98 - 7.8	4.3/22.0	37255	1998 KG ₃₅	1999 11 25.3	04 02.52 +18 20.2 17.8	-1.09 - 0.2	1.0/25.1	37154
(9544)	1999 11 24.3	03 58.11 +21 11.7 17.0	-0.88 - 1.0	0.2/24.5	36061	1999 VE ₃₉	1999 11 25.4	04 02.61 +20 53.9 17.8	-1.15 - 3.0	0.1/25.5	37225
(9005)	1999 11 24.3	03 58.18 +23 38.3 17.1	-1.01 - 4.1	1.1/24.9	32175	1998 GK	1999 11 25.4	04 02.73 +45 01.1 17.9	-2.04 + 6.4	10.4/26.8	37277

1998 QO ₃₃	1999 11 25.4	04 02.73 +10 20.2 17.7	-0.82 - 3.8	3.3/23.6	36377
(10612)	1999 11 25.4	04 02.85 +17 12.5 17.4	-0.89 - 2.6	1.2/24.9	34466
4072 T-3	1999 11 25.4	04 02.86 +11 27.5 17.4	-0.84 - 2.7	3.3/24.0	37343
(12113)	1999 11 25.4	04 02.89 +09 10.4 17.8	-0.90 + 0.6	3.8/24.1	36305
1999 VC ₂₆	1999 11 25.4	04 02.90 +22 01.1 17.3	-0.89 - 2.6	0.5/25.7	37214
1991 GT ₄	1999 11 25.4	04 02.92 +13 39.9 17.1	-1.09 - 4.4	3.0/24.4	37260
(9714)	1999 11 25.4	04 02.94 +39 42.7 17.2	-1.14 + 1.4	5.7/27.9	36061
1992 PK ₂	1999 11 25.5	04 03.01 +19 44.9 18.1	-0.82 - 3.5	0.3/25.4	37262
1998 FG ₄	1999 11 25.6	04 03.29 +08 35.4 17.5	-1.09 + 0.6	5.4/24.3	32316
(12226)	1999 11 25.6	04 03.30 +26 59.0 16.4	-1.17 - 0.1	3.1/26.4	36666
1998 RQ ₁₉	1999 11 25.6	04 03.42 +18 51.8 18.2	-0.84 - 2.6	0.5/25.3	37168
(12631)	1999 11 25.6	04 03.55 +08 01.0 17.9	-0.83 - 3.7	3.8/23.5	36777
1999 XV ₆	1999 11 25.6	04 03.67 +23 17.9 17.9	-1.18 - 3.1	1.0/26.1	37245
1999 XM ₄₈	1999 11 25.6	04 03.70 +18 31.1 18.0	-1.01 - 5.6	1.0/25.3	37248
1998 JK ₄	1999 11 25.7	04 03.79 +18 33.3 17.2	-1.11 - 4.5	0.9/25.4	37280
1997 AK ₅	1999 11 25.7	04 03.80 +30 16.1 19.1	-1.21 - 2.8	3.8/27.1	32472
1999 VW ₂₃	1999 11 25.7	04 03.89 +05 07.3 16.1	-0.86 - 3.4	6.3/23.1	37212
(12876)	1999 11 25.7	04 04.14 +22 04.3 17.5	-0.93 - 2.7	0.4/26.0	37085
1999 VV ₂₆	1999 11 25.8	04 04.25 +21 51.1 17.6	-1.09 - 3.8	0.5/26.0	37215
5122 T-3	1999 11 25.8	04 04.35 +11 45.7 18.2	-1.12 - 0.8	3.5/24.7	37343
1998 QF ₇₀	1999 11 25.8	04 04.49 +09 00.9 16.8	-0.79 - 6.6	3.8/23.4	37285
1995 UY ₄₄	1999 11 25.8	04 04.55 +30 03.7 17.1	-1.24 + 2.2	4.2/27.0	37268
1995 PA	1999 11 25.9	04 04.61 +21 12.5 17.3	-1.11 - 0.2	0.2/26.0	37267
(12645)	1999 11 25.9	04 04.76 +18 03.1 16.3	-1.03 0.0	1.4/25.6	36781
1998 KK ₉	1999 11 25.9	04 04.78 +17 11.1 18.2	-1.11 - 1.8	1.4/25.4	37152
1997 GE ₁₅	1999 11 25.9	04 04.79 +23 29.0 18.4	-1.11 - 2.9	1.1/26.3	37140
1981 EE ₁₁	1999 11 25.9	04 04.84 +25 32.4 18.6	-1.19 - 3.5	1.8/26.7	37256
(12546)	1999 11 25.9	04 04.89 +19 20.3 17.8	-0.87 - 2.3	0.4/25.7	36754
1979 QF ₂	1999 11 25.9	04 04.91 +16 51.8 16.9	-0.92 - 2.6	1.4/25.4	37255
(12639)	1999 11 25.9	04 04.93 +16 53.0 17.2	-0.98 - 3.4	1.6/25.3	36780
(12870)	1999 11 25.9	04 05.05 +26 44.4 18.0	-1.03 - 4.5	1.9/27.0	37083
1998 OL ₈	1999 11 26.0	04 05.12 +06 05.8 17.1	-0.80 - 1.6	4.8/23.8	37158
(9191)	1999 11 26.0	04 05.21 +33 59.9 16.6	-1.10 - 5.4	4.6/28.5	32422
1999 VR ₃₈	1999 11 26.1	04 05.42 +18 59.6 17.7	-1.17 - 3.1	0.8/25.8	37225
1999 VZ ₂₃	1999 11 26.1	04 05.60 +23 43.3 16.0	-1.20 + 1.1	1.5/26.4	37212
3039 T-3	1999 11 26.1	04 05.82 +15 12.3 17.7	-0.96 - 2.3	2.3/25.3	37342
1994 WE ₄	1999 11 26.2	04 05.94 +20 04.3 16.4	-0.97 + 0.8	0.3/26.1	37266
1993 LO ₁	1999 11 26.2	04 06.00 +35 07.4 18.5	-1.08 - 3.3	4.1/28.6	37264
4358 T-3	1999 11 26.2	04 06.05 +21 55.3 18.5	-0.95 + 0.4	0.3/26.4	37253
1999 VH ₃₉	1999 11 26.2	04 06.18 +21 47.2 17.8	-0.98 - 3.6	0.3/26.4	37225
1999 VX ₂₆	1999 11 26.2	04 06.32 +20 15.4 17.8	-1.12 - 0.9	0.3/26.2	37215
(12654)	1999 11 26.2	04 06.34 +04 51.6 18.0	-0.81 - 3.5	5.2/23.6	36784
1999 VE ₃₁	1999 11 26.3	04 06.26 +20 19.7 17.8	-1.12 - 2.9	0.2/26.2	37218
3276 T-2	1999 11 26.3	04 06.30 +13 06.5 18.6	-0.97 - 1.6	2.9/25.2	34568
1995 VF ₁₃	1999 11 26.3	04 06.42 +16 14.5 19.0	-1.07 - 2.4	1.8/25.7	37129
1998 KL ₂	1999 11 26.3	04 06.50 +16 48.9 19.1	-1.10 + 1.1	1.4/25.9	37152
(12267)	1999 11 26.3	04 06.52 +18 31.2 17.0	-1.23 -19.7	1.2/25.7	36677
1997 AM ₇	1999 11 26.3	04 06.76 +26 55.7 18.3	-1.18 - 3.1	2.5/27.3	37271
1999 XS ₂₈	1999 11 26.4	04 06.73 +16 50.7 18.0	-0.98 - 0.6	1.4/25.9	37247
1997 CF ₂₀	1999 11 26.4	04 06.93 +31 42.6 17.9	-1.20 - 2.0	4.5/28.0	29928
1999 VC ₃₁	1999 11 26.4	04 07.02 +19 52.5 15.6	-1.02 - 5.4	0.5/26.3	37218

5104 T-2	1999 11 26.4	04 07.17 +22 43.3 18.5	-0.90 - 4.8	0.6/26.8	37342
(12858)	1999 11 26.5	04 07.20 +14 35.8 18.4	-1.08 - 3.8	2.4/25.6	37080
1990 SY ₃	1999 11 26.5	04 07.50 +30 48.7 16.2	-1.05 - 7.8	4.0/28.7	37259
(9646)	1999 11 26.6	04 07.78 +20 28.5 17.2	-0.84 - 1.7	0.1/26.6	32900
1999 VK ₃₉	1999 11 26.6	04 07.82 +20 20.7 18.5	-1.03 + 1.1	0.3/26.6	37225
1999 VR ₃₀	1999 11 26.6	04 08.04 +20 20.3 18.3	-0.89 - 2.6	0.2/26.6	37218
1999 VJ ₃₁	1999 11 26.6	04 08.07 +20 53.5 16.7	-1.21 + 2.8	10.7/17.0	37219
1998 KK ₄₇	1999 11 26.7	04 08.02 +15 21.0 18.8	-1.14 - 0.5	2.1/26.0	37155
1998 FD ₇₈	1999 11 26.7	04 08.10 +06 54.0 19.4	-1.10 - 2.8	5.4/24.8	32070
1997 AR ₁₇	1999 11 26.7	04 08.22 +21 57.0 18.1	-1.14 - 3.7	0.4/26.9	37272
1997 JT ₁₅	1999 11 26.7	04 08.22 +17 11.1 16.8	-0.91 - 1.8	1.2/26.2	37274
(12941)	1999 11 26.7	04 08.33 +18 19.8 18.3	-0.99 - 2.4	1.0/26.4	37103
1994 PL ₃₄	1999 11 26.8	04 08.45 +18 26.3 17.2	-0.95 - 4.0	1.0/26.4	37266
(12350)	1999 11 26.8	04 08.58 +24 31.7 17.5	-1.07 - 1.0	1.2/27.3	36699
1999 WF ₈	1999 11 26.8	04 08.67 +18 32.9 17.4	-1.09 - 3.1	1.0/26.5	37241
1150 T-2	1999 11 26.9	04 08.88 +21 39.7 18.5	-1.13 - 2.5	9.3/17.0	36943
1996 TB ₁₅	1999 11 26.9	04 09.01 +60 49.2 17.5	-2.24 + 2.1	19.6/02.1	36888
(12442)	1999 11 27.0	04 09.35 +31 43.0 17.3	-0.93 - 3.7	3.0/28.9	36724
1997 ED ₂₃	1999 11 27.0	04 09.36 +24 52.2 19.5	-1.05 - 2.4	1.3/27.6	30473
(12554)	1999 11 27.0	04 09.54 +13 14.1 17.8	-0.83 - 1.3	2.2/26.0	36756
(12477)	1999 11 27.0	04 09.58 +18 33.4 17.7	-1.04 - 3.2	0.9/26.7	36733
(12349)	1999 11 27.0	04 09.59 +23 36.0 17.0	-1.14 + 1.3	0.9/27.3	36699
4026 P-L	1999 11 27.0	04 09.60 +39 35.2 17.5	-1.21 - 0.9	6.0/29.7	37341
1995 YT ₂	1999 11 27.0	04 09.67 +18 05.3 16.8	-0.93 + 2.6	1.5/26.8	37131
(9042)	1999 11 27.0	04 09.69 +19 38.7 15.7	-0.91 - 2.8	0.5/26.9	32183
(12633)	1999 11 27.0	04 09.73 +21 22.6 17.7	-1.08 - 3.6	0.1/27.1	36778
1981 EP ₁₄	1999 11 27.1	04 09.76 +18 37.9 17.8	-1.12 - 5.0	0.9/26.7	37256
1999 WQ ₁₁	1999 11 27.1	04 09.82 +25 02.3 18.9	-1.08 - 4.1	1.4/27.8	37243
(12716)	1999 11 27.1	04 09.91 +15 00.3 17.5	-0.84 - 4.9	2.0/26.1	37042
(8782)	1999 11 27.1	04 10.03 +25 03.5 16.6	-1.12 - 3.2	1.8/27.8	31895
(12281)	1999 11 27.1	04 10.15 +12 46.0 16.9	-0.94 - 1.2	2.9/26.1	36681
1999 VJ ₅	1999 11 27.1	04 10.19 +28 32.9 16.6	-1.24 - 2.9	3.7/28.3	37311
1997 GJ	1999 11 27.2	04 10.16 +21 55.6 18.0	-1.05 - 2.1	0.3/27.3	30691
1999 VF ₃₁	1999 11 27.2	04 10.19 +22 10.1 18.0	-0.95 + 1.3	0.4/27.3	37218
(12619)	1999 11 27.2	04 10.20 +17 19.0 17.4	-1.02 - 5.1	1.5/26.6	36774
1998 KE ₅	1999 11 27.2	04 10.45 -00 13.8 16.6	-0.80 - 3.4	7.4/23.8	37280
1998 QE ₁₄	1999 11 27.2	04 10.57 +03 46.9 18.4	-0.82 - 2.3	5.3/24.7	37160
1997 GX ₂₇	1999 11 27.3	04 10.61 +45 29.8 21.3	-1.88 + 6.2	9.0/28.1	30788
(12428)	1999 11 27.3	04 10.67 +25 12.6 16.4	-1.02 - 5.4	1.4/28.1	36720
1999 WF	1999 11 27.3	04 10.75 +19 57.5 16.3	-0.86 - 2.4	0.4/27.2	37237
1993 FJ ₃₂	1999 11 27.3	04 10.77 +25 39.3 18.6	-1.04 - 3.6	1.5/28.1	36882
(10235)	1999 11 27.3	04 10.91 +22 53.3 17.2	-0.88 - 2.8	0.5/27.7	33915
1998 KV ₃₂	1999 11 27.4	04 11.24 +24 05.8 17.9	-1.12 - 5.2	1.1/28.0	37280
1994 GU ₉	1999 11 27.4	04 11.42 -11 05.3 17.5	-1.07 + 1.8	11.7/24.1	37265
(12310)	1999 11 27.5	04 11.39 +18 14.0 17.0	-0.97 - 2.2	1.2/27.1	36689
(9259)	1999 11 27.5	04 11.47 +21 59.5 17.9	-1.00 - 2.9	0.3/27.7	32437
1990 EP ₃	1999 11 27.5	04 11.60 +28 53.0 18.5	-0.89 - 2.2	2.2/28.7	32922
3109 T-1	1999 11 27.5	04 11.78 +21 16.6 18.9	-1.06 - 3.8	0.1/27.6	37341
(12904)	1999 11 27.5	04 11.83 +21 04.5 18.0	-0.82 - 2.1	0.0/27.6	37093
1995 VX ₂	1999 11 27.5	04 11.86 +19 04.7 19.3	-1.08 - 3.3	0.8/27.3	36886
1991 PG ₁	1999 11 27.6	04 11.82 +01 34.3 17.8	-1.08 + 1.2	8.0/25.9	37260

1992 UC ₆	1999 11 27.6	04 11.87 +20 09.2 16.6	-1.06 - 7.5	0.4/27.4	37120	1988 CF	1999 11 29.1	04 18.70 +30 17.1 17.1	-1.16 - 1.2	3.7/30.2	37257
1291 T-1	1999 11 27.6	04 11.93 +08 30.8 19.7	-0.91 - 4.8	4.1/25.4	31268	3195 T-3	1999 11 29.1	04 18.72 +07 25.3 19.0	-0.91 - 3.7	4.4/27.1	37343
1997 EK ₁₆	1999 11 27.8	04 12.66 +17 49.0 17.7	-0.97 - 3.2	1.7/27.3	37137	1997 GC ₂₂	1999 11 29.2	04 18.77 +18 07.4 17.8	-0.93 - 2.3	1.2/28.8	37274
1998 MC ₂₉	1999 11 27.8	04 12.81 +22 22.7 18.6	-1.01 - 3.6	0.4/28.0	37156	1995 CB	1999 11 29.2	04 18.90 +05 25.7 17.0	-0.84 + 0.3	6.4/27.4	37126
1981 ER ₁₆	1999 11 27.8	04 12.90 +39 53.0 19.9	-1.24 - 1.9	6.6/30.5	26918	1998 RN ₆₂	1999 11 29.2	04 18.98 +19 21.9 18.3	-0.85 - 2.0	0.6/29.0	37286
(12699)	1999 11 27.8	04 12.93 +16 38.5 18.1	-1.07 - 3.2	1.6/27.2	37037	1998 QB ₉₆	1999 11 29.2	04 19.01 +09 14.7 18.0	-0.91 - 5.1	3.9/27.2	37285
1994 TA ₁	1999 11 27.8	04 13.25 +68 15.9 17.8	-2.75 + 5.2	15.8/04.5	36515	1993 FR ₁₂	1999 11 29.2	04 19.09 +18 00.8 17.2	-1.07 - 1.2	1.4/28.9	37263
(9383)	1999 11 27.9	04 13.09 +18 23.0 18.6	-0.86 - 2.0	0.8/27.5	32626	(12769)	1999 11 29.2	04 19.10 +12 21.9 16.9	-1.11 - 1.7	3.5/28.2	37056
1999 VV ₃₃	1999 11 27.9	04 13.39 +19 26.6 17.9	-0.92 - 2.7	0.6/27.7	37220	1997 GF ₁₄	1999 11 29.3	04 19.16 +23 36.6 16.9	-1.04 - 3.6	1.0/29.6	37140
(9661)	1999 11 27.9	04 13.53 +23 59.0 16.4	-0.83 + 0.7	0.8/28.3	32903	1998 KT ₅₅	1999 11 29.3	04 19.21 +09 00.9 17.0	-1.07 + 2.9	4.3/28.5	37155
(12560)	1999 11 27.9	04 13.54 +18 50.2 18.0	-0.83 - 2.0	0.6/27.6	36758	(12513)	1999 11 29.3	04 19.27 +24 20.7 16.6	-1.22 - 1.6	1.5/29.7	36744
1998 HB ₈₇	1999 11 27.9	04 13.54 +23 10.0 18.5	-1.16 - 3.7	0.7/28.3	37150	1999 VJ ₃₄	1999 11 29.3	04 19.41 +19 58.8 16.8	-0.97 - 5.4	0.6/29.1	37220
(12489)	1999 11 28.0	04 13.95 +19 36.2 16.3	-1.03 + 1.3	0.7/27.9	36736	1998 KA ₄	1999 11 29.3	04 19.49 +18 04.9 18.3	-1.19 + 0.4	1.3/29.1	37152
1997 CJ ₅	1999 11 28.0	04 13.97 +21 41.9 18.7	-1.08 - 2.8	0.2/28.2	37136	(12481)	1999 11 29.3	04 19.57 +11 16.0 18.0	-0.88 - 3.5	3.1/27.9	36734
(11259)	1999 11 28.0	04 13.97 +23 12.2 18.1	-1.02 - 2.8	0.7/28.4	35556	1999 VY ₂	1999 11 29.4	04 19.68 +27 09.2 16.8	-0.97 - 6.0	2.3/30.4	37310
1998 HE ₁₀₃	1999 11 28.0	04 14.00 +25 43.4 18.3	-1.25 - 0.8	1.7/28.6	37279	1332 T-2	1999 11 29.4	04 19.79 +24 59.7 18.2	-0.94 - 2.6	1.4/30.0	37251
(12404)	1999 11 28.1	04 14.46 +21 17.6 16.8	-1.14 -14.0	0.0/28.2	36714	2638 T-2	1999 11 29.4	04 19.96 +22 10.3 18.3	-0.58 - 1.1	0.1/29.6	37342
1999 VU ₃₃	1999 11 28.2	04 14.37 +18 57.7 17.8	-0.87 - 4.1	0.8/27.8	37219	(12393)	1999 11 29.4	04 19.98 +21 25.9 17.1	-0.90 - 2.0	0.0/29.5	36711
1996 AH ₉	1999 11 28.2	04 14.48 +20 30.0 18.2	-0.95 - 2.9	0.2/28.1	37269	(12614)	1999 11 29.5	04 20.16 +14 36.5 17.2	-1.16 - 3.9	3.1/28.6	36773
1999 VB ₃₁	1999 11 28.2	04 14.63 +22 29.4 17.7	-0.94 - 1.5	0.4/28.4	37218	1998 HC ₄₂	1999 11 29.7	04 20.79 +21 25.8 18.0	-1.26 + 1.1	0.0/29.7	37149
(12255)	1999 11 28.2	04 14.66 +17 09.9 15.6	-1.12 + 1.8	1.9/27.9	36674	3256 T-2	1999 11 29.7	04 20.81 +23 20.2 19.1	-1.14 - 1.6	0.7/29.9	29130
1999 VV ₁₂	1999 11 28.3	04 14.95 +16 15.8 15.7	-0.96 + 2.6	1.5/27.9	37207	1995 YS ₂₁	1999 11 29.7	04 21.25 +16 23.3 16.9	-0.98 - 0.8	1.9/29.2	37269
1997 CZ ₁₄	1999 11 28.3	04 15.00 +24 06.1 17.4	-1.15 - 0.9	1.5/28.7	37272	1997 CX ₁₃	1999 11 29.8	04 21.34 +14 16.8 20.0	-1.06 - 1.2	2.7/29.0	29321
1998 MT ₃₂	1999 11 28.3	04 15.24 +21 01.9 17.2	-1.11 - 4.5	0.1/28.3	37282	1998 RV	1999 11 29.8	04 21.39 +35 13.6 17.5	-1.06 - 0.7	4.7/01.6	37285
(12201)	1999 11 28.4	04 15.25 +08 24.9 17.8	-0.96 - 5.7	4.8/26.1	36660	(9804)	1999 11 29.8	04 21.54 +04 11.1 17.2	-0.95 0.0	5.8/27.9	33212
6111 P-L	1999 11 28.4	04 15.33 +35 16.6 18.5	-1.01 - 1.6	4.4/30.5	37341	1997 CW	1999 11 29.8	04 21.55 +24 43.0 17.3	-1.18 - 0.9	1.3/30.2	36890
1993 FA ₃₃	1999 11 28.4	04 15.53 +14 33.9 18.3	-0.99 - 2.3	2.3/27.5	26903	1993 TJ ₂	1999 11 29.8	04 21.58 +23 44.7 16.7	-0.91 - 1.2	0.8/30.2	37264
(12216)	1999 11 28.4	04 15.55 +14 10.3 17.2	-1.05 - 5.1	3.1/27.3	36664	1999 WX ₂	1999 11 29.8	04 21.59 +19 08.4 17.7	-1.16 - 2.0	1.1/29.6	37239
1981 EA ₄₅	1999 11 28.4	04 15.66 +28 19.0 18.8	-1.21 - 4.1	2.7/29.6	32214	1999 VE ₃₅	1999 11 29.8	04 21.73 +21 54.2 17.2	-1.07 - 0.9	0.1/29.9	37221
(12459)	1999 11 28.4	04 15.74 +15 04.1 17.9	-1.11 - 1.3	2.5/27.7	36729	1998 OG ₉	1999 11 29.9	04 21.68 +17 38.8 17.9	-0.92 - 2.1	1.4/29.4	37282
(12257)	1999 11 28.5	04 16.03 +07 47.2 18.1	-0.94 - 5.4	4.5/26.2	36675	1997 GK ₁₆	1999 11 29.9	04 21.74 +19 34.4 17.4	-0.96 - 1.9	0.7/29.7	37273
1998 OA ₄	1999 11 28.6	04 16.09 +19 12.2 19.9	-0.96 - 3.2	0.7/28.3	35709	(12385)	1999 11 29.9	04 22.14 +17 12.5 17.0	-0.92 - 1.9	1.6/29.4	36708
(12185)	1999 11 28.6	04 16.17 +28 37.0 17.2	-1.05 - 0.9	2.8/29.5	36655	1997 AQ ₁₅	1999 11 30.0	04 22.21 +21 32.9 16.6	-1.21 + 0.1	0.0/30.0	37271
(12664)	1999 11 28.6	04 16.25 +17 30.0 16.8	-1.00 - 3.2	1.6/28.1	37028	(12890)	1999 11 30.0	04 22.28 +04 01.6 17.5	-0.82 - 1.3	5.5/27.8	37089
1993 TO ₂₀	1999 11 28.6	04 16.45 +14 49.1 18.5	-0.85 - 2.2	2.2/27.8	37264	1998 KT ₆	1999 11 30.0	04 22.40 +16 58.7 18.7	-1.15 - 0.2	1.8/29.6	36899
(12512)	1999 11 28.6	04 16.56 +18 10.5 17.4	-1.13 - 4.9	1.3/28.2	36744	1998 KG ₅₁	1999 11 30.0	04 22.61 +10 41.9 17.2	-1.05 - 2.4	4.7/28.8	37281
1995 LJ	1999 11 28.7	04 16.89 +32 10.7 18.9	-1.30 - 4.2	4.1/30.5	31789	1998 RU ₂₂	1999 11 30.1	04 22.65 +24 26.3 18.2	-0.79 - 1.3	0.8/30.5	36085
1999 WD ₉	1999 11 28.7	04 16.99 +13 08.4 16.5	-1.01 - 5.4	3.5/27.4	37242	1999 VC ₃₅	1999 11 30.1	04 22.70 +22 19.7 17.0	-0.96 - 2.2	0.3/30.2	37221
(12623)	1999 11 28.8	04 17.20 +13 11.3 17.5	-1.01 - 2.7	3.2/27.7	36775	1999 WM ₁₁	1999 11 30.1	04 22.94 +28 48.2 17.4	-1.04 - 4.8	2.8/01.4	37243
1998 QB ₄₂	1999 11 28.8	04 17.34 +33 10.1 18.6	-0.98 - 1.1	3.6/30.5	32707	1997 GF ₆	1999 11 30.1	04 22.97 -00 56.1 20.2	-0.78 - 5.1	5.9/26.4	35699
1998 KZ ₄₇	1999 11 28.8	04 17.46 +12 42.9 17.2	-1.12 - 0.2	3.4/28.0	37281	(9373)	1999 11 30.1	04 23.00 +25 10.4 18.0	-1.05 - 2.2	1.2/30.7	32623
(12446)	1999 11 28.8	04 17.48 +00 59.3 16.7	-1.61 +16.3	10.7/30.2	36725	(12898)	1999 11 30.2	04 23.01 +12 27.9 18.0	-0.82 - 1.7	2.6/29.0	37091
(12361)	1999 11 28.9	04 17.44 +18 53.2 17.2	-0.90 - 1.3	0.9/28.6	36702	1995 UN ₁₅	1999 11 30.2	04 23.19 +22 11.0 19.7	-1.13 - 0.2	0.2/30.3	30784
1997 AY ₇	1999 11 28.9	04 17.49 +30 10.7 17.3	-1.19 - 4.9	3.6/30.4	30786	1978 VH ₅	1999 11 30.2	04 23.28 +21 55.3 17.3	-0.89 - 4.8	0.1/30.3	37255
(8937)	1999 11 28.9	04 17.53 +15 47.8 16.8	-1.11 - 2.8	2.3/28.2	31931	1994 PC ₁₅	1999 11 30.2	04 23.37 +01 13.3 18.8	-0.93 - 2.2	6.7/27.5	33072
(12272)	1999 11 28.9	04 17.56 +38 18.1 15.9	-1.11 - 6.3	7.1/02.3	36679	1999 WN ₂	1999 11 30.2	04 23.45 +20 26.7 17.2	-1.12 - 1.0	0.5/30.2	37239
1993 QO ₄	1999 11 29.0	04 17.83 +18 30.9 17.2	-0.90 - 2.1	1.0/28.6	37264	1999 VM ₃₅	1999 11 30.4	04 23.82 +19 36.8 17.3	-0.81 - 1.7	0.6/30.1	37221
1998 QQ ₈	1999 11 29.0	04 18.09 +12 19.8 16.8	-0.93 - 0.7	3.2/28.0	37283	1999 VZ ₃₄	1999 11 30.4	04 24.06 +21 53.4 16.9	-1.24 - 0.7	0.1/30.5	37220
1999 VY ₃₇	1999 11 29.1	04 18.25 +19 34.5 17.6	-0.92 - 0.6	0.6/28.9	37224	(12351)	1999 11 30.4	04 24.27 +13 50.3 17.1	-0.95 - 5.8	2.6/29.2	36699
1998 QN ₅₃	1999 11 29.1	04 18.35 +13 46.8 17.7	-0.79 - 3.6	2.0/27.9	35711	1998 OX ₆	1999 11 30.5	04 24.53 +36 42.5 17.3	-1.06 - 3.9	4.8/02.9	33078
1994 GK ₉	1999 11 29.1	04 18.44 +18 05.4 17.4	-1.11 - 5.2	1.3/28.6	37265	(12668)	1999 11 30.5	04 24.66 +23 35.0 17.9	-0.97 - 3.2	0.7/30.9	37029

(9045)	1999 11 30.5	04 24.69 +19 54.3	17.1 -1.11 - 1.7	0.8/30.4	32184
(12545)	1999 11 30.5	04 24.72 +13 12.1	17.9 -0.91 - 2.3	2.8/29.5	36754
1084 T-2	1999 11 30.5	04 24.75 +20 42.3	19.7 -1.14 - 3.1	0.4/30.5	25970
1998 RE ₁	1999 11 30.6	04 24.81 +45 26.9	19.6 -1.18 - 0.9	7.0/04.0	33563
1999 VU ₂₀	1999 11 30.6	04 24.81 +24 10.8	16.8 -1.21 - 0.5	1.1/30.9	37313
1991 YC	1999 11 30.6	04 24.88 +03 29.9	16.5 -1.06 + 3.0	7.7/29.1	37261
(9251)	1999 11 30.6	04 25.09 +18 44.1	17.9 -0.90 - 1.4	1.0/30.3	32435
1994 TD ₃	1999 11 30.6	04 25.10 +32 24.9	16.5 -1.10 - 0.3	3.8/02.0	37125
1999 VT ₅	1999 11 30.6	04 25.12 +29 20.8	18.0 -1.07 - 1.5	3.0/02.0	37311
1999 VN ₃₅	1999 11 30.7	04 25.32 +20 03.4	18.1 -0.91 - 2.4	0.5/30.5	37221
1986 QQ ₃	1999 11 30.7	04 25.35 +24 03.5	16.7 -1.08 - 0.7	1.0/01.0	37114
(12610)	1999 11 30.7	04 25.39 +23 27.8	17.3 -0.97 - 1.8	0.6/31.0	36772
(9146)	1999 11 30.8	04 25.65 +24 33.2	16.6 -1.14 + 0.3	1.1/01.1	32411
1997 CZ ₂	1999 11 30.8	04 25.75 +18 47.8	18.3 -1.12 - 1.5	1.1/30.5	37136
1999 VS ₃₅	1999 11 30.8	04 25.77 +21 57.8	17.0 -1.14 + 2.8	0.1/30.9	37221
1998 SQ	1999 11 30.8	04 25.94 +20 37.8	17.1 -0.59 - 1.4	0.2/30.7	37286
(12762)	1999 11 30.9	04 25.97 +30 01.8	17.5 -1.06 + 2.1	2.8/01.6	37054
1998 QG ₅₇	1999 11 30.9	04 26.22 +14 58.4	20.3 -0.98 - 2.8	2.2/30.1	35711
(9472)	1999 12 01.0	04 26.58 +20 16.1	17.9 -0.89 - 2.1	0.4/30.9	32646
(12241)	1999 12 01.0	04 26.77 +20 34.8	17.4 -1.18 - 1.7	0.5/30.9	36670
1996 HF ₁₈	1999 12 01.1	04 26.88 +19 37.0	17.0 -0.87 - 3.2	0.7/30.8	37270
1999 WB ₇	1999 12 01.1	04 27.00 +18 09.4	17.4 -0.92 - 1.2	1.4/30.7	37240
1994 PP ₁₅	1999 12 01.1	04 27.01 +18 53.6	17.8 -0.99 - 2.7	1.1/30.8	37125
1981 UB ₂₃	1999 12 01.1	04 27.03 +16 46.6	15.9 -0.96 - 1.1	2.1/30.6	37256
(12473)	1999 12 01.1	04 27.03 +16 53.0	17.9 -1.04 + 1.7	1.6/30.8	36732
1999 VO ₃₅	1999 12 01.1	04 27.06 +21 40.6	17.3 -1.00 + 1.5	0.0/01.1	37221
1985 CD ₂	1999 12 01.1	04 27.06 +22 09.3	18.3 -0.89 - 2.1	0.1/01.2	37257
1998 QT ₅₀	1999 12 01.1	04 27.12 +07 52.5	18.8 -0.81 - 1.3	3.6/29.5	35711
1999 WM ₆	1999 12 01.1	04 27.12 +18 29.0	17.8 -0.99 - 3.5	1.4/30.7	37240
1999 XM ₁₄	1999 12 01.1	04 27.13 +29 02.0	17.5 -1.06 - 1.4	2.6/02.0	37246
1998 QW ₉₅	1999 12 01.1	04 27.28 +16 49.0	18.5 -0.90 - 3.7	1.5/30.5	37285
1997 CX ₁₉	1999 12 01.2	04 27.26 +29 40.5	17.6 -1.23 - 1.3	3.4/02.0	29948
1993 FJ ₃₃	1999 12 01.2	04 27.33 +24 13.5	16.9 -1.08 - 0.6	1.0/01.5	37263
1999 WX ₈	1999 12 01.2	04 27.36 +14 34.5	16.6 -0.93 + 2.5	2.3/30.7	37241
(12717)	1999 12 01.2	04 27.36 +13 13.8	18.1 -1.11 - 2.9	3.3/30.1	37043
1999 WZ ₈	1999 12 01.2	04 27.39 +14 30.3	17.9 -1.04 - 0.2	2.6/30.5	37241
1998 QW ₅	1999 12 01.2	04 27.39 +20 48.3	19.4 -0.90 - 3.7	0.3/01.1	33080
1998 QB ₄₄	1999 12 01.2	04 27.67 +35 40.3	17.7 -1.02 - 1.2	4.2/03.0	37284
1981 EB ₄₃	1999 12 01.3	04 27.78 +24 30.4	18.9 -1.07 - 1.9	1.0/01.7	37256
1999 VU ₈	1999 12 01.3	04 28.00 -00 10.0	17.6 -0.89 + 0.4	8.2/29.2	37202
(12220)	1999 12 01.3	04 28.21 +27 23.4	16.0 -1.14 - 3.8	2.8/02.2	36665
1999 WN ₉	1999 12 01.4	04 28.36 +18 47.7	17.6 -1.04 - 1.9	1.1/01.1	37242
1999 WP ₁₁	1999 12 01.4	04 28.49 +27 47.8	17.1 -1.23 + 0.7	2.9/02.0	37243
(9694)	1999 12 01.4	04 28.50 +27 49.5	17.3 -0.61 - 1.1	1.2/02.3	32912
1995 QV ₉	1999 12 01.4	04 28.51 +32 24.8	19.9 -1.25 - 1.6	4.1/02.7	31141
1999 WO ₁₁	1999 12 01.4	04 28.56 +29 12.3	17.3 -0.96 - 4.3	2.5/02.6	37243
1998 QS ₄₄	1999 12 01.5	04 28.59 +31 00.7	17.1 -1.04 - 2.3	3.1/02.7	37284
1999 WU ₈	1999 12 01.5	04 28.77 +14 23.8	17.0 -1.11 - 0.9	3.2/30.8	37241
1997 ER ₅	1999 12 01.5	04 28.78 +17 38.5	17.2 -1.02 - 2.3	1.9/01.0	37137
4080 P-L	1999 12 01.5	04 28.87 +18 11.4	18.2 -0.84 - 2.5	1.0/01.1	37341
(12859)	1999 12 01.5	04 29.06 +24 11.8	16.8 -1.20 - 0.6	1.1/02.0	37080

(12722)	1999 12 01.6	04 29.10 +17 15.0	18.0 -1.09 - 3.1	1.7/01.0	37044
1998 QK ₆₈	1999 12 01.6	04 29.15 +23 17.3	18.1 -0.90 - 5.4	0.5/02.0	37165
1999 VB ₆	1999 12 01.6	04 29.21 +19 11.5	16.5 -1.07 - 1.0	1.3/01.4	37311
(12845)	1999 12 01.7	04 29.52 +19 47.0	17.9 -0.96 - 1.2	0.7/01.5	37076
1995 SU ₅	1999 12 01.7	04 29.57 +13 36.2	19.3 -1.04 - 4.0	2.9/30.6	36517
(12899)	1999 12 01.7	04 29.77 +17 54.2	17.1 -1.09 - 1.4	1.6/01.3	37091
1999 VT ₃₅	1999 12 01.7	04 29.82 +20 45.7	16.6 -1.16 - 0.6	0.5/01.7	37222
1999 WS ₈	1999 12 01.7	04 29.91 +13 10.4	18.2 -1.14 + 0.1	4.0/01.0	37241
1998 OM	1999 12 01.8	04 29.87 +19 29.4	17.7 -0.99 - 5.9	0.8/01.4	37282
3541 P-L	1999 12 01.8	04 29.92 +32 52.1	16.4 -1.04 - 3.9	3.8/03.5	37341
1999 VB ₃₅	1999 12 01.8	04 30.32 +22 33.1	17.4 -1.06 - 1.2	9.3/12.0	37220
1996 AU ₆	1999 12 01.9	04 30.32 +22 11.4	17.6 -1.01 - 0.6	9.3/22.0	37269
1998 SC	1999 12 01.9	04 30.44 +27 41.0	18.0 -1.04 + 0.1	1.8/02.5	35716
1999 VA ₆	1999 12 02.0	04 30.72 +14 13.6	16.6 -0.89 - 9.8	3.4/30.5	37311
(12491)	1999 12 02.0	04 31.17 +17 44.2	17.4 -0.91 - 1.7	1.4/01.6	36737
1998 QE ₇₈	1999 12 02.1	04 31.25 +31 33.3	17.8 -1.06 - 3.9	2.9/03.5	37285
1998 KD ₄₇	1999 12 02.1	04 31.57 +19 37.2	18.0 -1.14 - 3.9	0.9/01.9	37281
(8384)	1999 12 02.2	04 31.57 +10 15.7	16.6 -1.04 - 0.8	5.3/01.0	31362
1997 BD ₃	1999 12 02.2	04 31.81 +17 22.8	16.9 -1.11 - 1.9	2.1/01.7	37135
(12741)	1999 12 02.2	04 31.92 +21 30.4	17.4 -0.99 - 3.1	0.1/02.2	37049
1998 JJ ₁	1999 12 02.3	04 31.99 +06 16.5	16.6 -1.14 -21.1	8.1/28.0	37280
1999 VS ₃₄	1999 12 02.3	04 31.99 +22 12.0	17.5 -0.86 - 4.1	0.1/02.3	37220
1992 WE ₁	1999 12 02.3	04 32.01 +18 41.8	16.4 -1.18 + 0.8	1.5/02.0	37120
1995 TN ₇	1999 12 02.3	04 32.16 +23 09.8	17.9 -1.02 - 3.0	0.6/02.5	37267
1995 UY ₄₀	1999 12 02.4	04 32.65 +17 36.4	18.4 -1.02 - 5.0	2.0/01.8	37128
3156 T-2	1999 12 02.4	04 32.69 +23 00.1	18.5 -0.60 - 1.0	0.2/02.6	37342
1999 VM ₃₄	1999 12 02.5	04 33.09 +21 20.4	16.0 -1.01 - 8.6	0.2/02.4	37220
6626 P-L	1999 12 02.5	04 33.14 +26 01.4	18.2 -1.18 - 1.9	1.6/03.0	36942
1999 VU ₃₅	1999 12 02.5	04 33.16 +21 23.1	16.1 -1.03 - 0.9	0.2/02.5	37222
1993 TX ₂₃	1999 12 02.5	04 33.19 +19 14.0	18.4 -0.88 - 1.0	0.8/02.3	36883
1999 VV ₃₅	1999 12 02.5	04 33.30 +19 00.2	17.8 -0.97 - 4.9	1.2/02.2	37222
1998 MA ₅	1999 12 02.6	04 33.31 +26 36.3	18.8 -1.04 - 3.4	1.7/03.2	36900
(12916)	1999 12 02.6	04 33.42 +05 31.5	18.4 -0.54 - 3.5	3.1/30.0	37096
2221 P-L	1999 12 02.6	04 33.43 +20 30.5	19.1 -1.18 - 4.2	0.6/02.4	37340
1998 QW ₁₁	1999 12 02.6	04 33.63 +06 24.4	18.6 -0.86 - 1.8	5.3/30.8	32496
1991 PX ₅	1999 12 02.6	04 33.75 +31 43.6	17.1 -1.21 - 2.3	4.0/03.8	37260
1990 BA ₂	1999 12 02.6	04 33.76 +34 46.0	16.6 -1.02 - 3.9	4.4/04.5	37258
(11606)	1999 12 02.7	04 33.78 +32 31.4	19.5 -1.19 - 2.8	4.6/04.1	35860
1998 QM ₉	1999 12 02.7	04 33.90 +18 42.9	18.1 -0.89 - 3.2	1.1/02.3	37283
1998 HO ₃₀	1999 12 02.7	04 34.02 +21 19.1	16.6 -1.28 - 0.5	0.3/02.7	37149
(12378)	1999 12 02.7	04 34.03 +22 05.7	16.9 -1.24 + 4.6	0.1/02.8	36707
(9046)	1999 12 02.7	04 34.05 +37 52.5	17.6 -1.28 - 4.3	5.6/05.0	32184
1999 VD ₆	1999 12 02.7	04 34.10 +20 05.3	16.9 -0.90 - 1.1	0.7/02.6	37200
1993 SA ₆	1999 12 02.7	04 34.12 +19 09.3	17.4 -0.90 - 1.8	1.0/02.4	37264
(9478)	1999 12 02.7	04 34.21 +28 04.1	19.0 -0.92 - 1.4	1.7/03.5	32648
(12291)	1999 12 02.8	04 34.20 +18 21.1	17.1 -0.86 - 0.1	1.1/02.4	36684
(12754)	1999 12 02.8	04 34.44 +15 06.8	16.2 -1.00 + 1.3	2.4/02.3	37052
1999 SY ₅	1999 12 02.8	04 34.50 -26 36.8	15.5 -0.88 +15.7	26.8/15.7	37302
(12761)	1999 12 02.8	04 34.54 -00 31.5	18.3 -0.79 - 3.8	6.6/29.5	37054
1998 HU ₆	1999 12 02.8	04 34.62 +18 37.3	17.9 -1.15 + 0.7	1.4/02.6	37147
1979 MO ₂	1999 12 02.9	04 34.60 +19 14.1	18.5 -1.18 - 3.9	1.1/02.6	37255

1998 KP ₃	1999 12 02.9	04 34.66 +18 19.6 17.5	-1.09 - 4.8	1.5/02.4	37280	1992 HC ₂	1999 12 04.2	04 40.25 +17 59.5 17.5	-0.93 - 1.2	1.5/03.8	37119
(12274)	1999 12 03.0	04 35.07 +12 36.8 16.2	-0.91 - 8.7	4.0/01.3	36679	(8959)	1999 12 04.2	04 40.42 +23 01.3 18.6	-1.16 - 1.5	0.3/04.3	31936
(12785)	1999 12 03.0	04 35.18 +34 14.7 17.3	-1.27 - 2.3	4.8/04.4	37060	(12674)	1999 12 04.2	04 40.45 +24 40.1 16.9	-1.16 - 2.6	1.0/04.5	37031
(12537)	1999 12 03.0	04 35.24 +20 19.3 17.6	-1.12 - 4.3	0.6/02.8	36751	1998 RQ ₅₂	1999 12 04.2	04 40.59 +08 13.1 18.8	-0.93 - 1.4	4.5/02.8	33272
(8979)	1999 12 03.0	04 35.28 +20 54.9 16.8	-1.22 - 1.5	0.5/02.9	31941	1999 VT ₈	1999 12 04.2	04 40.70 +00 47.8 16.8	-0.87 + 3.0	8.5/03.2	37202
(12660)	1999 12 03.0	04 35.40 +24 49.9 17.8	-0.97 - 3.3	0.9/03.4	37027	1996 DT	1999 12 04.3	04 40.78 +06 49.1 17.8	-0.84 - 1.1	4.7/02.7	37269
1999 VF ₆	1999 12 03.0	04 35.43 +17 49.5 16.0	-1.05 - 3.9	2.1/02.5	37311	1995 WV ₇	1999 12 04.3	04 41.12 +21 24.1 15.6	-1.14 + 4.0	0.3/04.4	37268
(12791)	1999 12 03.0	04 35.43 +20 18.3 16.7	-1.07 - 4.5	0.7/02.8	37062	(12263)	1999 12 04.3	04 41.13 +22 17.2 16.6	-1.16 - 2.4	0.0/04.4	36676
(8425)	1999 12 03.1	04 35.68 +15 32.9 16.1	-1.11 - 2.2	2.8/02.4	31371	1995 XW	1999 12 04.3	04 41.18 +29 43.9 17.0	-1.17 + 2.6	2.6/04.9	36887
(12408)	1999 12 03.1	04 35.68 +19 15.5 17.7	-1.16 + 1.8	1.2/03.0	36715	1999 VX ₃₆	1999 12 04.4	04 41.44 +20 03.1 16.7	-1.14 - 5.6	1.0/04.2	37223
1998 QP ₁₇	1999 12 03.2	04 36.06 +22 09.6 19.9	-1.09 - 2.2	0.0/03.2	36002	3159 T-2	1999 12 04.4	04 41.54 +02 27.9 17.2	-0.92 - 2.0	7.9/02.3	37342
(12905)	1999 12 03.2	04 36.09 +20 59.1 17.9	-0.84 - 1.2	0.3/03.1	37093	(12675)	1999 12 04.5	04 41.73 +31 17.4 16.1	-1.21 - 0.1	3.9/05.3	37031
(9013)	1999 12 03.2	04 36.21 +05 32.5 18.0	-0.92 - 1.8	5.1/01.5	32177	1993 FD ₈₂	1999 12 04.5	04 41.73 +16 12.2 18.3	-1.00 - 1.9	2.0/03.9	37264
(12912)	1999 12 03.2	04 36.25 +19 39.1 18.0	-0.84 - 1.3	0.7/03.0	37095	1992 OL ₃	1999 12 04.5	04 41.76 +19 10.7 18.5	-0.85 - 1.5	0.9/04.2	37262
1999 VA ₃₆	1999 12 03.2	04 36.27 +22 54.8 17.5	-0.96 - 1.1	0.3/03.4	37222	2139 T-3	1999 12 04.6	04 42.07 +22 27.3 15.9	-1.01 - 3.3	0.1/04.6	37342
1997 CH ₁₇	1999 12 03.2	04 36.36 +24 00.0 18.3	-1.13 - 4.4	1.0/03.5	37137	1991 SZ	1999 12 04.6	04 42.15 +26 14.0 17.1	-1.19 + 0.6	1.6/05.0	36879
1999 XG ₂	1999 12 03.3	04 36.37 +22 21.6 15.9	-1.02 - 6.7	0.1/03.4	37245	1998 QO ₃₇	1999 12 04.6	04 42.30 +13 18.5 19.3	-0.97 - 2.4	2.8/03.7	33082
1999 VV ₁₀	1999 12 03.3	04 36.43 +26 54.1 16.0	-1.97 +19.8	2.7/02.9	37312	1993 FR ₃₀	1999 12 04.6	04 42.45 +21 38.6 19.2	-1.00 - 2.6	0.2/04.6	32745
(9480)	1999 12 03.3	04 36.46 +22 59.0 16.5	-0.91 - 1.7	0.3/03.4	32648	(11976)	1999 12 04.7	04 42.41 +50 53.7 16.4	-2.14 +11.3	14.6/03.7	36266
1997 EQ ₄₀	1999 12 03.3	04 36.63 +05 13.5 19.1	-0.96 - 1.2	5.8/01.6	37273	1999 WN ₇	1999 12 04.7	04 42.67 +20 25.3 17.6	-1.20 + 1.5	0.8/04.6	37241
1998 QF ₇₁	1999 12 03.3	04 36.64 +13 56.1 18.8	-0.86 - 3.5	2.5/02.3	32980	1999 WP	1999 12 04.8	04 42.85 +19 38.7 16.5	-1.03 - 1.7	1.3/04.5	37238
1994 PN ₁₄	1999 12 03.3	04 36.83 +31 12.6 19.7	-1.11 - 2.5	3.0/04.5	32747	(12944)	1999 12 04.8	04 42.94 +19 17.3 17.4	-0.89 - 1.4	1.1/04.5	37104
(12829)	1999 12 03.4	04 36.77 +22 40.0 16.4	-1.18 - 0.5	0.3/03.5	37071	1999 VA ₃₇	1999 12 04.8	04 42.97 +24 28.0 16.8	-1.20 + 4.4	0.8/04.9	37223
1996 BO ₃	1999 12 03.4	04 37.06 +02 26.8 17.4	-0.92 + 0.4	7.4/01.6	37132	(9256)	1999 12 04.8	04 43.00 +28 32.3 17.5	-1.19 - 1.0	2.3/05.4	32436
(9891)	1999 12 03.4	04 37.19 +21 22.7 16.6	-1.09 + 1.9	0.2/03.4	33467	1981 DR ₁	1999 12 04.8	04 43.24 +12 42.0 18.5	-0.98 - 5.0	3.2/03.6	26914
1981 DO	1999 12 03.4	04 37.19 +11 10.3 18.5	-0.97 - 5.2	3.7/01.9	36500	1981 EP ₃₆	1999 12 04.8	04 43.29 +21 26.2 18.0	-0.92 - 4.5	0.3/04.8	37256
(9590)	1999 12 03.5	04 37.55 +27 38.5 18.9	-0.60 - 0.6	1.0/04.2	32886	(9427)	1999 12 04.8	04 43.31 +07 03.4 17.8	-0.85 - 0.5	4.7/03.5	32636
1999 VH ₆	1999 12 03.6	04 38.03 +15 13.8 16.6	-0.95 - 3.9	2.5/02.8	37200	1998 QZ ₃₀	1999 12 04.9	04 43.36 +22 12.0 19.3	-0.90 - 1.7	0.0/04.9	33081
1999 VK ₁₄	1999 12 03.6	04 38.22 +44 30.6 17.5	-2.34 +20.7	12.4/01.2	37207	1997 CK ₂₆	1999 12 04.9	04 43.49 +24 04.7 17.2	-1.17 + 0.7	0.7/05.1	37272
(12452)	1999 12 03.7	04 38.08 +22 10.8 16.5	-1.14 - 3.8	0.0/03.7	36727	1998 SE ₅₉	1999 12 04.9	04 43.58 +20 27.0 17.7	-0.84 - 1.0	0.5/04.8	37174
1998 RF ₉	1999 12 03.7	04 38.25 +21 49.5 18.5	-0.93 - 1.8	0.1/03.7	37168	(9171)	1999 12 04.9	04 43.60 +37 07.6 16.8	-1.27 + 1.7	5.2/06.0	32417
1998 QE ₇₃	1999 12 03.7	04 38.50 +30 53.4 16.9	-0.97 - 3.5	2.7/05.0	37285	1998 HO ₅₂	1999 12 04.9	04 43.70 +22 02.4 17.4	-1.23 - 0.4	0.1/05.0	37150
1998 MF ₃₇	1999 12 03.7	04 38.54 +03 50.0 17.5	-0.90 + 0.5	6.0/02.3	37282	1999 VL ₁₀	1999 12 04.9	04 43.79 +14 07.8 16.3	-1.09 - 6.3	3.9/03.9	37312
(12784)	1999 12 03.8	04 38.58 +25 03.3 17.2	-1.19 - 2.7	1.2/04.2	37060	(12448)	1999 12 05.0	04 43.84 +13 10.7 17.4	-1.13 + 0.6	3.7/04.4	36726
1999 VM ₃₆	1999 12 03.8	04 38.65 +21 15.3 16.6	-1.05 - 2.7	0.4/03.7	37223	1994 TO ₂	1999 12 05.0	04 43.87 +32 39.5 16.3	-1.14 + 0.7	3.9/05.9	37266
1999 VK ₆	1999 12 03.8	04 38.93 +18 09.9 16.8	-0.89 - 5.7	1.3/03.3	37311	1992 WM	1999 12 05.0	04 43.97 +27 33.4 16.4	-1.25 + 2.3	2.4/05.3	36790
1978 VL ₄	1999 12 03.8	04 38.94 +18 49.6 17.6	-0.92 - 6.0	1.8/03.4	37112	1999 VK ₁₀	1999 12 05.0	04 44.11 +12 15.3 16.9	-1.04 - 5.4	4.0/03.8	37312
1998 OD ₁₂	1999 12 03.8	04 39.01 +31 47.5 18.3	-1.20 - 1.6	3.7/04.9	33079	1998 QB ₄₆	1999 12 05.1	04 44.17 +27 27.5 19.1	-1.05 - 2.1	1.7/05.7	36902
(12823)	1999 12 03.9	04 39.11 +25 15.1 17.2	-1.19 - 3.3	1.3/04.3	37070	1995 OC ₈	1999 12 05.1	04 44.28 +16 38.6 18.8	-1.14 - 2.8	2.2/04.5	36885
(12694)	1999 12 03.9	04 39.24 +21 30.1 17.8	-0.87 - 1.6	0.2/03.9	37036	(9085)	1999 12 05.1	04 44.32 +27 48.5 17.5	-1.27 + 0.6	2.3/05.6	32193
1999 VS ₃₆	1999 12 03.9	04 39.26 +20 58.0 17.5	-0.97 - 0.6	0.4/03.9	37223	1989 GM ₁	1999 12 05.1	04 44.35 +11 35.0 16.2	-0.99 - 5.9	4.3/03.7	37258
1998 QZ ₉₄	1999 12 03.9	04 39.39 +04 47.6 18.4	-0.92 - 3.1	5.6/01.8	34926	1991 RF ₄	1999 12 05.1	04 44.36 +22 41.5 18.2	-1.11 - 2.8	0.1/05.2	37260
(12374)	1999 12 03.9	04 39.43 +10 08.9 17.3	-1.08 + 0.8	4.7/03.2	36706	1999 VP ₃₆	1999 12 05.1	04 44.37 +21 42.3 17.2	-0.89 - 1.0	0.2/05.1	37223
1994 RR ₁₁	1999 12 04.0	04 39.46 +19 17.2 16.7	-0.95 - 5.7	1.2/03.6	37266	1999 VH ₁₀	1999 12 05.1	04 44.40 +19 45.5 17.1	-0.96 - 1.4	0.9/04.9	37204
(12460)	1999 12 04.0	04 39.77 +16 13.2 17.5	-1.18 + 1.5	2.6/03.7	36729	4718 P-L	1999 12 05.1	04 44.52 +27 15.8 19.4	-1.09 - 1.5	1.7/05.7	25223
(12550)	1999 12 04.0	04 39.78 +02 47.8 16.7	-0.92 - 3.4	6.8/01.5	36755	1999 VB ₃₇	1999 12 05.2	04 44.57 +22 18.5 16.1	-1.09 - 0.8	0.0/05.2	37223
(12311)	1999 12 04.1	04 39.81 +25 30.7 16.7	-1.05 + 1.4	1.5/04.4	36689	1995 UG ₂	1999 12 05.2	04 44.64 +24 54.8 18.6	-1.15 - 1.3	1.1/05.5	37128
(9236)	1999 12 04.1	04 39.91 +11 24.7 18.7	-1.03 - 2.3	4.1/02.9	32432	1998 QR	1999 12 05.2	04 44.72 +15 09.7 17.4	-1.08 - 2.6	3.0/04.5	37283
(12739)	1999 12 04.1	04 40.00 +21 50.2 17.7	-1.00 - 0.9	0.1/04.1	37048	(9284)	1999 12 05.2	04 44.81 +08 01.2 18.5	-0.86 - 1.8	4.8/03.7	32601
(12293)	1999 12 04.1	04 40.06 +22 30.8 16.0	-1.08 - 6.0	0.2/04.2	36684	1998 HC ₉₉	1999 12 05.2	04 44.88 +23 21.0 17.0	-1.24 + 0.1	0.4/05.3	37279
1982 BJ ₁₃	1999 12 04.1	04 40.18 +28 21.0 17.2	-1.15 - 3.4	2.3/04.9	36874	(9664)	1999 12 05.2	04 44.99 +20 05.3 17.7	-0.85 - 1.2	0.6/05.1	32904

1999 DEC. 22

M.P.C. 37351

(12246) 1999 12 05.3 04 45.11 +11 57.5 16.5 -1.06 - 2.8 4.6/04.2 36672
 1989 QH 1999 12 05.3 04 45.16 +26 29.4 17.3 -1.26 - 3.3 1.9/05.8 32301
 1934 JP 1999 12 05.3 04 45.21 +19 36.7 17.7 -1.16 - 1.9 1.3/05.1 37254
 1989 WU 1999 12 05.3 04 45.40 +25 28.0 15.4 -1.09 - 6.1 1.6/05.8 37116
 1998 QW₄₈ 1999 12 05.4 04 45.45 +04 03.6 18.5 -0.90 - 1.6 5.7/03.5 37164
 1993 FL₁₄ 1999 12 05.4 04 45.45 +18 02.9 17.6 -1.03 - 0.5 1.5/05.0 37263
 1999 VG₃₆ 1999 12 05.4 04 45.82 +21 23.6 16.5 -1.01 - 6.2 0.5/05.3 37222
 1981 EX₃₇ 1999 12 05.4 04 45.92 +17 24.8 19.8 -1.14 - 3.2 2.0/05.0 26922
 1998 MW₃₄ 1999 12 05.4 04 45.96 +17 56.4 17.4 -1.10 - 2.9 1.7/05.0 37282
 1999 VJ₁₉ 1999 12 05.4 04 45.96 +21 17.3 17.1 -1.22 + 1.0 0.5/05.4 37208
 (9130) 1999 12 05.5 04 46.05 +21 23.9 17.8 -1.13 - 2.5 0.3/05.4 32203
 1998 SU₅₂ 1999 12 05.6 04 46.56 +23 55.0 17.3 -0.62 - 1.4 0.3/05.8 37173
 1981 EB₃₀ 1999 12 05.6 04 46.60 +46 43.3 19.9 -1.39 - 1.9 8.7/08.6 26920
 1993 BQ₅ 1999 12 05.6 04 46.69 +20 02.5 17.9 -1.11 - 1.2 0.9/05.5 37121
 (9381) 1999 12 05.7 04 46.90 +24 05.6 16.8 -0.94 - 1.5 0.6/05.9 32625
 1999 WT₂ 1999 12 05.7 04 46.92 +24 59.0 17.1 -1.02 - 1.7 1.1/06.0 37239
 3465 T-3 1999 12 05.7 04 47.02 +34 59.6 18.4 -1.04 0.0 3.8/07.0 37343
 1998 RB₅₃ 1999 12 05.7 04 47.21 +37 13.8 19.5 -1.13 - 0.9 4.5/07.2 37168
 1990 WG₁ 1999 12 05.8 04 47.23 +25 25.1 16.8 -1.25 + 7.0 1.2/05.8 37116
 1995 OR 1999 12 05.8 04 47.44 +23 50.8 17.3 -1.25 + 0.3 0.6/06.0 37267
 1999 VF₃₇ 1999 12 05.8 04 47.59 +20 20.5 17.3 -1.12 - 7.2 0.8/05.6 37224
 (12719) 1999 12 05.8 04 47.65 +20 57.4 17.7 -1.15 - 1.3 0.6/05.8 37043
 1996 TJ₁₀ 1999 12 05.8 04 47.67 +54 46.9 17.4 -2.10 + 3.2 15.1/08.1 36888
 1998 SP₇ 1999 12 05.8 04 47.70 +19 23.6 19.6 -1.01 - 1.9 1.0/05.6 37286
 2072 P-L 1999 12 05.9 04 47.82 +35 13.9 18.0 -1.25 - 0.7 6.2/07.0 37340
 (9273) 1999 12 05.9 04 47.94 +20 58.0 18.2 -1.08 - 1.9 0.5/05.8 32598
 1998 QW₇₀ 1999 12 05.9 04 47.95 +17 26.0 18.1 -0.85 - 3.8 1.5/05.3 37285
 1998 QG₇₃ 1999 12 05.9 04 48.05 +20 59.6 16.0 -0.90 - 4.3 0.5/05.8 37285
 (9233) 1999 12 05.9 04 48.11 +11 55.3 18.4 -0.97 - 1.0 3.3/05.1 35414
 1990 EU₄ 1999 12 06.0 04 48.15 +29 21.5 17.8 -1.20 - 2.0 3.0/06.7 36876
 (12250) 1999 12 06.0 04 48.22 +37 40.9 17.2 -1.08 - 0.6 4.9/07.5 36673
 (9065) 1999 12 06.0 04 48.30 +09 31.9 17.2 -0.96 - 0.8 4.2/05.0 32188
 (12704) 1999 12 06.0 04 48.34 +24 13.7 16.9 -1.06 - 2.0 0.6/06.2 37039
 1996 DD₁ 1999 12 06.0 04 48.49 -04 01.5 18.4 -1.02 + 5.3 10.0/05.4 37269
 1998 VH₃₆ 1999 12 06.0 04 48.57 +22 48.9 17.2 -0.92 - 2.0 0.1/06.1 37222
 (12957) 1999 12 06.1 04 48.52 +19 04.1 17.9 -1.01 - 1.6 1.3/05.8 37107
 1998 QN₄₁ 1999 12 06.1 04 48.53 +24 49.5 17.6 -0.97 - 1.7 0.8/06.3 37163
 (9187) 1999 12 06.1 04 48.61 +18 10.2 18.9 -1.07 - 2.8 1.5/05.7 32421
 1995 UW₂ 1999 12 06.1 04 48.67 +22 48.2 16.4 -1.06 - 2.9 0.2/06.2 37267
 (9657) 1999 12 06.1 04 48.96 +21 17.4 17.9 -0.84 - 1.4 0.3/06.1 32902
 (12950) 1999 12 06.1 04 49.01 +23 29.7 16.7 -1.06 - 0.5 0.4/06.3 37105
 1998 QW₁₀₄ 1999 12 06.2 04 48.94 +08 57.8 18.9 -0.81 - 0.7 3.8/05.0 33270
 1998 MZ₄₁ 1999 12 06.2 04 48.95 +18 37.5 17.8 -1.13 + 3.7 1.5/06.1 37282
 1991 GW₁₀ 1999 12 06.2 04 49.00 +36 16.0 19.8 -1.06 0.0 4.2/07.4 27711
 1988 UF 1999 12 06.2 04 49.01 +35 12.6 16.8 -1.07 + 0.5 4.2/07.3 37258
 1998 QE₇₁ 1999 12 06.2 04 49.13 +17 11.4 18.3 -1.04 - 3.5 1.7/05.6 34302
 1998 KS₁ 1999 12 06.2 04 49.29 +19 39.8 17.5 -1.17 - 4.0 1.2/06.0 37280
 (9338) 1999 12 06.2 04 49.37 +04 34.4 17.8 -0.79 - 2.0 4.8/04.4 32615
 1998 OV₁₄ 1999 12 06.3 04 49.54 +45 15.4 16.9 -1.29 - 2.4 8.5/08.9 33079
 (12940) 1999 12 06.3 04 49.58 +13 28.4 17.8 -1.10 - 2.7 3.8/05.5 37103
 1999 VM₁₀ 1999 12 06.3 04 49.58 +18 49.1 15.7 -1.00 + 5.7 1.9/06.3 37204

(9063) 1999 12 06.3 04 49.64 +16 18.0 16.4 -1.13 + 0.6 2.8/06.0 32188
 1320 T-2 1999 12 06.3 04 49.72 +36 32.4 18.8 -1.07 - 0.9 4.5/07.7 37342
 1998 QZ₃₉ 1999 12 06.3 04 49.87 +31 24.6 18.3 -1.04 - 1.9 2.9/07.3 37284
 9609 P-L 1999 12 06.4 04 49.89 +17 08.5 18.3 -1.19 - 2.5 2.2/05.9 36942
 (12961) 1999 12 06.4 04 49.94 +22 02.0 18.2 -1.23 - 0.6 0.2/06.4 37108
 1994 CG₁ 1999 12 06.4 04 50.23 +29 50.0 18.0 -1.27 - 1.3 2.8/07.1 36883
 1998 QX₃₅ 1999 12 06.4 04 50.24 +25 20.8 17.6 -0.99 - 1.3 1.0/06.8 37284
 1998 HO₁₄₈ 1999 12 06.5 04 50.30 +25 14.5 17.8 -1.27 - 1.3 1.2/06.7 37279
 (9313) 1999 12 06.5 04 50.34 +34 09.4 18.0 -1.11 - 4.4 3.8/08.0 32609
 (8785) 1999 12 06.5 04 50.38 +16 54.9 18.0 -1.15 - 1.4 2.2/06.1 31896
 (12816) 1999 12 06.5 04 50.47 +18 18.5 18.7 -0.81 - 1.5 1.1/06.1 37068
 1999 VR₁₀ 1999 12 06.5 04 50.62 +19 58.1 15.5 -0.98 + 2.6 0.9/06.4 37204
 1992 RP₅ 1999 12 06.5 04 50.74 +22 00.0 17.9 -1.23 - 0.1 11.6/27.0 37120
 1994 PJ₁ 1999 12 06.6 04 50.74 +02 30.1 18.7 -0.96 + 0.2 6.8/05.1 36883
 1990 SE₅ 1999 12 06.6 04 50.76 +24 44.9 18.2 -0.77 - 0.5 0.6/07.0 37259
 1999 WJ₄ 1999 12 06.6 04 50.83 +24 51.7 17.3 -0.98 - 1.5 0.9/06.9 37239
 (12411) 1999 12 06.6 04 50.92 +26 27.2 15.9 -1.14 - 5.1 1.8/07.1 36716
 (12970) 1999 12 06.6 04 51.05 +31 16.4 17.4 -1.01 + 0.8 2.8/07.3 37111
 1998 SL₇ 1999 12 06.7 04 51.17 +24 13.7 19.3 -0.98 - 1.6 0.5/06.9 32726
 1998 FJ₁₄ 1999 12 06.7 04 51.24 -15 10.8 19.5 -1.18 - 3.0 16.9/02.2 34217
 1196 T-2 1999 12 06.7 04 51.25 +29 48.6 18.6 -1.09 - 1.2 2.4/07.4 33130
 1999 VD₃₇ 1999 12 06.7 04 51.34 +25 49.1 17.0 -1.06 + 2.9 1.7/06.9 37224
 1981 EV₉ 1999 12 06.7 04 51.36 +26 50.2 18.2 -1.21 - 4.2 2.0/07.2 36874
 (12416) 1999 12 06.7 04 51.40 +23 33.9 16.6 -1.13 - 1.8 10.5/27.0 36717
 1998 HJ₁₀₁ 1999 12 06.8 04 51.58 +17 23.5 18.7 -1.13 - 2.1 2.0/06.4 37279
 (12813) 1999 12 06.8 04 51.62 +36 28.0 17.4 -1.13 - 0.7 5.0/08.0 37067
 (12655) 1999 12 06.9 04 52.04 +06 09.2 17.7 -0.82 - 0.7 4.8/05.5 36784
 1997 GL₃₄ 1999 12 06.9 04 52.10 +24 58.2 17.3 -1.15 - 0.6 1.0/07.0 37141
 3574 T-3 1999 12 06.9 04 52.10 +07 50.4 17.8 -0.84 - 2.5 5.0/05.3 37343
 1998 OY₃ 1999 12 06.9 04 52.22 +22 28.0 19.3 -0.98 - 2.8 8.7/27.0 37158
 1998 QN₁ 1999 12 06.9 04 52.24 +21 53.6 17.6 -0.91 - 1.8 7.5/27.0 37283
 1997 GL₁₇ 1999 12 06.9 04 52.28 +25 45.0 17.7 -1.14 - 1.9 1.3/07.0 37273
 (8780) 1999 12 06.9 04 52.43 +27 09.8 18.1 -1.24 - 3.0 1.8/07.5 31894
 1995 TR 1999 12 06.9 04 52.44 +17 20.9 17.1 -1.08 - 3.5 2.0/06.4 37267
 1998 QL₇₃ 1999 12 06.9 04 52.49 +18 17.3 17.3 -0.88 - 4.4 1.4/06.5 37285
 1998 QL₂₉ 1999 12 07.0 04 52.45 +22 55.1 18.8 -1.12 - 3.1 0.1/07.0 37162
 1998 QB₂₃ 1999 12 07.0 04 52.48 +29 25.5 17.3 -0.97 - 0.1 2.5/07.6 37161
 (9235) 1999 12 07.0 04 52.51 +20 27.5 19.7 -1.08 - 0.5 0.7/06.9 32431
 (9164) 1999 12 07.0 04 52.58 +27 58.3 16.7 -0.94 - 2.0 1.9/07.6 32416
 1998 QW₅₇ 1999 12 07.0 04 52.84 +07 29.3 18.8 -0.82 - 1.7 4.4/05.6 35711
 (8335) 1999 12 07.0 04 52.88 +27 44.9 17.8 -1.23 - 2.3 2.1/07.6 32297
 1992 CN₂ 1999 12 07.1 04 52.92 +29 37.0 18.1 -1.10 - 6.2 2.8/08.1 37118
 1998 KA₆ 1999 12 07.1 04 52.95 +15 25.1 18.5 -0.90 - 0.9 2.3/06.5 37152
 (10938) 1999 12 07.1 04 52.99 +51 00.7 16.9 -1.26 + 0.7 8.0/09.6 34807
 (9332) 1999 12 07.1 04 53.04 +42 28.0 17.1 -1.28 - 1.2 7.1/08.9 32613
 1998 SQ₆ 1999 12 07.1 04 53.07 +19 40.0 18.7 -0.92 - 1.6 0.9/06.9 37286
 1998 QL₆₆ 1999 12 07.2 04 53.69 +20 13.6 17.7 -0.99 - 4.9 0.8/07.0 37285
 (12902) 1999 12 07.2 04 53.69 +35 17.5 16.8 -1.04 - 0.1 4.1/08.3 37092
 1981 EA₃₇ 1999 12 07.2 04 53.73 +35 03.3 19.7 -1.21 - 1.5 5.0/08.4 26921
 1995 XV 1999 12 07.2 04 53.80 +19 48.0 16.8 -1.04 + 0.8 1.3/07.1 37131
 (12562) 1999 12 07.3 04 53.77 +38 20.1 16.8 -1.03 0.0 4.5/08.6 36758

(9024)	1999 12 07.3	04 53.81 +20 58.2 18.3	-1.16 - 1.0	0.6/07.2	32179
1996 RN ₂	1999 12 07.3	04 54.02 +39 58.3 16.5	-1.61 -14.0	8.3/10.9	37133
(12196)	1999 12 07.3	04 54.08 +16 39.8 17.7	-1.06 - 1.9	2.3/06.8	36658
1999 VW ₁₀	1999 12 07.3	04 54.13 +13 10.5 16.7	-1.16 + 1.3	4.0/06.8	37205
1999 UN ₃	1999 12 07.3	04 54.15 +16 41.8 17.3	-1.03 - 4.4	2.6/06.7	37190
1998 FC ₁₂	1999 12 07.3	04 54.17 +14 42.3 17.4	-1.26 - 1.3	3.4/06.8	37275
1997 BJ ₂	1999 12 07.3	04 54.21 +14 38.6 18.5	-1.11 + 0.1	3.1/06.8	37272
1999 VN ₁₀	1999 12 07.4	04 54.30 +24 11.7 16.3	-0.98 - 3.4	0.6/07.6	37312
1999 VK ₃₇	1999 12 07.4	04 54.33 +20 59.2 17.6	-0.97 - 3.3	0.6/07.3	37224
(9583)	1999 12 07.4	04 54.44 +14 11.5 18.8	-1.06 - 7.0	2.7/06.3	32885
1997 MG ₁	1999 12 07.4	04 54.61 +07 40.3 16.8	-0.85 - 2.8	5.3/05.9	37274
1981 EX ₈	1999 12 07.5	04 54.64 +26 03.7 18.7	-1.08 - 2.6	1.2/07.9	26916
1993 TU ₁₅	1999 12 07.5	04 54.66 +20 49.5 17.5	-0.90 - 1.7	0.6/07.3	37264
(12412)	1999 12 07.5	04 54.86 +10 12.6 16.2	-1.05 - 0.3	5.5/06.7	36716
1999 VB ₈	1999 12 07.5	04 54.91 +18 05.4 17.6	-1.01 - 1.2	2.3/07.2	37202
(12256)	1999 12 07.5	04 55.01 +09 51.2 17.6	-1.02 - 0.9	4.5/06.5	36674
(9499)	1999 12 07.5	04 55.02 +23 32.2 17.6	-0.94 - 1.7	0.3/07.7	32653
(12951)	1999 12 07.5	04 55.03 +19 33.6 17.7	-0.93 - 1.5	1.0/07.3	37106
1999 VJ ₁₀	1999 12 07.5	04 55.06 +22 31.5 16.9	-0.90 - 1.3	0.0/07.6	37204
1996 AF ₁₈	1999 12 07.5	04 55.13 +21 20.8 17.7	-0.98 - 2.7	0.6/07.5	37131
1997 CE ₈	1999 12 07.6	04 55.15 +11 53.9 16.3	-1.09 - 0.6	4.8/06.9	37272
1998 RO ₄₀	1999 12 07.6	04 55.21 +22 33.3 17.7	-0.90 + 0.1	0.0/07.6	37286
4229 T-1	1999 12 07.6	04 55.28 +14 33.7 19.4	-1.04 - 1.6	2.8/06.9	32504
1998 RK ₃₃	1999 12 07.6	04 55.30 +41 41.4 18.3	-1.26 - 0.4	6.2/09.2	37286
1996 XY ₁₄	1999 12 07.6	04 55.33 +27 15.5 17.5	-1.23 - 3.7	1.8/08.1	37270
1997 EL ₁₁	1999 12 07.6	04 55.35 +31 18.9 16.7	-1.22 + 3.2	3.2/08.0	37273
(8936)	1999 12 07.6	04 55.39 +18 56.3 17.0	-1.19 - 0.2	1.6/07.4	31931
2156 P-L	1999 12 07.6	04 55.49 +05 52.5 18.3	-0.83 - 2.9	5.5/05.9	36119
1995 UU ₁₄	1999 12 07.6	04 55.51 +24 46.3 18.6	-1.15 - 2.1	0.9/07.9	37268
(12644)	1999 12 07.6	04 55.53 +25 00.6 16.2	-1.16 + 0.7	1.2/07.8	36781
1999 VL ₃₇	1999 12 07.6	04 55.55 +19 47.1 17.7	-0.98 - 5.2	1.2/07.3	37224
1996 YW	1999 12 07.6	04 55.58 +23 02.0 16.5	-1.21 + 1.4	0.2/07.7	37133
(9644)	1999 12 07.7	04 55.51 +09 50.9 16.6	-0.89 - 1.3	4.3/06.6	36499
1991 RQ ₉	1999 12 07.7	04 55.56 +24 57.8 17.9	-1.16 - 2.2	0.9/07.9	37261
(12300)	1999 12 07.7	04 55.68 +43 23.1 17.4	-1.39 - 0.4	8.3/09.6	36686
1997 CM ₄	1999 12 07.7	04 55.81 +31 50.1 17.5	-1.25 - 1.1	4.4/08.5	37272
(9470)	1999 12 07.7	04 55.82 +19 37.1 18.5	-0.89 - 1.3	0.9/07.5	32646
1998 QB ₃₂	1999 12 07.8	04 56.12 +38 37.0 17.5	-0.94 - 1.4	5.0/09.5	33755
1997 JT ₁₆	1999 12 07.8	04 56.14 +16 01.7 17.0	-0.93 + 2.1	2.3/07.5	37274
1988 QR	1999 12 07.8	04 56.17 +24 08.2 18.3	-0.94 - 2.4	0.5/08.0	32741
1997 FD	1999 12 07.8	04 56.26 +13 30.3 19.4	-1.08 - 1.6	3.5/07.1	29948
1998 QS ₂₅	1999 12 07.8	04 56.34 +22 04.0 17.4	-0.97 - 0.4	0.2/07.8	37161
4770 P-L	1999 12 07.9	04 56.38 +34 01.4 19.1	-0.99 - 0.2	3.3/08.8	36121
(9089)	1999 12 07.9	04 56.41 +17 47.6 16.7	-1.09 + 0.7	1.8/07.6	32194
1998 OZ ₄	1999 12 07.9	04 56.57 +10 43.4 17.8	-0.84 - 3.7	4.2/06.6	37282
1998 SV ₈	1999 12 07.9	04 56.68 +21 22.7 19.4	-0.85 - 1.2	0.4/07.9	33511
1995 XG ₁	1999 12 07.9	04 56.79 +29 40.7 17.9	-1.11 - 5.3	2.4/08.9	36887
(12362)	1999 12 08.0	04 56.80 +04 59.3 17.4	-0.82 - 3.2	5.7/06.1	36702
1998 QX ₇₂	1999 12 08.0	04 56.88 +01 13.6 18.7	-0.81 - 2.3	6.7/05.9	37285
1998 KS ₄₃	1999 12 08.0	04 57.03 +18 33.9 18.8	-1.13 + 3.6	1.4/07.9	37154
(12662)	1999 12 08.0	04 57.11 +47 15.3 17.1	-1.17 - 4.5	7.7/11.4	37028

(8827)	1999 12 08.0	04 57.14 +13 37.7 17.9	-1.11 - 0.6	3.9/07.4	31905
1992 OB	1999 12 08.1	04 57.37 +34 00.3 18.4	-1.02 + 1.4	3.0/08.8	37262
1999 VP ₅₂	1999 12 08.2	04 57.73 +21 31.0 17.4	-1.16 + 0.6	0.5/08.1	37229
(12831)	1999 12 08.2	04 57.81 +10 49.7 16.6	-1.11 + 1.7	5.7/07.6	37072
1998 QS ₃₃	1999 12 08.2	04 58.16 +21 30.5 17.5	-0.90 - 3.0	0.4/08.2	37284
1993 FE ₃₈	1999 12 08.2	04 58.20 +15 10.3 18.6	-1.00 - 1.5	2.6/07.7	35687
1998 KB ₅	1999 12 08.3	04 58.19 +22 17.4 18.5	-1.21 - 3.9	0.2/08.3	37280
1981 ER ₂₄	1999 12 08.3	04 58.23 +20 22.8 17.9	-1.17 - 2.2	0.9/08.1	37256
(10637)	1999 12 08.4	04 58.57 +38 35.2 17.2	-1.07 + 1.0	4.9/09.4	36499
(12234)	1999 12 08.4	04 58.64 +03 04.2 16.8	-0.99 + 1.5	7.9/07.6	36668
1996 XF ₁₄	1999 12 08.4	04 58.65 +20 33.7 18.5	-1.12 - 2.0	0.8/08.2	37270
1990 CE	1999 12 08.4	04 58.89 +12 48.3 17.3	-1.09 - 1.5	4.5/07.6	37259
1998 MS ₂₄	1999 12 08.4	04 58.92 +02 04.6 19.1	-0.94 + 0.1	6.1/07.2	37282
2579 P-L	1999 12 08.4	04 58.94 +32 20.1 17.4	-1.27 + 0.1	3.5/09.1	37340
1998 KJ ₃₃	1999 12 08.5	04 59.05 +22 07.9 18.3	-1.16 - 4.0	0.2/08.5	37280
1985 RA	1999 12 08.5	04 59.28 +27 15.5 16.1	-1.04 - 5.2	1.9/09.1	37114
1978 VE ₈	1999 12 08.5	04 59.29 +24 00.6 17.7	-0.95 - 0.3	0.4/08.7	37113
3040 P-L	1999 12 08.6	04 59.66 +29 44.3 17.1	-1.13 - 4.7	2.7/09.5	37340
(9044)	1999 12 08.6	04 59.79 +18 42.5 16.6	-1.17 0.0	1.6/08.4	32184
(12748)	1999 12 08.7	04 59.90 +65 38.9 16.5	-2.03 - 4.6	19.8/15.9	37051
1998 KU ₄	1999 12 08.7	04 59.91 +22 56.0 16.8	-1.23 + 2.5	0.1/08.7	37280
(12222)	1999 12 08.7	05 00.10 +22 03.6 15.8	-1.01 - 8.2	0.3/08.6	36665
(9436)	1999 12 08.7	05 00.12 +19 21.5 17.3	-1.07 - 0.6	1.2/08.5	32638
1992 EZ ₇	1999 12 08.7	05 00.16 -00 12.3 17.0	-0.88 - 0.6	10.5/06.9	37262
(9487)	1999 12 08.7	05 00.27 +20 00.2 17.4	-0.96 - 0.5	0.9/08.6	32650
1998 HU ₁₄₉	1999 12 08.8	05 00.38 +27 16.5 18.2	-1.23 - 1.1	1.8/09.2	36898
1995 XT ₁	1999 12 08.8	05 00.51 +25 37.0 16.8	-0.97 - 4.4	1.4/09.2	37268
1998 QC ₂₀	1999 12 08.8	05 00.56 -00 38.5 19.6	-0.82 - 0.8	6.4/07.2	33559
1991 TW ₈	1999 12 08.9	05 00.73 +29 31.8 19.3	-1.18 - 0.6	2.4/09.4	32744
1990 FD ₃	1999 12 08.9	05 00.78 +00 30.0 17.0	-0.80 - 0.5	6.5/07.2	37259
(12776)	1999 12 08.9	05 00.87 +18 44.6 18.0	-1.02 - 2.3	1.4/08.6	37058
1998 QV ₁	1999 12 08.9	05 00.99 +14 16.5 18.7	-0.87 - 0.3	2.7/08.4	35709
1998 OV ₁₂	1999 12 08.9	05 01.01 +15 35.1 17.3	-0.94 - 0.7	2.5/08.4	37282
(12956)	1999 12 08.9	05 01.14 +16 03.3 17.5	-1.08 - 1.7	2.8/08.4	37107
1973 SR ₁	1999 12 09.0	05 01.18 +29 24.9 19.2	-0.64 0.0	1.3/09.5	33538
(12210)	1999 12 09.0	05 01.32 +08 08.9 17.6	-1.07 - 1.7	7.0/07.9	36662
6640 P-L	1999 12 09.0	05 01.33 +29 54.0 17.4	-0.97 - 0.7	2.7/09.6	37250
1996 GN ₇	1999 12 09.0	05 01.51 +19 37.7 17.5	-0.88 - 1.0	1.1/08.8	37132
1998 MW ₁₅	1999 12 09.0	05 01.57 -04 19.2 19.3	-0.92 + 3.8	8.0/08.8	37155
(9245)	1999 12 09.0	05 01.68 +18 15.1 18.2	-1.15 - 0.5	1.7/08.8	32434
(12332)	1999 12 09.1	05 01.67 +12 23.5 16.1	-1.03 - 4.3	5.2/08.0	36694
(12422)	1999 12 09.1	05 01.67 +25 14.8 16.2	-1.20 + 2.9	0.9/09.2	36719
1998 ME ₂₉	1999 12 09.1	05 01.77 +21 12.6 18.0	-1.22 - 1.6	0.6/09.0	37156
1998 OB ₁₅	1999 12 09.1	05 01.81 +25 35.6 18.5	-0.98 - 1.4	1.0/09.4	35709
(9473)	1999 12 09.1	05 01.84 +16 49.6 17.9	-0.96 - 0.6	2.2/08.7	32647
1995 QA ₃	1999 12 09.1	05 01.90 +35 21.4 16.6	-1.30 - 2.2	5.1/10.3	26176
1999 VB ₁₉	1999 12 09.1	05 02.09 +22 49.6 18.4	-1.14 - 5.0	0.0/09.2	37207
1997 BC ₅	1999 12 09.1	05 02.13 +21 17.1 19.3	-1.12 - 2.0	0.6/09.1	37135
1998 QZ ₁₃	1999 12 09.2	05 02.13 +18 21.0 18.0	-0.96 - 1.9	1.5/08.8	37160
1977 QN ₁	1999 12 09.2	05 02.49 +41 58.7 17.3	-1.25 - 1.7	6.2/11.1	37255
(12835)	1999 12 09.4	05 02.95 +11 44.2 17.5	-1.09 + 0.3	4.3/08.8	37073

(12565)	1999 12 09.4	05 03.14 +15 25.1 17.3	-0.85 - 2.5	2.5/08.7	36759	1998 QQ ₁₀₄	1999 12 10.3	05 07.08 +24 04.1 19.2	-0.93 + 0.4	0.4/10.4	33270
1998 RX ₁₂	1999 12 09.4	05 03.21 +21 50.8 17.9	-0.88 - 1.2	0.3/09.4	37285	(12842)	1999 12 10.3	05 07.17 +25 48.6 17.5	-1.01 - 1.5	1.0/10.6	37075
(12651)	1999 12 09.4	05 03.26 +14 33.6 17.5	-0.87 - 4.1	2.9/08.6	36783	1997 BG ₃	1999 12 10.3	05 07.29 +17 05.5 18.1	-1.16 + 2.0	2.5/10.2	37135
(9238)	1999 12 09.4	05 03.30 +20 10.3 17.6	-0.94 - 1.4	0.9/09.3	32432	1992 UR ₄	1999 12 10.3	05 07.34 +24 55.8 16.3	-0.99 - 2.8	1.1/10.6	37120
1998 TR ₁	1999 12 09.4	05 03.32 +10 41.8 18.9	-0.97 + 1.3	3.8/08.9	37176	(8895)	1999 12 10.4	05 07.62 +16 29.4 17.5	-1.14 - 1.1	2.5/10.0	31922
(11376)	1999 12 09.5	05 03.37 +21 09.6 18.2	-1.09 - 1.6	0.6/09.4	35584	1998 QL ₁₈	1999 12 10.4	05 07.79 +29 46.8 17.4	-0.96 - 1.4	2.5/11.0	37283
(12832)	1999 12 09.5	05 03.45 +35 46.9 15.7	-1.30 - 0.3	6.4/10.5	37072	(9213)	1999 12 10.5	05 08.07 +30 02.8 16.4	-1.17 - 4.2	3.1/11.3	32427
1995 WE ₆	1999 12 09.5	05 03.59 +26 30.9 16.6	-1.11 - 0.6	1.8/09.8	37268	1981 DP ₃	1999 12 10.5	05 08.12 +13 54.6 19.0	-0.85 - 2.7	2.5/09.8	30779
1982 SQ ₇	1999 12 09.5	05 03.72 +40 10.0 17.7	-1.07 - 1.0	4.9/11.1	37256	(8972)	1999 12 10.6	05 08.45 +20 16.2 17.5	-1.21 - 2.3	1.2/10.4	31940
1995 VJ ₂	1999 12 09.6	05 03.91 +27 40.0 16.6	-1.27 + 7.0	2.1/09.6	37268	(9497)	1999 12 10.6	05 08.55 +19 23.7 16.7	-0.93 - 1.3	1.3/10.4	36499
(12712)	1999 12 09.6	05 03.91 +24 32.3 17.7	-0.98 - 1.5	0.6/09.8	37041	(9414)	1999 12 10.6	05 08.58 +30 10.8 16.2	-1.22 + 2.4	2.6/10.9	32633
(8931)	1999 12 09.6	05 04.01 +26 24.9 17.3	-1.20 - 1.7	1.4/09.9	31930	1998 OX ₁₄	1999 12 10.6	05 08.72 +40 23.7 17.9	-1.23 - 2.6	5.8/12.3	34301
1998 KR ₄₇	1999 12 09.6	05 04.07 +14 10.5 18.1	-1.01 - 3.8	3.0/08.8	37281	(9091)	1999 12 10.6	05 08.72 +19 06.0 17.5	-1.10 - 1.4	1.5/10.4	32194
1984 CE	1999 12 09.7	05 04.31 +09 19.4 16.5	-1.05 + 8.0	6.5/10.1	37257	1998 SW ₄₃	1999 12 10.7	05 08.79 +20 43.8 17.6	-0.76 - 2.1	0.6/10.5	37287
(9240)	1999 12 09.7	05 04.34 +16 23.6 16.0	-0.92 + 1.5	2.4/09.4	32433	1998 QV ₉	1999 12 10.7	05 08.86 +36 07.0 19.0	-1.18 - 2.1	4.4/12.0	37283
(9498)	1999 12 09.7	05 04.39 +20 58.5 19.2	-1.11 - 1.9	0.6/09.6	32653	1998 QV ₄₇	1999 12 10.7	05 09.03 +12 38.9 19.2	-0.85 - 1.2	3.0/10.0	37284
1997 BO ₉	1999 12 09.7	05 04.41 +15 28.0 17.7	-1.12 - 0.8	3.1/09.2	30786	1998 KZ ₅	1999 12 10.8	05 09.26 +19 49.1 18.7	-0.89 - 1.4	0.9/10.6	37280
1999 XL ₈	1999 12 09.7	05 04.48 +20 04.7 16.8	-1.12 - 3.6	1.3/09.5	37245	1991 TU ₅	1999 12 10.8	05 09.40 +28 50.9 18.4	-1.14 - 1.4	2.6/11.3	29915
1996 ED ₄	1999 12 09.7	05 04.51 +37 22.0 17.9	-1.06 - 0.7	4.5/10.9	37269	1998 QU ₁₇	1999 12 10.8	05 09.49 +27 56.5 19.1	-0.94 - 2.5	1.6/11.3	32694
1999 VH ₅₃	1999 12 09.7	05 04.53 +22 33.6 16.7	-1.13 + 1.6	0.1/09.7	37230	1999 VY ₂₄	1999 12 10.9	05 09.56 +27 48.8 17.4	-1.11 - 1.6	1.9/11.3	37314
(11738)	1999 12 09.7	05 04.55 +20 54.6 17.7	-0.85 - 0.8	0.5/09.6	35895	1998 QW ₇₇	1999 12 10.9	05 09.63 +38 45.1 16.9	-1.16 - 2.4	4.9/12.3	37285
1990 SS ₃	1999 12 09.7	05 04.65 +44 43.3 15.8	-1.24 - 0.2	10.8/12.0	37259	1194 T-3	1999 12 10.9	05 09.68 +31 14.0 17.0	-1.23 - 3.1	3.3/11.7	37342
(9209)	1999 12 09.7	05 04.70 +30 17.0 17.7	-1.07 - 1.0	2.3/10.4	32426	1998 QD ₄₀	1999 12 10.9	05 09.87 +26 34.5 18.1	-1.01 - 1.9	1.2/11.3	37284
1998 RP ₄₇	1999 12 09.8	05 04.74 +34 35.5 17.9	-1.00 - 2.0	3.5/10.9	37286	(9009)	1999 12 10.9	05 10.02 +22 40.4 17.4	-1.18 - 0.3	0.1/11.0	32176
(12377)	1999 12 09.8	05 05.0 +71 22.8 16.2	-2.66 -10.2	18.4/25.9	36706	1998 PH	1999 12 11.0	05 10.11 +31 24.9 16.1	-1.12 - 8.6	3.7/12.0	37282
1999 VT ₂₄	1999 12 09.8	05 05.13 +18 46.6 16.5	-1.06 + 0.1	1.9/09.7	37214	1998 QT ₄₆	1999 12 11.0	05 10.27 +17 38.1 17.8	-0.87 - 1.8	1.7/10.6	33755
1996 RR ₂	1999 12 09.8	05 05.23 +56 16.8 17.0	-2.13 - 9.4	15.5/15.6	30785	1991 PF ₁₂	1999 12 11.0	05 10.39 +27 20.7 17.8	-1.19 - 4.0	1.7/12.0	36878
1993 FE ₁₂	1999 12 09.9	05 05.20 +20 00.8 16.6	-1.06 + 1.0	1.3/09.8	37263	(12792)	1999 12 11.0	05 10.50 +26 37.5 17.7	-1.17 - 1.6	1.5/11.4	37062
1998 JT	1999 12 09.9	05 05.20 +21 41.3 16.8	-1.21 - 4.8	0.5/09.8	37280	(12336)	1999 12 11.1	05 10.47 -05 34.9 15.2	-0.89 -18.9	14.9/02.8	36695
1999 VS ₂₄	1999 12 09.9	05 05.26 +26 06.8 17.2	-1.12 + 0.2	1.5/10.1	37213	1998 MW ₇	1999 12 11.1	05 10.63 +10 04.4 19.8	-0.97 - 0.4	4.0/10.4	35709
1998 QL ₄₈	1999 12 09.9	05 05.30 +21 14.7 18.1	-0.88 - 1.9	0.5/09.8	37164	1998 KR ₄₄	1999 12 11.1	05 10.79 +18 40.0 18.0	-1.11 - 0.5	1.6/10.9	37281
6634 P-L	1999 12 10.0	05 05.60 +22 32.1 17.0	-0.93 + 0.1	0.1/10.0	37341	2061 T-3	1999 12 11.1	05 10.88 +19 50.8 19.5	-1.12 - 2.4	1.1/11.0	36870
1995 CG	1999 12 10.0	05 05.61 -17 13.1 17.4	-1.24 + 6.5	18.0/11.1	36884	1999 VX ₂₄	1999 12 11.2	05 10.91 +17 10.4 16.5	-1.02 - 3.3	3.0/10.7	37214
4172 T-1	1999 12 10.0	05 05.73 +20 42.6 19.1	-1.09 - 1.1	0.8/09.9	37342	1997 FP ₄	1999 12 11.2	05 11.18 +25 27.2 18.9	-1.07 - 1.6	0.9/11.4	37273
(12302)	1999 12 10.0	05 05.79 +26 08.4 17.5	-1.18 - 2.0	1.4/10.3	36686	1998 QL ₃₃	1999 12 11.2	05 11.30 +37 46.6 17.8	-1.22 - 3.1	5.2/12.6	36902
1998 QQ ₃₈	1999 12 10.0	05 05.82 +22 21.8 18.4	-1.08 - 2.2	0.2/10.0	37284	1997 CK ₄	1999 12 11.3	05 11.30 +26 06.0 17.0	-1.21 + 1.8	1.3/11.4	37136
1999 VQ ₁₀	1999 12 10.0	05 05.85 +23 04.2 16.5	-0.60 - 1.8	0.0/10.1	37312	1998 KX ₄₅	1999 12 11.3	05 11.79 +19 48.7 19.0	-1.16 - 0.5	1.2/11.2	37155
1998 RG ₇₈	1999 12 10.0	05 05.89 +09 56.3 19.2	-0.83 - 0.8	3.5/09.1	33011	1999 VW ₂₄	1999 12 11.4	05 11.91 +22 49.0 15.5	-0.93 - 6.5	0.1/11.4	37214
1998 QQ ₈₄	1999 12 10.0	05 06.00 +15 41.6 17.1	-0.88 - 5.8	2.6/09.2	37285	1994 WF ₁	1999 12 11.4	05 11.97 +23 13.2 17.4	-0.96 - 1.4	0.1/11.5	37266
2102 P-L	1999 12 10.1	05 06.23 +29 05.9 18.8	-1.23 - 1.9	2.4/10.6	32342	(12187)	1999 12 11.4	05 12.13 +01 12.9 16.4	-0.91 - 3.3	9.7/09.7	36656
1995 VZ ₆	1999 12 10.1	05 06.26 +20 39.1 18.2	-1.01 - 2.3	1.1/10.0	37129	(12789)	1999 12 11.4	05 12.16 +50 04.3 17.0	-1.64 - 6.6	10.1/14.8	37061
(12670)	1999 12 10.1	05 06.27 +30 14.7 17.0	-1.28 - 4.9	3.5/11.0	37030	1994 NA	1999 12 11.4	05 12.19 +16 30.2 18.2	-1.07 + 0.8	2.3/11.2	37265
1995 WL ₁₃	1999 12 10.1	05 06.28 +16 40.9 16.4	-1.05 - 0.1	2.6/09.8	37268	1995 SM ₂₁	1999 12 11.4	05 12.21 +35 42.5 18.1	-1.31 - 1.6	5.6/12.4	37267
1990 WS ₁	1999 12 10.1	05 06.33 +07 30.3 17.0	-0.94 - 4.3	5.6/08.4	37260	1998 SY ₁₅	1999 12 11.5	05 12.52 +23 55.9 16.8	-0.91 - 1.2	0.3/11.6	37171
(9429)	1999 12 10.1	05 06.52 +25 05.7 17.3	-0.94 - 1.3	0.7/10.4	32636	1996 RE ₁₁	1999 12 11.5	05 12.52 +27 16.3 20.1	-0.61 - 0.5	0.8/11.9	33255
1997 KU ₂	1999 12 10.2	05 06.49 +04 33.6 17.2	-0.99 + 1.9	7.0/09.4	37274	1999 VA ₂₅	1999 12 11.5	05 12.53 +25 29.8 16.1	-1.19 + 3.2	1.3/12.0	37214
1981 ET ₂₇	1999 12 10.2	05 06.54 +19 34.8 18.3	-0.91 - 1.2	1.1/10.0	37256	1998 MA ₁₆	1999 12 11.5	05 12.59 +20 17.4 19.1	-1.13 - 3.1	1.1/11.4	37155
(12315)	1999 12 10.2	05 06.57 +23 31.8 15.9	-1.03 + 1.2	0.2/10.3	36690	1998 QA ₈₄	1999 12 11.6	05 12.66 +08 47.8 19.2	-0.84 - 3.6	4.1/10.3	37285
1996 DY ₂	1999 12 10.2	05 06.67 +23 29.6 16.7	-0.98 - 0.1	0.2/10.3	37269	4093 T-3	1999 12 11.6	05 12.70 +28 52.3 18.8	-1.23 + 1.5	2.4/11.8	37343
1988 BG ₅	1999 12 10.2	05 06.96 +17 25.5 18.4	-0.97 - 4.4	1.8/09.7	37257	1998 QL ₄₄	1999 12 11.6	05 12.75 +19 31.1 17.9	-0.93 - 0.4	1.1/11.4	37164
1992 AV ₁	1999 12 10.3	05 06.94 -08 00.4 16.0	-1.42 +16.2	16.1/13.9	37261	1995 QK	1999 12 11.6	05 12.88 +20 08.2 17.4	-1.14 - 3.0	1.3/11.4	37267

1995 DA ₃	1999 12 11.6	05 13.03 +02 09.3	18.0	-1.25	-12.3	9.7/08.2	37266
(12695)	1999 12 11.7	05 13.08 +22 46.8	18.7	-1.02	- 2.0	0.1/11.7	37036
1998 QR ₇₁	1999 12 11.7	05 13.13 +24 46.3	17.6	-0.92	- 4.0	0.6/12.0	36817
1998 UL	1999 12 11.7	05 13.13 +28 41.9	17.9	-0.97	- 3.2	1.8/12.2	37288
(12880)	1999 12 11.7	05 13.14 +26 16.4	17.8	-1.05	- 0.4	1.2/11.9	37086
1997 AF ₁₃	1999 12 11.7	05 13.42 +18 35.2	17.5	-1.16	+ 2.0	1.6/11.6	37271
(11053)	1999 12 11.7	05 13.45 +20 14.4	16.2	-0.95	- 1.2	1.0/11.6	35225
(12372)	1999 12 11.7	05 13.45 +15 41.7	17.3	-1.12	- 1.3	3.1/11.3	36705
(9536)	1999 12 11.7	05 13.53 +41 55.9	16.8	-1.26	+ 0.7	6.4/12.6	32872
1980 FH ₄	1999 12 11.8	05 13.74 +21 27.0	19.4	-1.14	- 1.3	0.6/11.8	32738
1998 HF ₉₆	1999 12 11.8	05 13.82 +13 35.6	16.8	-1.17	+ 0.2	4.1/12.0	37279
1999 VC ₂₅	1999 12 11.9	05 13.92 +18 14.3	16.5	-1.05	+ 3.1	2.3/12.0	37214
1998 QT ₅	1999 12 11.9	05 14.12 +38 27.6	17.4	-1.10	- 1.6	5.6/13.1	37283
(12547)	1999 12 11.9	05 14.18 +27 11.4	17.3	-0.93	- 3.2	1.4/12.3	36754
1998 QC ₇₀	1999 12 11.9	05 14.33 +17 55.6	17.4	-0.91	- 4.3	1.8/11.5	37285
(12942)	1999 12 12.0	05 14.64 +18 01.4	17.4	-0.90	- 1.8	1.9/11.7	37103
1989 YE ₆	1999 12 12.0	05 14.73 +22 14.0	16.1	-1.14	- 6.2	0.4/12.0	37258
1998 OZ ₁₃	1999 12 12.1	05 14.83 +05 31.9	18.9	-0.95	+ 0.8	5.7/11.4	32758
1998 QM ₄₁	1999 12 12.1	05 15.16 +19 44.5	18.1	-0.93	- 0.8	1.1/12.0	37163
(12872)	1999 12 12.1	05 15.18 +19 15.5	17.4	-1.14	- 2.1	1.4/11.9	37084
1988 XV ₁	1999 12 12.1	05 15.21 +26 46.0	15.6	-1.11	+ 6.1	1.4/12.1	37258
(9248)	1999 12 12.1	05 15.22 +19 32.1	17.4	-0.96	- 1.0	1.3/12.0	32434
1996 CK ₁	1999 12 12.2	05 15.25 +30 25.5	16.5	-1.07	+ 0.7	3.2/12.5	37269
1998 MU ₂₄	1999 12 12.2	05 15.29 -02 08.3	19.7	-0.95	- 0.6	7.7/11.0	32286
(12758)	1999 12 12.2	05 15.30 +20 34.8	17.2	-0.91	- 0.6	0.9/12.1	37053
1993 UZ ₇	1999 12 12.2	05 15.34 +12 42.6	16.9	-0.86	+ 0.3	3.7/11.7	37265
1998 UQ ₁₆	1999 12 12.2	05 15.49 +27 23.3	17.2	-0.61	+ 0.3	0.8/12.5	37177
1998 QC ₄₁	1999 12 12.2	05 15.51 +36 18.2	18.5	-1.13	- 2.0	4.3/13.3	34020
1993 TD ₂₈	1999 12 12.2	05 15.65 +17 21.9	18.4	-0.88	- 1.0	1.8/11.9	37264
1998 SK ₁₅₇	1999 12 12.3	05 15.69 +20 15.6	18.6	-0.86	- 0.6	0.8/12.1	37288
1995 DX ₂	1999 12 12.3	05 15.92 +09 48.0	18.4	-1.32	-14.9	6.5/10.0	37266
(12656)	1999 12 12.4	05 16.21 +06 22.4	17.3	-0.97	- 0.2	6.1/11.4	36784
(12682)	1999 12 12.4	05 16.29 +23 46.4	17.4	-1.14	+ 1.1	0.3/12.5	37033
1998 RP ₇₂	1999 12 12.4	05 16.33 +11 01.3	19.5	-0.71	- 0.9	3.1/11.7	35441
1981 SE ₇	1999 12 12.4	05 16.40 +25 18.7	16.3	-1.07	+ 1.2	0.8/12.5	37256
1999 SS ₃	1999 12 12.4	05 16.42 +55 11.8	16.4	-1.39	- 0.1	10.5/14.6	36834
1988 TV ₁	1999 12 12.4	05 16.62 +20 38.7	16.4	-1.04	- 2.9	1.3/12.3	37115
(12535)	1999 12 12.4	05 16.65 +08 17.9	16.7	-0.98	+ 1.3	6.0/12.1	36751
1979 MU ₄	1999 12 12.5	05 16.68 +19 45.7	18.6	-1.08	- 0.9	1.2/12.3	37255
(12937)	1999 12 12.5	05 16.87 +32 05.0	16.9	-1.16	- 4.4	3.3/13.4	37102
1998 RC ₁₈	1999 12 12.5	05 16.96 +39 58.3	19.2	-1.10	- 0.7	4.8/13.8	35632
(12911)	1999 12 12.5	05 16.98 +22 05.3	17.8	-0.87	- 0.4	0.3/12.5	37095
1995 SH ₁	1999 12 12.6	05 17.10 +29 54.0	19.1	-1.25	- 3.5	2.9/13.2	37267
1998 TC ₃₁	1999 12 12.6	05 17.21 +05 32.9	18.2	-0.59	- 3.4	3.7/10.9	33571
1993 TW ₁₆	1999 12 12.6	05 17.35 +19 19.1	19.5	-0.89	- 0.6	1.1/12.5	35689
2095 P-L	1999 12 12.6	05 17.43 +27 13.8	18.0	-1.06	- 1.5	1.8/12.9	36941
(12433)	1999 12 12.7	05 17.53 +14 40.6	16.8	-0.90	- 4.3	4.1/11.9	36721
(9267)	1999 12 12.7	05 17.61 +19 36.2	18.1	-0.94	- 0.4	1.2/12.6	32597
1994 PU ₂₆	1999 12 12.7	05 17.70 +20 11.0	18.9	-1.04	- 0.3	1.0/12.6	37265
1998 QJ ₂₈	1999 12 12.7	05 17.77 +27 34.5	17.8	-1.16	- 9.3	1.4/13.4	35710
1998 HE ₅₁	1999 12 12.7	05 17.96 +18 09.3	17.7	-1.20	- 2.3	2.1/12.5	37278

1998 MF ₃	1999 12 12.8	05 17.97 +28 38.7	17.6	-1.29	- 0.8	2.5/13.1	36900
1997 KW ₁	1999 12 12.8	05 18.09 +03 18.1	19.5	-0.85	- 0.5	6.3/11.8	32681
1999 WW ₃	1999 12 12.8	05 18.24 +16 36.7	16.1	-1.06	+ 3.9	3.1/12.8	37239
(12207)	1999 12 12.9	05 18.81 +27 13.8	17.4	-1.26	- 2.8	1.7/13.3	36661
(9128)	1999 12 13.0	05 19.03 +19 54.5	17.2	-1.21	+ 0.1	1.3/12.9	32203
(9611)	1999 12 13.0	05 19.22 +27 39.0	17.6	-0.91	0.0	1.3/13.3	32891
(9364)	1999 12 13.1	05 19.29 +26 50.9	17.3	-1.01	- 0.7	1.2/13.3	32621
1998 HC ₉₈	1999 12 13.1	05 19.44 +31 22.4	18.6	-1.34	- 1.0	3.2/13.6	37279
1990 EJ	1999 12 13.1	05 19.58 +35 42.8	17.2	-1.02	- 0.9	3.8/13.9	37259
1998 RK ₁₇	1999 12 13.2	05 19.88 +11 38.5	18.2	-0.96	- 1.2	4.4/12.6	35714
1998 QO ₃₅	1999 12 13.2	05 20.10 +21 18.1	17.5	-0.96	0.0	0.6/13.2	37162
(12524)	1999 12 13.3	05 20.16 +22 39.6	17.5	-1.19	- 0.8	0.2/13.3	36748
1998 QJ ₁₆	1999 12 13.3	05 20.22 +28 07.3	15.5	-1.02	- 4.6	2.1/13.8	36902
1998 MU ₃₇	1999 12 13.3	05 20.34 +20 50.1	18.0	-1.15	+ 1.1	0.9/13.3	37157
1998 QR ₃₈	1999 12 13.3	05 20.44 +34 30.2	17.9	-1.01	- 2.4	3.7/14.2	34301
1998 QL ₃₆	1999 12 13.3	05 20.47 +21 32.7	17.5	-0.97	- 1.9	0.5/13.3	37284
1990 ST ₁₄	1999 12 13.3	05 20.53 +29 29.1	16.5	-1.12	+ 2.5	2.9/13.5	36877
1995 SB ₁	1999 12 13.4	05 20.64 -01 35.9	16.3	-1.07	-16.5	12.2/08.4	37267
(9504)	1999 12 13.4	05 20.90 +25 26.9	17.5	-0.97	- 0.3	0.8/13.6	36499
(12840)	1999 12 13.5	05 21.01 +18 37.9	17.3	-1.14	+ 0.9	1.8/13.4	37074
1998 SO ₄₃	1999 12 13.5	05 21.02 +22 33.2	18.6	-0.88	- 1.0	0.2/13.5	37172
(12730)	1999 12 13.5	05 21.17 +26 04.3	17.8	-1.16	- 1.0	1.1/13.7	37046
1998 FA ₁₁	1999 12 13.5	05 21.39 +13 58.8	17.8	-1.15	+ 0.8	4.2/13.3	37145
1981 ED ₆	1999 12 13.5	05 21.44 +12 01.3	20.6	-0.97	- 2.7	3.4/12.8	32509
(9178)	1999 12 13.5	05 21.44 +25 52.7	16.9	-0.99	- 0.4	1.0/13.7	32419
1990 SE ₉	1999 12 13.6	05 21.45 +26 00.4	19.7	-1.10	+ 1.0	1.1/13.7	32445
1992 DZ ₅	1999 12 13.6	05 21.62 +17 11.5	17.4	-0.98	0.0	2.7/13.4	37262
1999 WE ₄	1999 12 13.6	05 21.78 +14 30.2	16.9	-1.11	- 2.3	3.8/13.1	37239
(9389)	1999 12 13.6	05 21.83 +18 34.7	17.8	-1.16	+ 0.6	1.8/13.5	32627
(9275)	1999 12 13.7	05 21.94 +36 45.4	18.0	-1.05	- 0.9	4.4/14.5	32599
1991 AG ₂	1999 12 13.8	05 22.61 -03 50.1	16.4	-0.88	+ 4.2	12.8/14.7	36877
1991 PE ₈	1999 12 13.8	05 22.63 +20 34.9	17.4	-1.15	- 0.1	1.1/13.8	37117
1998 QS ₄₁	1999 12 13.8	05 22.77 +23 00.6	17.3	-1.01	- 0.4	0.1/13.9	37284
1998 RQ ₇₇	1999 12 13.8	05 22.77 +29 32.4	17.9	-0.82	+ 0.3	1.7/14.2	36904
(12713)	1999 12 13.9	05 22.73 +45 19.3	17.2	-1.16	+ 0.4	6.1/15.1	37041
(11381)	1999 12 13.9	05 22.86 +19 23.7	17.9	-0.84	- 1.5	1.1/13.7	35585
(12225)	1999 12 13.9	05 23.03 +15 54.3	17.7	-1.14	- 0.5	2.7/13.6	36666
1998 QE ₄	1999 12 13.9	05 23.03 +14 38.7	17.9	-0.91	+ 1.8	2.7/13.8	37283
1999 WL ₄	1999 12 13.9	05 23.06 +21 17.2	16.2	-1.08	+ 1.6	0.9/13.9	37240
1995 VP ₁₇	1999 12 13.9	05 23.09 +25 28.0	19.2	-1.12	- 0.1	1.0/14.1	29627
1997 BP ₃	1999 12 13.9	05 23.27 +12 25.7	16.7	-1.09	+ 1.2	4.8/13.7	37272
(12968)	1999 12 14.0	05 23.23 +23 29.1	18.3	-0.91	- 0.5	0.1/14.0	37110
(11736)	1999 12 14.0	05 23.38 +23 57.0	16.6	-1.15	+ 0.6	0.3/14.1	35894
1973 SY ₁	1999 12 14.0	05 23.57 +30 17.6	18.6	-0.64	- 0.5	1.4/14.5	34572
1994 PE ₉	1999 12 14.0	05 23.58 +11 48.2	19.7	-1.03	- 0.1	3.7/13.6	32235
(8930)	1999 12 14.0	05 23.64 +25 53.9	16.1	-1.24	- 4.0	1.3/14.3	31930
1995 UP ₄₄	1999 12 14.0	05 23.72 +19 33.3	17.4	-1.12	- 3.1	1.4/13.8	37129
1999 WP ₄	1999 12 14.1	05 23.88 +20 09.9	16.4	-1.17	+ 2.6	1.3/14.1	37240
1981 ER ₄₇	1999 12 14.1	05 24.15 +26 20.5	16.6	-1.12	- 0.1	1.4/14.3	37256
1998 MV ₄₂	1999 12 14.2	05 24.39 +25 10.5	15.8	-1.14	- 3.9	1.0/14.4	37282
(9334)	1999 12 14.3	05 24.56 +06 26.7	18.0	-0.93	- 1.6	5.4/13.4	32614

1992 EX	1999 12 14.4	05 24.99 +09 38.2	17.4 -0.97 + 1.3	5.1/14.0	37262
1996 EH ₁	1999 12 14.4	05 25.06 +05 07.7	18.2 -0.78 - 1.9	4.8/13.2	33343
(12700)	1999 12 14.4	05 25.07 +46 11.7	17.5 -1.76 + 8.8	9.3/12.9	37038
1990 SY	1999 12 14.4	05 25.19 +35 06.3	17.4 -1.17 - 2.0	4.0/15.2	37259
(9713)	1999 12 14.4	05 25.23 +18 12.2	17.7 -0.58 - 0.4	1.0/14.2	33190
1998 QY ₃₀	1999 12 14.4	05 25.27 +25 07.4	17.6 -0.99 - 1.1	0.7/14.6	37284
(8999)	1999 12 14.4	05 25.28 +19 42.6	16.8 -1.19 - 0.8	1.6/14.3	32174
(8985)	1999 12 14.5	05 25.50 +25 12.8	17.6 -1.22 - 2.5	0.8/14.6	32170
1998 QV ₇	1999 12 14.5	05 25.89 +18 55.7	18.1 -1.06 - 0.4	1.5/14.4	37283
1989 HA	1999 12 14.6	05 25.84 +03 29.4	17.6 -0.95 + 1.3	6.4/14.1	36876
1990 VD ₈	1999 12 14.6	05 25.87 +26 05.9	16.5 -1.09 - 2.8	1.3/14.8	37260
(8328)	1999 12 14.6	05 26.06 +15 03.0	17.7 -1.12 + 0.7	3.4/14.4	31349
(12679)	1999 12 14.6	05 26.19 +23 20.3	18.0 -0.96 - 1.0	0.0/14.7	37032
(9426)	1999 12 14.7	05 26.30 +24 27.3	17.2 -0.98 + 0.1	0.4/14.8	32636
(11252)	1999 12 14.7	05 26.38 +23 42.4	17.3 -0.60 + 0.2	0.1/14.7	35555
(9653)	1999 12 14.7	05 26.50 +14 23.7	17.1 -1.01 + 2.8	2.9/14.7	32901
(9055)	1999 12 14.7	05 26.57 +12 58.2	18.6 -0.93 - 1.3	3.2/14.3	32186
1998 PE	1999 12 14.7	05 26.63 +00 30.5	19.4 -0.91 - 0.6	7.2/13.9	33346
1997 AN ₄	1999 12 14.7	05 26.65 +23 51.6	18.3 -1.18 - 1.3	0.2/14.8	37271
1999 VM ₂₅	1999 12 14.7	05 26.79 +23 02.4	15.0 -0.98 - 7.7	0.1/14.8	37314
1998 QZ ₆₉	1999 12 14.8	05 26.91 +13 05.6	18.3 -0.89 - 2.4	3.4/14.2	37285
1998 QV ₁₉	1999 12 14.8	05 26.98 +15 44.5	17.8 -0.99 - 0.5	2.6/14.5	37283
1993 TJ ₃₁	1999 12 14.8	05 27.05 +18 59.0	17.8 -0.90 + 0.6	1.4/14.7	37264
1997 GR ₂₃	1999 12 14.8	05 27.15 +30 19.3	19.4 -0.97 + 0.1	2.0/15.2	32752
1998 PO	1999 12 14.9	05 27.19 +22 32.4	16.3 -1.00 - 2.6	0.3/14.9	37158
1995 YK ₂₀	1999 12 14.9	05 27.40 +26 12.2	18.5 -1.03 - 2.4	1.0/15.1	35428
1998 SQ ₅₈	1999 12 14.9	05 27.44 +02 35.6	19.5 -0.79 - 0.8	5.9/14.0	33280
(11375)	1999 12 14.9	05 27.45 +14 28.5	17.2 -0.88 - 2.7	2.8/14.4	36499
1997 HP ₈	1999 12 14.9	05 27.60 +17 14.1	17.9 -0.99 - 1.2	2.4/14.7	37274
(9448)	1999 12 15.0	05 27.59 +17 55.5	17.5 -0.98 - 0.1	2.0/14.8	32641
1997 GH ₁	1999 12 15.0	05 27.69 +18 16.2	17.8 -1.05 - 0.9	2.0/14.8	37273
1998 RD ₅₃	1999 12 15.0	05 27.69 +37 59.2	17.4 -1.08 - 0.4	5.0/15.7	35714
(8874)	1999 12 15.0	05 27.76 +30 36.1	16.8 -1.31 + 0.3	3.2/15.3	31917
1998 QF ₄₀	1999 12 15.0	05 27.98 +20 44.9	17.5 -0.99 - 1.6	0.9/14.9	37163
1991 TS	1999 12 15.1	05 28.17 +15 28.5	17.4 -1.08 + 1.1	3.0/15.0	37261
1994 PG ₃₁	1999 12 15.1	05 28.39 +22 59.8	20.2 -1.05 - 1.8	0.1/15.2	35691
(12954)	1999 12 15.2	05 28.48 +12 38.4	18.1 -0.89 - 1.3	3.6/14.7	37107
1998 OY ₁₃	1999 12 15.2	05 28.61 +32 24.8	18.4 -1.26 - 2.2	3.5/15.7	37282
(12775)	1999 12 15.2	05 28.63 +17 28.2	16.8 -0.95 + 0.9	2.8/15.1	37058
1979 MA ₇	1999 12 15.2	05 28.96 +21 13.4	18.8 -0.97 - 1.7	0.7/15.2	30779
1998 RK	1999 12 15.3	05 28.99 -06 49.5	19.2 -0.78 + 0.6	8.4/14.5	32989
1998 TU ₁₂	1999 12 15.3	05 29.05 +36 28.8	17.8 -0.73 + 1.2	2.8/15.7	37288
(12917)	1999 12 15.3	05 29.06 +10 38.4	18.2 -0.56 - 1.2	2.6/14.6	37096
2290 T-1	1999 12 15.3	05 29.16 +18 59.7	17.6 -1.02 + 0.3	1.7/15.2	37250
1993 QS ₉	1999 12 15.3	05 29.23 +06 55.0	18.5 -0.87 + 0.6	5.3/15.0	37264
(9266)	1999 12 15.3	05 29.24 +19 59.5	17.2 -0.94 - 0.6	1.2/15.2	32597
(12962)	1999 12 15.3	05 29.32 +23 50.2	17.3 -0.86 + 0.2	0.2/15.4	37109
1997 AG ₈	1999 12 15.3	05 29.39 +24 59.7	17.5 -1.19 - 2.2	0.7/15.5	37271
1997 GB	1999 12 15.4	05 29.76 +32 29.9	18.0 -1.25 + 1.3	4.0/15.6	37273
1981 ET ₃₂	1999 12 15.5	05 29.81 +26 50.1	19.2 -0.98 - 3.3	1.2/15.8	32739
(9413)	1999 12 15.5	05 29.98 +24 13.8	17.9 -1.20 + 0.9	0.4/15.6	32633

1995 EN ₅	1999 12 15.5	05 30.05 -03 47.1	19.3 -0.81 - 0.1	8.7/14.2	34857
(9818)	1999 12 15.5	05 30.09 +31 35.0	18.0 -0.63 - 0.1	1.6/15.9	33215
1998 QV ₈₉	1999 12 15.5	05 30.19 +31 29.7	17.2 -0.98 - 2.6	2.5/16.1	35712
(9440)	1999 12 15.6	05 30.40 +23 46.2	17.6 -1.15 - 0.8	0.2/15.6	32639
1998 OJ ₁₂	1999 12 15.6	05 30.43 +28 32.3	19.3 -1.10 - 0.3	1.8/15.8	32491
1998 SH ₂₃	1999 12 15.6	05 30.72 +16 25.1	18.0 -0.85 + 0.1	1.9/15.5	37287
(9103)	1999 12 15.6	05 30.73 +23 04.1	17.1 -1.23 - 2.6	0.1/15.7	32197
1993 TX ₃₈	1999 12 15.7	05 30.79 +19 18.4	17.9 -0.90 + 1.1	1.2/15.6	37264
1995 FS	1999 12 15.7	05 30.87 +49 02.2	17.5 -1.25 + 0.1	8.5/16.5	37266
(9326)	1999 12 15.7	05 30.99 +17 32.3	17.8 -0.96 + 0.5	1.9/15.6	36499
1999 XM	1999 12 15.7	05 31.16 +25 50.4	15.3 -1.08 + 7.9	1.4/15.7	37244
1999 WL	1999 12 15.8	05 31.15 +20 03.0	16.1 -1.16 + 3.2	1.5/15.8	37237
1998 QE ₈₃	1999 12 15.8	05 31.21 +06 11.0	18.8 -0.85 - 2.2	5.2/14.9	37285
(9557)	1999 12 15.8	05 31.25 +28 05.2	17.5 -0.89 - 0.7	1.3/16.0	32878
1999 WB ₅	1999 12 15.8	05 31.30 +18 04.0	16.8 -1.08 - 0.4	2.3/15.6	37240
1999 WH	1999 12 15.8	05 31.59 +31 21.9	16.6 -1.01 + 1.7	2.5/16.0	37237
(9049)	1999 12 15.9	05 31.80 +19 48.6	17.8 -1.13 + 0.9	1.3/15.9	32185
1998 OJ	1999 12 15.9	05 31.83 +20 42.2	18.0 -1.18 - 2.3	1.0/15.8	37282
1998 QM ₇₆	1999 12 15.9	05 31.84 +18 13.9	16.3 -1.02 - 4.5	1.9/15.5	37285
1997 NG ₆	1999 12 15.9	05 31.96 +15 50.5	18.1 -0.92 + 2.6	2.4/16.0	37142
1994 YF ₁	1999 12 15.9	05 32.05 +29 30.9	17.6 -0.99 - 3.1	2.1/16.4	36515
(9252)	1999 12 15.9	05 32.05 +23 29.8	17.6 -0.93 - 1.6	0.1/16.0	32435
1998 HH ₅₂	1999 12 15.9	05 32.12 +33 54.0	16.3 -1.42 + 1.8	5.3/17.0	37278
(12319)	1999 12 16.0	05 32.07 +14 59.5	17.2 -1.18 - 1.4	3.9/15.7	36691
(12822)	1999 12 16.0	05 32.25 +22 17.0	17.2 -1.26 + 0.7	0.4/16.0	37069
(12828)	1999 12 16.0	05 32.29 +17 43.9	17.7 -1.14 - 0.2	2.2/15.9	37071
1982 RR	1999 12 16.1	05 32.56 -01 31.3	17.0 -1.00 + 1.1	10.5/17.0	37256
1990 UA ₁	1999 12 16.1	05 32.59 +13 49.9	15.2 -0.98 - 6.3	3.9/15.2	37260
(12227)	1999 12 16.1	05 32.87 +25 30.3	16.7 -1.23 - 4.2	1.0/16.3	36667
1973 SS ₁	1999 12 16.1	05 32.89 +32 48.5	18.3 -0.65 + 0.2	1.8/16.5	37255
(9431)	1999 12 16.1	05 32.94 -00 09.8	17.4 -0.55 - 1.4	4.6/14.9	32637
1997 CV ₁₉	1999 12 16.1	05 32.99 +15 53.3	17.4 -1.08 + 1.1	2.8/16.1	37272
1973 SQ	1999 12 16.2	05 32.96 +28 44.5	18.5 -0.66 + 0.3	1.2/16.4	35676
1997 GD ₁₇	1999 12 16.2	05 33.36 +24 02.2	16.6 -1.06 - 2.0	0.4/16.3	37273
1995 SA ₁	1999 12 16.3	05 33.36 +24 36.6	15.4 -1.32 -16.9	0.6/16.5	37127
(8994)	1999 12 16.3	05 33.67 +34 15.6	16.2 -1.15 - 2.9	4.1/17.1	32173
1992 EX ₇	1999 12 16.4	05 33.92 +32 29.8	19.1 -1.17 - 1.2	4.0/16.8	25639
1995 SU ₃	1999 12 16.4	05 34.06 +32 56.5	17.0 -1.29 - 1.8	3.6/17.0	37267
1994 PY ₂₅	1999 12 16.5	05 34.35 +22 06.7	18.1 -1.05 - 0.2	0.4/16.5	37265
1997 FT ₁	1999 12 16.5	05 34.42 +12 04.4	17.1 -1.02 + 5.3	4.8/17.0	37273
(11309)	1999 12 16.5	05 34.46 +12 48.3	17.1 -0.90 + 0.3	3.8/16.3	35568
1998 QT ₈	1999 12 16.5	05 34.53 +25 53.0	16.8 -1.06 + 1.0	0.9/16.6	37283
(12436)	1999 12 16.5	05 34.66 +37 17.8	16.5 -1.16 - 1.6	5.3/17.3	36722
(12953)	1999 12 16.5	05 34.75 +27 01.1	16.8 -1.08 - 0.7	1.5/16.7	37106
1995 XE	1999 12 16.6	05 34.75 +28 51.4	16.6 -1.14 - 5.8	2.1/17.0	36518
1998 OT ₆	1999 12 16.6	05 34.77 +26 13.9	18.8 -1.14 - 0.7	1.0/16.7	37282
1973 SX	1999 12 16.6	05 34.94 +33 16.6	18.1 -0.67 - 0.4	2.0/17.0	37254
1991 UY ₃	1999 12 16.6	05 35.00 +17 56.5	17.0 -1.04 - 1.9	2.6/17.0	36879
1991 NA	1999 12 16.7	05 35.30 +27 47.4	18.4 -1.27 - 4.9	1.7/17.1	30781
(12723)	1999 12 16.7	05 35.32 +35 07.6	16.5 -1.25 - 2.1	5.1/17.3	37044
(11849)	1999 12 16.7	05 35.50 +15 54.8	16.7 -1.03 - 3.5	3.0/16.3	36232

1997 FB ₅	1999 12 16.7	05 35.65 +26 55.3	18.1	-1.10	-	0.4	1.4/17.0	30690
1998 QX ₃₂	1999 12 16.8	05 35.68 +20 08.0	17.3	-0.95	-	0.8	1.1/16.7	37162
3314 T-1	1999 12 16.8	05 35.71 +05 46.9	18.8	-0.93	-	1.7	5.6/16.0	36122
1998 QT ₁₂	1999 12 16.8	05 35.81 +27 31.6	17.8	-1.17	-	2.7	1.6/17.1	37283
1999 WM	1999 12 16.8	05 35.88 +16 30.6	15.5	-1.02	+	2.3	3.5/17.0	37237
1979 MV ₈	1999 12 16.8	05 35.97 +15 16.6	20.3	-1.05	+	0.2	2.8/16.7	32509
(12298)	1999 12 16.8	05 35.98 +33 40.9	16.7	-1.25	-	5.3	4.8/17.8	36686
1998 RT ₅₈	1999 12 16.9	05 36.04 +25 15.9	17.0	-0.96	-	0.6	0.6/17.0	37169
(9633)	1999 12 16.9	05 36.14 +08 32.8	17.4	-0.83	-	0.3	4.2/16.5	32897
2657 P-L	1999 12 16.9	05 36.18 +27 57.5	18.8	-1.15	+	0.3	1.8/17.0	30681
(12760)	1999 12 16.9	05 36.28 +09 06.2	18.2	-0.85	-	0.8	4.5/16.5	37054
2039 T-2	1999 12 16.9	05 36.33 +34 28.3	16.8	-1.26	-	0.3	4.6/17.3	37342
1998 QC ₁₂	1999 12 17.0	05 36.46 +28 45.1	17.5	-1.13	-	3.4	2.0/17.3	32760
1988 VV	1999 12 17.0	05 36.64 +18 16.6	16.5	-1.08	-	2.7	2.4/16.8	37258
(12276)	1999 12 17.0	05 36.65 +12 24.5	17.1	-0.97	+	0.9	4.4/16.9	36680
(11249)	1999 12 17.0	05 36.80 +41 30.4	18.0	-0.86	-	0.2	3.9/17.7	35554
1992 DZ ₆	1999 12 17.0	05 36.82 +40 38.9	18.4	-1.20	-	0.6	5.5/17.6	37262
1993 TH ₁₉	1999 12 17.0	05 36.84 +22 51.7	18.6	-0.92	-	0.4	0.1/17.1	35689
1997 ER ₁₇	1999 12 17.0	05 36.86 +24 28.6	19.9	-1.15	-	1.3	0.4/17.1	32957
1991 EL	1999 12 17.0	05 36.89 +30 59.9	18.7	-0.63	-	2.3	1.4/17.5	18437
(12884)	1999 12 17.1	05 36.90 +21 21.1	16.3	-0.90	+	0.3	0.7/17.1	37087
1997 VG ₁	1999 12 17.1	05 37.01 +26 09.1	17.6	-0.64	+	0.1	0.6/17.2	37275
(12920)	1999 12 17.1	05 37.04 +17 44.5	17.2	-0.69	-	0.9	1.2/16.9	37097
1990 RR ₇	1999 12 17.1	05 37.07 +13 43.6	18.5	-1.00	-	0.1	3.3/16.9	33068
3247 T-3	1999 12 17.1	05 37.29 +18 23.1	19.8	-1.13	-	0.4	1.9/17.0	29131
1997 GW ₂₂	1999 12 17.2	05 37.57 +24 07.7	17.1	-1.08	+	1.1	0.3/17.3	37141
1995 UX ₃	1999 12 17.3	05 37.87 +34 07.4	16.7	-1.25	+	0.5	4.6/17.6	37267
1993 TT ₁₉	1999 12 17.3	05 37.91 +25 30.0	18.3	-0.95	+	0.2	0.7/17.4	27715
(12330)	1999 12 17.3	05 38.08 +14 59.8	17.6	-1.17	-	2.0	3.5/17.0	36694
1990 SF ₄	1999 12 17.4	05 38.22 +14 27.7	18.4	-1.00	-	2.6	2.8/17.0	33544
1998 QO ₇₅	1999 12 17.4	05 38.22 +18 48.6	18.0	-0.91	-	3.9	1.4/17.1	37166
1998 MN ₃₅	1999 12 17.4	05 38.57 +21 43.4	17.9	-1.15	+	0.6	0.7/17.4	37156
1994 PT ₁₆	1999 12 17.4	05 38.63 +23 17.0	18.1	-1.07	-	1.3	0.0/17.5	37265
1979 MD ₅	1999 12 17.4	05 38.65 +15 23.5	18.8	-0.95	+	1.8	2.5/17.4	30778
1997 HM ₁₁	1999 12 17.4	05 38.66 +26 20.9	18.9	-1.07	-	0.7	1.0/17.6	35700
1998 RP ₅₈	1999 12 17.5	05 38.70 +06 30.6	18.6	-0.83	-	0.9	5.1/17.0	37286
(11429)	1999 12 17.5	05 38.70 +43 58.7	17.1	-0.74	+	0.1	3.9/18.1	35598
1993 OC ₂	1999 12 17.5	05 38.74 +56 23.1	16.4	-2.08	-	4.2	15.7/19.9	36512
1998 OC ₁₂	1999 12 17.5	05 38.80 +27 20.9	19.7	-1.12	+	0.1	1.4/17.6	32757
1995 VY ₁₀	1999 12 17.5	05 38.88 +21 00.2	18.1	-1.10	+	1.6	1.1/17.5	37129
1997 JH ₁₃	1999 12 17.5	05 38.89 +31 02.5	18.7	-1.06	+	1.5	2.4/17.6	37274
1998 QD ₇₄	1999 12 17.5	05 38.90 +21 37.6	18.0	-0.94	-	3.2	0.6/17.4	37165
1998 RF ₇₇	1999 12 17.5	05 38.99 +31 17.0	18.1	-0.95	+	0.5	2.3/17.7	35716
1996 RH ₁₀	1999 12 17.6	05 39.21 +02 14.8	19.3	-0.55	+	0.3	4.1/17.1	31545
2184 T-2	1999 12 17.6	05 39.21 +26 42.0	19.5	-1.20	-	0.1	1.3/17.7	36581
1998 QO ₅₀	1999 12 17.6	05 39.26 +10 23.8	17.6	-0.88	+	1.1	4.2/17.5	37284
(12638)	1999 12 17.6	05 39.62 +20 00.5	16.7	-1.04	-	1.1	1.7/17.6	36779
1991 RL ₉	1999 12 17.7	05 39.60 +20 34.7	17.2	-1.11	-	1.1	1.2/17.6	37117
1998 QD ₃₈	1999 12 17.7	05 39.62 +22 06.5	17.5	-0.97	+	0.4	0.4/17.7	37163
1998 RF ₅₃	1999 12 17.7	05 39.63 +20 09.2	18.0	-0.93	-	0.3	1.0/17.6	37286
1998 QB ₁₅	1999 12 17.7	05 39.65 +09 43.4	18.1	-0.94	+	1.1	4.6/17.6	32760

(9183)	1999 12 17.7	05 39.66 +26 02.5	18.4	-1.18	-	2.3	1.0/17.8	32420
1994 AN ₁₀	1999 12 17.7	05 39.75 +20 10.1	19.6	-1.23	+	2.1	1.3/17.7	32746
1996 HA ₂	1999 12 17.7	05 39.91 +11 59.6	18.7	-0.81	-	0.6	3.0/17.4	37270
(12809)	1999 12 17.7	05 39.97 +14 32.1	16.8	-0.97	+	2.3	3.0/17.8	37066
1995 RA	1999 12 17.7	05 39.99 +49 23.7	15.9	-1.73	-12.2	11.3/22.3	36516	
1998 QY ₁₃	1999 12 17.8	05 40.28 +18 20.2	19.3	-1.07	-	0.6	1.8/17.7	37283
1994 UE ₈	1999 12 17.8	05 40.41 +23 05.7	19.1	-1.02	-	1.3	0.1/17.9	32942
1997 EB ₁	1999 12 17.8	05 40.42 +25 21.8	18.5	-1.16	-	2.8	0.8/18.0	37272
1987 RG ₁	1999 12 17.8	05 40.48 +25 22.6	16.5	-1.16	-	0.7	0.8/17.9	37257
(12774)	1999 12 17.9	05 40.44 +19 04.2	17.4	-0.99	-	0.1	1.9/17.8	37057
1998 SX ₉₅	1999 12 17.9	05 40.61 +28 41.0	19.1	-1.12	+	1.1	1.8/18.0	33707
1998 QC ₁₇	1999 12 17.9	05 40.63 +15 28.5	16.7	-1.08	+	1.8	3.2/17.9	37283
1997 EO ₃₂	1999 12 17.9	05 40.97 +22 03.0	20.0	-1.02	-	0.4	0.4/18.0	32752
1997 GX ₅	1999 12 18.0	05 41.20 +22 13.8	18.7	-1.12	+	0.5	0.5/18.0	29931
1994 PK ₁₄	1999 12 18.0	05 41.28 +32 59.8	18.1	-1.14	-	2.8	3.9/18.6	37265
1992 EG ₁₁	1999 12 18.0	05 41.33 +05 08.4	18.5	-0.90	+	0.5	5.6/17.8	35685
1999 RL ₃	1999 12 18.1	05 41.41 +43 20.8	16.3	-1.35	+	4.3	8.1/17.6	37291
(9018)	1999 12 18.1	05 41.68 +20 07.5	17.7	-1.14	-	2.8	1.3/18.0	32178
1998 QS ₂₂	1999 12 18.1	05 41.80 +25 46.7	17.1	-1.06	+	0.9	0.8/18.2	37161
1998 SE ₅₈	1999 12 18.1	05 41.85 +26 42.2	17.5	-1.05	-	0.4	1.1/18.3	37287
(12799)	1999 12 18.2	05 42.22 +21 51.8	17.5	-1.12	+	0.2	0.6/18.3	37064
(12815)	1999 12 18.3	05 42.28 +22 20.0	17.1	-0.96	+	0.6	0.4/18.3	37067
1998 SA ₁₅₄	1999 12 18.3	05 42.30 +23 04.4	20.1	-0.94	+	0.6	0.1/18.3	33708
(11372)	1999 12 18.3	05 42.36 +26 14.1	17.9	-1.00	-	0.3	1.0/18.4	35583
(9208)	1999 12 18.3	05 42.46 +08 58.9	16.4	-0.93	-	2.7	5.6/17.7	32426
1998 QW ₃₄	1999 12 18.3	05 42.49 +01 58.4	17.7	-0.89	-	0.1	6.6/18.1	37284
1994 TK ₁₅	1999 12 18.3	05 42.60 +27 28.9	19.2	-1.06	-	0.1	1.3/18.5	25220
1998 RW ₇₅	1999 12 18.3	05 42.72 +23 45.6	16.9	-0.94	+	0.4	0.1/18.4	37286
1998 SF ₁₃₈	1999 12 18.4	05 42.68 +24 44.5	17.4	-0.88	-	0.2	0.4/18.4	37288
1988 RN ₃	1999 12 18.4	05 42.79 +16 18.9	18.6	-1.12	-	0.2	3.1/18.3	31416
1998 QV ₃₂	1999 12 18.4	05 42.92 +26 38.3	17.8	-0.95	-	1.3	1.0/18.6	37284
(12518)	1999 12 18.4	05 43.01 +23 28.6	16.7	-1.23	+	2.0	0.0/18.5	36746
1981 EF ₄₇	1999 12 18.4	05 43.03 +28 21.7	19.1	-1.01	-	0.1	1.8/18.6	18421
1998 RE ₅₉	1999 12 18.4	05 43.08 +21 01.9	18.1	-0.90	-	0.9	0.7/18.4	37286
3254 T-1	1999 12 18.4	05 43.11 +06 05.4	17.9	-0.94	-	1.5	7.4/17.8	26416
1989 SZ ₄	1999 12 18.4	05 43.12 +27 04.8	16.3	-1.23	+	1.8	1.8/18.5	37258
(12805)	1999 12 18.4	05 43.19 +27 15.2	17.6	-1.15	+	1.3	1.4/18.5	37065
1998 VL ₂₇	1999 12 18.5	05 43.12 +25 09.3	18.0	-0.62	-	0.6	0.4/18.6	37288
3340 T-3	1999 12 18.5	05 43.44 +19 23.6	18.9	-1.01	-	0.3	1.3/18.5	30915
1998 QZ ₁₀₂	1999 12 18.6	05 43.64 +17 09.1	17.9	-0.92	+	0.6	1.8/18.6	37285
(12557)	1999 12 18.6	05 43.91 +19 03.9	17.0	-0.87	-	1.4	1.4/18.5	36757
1992 CH	1999 12 18.7	05 44.18 +38 40.2	16.3	-1.22	-	4.5	6.2/19.7	37261
1998 MC ₃₄	1999 12 18.8	05 44.42 +25 55.1	18.3	-1.25	+	1.0	1.0/18.8	32487
1991 RQ ₁₉	1999 12 18.8	05 44.45 +26 59.8	18.6	-1.21	-	1.7	1.4/18.9	37261
1992 EB ₄	1999 12 18.8	05 44.78 +09 25.1	16.9	-0.97	+	2.6	5.6/19.0	37262
1993 FT ₃₉	1999 12 18.8	05 44.81 +31 06.8	18.3	-1.19	+	0.7	3.4/18.9	35687
1989 RY ₁	1999 12 18.9	05 44.89 +02 52.5	18.7	-0.90	+	1.1	6.1/19.0	34575
1998 RN ₃₅	1999 12 18.9	05 45.05 +25 58.5	17.9	-0.98	-	0.3	0.9/19.0	37286
1998 OH ₂	1999 12 18.9	05 45.11 +21 00.2	18.5	-1.09	-	0.2	0.9/18.9	37157
(12184)	1999 12 18.9	05 45.12 +09 19.9	17.8	-1.09	-	1.0	6.4/18.7	36655
1997 AJ ₄	1999 12 18.9	05 45.41 +25 40.5	17.0	-1.24	-	3.0	0.9/19.1	37271

(12854)	1999 12 19.0	05 45.39 +19 13.4 18.3	-1.16 - 1.8	1.6/18.9	37079
1998 SU ₁₂₉	1999 12 19.0	05 45.72 +21 49.7 17.6	-0.87 - 0.0	0.4/19.1	37175
1998 SX ₁₄₆	1999 12 19.0	05 45.76 +19 16.4 18.5	-0.81 - 0.2	1.0/19.0	34305
1998 SS ₈	1999 12 19.1	05 45.88 +29 04.4 18.0	-1.01 + 0.2	1.9/19.2	33015
4255 T-1	1999 12 19.1	05 45.89 +18 19.6 19.9	-1.10 - 0.2	1.9/19.0	29938
(12960)	1999 12 19.1	05 46.10 +15 16.6 17.4	-0.99 - 0.0	3.3/19.1	37108
1991 EK ₄	1999 12 19.2	05 46.38 +18 27.6 17.5	-1.20 - 0.7	2.1/19.1	37260
1998 QZ ₁₉	1999 12 19.2	05 46.43 +15 42.0 18.8	-0.96 - 0.6	2.7/19.1	35710
1998 UG ₄	1999 12 19.2	05 46.47 +36 03.9 18.5	-1.04 + 2.1	4.1/19.2	35721
1997 GL ₂₂	1999 12 19.2	05 46.69 +27 40.5 18.6	-0.97 - 0.0	1.3/19.4	37274
(12566)	1999 12 19.2	05 46.70 +16 25.0 17.4	-0.86 - 1.0	2.4/19.1	36760
1997 GE ₈	1999 12 19.3	05 47.08 +23 15.7 17.5	-1.09 - 0.6	0.1/19.4	30473
1998 QS ₅₃	1999 12 19.3	05 47.10 +10 58.6 18.3	-0.87 - 1.4	4.0/19.0	33084
(12341)	1999 12 19.4	05 47.08 +20 13.2 16.7	-1.12 + 1.8	1.5/19.4	36697
1981 EH ₆	1999 12 19.4	05 47.10 +22 49.3 17.3	-0.98 - 3.4	0.3/19.4	26915
1998 SM ₈₇	1999 12 19.4	05 47.11 +14 01.0 18.2	-0.85 - 1.5	2.8/19.1	33039
1998 QE ₂₂	1999 12 19.4	05 47.17 +21 55.5 19.2	-1.04 - 0.9	0.5/19.4	32761
1991 PC ₆	1999 12 19.4	05 47.25 +14 44.6 17.1	-1.08 + 3.6	4.0/19.7	36507
1998 SA ₁₃₇	1999 12 19.4	05 47.42 +39 19.5 18.0	-1.22 + 2.1	5.0/19.3	35720
(12878)	1999 12 19.5	05 47.64 +22 39.6 17.7	-1.05 + 1.0	0.3/19.5	37086
1993 FR ₁₁	1999 12 19.5	05 47.65 +02 47.8 18.1	-0.95 + 0.3	6.9/19.4	33548
(12946)	1999 12 19.5	05 47.71 +13 00.3 17.6	-1.05 - 1.4	4.5/19.2	37104
(9471)	1999 12 19.5	05 47.85 +26 07.0 16.7	-1.02 - 1.0	1.0/19.6	32646
(9674)	1999 12 19.5	05 47.93 +09 31.0 17.1	-0.99 + 0.3	5.6/19.4	32907
1994 GN	1999 12 19.6	05 47.97 +25 46.8 17.4	-1.21 + 1.6	0.9/19.6	37265
(12342)	1999 12 19.6	05 48.04 +25 10.0 16.4	-1.11 + 2.8	0.9/19.6	36697
(9665)	1999 12 19.6	05 48.28 +15 29.3 17.2	-0.88 - 1.8	2.5/19.4	32904
1998 QW ₃₂	1999 12 19.6	05 48.30 +06 16.6 17.9	-0.89 + 0.9	5.9/19.7	37284
(9469)	1999 12 19.6	05 48.35 +19 57.7 19.0	-1.11 - 0.8	1.3/19.6	32646
1994 PJ ₁₂	1999 12 19.7	05 48.41 +22 25.6 18.2	-1.06 - 0.9	0.4/19.7	37124
(9299)	1999 12 19.7	05 48.50 +28 50.7 17.2	-1.12 + 0.7	1.9/19.7	32605
1998 QM ₇₄	1999 12 19.7	05 48.76 +21 51.7 18.3	-0.92 - 2.3	0.5/19.7	35712
1998 QS ₃₄	1999 12 19.8	05 48.90 +14 32.4 18.3	-0.99 - 0.8	3.1/19.6	35710
1994 PE ₂	1999 12 19.8	05 48.94 +31 26.5 17.8	-1.18 - 1.5	3.1/20.1	26744
1998 RR ₆₇	1999 12 19.8	05 48.95 +22 46.0 18.7	-0.89 - 0.8	0.2/19.8	37170
(9186)	1999 12 19.8	05 49.24 -11 14.9 18.5	-1.01 - 1.1	11.7/18.9	32421
1996 HV ₁₉	1999 12 19.9	05 49.37 +15 13.7 17.2	-0.86 - 1.8	2.8/19.7	37270
1994 PW ₁₀	1999 12 19.9	05 49.49 +18 23.3 20.0	-1.03 + 0.1	1.7/19.9	32458
(9484)	1999 12 19.9	05 49.62 +23 18.8 18.2	-0.92 + 0.3	0.0/20.0	32649
1998 SV ₉	1999 12 19.9	05 49.63 +21 07.4 18.4	-0.88 - 0.1	0.7/19.9	37171
1998 TD ₁₈	1999 12 20.0	05 49.96 +12 28.2 18.6	-0.81 - 1.9	2.8/19.7	37288
(9188)	1999 12 20.0	05 49.99 +25 37.2 17.9	-1.17 - 0.9	0.8/20.1	32421
1996 GA ₁	1999 12 20.0	05 50.17 +24 48.7 20.4	-0.89 + 0.1	0.4/20.1	32951
1992 EE ₃₂	1999 12 20.0	05 50.18 +16 04.3 17.4	-1.01 - 1.1	3.2/19.9	37262
1997 CA ₁	1999 12 20.0	05 50.21 +33 12.9 17.9	-1.28 - 2.0	3.9/20.4	37272
1998 MP ₃₂	1999 12 20.1	05 50.70 +19 26.2 18.0	-1.18 + 1.4	1.5/20.2	37282
1996 AR ₂	1999 12 20.1	05 50.71 +38 31.1 16.6	-1.23 - 4.8	6.2/21.3	37269
(12943)	1999 12 20.2	05 50.68 +30 02.9 17.1	-1.11 + 0.3	2.8/20.2	37104
(12387)	1999 12 20.2	05 50.73 +06 57.8 16.2	-0.96 - 5.7	6.2/19.0	36709
5193 T-3	1999 12 20.2	05 50.80 +07 45.1 18.1	-0.84 + 0.8	4.4/20.2	22702
(9291)	1999 12 20.2	05 50.93 +08 50.6 17.6	-0.86 + 0.9	4.9/20.3	32603

(12611)	1999 12 20.3	05 51.16 +19 37.3 17.5	-0.93 - 0.3	1.4/20.3	36772
1994 SE ₁₂	1999 12 20.3	05 51.20 +20 38.0 20.5	-1.02 - 0.0	1.0/20.3	32668
1996 RA ₃₃	1999 12 20.3	05 51.21 +33 16.6 17.9	-0.65 + 0.4	1.9/20.4	37270
1998 QW ₅₉	1999 12 20.3	05 51.36 +17 22.2 21.1	-0.89 + 0.1	1.8/20.3	32718
1998 OK	1999 12 20.3	05 51.46 +12 59.5 18.1	-1.05 - 0.5	3.9/20.2	33078
1998 QT	1999 12 20.3	05 51.47 +29 45.1 18.5	-1.25 - 1.1	2.4/20.5	36901
1993 TY ₂₂	1999 12 20.4	05 51.52 +09 32.9 18.2	-0.85 - 0.5	4.3/20.2	35689
(9808)	1999 12 20.4	05 51.52 +11 59.7 16.9	-1.01 - 5.2	4.6/19.6	33213
1998 QH ₃₇	1999 12 20.4	05 51.59 +20 21.4 18.7	-1.12 - 1.4	1.1/20.3	37284
1997 GW ₃₂	1999 12 20.4	05 51.81 +25 57.8 18.9	-1.06 - 0.4	0.9/20.5	33344
2646 P-L	1999 12 20.4	05 51.86 +32 02.3 17.6	-1.13 + 0.6	3.6/20.5	37340
(9246)	1999 12 20.4	05 51.94 +22 23.5 17.1	-1.19 + 0.4	0.4/20.5	32434
1998 QZ ₁₅	1999 12 20.5	05 51.99 +29 49.1 17.0	-1.14 - 3.8	2.2/20.8	36538
1978 VB ₄	1999 12 20.5	05 52.07 +20 53.4 17.3	-1.13 - 3.4	1.2/20.4	37112
1995 WS ₃₃	1999 12 20.5	05 52.09 +16 01.7 19.0	-1.10 - 0.2	2.8/20.5	32466
9104 P-L	1999 12 20.5	05 52.27 +04 52.6 19.5	-0.83 - 0.2	5.5/20.5	33384
1998 QR ₇₇	1999 12 20.6	05 52.43 +07 21.0 17.4	-0.96 - 3.2	6.0/19.8	37285
1986 PL ₁	1999 12 20.6	05 52.46 +17 47.0 17.8	-0.84 + 0.9	1.6/20.6	37257
(9076)	1999 12 20.6	05 52.62 +10 18.3 18.1	-1.07 + 0.5	5.9/20.6	32191
(9271)	1999 12 20.6	05 52.64 +19 10.3 17.6	-0.91 - 1.2	1.4/20.6	32598
1997 EN ₄	1999 12 20.6	05 52.69 +41 54.1 18.4	-1.28 - 0.3	6.4/21.1	37273
1997 FY ₁	1999 12 20.6	05 52.89 +42 00.9 19.0	-1.21 + 0.4	5.7/20.9	37273
1981 EN ₄₂	1999 12 20.6	05 52.94 +21 53.1 18.1	-1.19 - 0.4	0.6/20.7	32299
1998 QF ₁₇	1999 12 20.7	05 53.09 +17 44.3 17.2	-1.09 + 1.8	2.1/20.8	37283
1996 GR ₂₀	1999 12 20.7	05 53.22 +24 03.4 18.6	-0.86 + 0.4	0.2/20.8	33751
1979 MP ₁	1999 12 20.8	05 53.32 +20 45.3 18.0	-1.10 - 0.0	1.0/20.8	37255
1991 VH ₆	1999 12 20.8	05 53.83 +10 21.9 17.3	-1.03 + 0.6	5.3/21.0	37261
(12804)	1999 12 20.9	05 54.01 +17 05.4 16.9	-1.04 + 1.6	2.7/21.0	37065
1998 OU ₁₄	1999 12 20.9	05 54.03 +24 00.7 18.4	-1.17 - 0.2	0.2/21.0	33346
6818 P-L	1999 12 20.9	05 54.09 +25 04.4 18.5	-1.05 + 0.7	0.5/21.0	37341
1998 QC ₃₁	1999 12 21.0	05 54.19 +08 15.4 18.7	-0.85 + 1.6	4.8/21.3	33081
(12777)	1999 12 21.0	05 54.48 +17 17.2 16.8	-0.98 + 1.0	2.8/21.1	37058
1981 EB ₂₅	1999 12 21.0	05 54.70 +07 09.5 18.5	-0.85 + 0.1	4.7/21.1	33065
1993 MR	1999 12 21.1	05 54.66 +15 30.7 20.2	-0.94 - 0.6	2.3/21.0	33072
4845 P-L	1999 12 21.1	05 54.81 +06 44.1 17.8	-0.84 + 0.5	5.8/21.2	37341
(9423)	1999 12 21.1	05 54.83 +19 18.4 16.0	-1.01 + 2.6	1.4/21.2	32635
(10937)	1999 12 21.1	05 54.90 +17 35.8 17.1	-0.85 - 0.7	1.8/21.1	34807
1990 QT ₄	1999 12 21.1	05 54.99 +48 53.7 16.6	-1.42 - 0.1	10.3/21.5	36877
1981 EA ₁₆	1999 12 21.1	05 55.01 +33 17.3 18.2	-1.32 - 1.3	3.9/21.3	32509
(12251)	1999 12 21.1	05 55.10 +22 20.3 16.6	-0.93 + 1.2	0.5/21.2	36673
1994 WC ₂	1999 12 21.2	05 55.11 +23 15.8 16.2	-1.03 + 3.1	0.1/21.2	37126
1998 RC ₂	1999 12 21.2	05 55.13 +42 38.2 18.3	-1.12 - 0.1	6.5/21.5	35713
1998 RX ₆₃	1999 12 21.2	05 55.27 +21 50.8 18.5	-0.89 + 0.6	0.5/21.2	37286
1998 QT ₃₆	1999 12 21.2	05 55.31 +21 47.4 17.9	-1.08 - 1.6	0.6/21.2	37162
1998 KN	1999 12 21.2	05 55.39 +22 03.0 18.6	-1.17 + 0.8	0.5/21.3	37280
1983 AC ₁	1999 12 21.2	05 55.47 -14 41.2 15.9	-1.16 +13.8	18.4/27.0	36874
1999 XD ₈	1999 12 21.2	05 55.55 +19 48.2 17.1	-1.17 + 3.2	1.6/21.4	37245
(12637)	1999 12 21.3	05 55.55 +21 45.8 16.3	-1.02 - 0.2	0.8/21.3	36779
1997 ER ₁₁	1999 12 21.3	05 55.67 +25 29.0 18.9	-1.18 - 0.0	0.8/21.3	33076
1989 VM ₁	1999 12 21.3	05 55.74 +14 26.9 19.1	-1.15 + 2.8	4.3/22.0	28843
(12907)	1999 12 21.3	05 55.75 +21 49.2 17.5	-1.01 + 0.8	0.5/21.4	37093

1991 GP ₃	1999 12 21.3	05 55.80 +20 48.7 18.1	-0.86 - 0.3	0.7/21.3	37260	1978 SF ₅	1999 12 22.8	06 02.30 +32 54.2 17.9	-1.32 + 1.3	3.9/22.7	37255
1993 QL ₇	1999 12 21.3	05 55.90 +19 33.3 18.4	-0.94 + 0.5	1.3/21.4	34189	1998 SZ ₁₂₂	1999 12 22.8	06 02.39 +25 12.3 18.8	-0.88 + 0.1	0.5/22.8	37287
1994 PD ₃₄	1999 12 21.4	05 56.15 +21 30.5 19.6	-1.06 - 0.3	0.7/21.4	32517	1997 FM	1999 12 22.8	06 02.40 +13 19.3 17.8	-0.97 + 3.3	3.3/23.2	33076
(12544)	1999 12 21.4	05 56.18 +19 29.6 17.4	-0.93 + 1.8	1.4/21.5	36753	1997 DC	1999 12 22.8	06 02.41 +19 45.9 17.7	-1.10 + 0.3	1.3/22.9	37272
1998 QF ₁₄	1999 12 21.4	05 56.39 +22 37.1 17.4	-1.19 - 1.9	0.3/21.5	37160	1997 GO ₁₈	1999 12 22.8	06 02.65 +06 06.8 19.7	-0.95 - 0.3	5.7/22.9	35699
1998 QM ₄	1999 12 21.5	05 56.53 +38 54.2 18.7	-1.24 + 3.1	5.1/21.1	33080	1998 RF ₇₈	1999 12 22.9	06 02.76 +19 43.1 17.5	-0.88 + 1.1	1.2/23.0	37170
1989 AG ₆	1999 12 21.6	05 57.20 +22 32.0 18.0	-0.90 + 0.7	0.3/21.7	37115	(12345)	1999 12 22.9	06 02.79 +21 41.9 15.8	-1.07 + 2.3	0.8/23.0	36698
1984 AU	1999 12 21.6	05 57.24 +28 31.8 15.5	-1.11 - 1.1	2.2/21.8	37114	1998 RZ ₅₂	1999 12 22.9	06 02.91 +12 34.2 17.8	-0.87 + 0.8	3.6/23.1	37286
1998 QT ₃₂	1999 12 21.6	05 57.25 +22 27.6 18.0	-0.98 - 0.3	0.3/21.7	37162	1995 SQ ₁	1999 12 22.9	06 02.95 +57 32.7 15.9	-1.87 -14.8	16.9/29.6	37267
1998 QV ₃₄	1999 12 21.6	05 57.32 +26 04.8 17.7	-1.15 - 2.1	1.0/21.8	37284	(9380)	1999 12 22.9	06 03.08 +20 14.1 17.3	-0.95 + 0.2	1.1/23.0	32625
2614 P-L	1999 12 21.7	05 57.47 +18 19.6 19.4	-1.02 0.0	1.9/22.0	32536	1998 KL ₄₈	1999 12 22.9	06 03.08 +17 54.6 17.3	-1.16 + 3.8	2.4/23.2	37281
1998 KM ₄₈	1999 12 21.7	05 57.73 +13 28.0 19.3	-1.10 - 1.3	3.6/21.7	32282	1994 SF ₉	1999 12 22.9	06 03.13 +19 28.2 19.9	-1.01 + 0.2	1.5/23.0	26744
1997 HR ₇	1999 12 21.8	05 57.87 +28 02.9 19.2	-1.05 - 0.2	1.6/21.9	35700	1992 EY ₁₀	1999 12 23.0	06 03.21 +44 15.2 18.0	-1.29 - 1.5	7.1/23.5	37262
(12468)	1999 12 21.8	05 58.05 +29 36.5 17.9	-1.27 - 2.0	2.4/22.0	36731	(9087)	1999 12 23.0	06 03.39 +30 18.6 18.1	-1.24 - 0.6	2.6/23.1	32194
1993 BJ ₂	1999 12 21.8	05 58.15 +17 27.2 16.8	-1.08 + 1.9	2.2/22.0	37263	(12640)	1999 12 23.0	06 03.56 +26 18.3 17.5	-0.98 + 0.2	1.0/23.1	36780
1993 TZ ₁₃	1999 12 21.9	05 58.19 +07 25.3 19.5	-0.87 0.0	5.6/22.0	32933	1996 HU ₁₈	1999 12 23.1	06 03.77 +21 44.0 18.4	-0.89 + 0.1	0.5/23.2	37270
2734 P-L	1999 12 21.9	05 58.36 +22 31.5 18.9	-0.94 + 0.7	8.0/11.0	34264	1998 QK ₂₆	1999 12 23.1	06 03.78 +22 51.1 17.6	-0.94 0.0	0.2/23.2	37284
1998 QK ₈	1999 12 21.9	05 58.41 +05 20.3 18.0	-0.97 + 3.0	6.3/22.6	37159	(12555)	1999 12 23.1	06 03.94 +20 06.5 16.5	-0.95 + 0.5	1.1/23.2	36756
1998 QY	1999 12 21.9	05 58.51 +05 09.5 18.9	-0.97 + 2.4	6.2/22.5	37159	1998 QV ₄₀	1999 12 23.2	06 04.05 +18 49.6 16.6	-0.97 - 0.8	1.6/23.2	37284
1991 RO ₂	1999 12 21.9	05 58.52 +15 11.7 18.0	-1.12 - 0.6	3.2/22.0	36508	1997 CZ ₁₆	1999 12 23.2	06 04.16 +30 45.2 17.4	-1.25 - 2.8	3.3/23.4	37136
1993 MZ	1999 12 22.0	05 58.79 +42 48.1 18.0	-1.28 - 1.5	6.7/22.6	37264	1998 MF ₄₈	1999 12 23.2	06 04.24 +22 16.6 19.1	-1.12 + 1.1	0.4/23.3	32756
1997 KG	1999 12 22.0	05 58.82 +22 55.3 17.5	-0.97 + 1.1	0.2/22.0	37274	1998 WR ₂₁	1999 12 23.3	06 04.57 +14 09.4 16.8	-0.57 - 1.4	1.8/23.2	37289
1998 RR ₇₃	1999 12 22.0	05 58.96 +05 15.3 18.0	-0.92 - 1.3	5.8/21.8	33352	1998 QD ₂₃	1999 12 23.3	06 04.62 +32 14.2 17.4	-1.20 + 0.8	3.4/23.2	37283
1998 KK ₂	1999 12 22.1	05 59.13 +27 19.0 17.2	-1.26 + 5.3	1.5/21.9	37152	1997 EE ₂₃	1999 12 23.3	06 04.71 +21 23.6 16.0	-1.12 + 4.6	0.9/23.5	37273
1998 QX ₂₁	1999 12 22.1	05 59.30 +29 51.4 17.6	-1.21 - 1.4	2.4/22.2	36902	(9001)	1999 12 23.3	06 04.88 +12 32.8 17.9	-1.13 + 2.0	4.3/23.7	32174
(9167)	1999 12 22.1	05 59.37 +33 15.3 17.5	-0.98 - 0.1	2.9/22.2	32416	(9466)	1999 12 23.4	06 04.83 +14 04.4 17.0	-1.12 - 0.5	4.2/23.5	36499
1993 FP ₄₀	1999 12 22.1	05 59.42 +27 05.2 17.6	-1.09 + 1.5	1.8/22.1	37264	1997 BU ₅	1999 12 23.4	06 04.84 +24 18.2 18.3	-1.18 0.0	0.3/23.4	37272
6077 P-L	1999 12 22.1	05 59.44 +28 05.4 17.9	-0.96 - 0.3	1.6/22.2	36942	1998 OQ ₄	1999 12 23.4	06 04.90 +23 05.1 18.5	-1.18 - 0.6	0.1/23.4	37282
1992 RJ ₇	1999 12 22.1	05 59.44 +16 21.6 18.6	-0.83 + 0.4	1.9/22.2	32929	4742 T-2	1999 12 23.4	06 04.97 +14 36.2 18.3	-0.59 + 0.4	1.9/23.5	34273
(9772)	1999 12 22.1	05 59.46 +05 53.5 18.2	-0.91 - 1.3	5.4/21.9	33204	1995 UK ₄₄	1999 12 23.4	06 04.98 +20 42.6 16.9	-1.15 - 2.4	1.1/23.4	37268
1998 QA ₂₆	1999 12 22.1	05 59.52 +15 44.0 17.6	-0.89 + 0.8	2.6/22.3	37283	(9640)	1999 12 23.4	06 05.09 +27 29.8 18.0	-1.15 + 0.5	1.5/23.4	32898
1997 JQ	1999 12 22.2	05 59.69 +25 14.3 19.9	-1.00 + 1.6	0.5/22.2	32965	(9328)	1999 12 23.4	06 05.16 +34 15.3 17.4	-1.25 - 0.3	3.8/23.4	32612
(12877)	1999 12 22.2	05 59.72 +13 06.5 16.0	-1.11 + 6.5	4.6/22.9	37085	(9817)	1999 12 23.5	06 05.32 +33 51.6 17.9	-0.65 + 0.5	2.0/23.4	33215
(12317)	1999 12 22.2	06 00.02 +18 28.1 16.7	-0.96 - 0.8	1.8/22.3	36690	1998 QK ₄₂	1999 12 23.5	06 05.38 +20 18.7 18.4	-1.08 + 0.1	1.1/23.5	37284
1991 PN ₁₇	1999 12 22.4	06 00.56 +25 11.9 19.5	-1.17 - 0.8	0.6/22.4	35286	2197 T-2	1999 12 23.5	06 05.53 +29 01.5 19.7	-1.07 + 0.4	1.7/23.5	36123
1998 MY ₄₅	1999 12 22.4	06 00.57 +20 37.3 18.6	-1.10 - 1.0	1.0/22.4	32289	1997 FA	1999 12 23.5	06 05.66 +21 49.5 19.5	-1.18 + 0.2	0.6/23.6	32957
1996 HQ ₁₉	1999 12 22.4	06 00.81 +22 39.7 18.5	-0.86 + 0.1	0.2/22.5	33751	1997 GM ₃₃	1999 12 23.5	06 05.79 +03 56.2 18.5	-0.95 - 0.8	6.7/23.6	36525
1998 QU ₄₇	1999 12 22.4	06 00.84 +20 49.6 17.4	-0.96 - 0.1	0.9/22.5	37164	1998 QX ₂₇	1999 12 23.6	06 05.73 +31 56.2 18.3	-1.02 - 1.8	2.9/23.7	37161
6576 P-L	1999 12 22.4	06 00.88 +30 12.0 16.3	-1.21 + 1.3	3.1/22.4	37249	(9061)	1999 12 23.6	06 05.75 +25 13.8 16.1	-1.24 + 3.1	0.8/23.5	32188
(12520)	1999 12 22.4	06 00.93 +20 46.8 16.5	-1.27 - 2.6	1.2/22.4	36747	1997 CJ ₁	1999 12 23.6	06 05.92 +24 41.7 18.8	-1.17 + 1.2	0.5/23.6	33343
1998 QW ₄₁	1999 12 22.5	06 00.84 +49 00.6 18.5	-1.26 - 1.7	8.0/23.3	33083	1990 ST ₇	1999 12 23.6	06 06.08 +27 13.0 17.0	-1.08 + 2.0	1.6/23.6	37116
1990 VT ₆	1999 12 22.5	06 01.10 +17 28.6 17.6	-1.00 + 0.3	2.4/22.6	25649	1991 PX ₁₄	1999 12 23.6	06 06.11 +21 46.7 17.5	-1.15 - 2.0	0.6/23.6	29659
1998 QC ₈	1999 12 22.5	06 01.30 +19 59.3 18.4	-1.00 - 1.3	1.1/22.5	37159	(9799)	1999 12 23.7	06 06.60 +14 47.2 16.8	-0.62 - 3.0	1.6/23.5	33211
3424 T-3	1999 12 22.5	06 01.34 +20 14.0 18.6	-1.02 + 0.4	1.2/22.6	37343	(12229)	1999 12 23.8	06 06.68 +29 19.6 16.7	-1.26 + 1.2	2.3/23.7	36667
1993 BJ ₅	1999 12 22.6	06 01.30 +30 55.3 17.6	-0.78 - 0.8	1.7/22.7	30658	1998 QS ₁₁	1999 12 23.8	06 06.68 +23 40.0 16.8	-1.17 - 2.2	0.1/23.8	37283
1981 DR	1999 12 22.6	06 01.51 +32 59.5 17.9	-1.06 - 3.0	3.3/23.0	32738	(9297)	1999 12 23.8	06 06.74 +09 55.7 16.8	-0.94 - 2.1	4.3/23.6	32605
2026 T-3	1999 12 22.6	06 01.58 +26 07.9 18.7	-1.10 - 1.0	1.0/22.7	25437	(12763)	1999 12 23.8	06 06.77 +09 11.8 17.8	-0.85 + 0.3	4.5/24.1	37054
1992 EZ ₁₁	1999 12 22.6	06 01.80 +17 44.5 17.5	-0.98 + 1.3	1.9/22.8	37262	(9677)	1999 12 23.8	06 06.85 +11 35.8 18.7	-0.85 + 0.1	3.3/24.0	32908
(12725)	1999 12 22.7	06 01.83 +15 33.8 16.6	-1.09 + 1.4	3.1/22.9	37045	1998 QC ₄₂	1999 12 23.8	06 06.90 +33 28.7 19.5	-1.21 + 0.5	3.4/23.7	33755
1998 QL ₄₂	1999 12 22.7	06 02.13 +21 13.0 18.1	-0.96 - 0.3	0.8/22.8	37284	1998 SF ₅₉	1999 12 23.8	06 06.92 +07 57.2 18.1	-0.86 + 0.4	4.9/24.1	35718
(9668)	1999 12 22.7	06 02.19 +14 14.0 17.8	-0.94 + 0.7	3.3/22.9	32905	(9411)	1999 12 23.8	06 07.11 +19 57.9 16.7	-0.90 + 2.4	1.2/24.0	32632

(9319)	1999 12 23.8	06 07.14 +18 52.7 18.8	-1.15 + 0.5	1.7/24.0	32610	(8886)	1999 12 25.0	06 12.19 +18 56.0 17.9	-1.19 + 3.0	1.8/25.2	31919
1991 NC ₁	1999 12 23.9	06 07.13 +18 24.7 18.5	-1.13 + 1.6	1.8/24.0	33336	1998 QF ₉₆	1999 12 25.0	06 12.23 +17 08.8 18.5	-1.10 - 1.1	2.3/25.1	37285
1998 QK ₇₆	1999 12 23.9	06 07.41 +09 01.7 18.7	-0.93 - 1.8	4.4/23.9	35712	1998 MZ ₃₇	1999 12 25.0	06 12.41 +21 22.2 18.1	-1.13 + 2.9	0.8/25.2	37282
6074 P-L	1999 12 23.9	06 07.59 +24 30.5 19.1	-1.25 + 0.1	0.5/24.0	32091	1996 DE ₁	1999 12 25.1	06 12.46 +18 28.6 17.2	-0.98 + 0.9	2.1/25.2	37269
(12624)	1999 12 24.0	06 07.71 +17 52.5 17.4	-1.14 + 1.8	2.3/24.2	36776	1998 QN ₄₃	1999 12 25.1	06 12.53 +30 17.6 17.8	-1.24 + 1.6	2.7/24.9	32765
1998 SF ₁₃	1999 12 24.0	06 07.71 +20 43.4 17.7	-0.87 + 1.5	0.8/24.1	37287	1996 EE ₈	1999 12 25.2	06 12.90 +39 35.8 19.8	-1.10 - 0.1	5.0/25.0	35695
1998 QO ₇₃	1999 12 24.0	06 07.73 +03 59.3 19.1	-0.94 - 1.0	6.1/24.1	35712	(12190)	1999 12 25.2	06 13.02 +09 56.4 16.9	-0.99 - 0.8	5.1/25.4	36657
1991 RG ₄	1999 12 24.0	06 07.90 +23 45.6 18.7	-1.16 - 0.4	0.1/24.1	37261	(9681)	1999 12 25.2	06 13.04 +10 56.2 17.8	-0.85 - 0.6	3.9/25.3	32908
1997 GD ₂₄	1999 12 24.0	06 07.94 +12 39.9 18.4	-1.04 - 0.5	4.3/24.1	30767	1998 MS ₂₈	1999 12 25.2	06 13.10 +20 48.5 17.5	-1.05 - 3.1	0.9/25.2	37156
1988 TR ₂	1999 12 24.0	06 08.01 +48 00.0 16.1	-1.23 + 3.1	10.3/23.2	37258	(9310)	1999 12 25.2	06 13.20 +24 31.8 17.5	-0.94 + 0.9	0.4/25.2	32608
(12661)	1999 12 24.1	06 08.05 +17 41.1 17.5	-1.14 + 1.9	2.4/24.3	37028	(9189)	1999 12 25.2	06 13.23 +20 13.3 16.8	-1.09 + 1.6	1.4/25.4	32421
1997 GJ ₂₂	1999 12 24.1	06 08.10 +17 09.6 19.5	-1.04 - 1.0	2.3/24.1	32679	1994 PW ₃₁	1999 12 25.2	06 13.24 +11 32.5 17.7	-1.02 + 0.6	4.1/25.5	37265
1998 QM ₁₆	1999 12 24.1	06 08.24 +16 44.9 17.7	-1.02 0.0	2.3/24.2	37283	1990 SF ₅	1999 12 25.2	06 13.29 +17 05.0 18.5	-1.02 + 1.3	2.4/25.5	32513
1997 GP ₂₃	1999 12 24.1	06 08.45 +30 47.6 18.9	-1.05 + 0.5	2.3/24.1	37274	(11251)	1999 12 25.3	06 13.35 +22 35.8 18.6	-0.59 + 0.6	0.2/25.3	35554
(12264)	1999 12 24.2	06 08.40 +25 52.0 16.8	-1.21 - 1.9	1.0/24.2	36677	1997 GL	1999 12 25.3	06 13.37 +22 30.5 19.6	-1.05 + 0.4	0.3/25.3	35699
1998 QF ₈₅	1999 12 24.2	06 08.47 +33 48.6 17.3	-1.22 - 4.5	3.9/24.6	37166	4303 T-3	1999 12 25.3	06 13.38 +34 45.9 17.8	-1.04 + 2.6	4.1/24.8	37343
1994 CD ₁₈	1999 12 24.2	06 08.77 +39 16.1 16.5	-1.42 - 1.1	7.7/24.5	37265	1993 UX ₄	1999 12 25.3	06 13.45 +29 23.6 17.3	-0.99 + 2.9	1.8/25.1	36883
1992 WZ	1999 12 24.2	06 08.78 +29 40.8 16.1	-1.22 + 3.6	3.0/24.0	36881	1998 SW ₁	1999 12 25.3	06 13.50 +35 27.6 16.6	-1.06 + 2.8	4.1/24.8	37286
(12551)	1999 12 24.2	06 08.85 +32 04.9 16.7	-1.20 + 0.5	3.2/24.2	36755	1988 RF ₄	1999 12 25.3	06 13.72 +30 38.4 18.0	-1.27 - 0.5	2.8/25.3	37258
1998 SE ₇	1999 12 24.3	06 08.89 +22 46.8 20.3	-1.12 + 0.2	0.2/24.3	35716	1998 QX	1999 12 25.4	06 13.82 -26 05.9 20.3	-0.94 + 3.3	14.4/31.1	34301
(12006)	1999 12 24.3	06 08.93 +14 48.9 18.2	-0.69 - 1.0	2.0/24.3	36274	1993 QP ₃	1999 12 25.4	06 13.82 +20 16.5 17.7	-0.94 + 0.4	1.1/25.5	37264
1998 XA ₇	1999 12 24.3	06 09.05 +21 34.7 19.4	-0.58 + 0.2	0.4/24.4	35727	1998 QG ₂₁	1999 12 25.4	06 13.86 +23 14.5 18.7	-0.95 + 0.3	0.1/25.4	37161
1998 JZ ₁	1999 12 24.4	06 09.71 +30 27.0 19.0	-1.31 + 1.3	2.5/24.3	36898	1997 ER ₂	1999 12 25.4	06 13.86 +28 20.1 16.2	-1.19 + 2.4	2.2/25.2	36891
(9211)	1999 12 24.4	06 09.75 +27 12.5 18.1	-1.22 + 0.5	1.4/24.4	32426	1993 FY ₅₅	1999 12 25.5	06 14.25 +28 25.6 19.8	-1.08 + 1.3	1.6/25.4	33071
1998 SZ ₅₄	1999 12 24.4	06 09.75 +25 22.4 18.5	-0.92 + 0.4	0.6/24.5	33029	1998 KX ₆	1999 12 25.5	06 14.52 +20 16.1 17.9	-1.19 + 1.6	1.3/25.7	37280
1998 RT ₅₀	1999 12 24.4	06 09.83 +35 50.9 17.6	-1.27 - 0.2	4.5/24.4	37286	1994 PH ₉	1999 12 25.6	06 14.72 +21 30.7 18.6	-1.06 + 0.3	0.7/25.7	32457
1991 TK	1999 12 24.5	06 09.81 +21 01.3 16.7	-1.11 + 2.8	1.0/24.6	37261	1984 SE ₆	1999 12 25.6	06 14.79 +28 41.4 16.9	-1.22 + 0.3	2.0/25.5	36875
(9225)	1999 12 24.5	06 09.87 +10 34.1 16.9	-1.00 + 5.4	4.5/25.5	32429	1994 SF ₅	1999 12 25.6	06 14.89 +01 15.8 20.2	-0.94 + 0.4	7.6/26.3	33244
1998 UF ₃₇	1999 12 24.5	06 10.02 +25 00.7 18.2	-0.89 + 0.3	0.4/24.5	37288	(12901)	1999 12 25.6	06 15.03 +14 23.4 16.8	-0.90 + 1.6	3.3/26.0	37092
(8825)	1999 12 24.5	06 10.12 +05 34.7 15.6	-1.50 +21.4	9.2/28.0	31905	(12273)	1999 12 25.6	06 15.04 +21 06.3 16.1	-1.04 + 4.6	0.9/25.8	36679
1998 VD ₃₀	1999 12 24.5	06 10.20 -00 14.4 17.2	-0.58 - 2.0	4.8/24.3	37288	1990 FK ₁	1999 12 25.6	06 15.10 +07 53.4 17.6	-0.79 + 0.5	4.2/26.1	36876
6020 P-L	1999 12 24.6	06 10.31 +21 46.6 18.6	-0.55 + 0.1	0.3/24.7	36492	1998 QU ₉₆	1999 12 25.7	06 15.14 +12 05.1 18.3	-0.95 - 1.4	3.6/25.8	35713
1987 VG	1999 12 24.6	06 10.36 +32 12.6 16.9	-1.21 - 0.7	3.8/24.6	37257	(12896)	1999 12 25.7	06 15.35 +29 46.3 17.4	-0.85 + 1.1	1.8/25.6	37090
6105 P-L	1999 12 24.7	06 10.62 +06 01.8 18.7	-0.90 - 0.6	5.9/24.9	33383	1998 QK ₈₆	1999 12 25.7	06 15.46 +16 58.9 18.0	-0.92 - 2.1	2.1/25.8	37285
1998 QM ₁₀₃	1999 12 24.7	06 10.62 +23 29.3 17.8	-0.96 + 1.2	0.0/24.7	32988	1997 BR ₃	1999 12 25.7	06 15.50 +52 48.5 19.2	-1.59 - 1.5	9.1/25.8	33076
1998 RB ₈₀	1999 12 24.7	06 10.68 +22 51.4 16.9	-1.01 + 2.1	0.2/24.7	37286	1998 RM ₅₈	1999 12 25.8	06 15.52 +25 50.8 18.1	-0.99 + 0.2	0.8/25.8	33351
1991 VN ₉	1999 12 24.7	06 10.78 +14 03.8 19.3	-1.05 - 0.5	3.6/24.8	29915	(12181)	1999 12 25.8	06 15.69 +28 39.4 15.8	-1.04 + 3.6	2.5/25.6	36654
1993 GB	1999 12 24.7	06 10.79 +38 22.5 16.9	-1.32 + 2.3	5.9/24.1	37264	1991 PU ₁₆	1999 12 25.8	06 15.75 +28 28.1 17.2	-1.19 + 0.7	2.0/25.7	32303
1992 VN	1999 12 24.7	06 10.81 +20 02.3 15.7	-1.16 - 5.0	1.6/24.6	37263	1994 JU	1999 12 25.8	06 15.78 +14 14.2 18.8	-1.08 - 0.3	3.2/26.0	33072
6586 P-L	1999 12 24.7	06 10.82 +05 43.5 19.1	-0.96 + 1.2	6.0/25.3	32537	(9468)	1999 12 25.9	06 16.01 +06 38.5 17.5	-1.07 - 0.2	7.0/26.3	32645
1993 TZ ₁₅	1999 12 24.7	06 10.86 +21 50.6 19.5	-0.93 + 0.4	0.5/24.8	35688	1991 EJ	1999 12 25.9	06 16.10 +27 03.4 17.0	-0.66 - 2.3	0.7/26.0	36878
1995 VN	1999 12 24.7	06 10.87 +19 31.7 17.6	-1.11 + 0.6	1.7/24.8	37268	(8938)	1999 12 25.9	06 16.22 +27 50.4 17.1	-1.33 + 0.2	2.0/25.9	31932
(9366)	1999 12 24.8	06 11.06 +22 06.3 17.0	-1.22 + 3.6	0.5/24.9	32621	1998 QV ₇₄	1999 12 25.9	06 16.40 +07 34.5 18.1	-1.01 - 3.5	5.8/25.7	37285
(9479)	1999 12 24.8	06 11.14 +30 15.6 19.0	-1.10 0.0	2.4/24.7	32648	1237 T-2	1999 12 25.9	06 16.44 +25 30.8 18.2	-0.97 + 0.3	0.7/26.0	33130
1998 QG ₄₀	1999 12 24.8	06 11.20 +11 30.7 19.3	-0.97 + 0.6	3.8/25.1	35711	1999 VB ₅₃	1999 12 26.0	06 16.53 +06 10.3 16.0	-1.43 -16.5	8.8/23.7	37229
3477 T-3	1999 12 24.8	06 11.32 +27 48.2 18.6	-0.96 + 1.0	1.4/24.7	36125	1997 CD ₄	1999 12 26.0	06 16.65 +19 44.1 17.5	-1.14 + 0.1	1.5/26.1	37136
1998 QP ₈₈	1999 12 24.8	06 11.37 +11 02.6 18.5	-0.86 - 0.7	3.7/25.0	35712	1998 RD ₄₀	1999 12 26.0	06 16.73 +23 05.2 18.8	-1.12 + 1.9	0.1/26.1	33510
1992 PB ₂	1999 12 24.8	06 11.50 +20 10.5 17.9	-0.88 - 0.9	1.0/24.9	37262	1997 GM ₂₁	1999 12 26.0	06 16.79 +24 55.0 19.9	-0.99 + 0.4	0.5/26.0	32961
1998 RU ₈	1999 12 24.9	06 11.85 +07 04.7 17.4	-0.91 + 2.0	6.7/25.5	33350	1981 VL	1999 12 26.0	06 16.79 +29 55.4 16.5	-1.22 + 1.0	3.0/25.9	36874
1998 QF ₂₆	1999 12 25.0	06 12.06 +19 54.3 18.3	-1.10 + 0.6	1.2/25.1	37284	1998 VF ₃₀	1999 12 26.0	06 16.84 +38 42.6 17.2	-0.77 + 3.3	3.2/25.1	35724
2768 P-L	1999 12 25.0	06 12.19 +21 03.4 18.6	-1.02 + 1.0	0.8/25.1	34264	(12868)	1999 12 26.0	06 16.86 +13 58.1 17.1	-0.92 - 2.4	2.9/26.1	37083

(12402)	1999 12 26.0	06 16.86 +17 28.3 16.8	-1.16 + 3.1	2.7/26.4	36713
1998 QW ₃₈	1999 12 26.1	06 17.05 +27 11.5 19.1	-1.08 - 1.3	1.2/26.1	32703
(9491)	1999 12 26.1	06 17.05 +31 30.6 18.5	-1.30 + 0.1	3.2/26.0	32651
1997 AT ₂	1999 12 26.1	06 17.19 +31 35.5 16.9	-1.35 + 0.8	3.8/26.0	37134
1998 QW ₂₀	1999 12 26.1	06 17.32 +09 46.3 17.9	-0.93 + 2.2	5.5/26.8	33081
1997 CX	1999 12 26.2	06 17.28 +21 20.9 16.7	-1.20 + 2.6	0.9/26.3	37135
1998 RB ₅₈	1999 12 26.2	06 17.57 +19 38.8 19.3	-0.95 + 0.7	1.3/26.4	32999
(12395)	1999 12 26.2	06 17.76 +03 06.9 17.0	-0.82 - 3.2	5.8/26.0	36711
1998 KC ₆	1999 12 26.3	06 17.87 +19 48.8 20.3	-1.08 + 1.1	1.2/26.4	32755
1996 RS ₂₈	1999 12 26.3	06 17.89 +26 36.6 18.2	-0.64 + 0.3	0.7/26.3	37270
1998 MO ₅	1999 12 26.3	06 17.94 +10 19.6 17.6	-1.17 + 9.0	4.8/27.8	32523
1998 VV ₂	1999 12 26.3	06 17.98 +15 58.6 18.0	-0.68 - 0.6	1.6/26.5	35723
1990 TW ₁₂	1999 12 26.4	06 18.25 +42 51.2 16.8	-1.27 + 4.1	8.2/25.2	37259
1998 QW	1999 12 26.4	06 18.40 +03 56.3 17.7	-0.96 - 1.4	6.6/26.7	37283
1988 DE	1999 12 26.4	06 18.42 +44 41.2 16.7	-1.34 - 0.4	8.3/26.0	37257
(9862)	1999 12 26.4	06 18.43 +28 47.9 17.7	-1.19 + 1.7	1.9/26.3	33460
1998 RA ₆₀	1999 12 26.4	06 18.45 +36 25.2 17.5	-1.08 - 0.6	4.4/26.3	37286
1990 QP ₈	1999 12 26.4	06 18.54 +24 21.0 17.1	-1.07 + 0.3	0.4/26.5	37259
1979 MY ₇	1999 12 26.4	06 18.60 +25 28.7 19.7	-1.02 - 1.6	0.7/26.5	30779
(12692)	1999 12 26.5	06 18.80 +26 23.6 16.6	-1.15 + 0.1	1.3/26.5	37035
1981 EV ₃₅	1999 12 26.5	06 18.89 +46 56.9 19.4	-1.22 - 0.4	6.7/26.3	37256
1998 RP ₈₀	1999 12 26.5	06 18.99 +11 11.0 17.8	-0.82 - 0.1	3.6/26.9	35716
1998 RC ₅₁	1999 12 26.6	06 19.10 +27 30.3 18.5	-1.17 - 0.5	1.5/26.5	33564
1991 LL ₂	1999 12 26.6	06 19.13 +21 05.5 18.6	-0.86 + 0.2	0.6/26.7	35683
1998 QQ ₃₁	1999 12 26.6	06 19.17 +35 22.4 17.8	-1.28 + 0.6	4.8/26.3	33347
1994 PV ₇	1999 12 26.6	06 19.18 +23 06.0 20.0	-1.07 + 0.8	0.1/26.6	31239
1991 SB	1999 12 26.6	06 19.25 +19 35.5 16.0	-1.09 - 0.1	1.7/27.0	37261
1988 TJ	1999 12 26.6	06 19.42 +33 47.4 16.3	-1.26 - 0.5	4.8/26.5	26419
1995 XX ₄	1999 12 26.6	06 19.52 +16 05.7 19.1	-1.07 + 0.5	2.6/26.9	35694
1997 JZ ₇	1999 12 26.6	06 19.53 +06 03.5 18.0	-0.92 - 0.8	5.4/26.9	33344
1998 QQ ₄₉	1999 12 26.7	06 19.62 +13 15.7 17.1	-0.95 + 3.2	4.0/27.3	37284
2135 T-3	1999 12 26.7	06 19.67 +14 43.1 18.6	-0.89 - 0.7	2.9/26.9	33060
1995 WU ₁	1999 12 26.7	06 19.83 +39 06.7 15.3	-1.30 + 4.4	6.7/25.7	37268
(9489)	1999 12 26.7	06 19.93 +16 25.0 18.5	-0.98 + 0.1	2.4/27.0	32650
(12757)	1999 12 26.7	06 19.94 +22 06.6 17.1	-0.95 + 0.3	0.4/26.8	37053
1996 GM ₂₀	1999 12 26.7	06 19.94 +24 01.8 18.2	-0.90 + 0.6	0.2/26.8	33343
1998 SY ₅₇	1999 12 26.8	06 19.96 +24 45.0 17.2	-0.97 + 1.3	0.5/26.8	37173
1996 AP	1999 12 26.8	06 20.06 +17 15.3 16.4	-1.06 + 7.7	2.6/27.5	37269
1997 EF ₄₆	1999 12 26.8	06 20.26 +24 10.8 17.3	-1.15 + 4.0	0.3/26.8	37138
1995 YC ₅	1999 12 26.8	06 20.45 +23 43.7 18.7	-1.14 + 1.5	8.5/07.0	32750
1991 PM ₁₃	1999 12 27.0	06 20.81 +29 36.0 18.4	-1.21 + 0.4	2.2/26.8	36878
4810 P-L	1999 12 27.0	06 20.95 +42 08.6 18.5	-1.12 + 0.5	6.7/26.4	37341
1998 QU ₄₀	1999 12 27.0	06 20.97 +12 42.4 19.3	-0.98 + 0.8	3.5/27.4	32706
1997 AB ₁₅	1999 12 27.0	06 20.98 -02 36.8 20.3	-1.65 +20.8	12.2/31.4	29926
(9403)	1999 12 27.0	06 21.06 +25 08.8 17.2	-1.03 + 1.7	0.6/27.0	36499
1991 SE ₂	1999 12 27.0	06 21.14 +19 44.1 19.1	-1.12 + 0.9	1.3/27.2	32303
1996 DB ₃	1999 12 27.0	06 21.16 +40 01.4 17.7	-1.30 - 3.4	6.5/27.2	37269
1998 SD ₅₈	1999 12 27.0	06 21.24 +08 48.1 16.8	-0.86 + 0.8	4.9/27.6	37287
1994 PP ₃₇	1999 12 27.1	06 21.38 +23 44.6 18.7	-1.11 + 0.2	0.1/27.1	35691
1998 QL ₂₃	1999 12 27.1	06 21.55 +31 06.7 17.8	-1.00 - 0.1	2.7/27.0	37283
1995 BX	1999 12 27.1	06 21.55 +25 25.9 16.8	-0.96 + 0.8	0.8/27.1	37266

1993 MK	1999 12 27.1	06 21.63 +08 08.1 15.8	-1.42 +17.5	7.3/29.8	37264
4274 P-L	1999 12 27.1	06 21.73 +23 43.3 17.6	-1.17 - 0.6	0.2/27.2	37341
1998 QR ₃₆	1999 12 27.1	06 21.76 +04 34.9 18.8	-0.95 + 1.4	6.2/28.0	33082
1997 EJ ₂₆	1999 12 27.1	06 21.78 +33 12.9 20.5	-1.22 + 0.1	3.7/26.9	30786
(12346)	1999 12 27.2	06 21.90 +20 19.6 16.1	-1.06 - 0.2	1.4/27.3	36698
1998 SE ₁₃₅	1999 12 27.2	06 22.04 +10 40.0 18.7	-0.81 + 0.6	3.4/27.7	35719
(9828)	1999 12 27.2	06 22.07 +23 11.9 18.0	-0.61 + 0.7	0.0/27.3	33452
1997 MO	1999 12 27.2	06 22.09 +06 18.1 21.1	-0.82 + 0.4	4.8/27.8	32967
1998 QR ₂₆	1999 12 27.2	06 22.11 +22 14.3 19.2	-1.10 + 0.2	0.4/27.3	35710
1997 NA ₃	1999 12 27.3	06 22.22 +22 58.4 18.7	-0.90 - 0.1	0.1/27.3	34015
(12797)	1999 12 27.3	06 22.24 +19 09.6 16.9	-1.03 + 2.3	2.0/27.5	37063
2676 T-3	1999 12 27.3	06 22.29 +17 34.3 18.2	-1.11 - 0.1	2.2/27.5	37342
(12752)	1999 12 27.3	06 22.30 +17 48.3 17.2	-1.05 + 1.4	2.5/27.5	37052
1997 DT	1999 12 27.3	06 22.33 +19 41.8 17.7	-1.15 + 2.0	1.5/27.5	37272
1992 BD	1999 12 27.3	06 22.36 +42 05.2 16.5	-2.07 +26.6	9.7/23.0	37261
1997 JH ₆	1999 12 27.3	06 22.58 +22 12.4 18.1	-0.95 + 1.8	0.3/27.4	37274
1999 XJ ₉₅	1999 12 27.3	06 22.61 +33 25.5 17.4	-1.24 + 6.5	4.1/26.5	37249
1981 EY ₂₇	1999 12 27.3	06 22.64 +41 05.3 18.1	-1.28 + 0.4	6.0/26.9	37256
1998 QB ₅₀	1999 12 27.4	06 22.61 +36 01.2 18.3	-1.25 + 0.9	4.6/27.0	37164
1998 QE ₉₉	1999 12 27.4	06 23.12 +48 11.8 17.5	-1.17 - 0.6	8.5/27.1	36903
1998 QR ₃₉	1999 12 27.5	06 23.08 +33 08.7 18.5	-1.24 + 0.5	3.7/27.2	37284
1992 YC	1999 12 27.5	06 23.33 +13 06.5 15.6	-1.46 -19.5	5.3/26.1	37120
1998 QD ₂₆	1999 12 27.5	06 23.37 +20 11.9 18.4	-1.07 + 0.7	1.1/27.7	32974
1998 MJ ₁₄	1999 12 27.5	06 23.47 +28 20.6 15.8	-1.01 - 4.4	1.5/27.7	34590
(9185)	1999 12 27.6	06 23.56 +34 00.9 16.6	-1.27 + 0.4	4.0/27.3	32420
5205 T-2	1999 12 27.6	06 23.87 +26 36.1 17.5	-1.19 - 2.1	1.4/27.7	36124
1998 QA ₃₉	1999 12 27.6	06 23.95 +36 51.5 18.2	-1.18 - 2.0	4.4/27.7	37284
1997 HS ₁₃	1999 12 27.6	06 23.98 +07 40.1 19.0	-0.84 - 0.4	4.4/28.2	33077
4613 T-2	1999 12 27.7	06 24.13 -11 42.0 18.7	-0.54 + 0.7	6.3/29.5	29651
1027 T-2	1999 12 27.7	06 24.35 +11 18.4 19.8	-0.88 + 0.8	3.7/28.3	33057
1997 FC ₁	1999 12 27.8	06 24.74 +16 47.6 17.4	-1.10 + 3.7	2.8/28.3	37273
1998 RR ₆₁	1999 12 27.8	06 24.78 +20 44.2 17.5	-0.84 - 0.1	0.8/28.0	37169
1991 PY ₁₈	1999 12 27.8	06 24.80 +27 47.6 18.0	-1.22 - 0.6	1.8/27.8	36878
1981 DF ₁	1999 12 27.8	06 24.83 +34 50.9 18.1	-1.07 - 1.7	3.6/27.8	37255
1998 QQ ₄₄	1999 12 27.9	06 24.89 +18 21.1 18.3	-0.91 + 1.4	1.7/28.1	32710
(12798)	1999 12 27.9	06 24.95 +22 13.9 16.1	-1.07 + 3.0	0.5/28.0	37064
1973 QO ₁	1999 12 27.9	06 24.96 +31 55.5 16.9	-1.23 - 2.1	3.3/27.9	37254
1997 BN ₁	1999 12 27.9	06 25.13 +30 16.4 17.3	-1.31 - 1.3	3.0/27.9	36523
(12755)	1999 12 27.9	06 25.23 +23 07.9 17.0	-1.02 - 0.8	0.1/28.0	37052
1995 CC	1999 12 28.0	06 25.26 +23 57.1 17.2	-0.91 + 1.8	0.2/28.0	32944
2153 T-1	1999 12 28.0	06 25.33 +20 43.5 17.7	-0.93 + 1.3	0.8/28.1	37341
1998 QK ₉₅	1999 12 28.0	06 25.67 +17 59.7 16.9	-0.95 - 2.4	1.9/28.1	37285
1994 PW ₃₈	1999 12 28.1	06 25.69 +22 13.0 20.2	-1.06 + 0.7	0.4/28.1	32748
1998 SK ₁₂₁	1999 12 28.1	06 25.91 +13 00.1 17.3	-0.89 - 1.3	3.4/28.3	37287
1997 HD ₁₃	1999 12 28.1	06 25.95 +24 10.6 17.1	-1.13 + 0.7	0.4/28.1	37142
(12415)	1999 12 28.1	06 25.99 +19 39.9 17.0	-1.17 - 0.8	1.4/28.2	36717
1998 SS ₅₆	1999 12 28.1	06 26.12 +17 03.0 19.6	-0.99 + 1.1	2.0/28.4	35718
1998 RW ₄₈	1999 12 28.2	06 26.28 +22 49.8 18.8	-0.96 + 0.2	0.2/28.2	33350
1998 QD ₇₂	1999 12 28.2	06 26.40 +13 52.4 19.7	-0.97 - 1.1	2.9/28.4	35712
1994 PJ ₁₁	1999 12 28.2	06 26.55 +24 33.8 18.3	-1.11 + 0.3	0.4/28.2	32938
1979 MD ₈	1999 12 28.2	06 26.61 +19 15.1 16.8	-1.00 - 2.6	1.6/28.3	37255

(9301)	1999 12 28.2	06 26.66 +21 13.0 18.7	-1.19 + 1.0	0.8/28.4	32606
1998 SU ₆₂	1999 12 28.3	06 26.60 +24 36.7 17.7	-0.95 + 0.5	0.4/28.3	33035
(12474)	1999 12 28.3	06 26.61 +20 21.0 16.4	-1.14 + 2.6	1.3/28.5	36732
1998 US ₂₄	1999 12 28.3	06 26.89 +23 16.4 17.2	-0.62 + 1.3	0.0/28.4	37288
1996 UM	1999 12 28.3	06 26.96 -19 37.6 17.2	-1.12 + 0.3	20.9/01.0	36888
1999 WY ₉	1999 12 28.3	06 26.96 +36 11.3 16.4	-1.79 +20.4	6.5/25.9	37243
1996 GT ₁₉	1999 12 28.3	06 26.97 +09 46.0 17.5	-0.86 + 0.0	4.6/28.8	37269
1993 UV ₄	1999 12 28.3	06 27.09 +07 27.0 18.3	-0.85 + 1.3	5.4/29.2	32936
1997 EE ₄₆	1999 12 28.4	06 27.18 +10 59.2 18.9	-1.08 - 0.3	4.7/28.7	32752
1997 CO ₂₆	1999 12 28.4	06 27.27 +23 43.5 19.3	-1.17 + 0.6	0.2/28.4	32752
1998 WX ₉	1999 12 28.4	06 27.35 +24 00.7 17.8	-0.61 + 1.0	0.1/28.4	36905
2049 T-2	1999 12 28.4	06 27.45 +25 32.0 19.0	-1.16 + 0.6	0.8/28.4	33384
(9179)	1999 12 28.5	06 27.56 +07 54.5 17.5	-0.87 + 1.9	5.0/29.4	32419
1998 KS ₄₆	1999 12 28.5	06 27.63 +13 37.8 17.6	-1.13 - 0.4	3.9/28.8	37281
2048 P-L	1999 12 28.5	06 27.75 +27 17.4 18.9	-1.07 + 0.0	1.3/28.4	34616
4064 T-3	1999 12 28.5	06 27.86 +07 23.5 17.7	-0.85 + 1.6	5.3/29.5	37343
1998 QV ₉₆	1999 12 28.5	06 27.94 +28 08.4 18.0	-1.02 - 2.9	1.7/28.6	37167
1994 YU	1999 12 28.5	06 27.99 +25 58.9 17.8	-0.99 - 2.0	0.9/28.6	37266
(12663)	1999 12 28.6	06 27.96 +21 54.2 17.1	-0.95 + 0.5	0.5/28.7	37028
1997 EM ₄	1999 12 28.6	06 28.03 +20 47.3 21.4	-1.10 + 1.0	0.9/28.7	32677
1997 OJ	1999 12 28.6	06 28.27 +24 20.4 18.6	-0.86 + 0.8	0.3/28.6	37275
1998 PR	1999 12 28.7	06 28.40 +28 59.0 18.0	-1.06 - 0.2	2.1/28.5	37158
1993 FQ ₃₈	1999 12 28.7	06 28.60 +18 36.9 19.0	-1.05 + 1.4	1.7/29.0	35687
(9404)	1999 12 28.8	06 28.81 +31 12.1 16.5	-1.08 + 1.2	3.1/28.4	32631
1998 QY ₁₀	1999 12 28.8	06 28.83 +25 49.4 18.0	-1.10 + 1.5	0.9/28.7	32496
1990 RO ₇	1999 12 28.8	06 29.15 +18 28.5 18.0	-1.03 + 1.3	1.8/29.1	37259
(12778)	1999 12 28.9	06 29.23 +25 43.6 17.1	-1.02 + 2.8	0.9/28.7	37058
1999 VA ₅₃	1999 12 28.9	06 29.23 +20 43.9 16.5	-1.07 + 0.2	1.3/29.0	37229
1995 WT ₆	1999 12 28.9	06 29.49 +29 04.8 16.8	-1.17 - 2.0	2.7/28.9	37130
(12672)	1999 12 28.9	06 29.66 +24 25.5 17.3	-0.95 + 0.6	0.4/28.9	37030
1990 RY ₂	1999 12 28.9	06 29.68 +23 20.8 18.5	-0.77 + 0.2	0.0/29.0	35682
1998 MD ₃₈	1999 12 29.0	06 29.84 +26 40.7 15.2	-1.15 - 6.9	1.5/29.2	34921
(9638)	1999 12 29.0	06 30.00 +22 23.9 17.8	-1.12 + 1.0	0.3/29.1	32898
1997 TB ₁₂	1999 12 29.0	06 30.08 +12 45.1 18.6	-0.57 - 0.2	2.1/29.5	33558
(9636)	1999 12 29.0	06 30.09 +23 45.9 17.9	-0.92 + 4.8	0.2/29.0	32897
1995 RD	1999 12 29.0	06 30.16 +26 39.1 16.4	-1.19 + 6.1	1.6/28.8	37127
1998 RL ₇₄	1999 12 29.1	06 30.27 +26 15.7 18.6	-0.91 + 0.0	0.9/29.0	33352
(12874)	1999 12 29.1	06 30.28 +20 42.1 17.4	-0.95 + 0.8	0.8/29.2	37084
1997 TM ₂	1999 12 29.1	06 30.51 +28 19.7 19.2	-0.64 + 0.3	1.1/29.0	37143
1981 DM ₂	1999 12 29.2	06 31.03 +34 20.6 18.0	-1.09 - 2.1	4.0/29.2	37255
1998 QU ₉₇	1999 12 29.2	06 31.12 +49 15.0 19.5	-1.58 - 3.1	8.5/29.2	34591
1998 SP ₅₆	1999 12 29.3	06 31.06 +28 42.3 17.7	-1.03 + 0.8	1.8/29.1	36540
(8992)	1999 12 29.3	06 31.18 +10 49.0 17.6	-1.06 + 1.0	4.5/30.0	32172
1999 WS ₉	1999 12 29.3	06 31.27 +27 27.6 15.4	-1.06 + 3.8	1.4/29.0	37242
(9483)	1999 12 29.3	06 31.29 +10 13.5 17.5	-0.87 + 0.3	4.4/30.0	32649
(11769)	1999 12 29.3	06 31.52 +18 24.9 18.2	-1.02 + 0.9	1.8/29.6	35902
1990 SE ₁	1999 12 29.4	06 31.46 +41 29.1 18.6	-1.28 - 0.6	6.0/28.9	37259
1994 PD ₂	1999 12 29.4	06 31.65 +40 10.3 17.9	-1.30 - 2.1	6.0/29.4	30783
1990 QE ₄	1999 12 29.4	06 31.81 +04 03.1 17.9	-1.00 + 3.6	6.7/31.2	36877
(12002)	1999 12 29.4	06 31.87 +11 26.2 18.3	-0.86 - 0.4	3.5/29.9	36273
1998 SP ₅₅	1999 12 29.4	06 31.94 +19 15.2 18.9	-0.93 + 1.2	1.2/29.7	33029

1996 CP ₂	1999 12 29.4	06 31.98 +36 33.4 17.7	-1.17 + 2.4	4.7/28.6	37269
1998 OH ₇	1999 12 29.5	06 31.88 +24 28.7 17.7	-1.04 - 1.4	0.4/29.5	33755
1995 TB	1999 12 29.5	06 32.02 +32 55.1 17.7	-1.16 + 0.3	4.9/29.2	37267
9518 P-L	1999 12 29.5	06 32.06 +26 56.1 18.7	-1.13 + 0.9	1.3/29.4	36122
1998 RV ₆₉	1999 12 29.5	06 32.25 +26 50.6 19.1	-1.16 + 1.4	1.3/29.4	35715
1996 RD ₁₂	1999 12 29.5	06 32.36 +35 12.9 19.0	-0.68 + 0.4	2.4/29.0	37270
1998 OC ₇	1999 12 29.5	06 32.42 +11 40.6 19.0	-1.03 + 2.0	4.2/30.3	33346
(11668)	1999 12 29.6	06 32.33 +28 57.4 18.1	-0.64 + 0.6	1.2/29.3	35875
1998 QL ₅₃	1999 12 29.6	06 32.69 +02 32.0 17.8	-0.94 - 0.4	7.2/30.3	33348
(8778)	1999 12 29.6	06 32.78 +34 09.5 17.6	-1.29 + 2.1	3.8/29.1	31894
1991 PT ₉	1999 12 29.7	06 32.80 +30 06.3 17.6	-1.38 - 6.2	2.4/29.9	37260
1998 QW ₁₅	1999 12 29.7	06 32.96 +22 03.2 18.2	-0.95 + 0.6	0.4/29.8	37283
1998 QH ₇₇	1999 12 29.7	06 33.14 +29 49.5 17.1	-0.99 - 3.1	2.1/29.7	37285
1998 QN ₂₅	1999 12 29.8	06 33.24 +41 10.3 18.2	-1.29 - 1.4	6.1/29.5	37283
1998 QK ₆	1999 12 29.8	06 33.41 +15 13.8 19.4	-0.71 + 0.3	1.9/30.2	34301
1998 QW ₁₀₀	1999 12 29.8	06 33.53 +24 27.8 16.4	-1.02 + 1.9	0.5/29.8	37167
1981 EN ₅	1999 12 29.8	06 33.70 +18 14.3 17.4	-1.06 - 1.6	2.2/30.0	37256
1997 GM ₄₀	1999 12 29.9	06 33.67 +32 21.2 15.0	-1.16 + 7.4	4.7/28.8	37141
1998 QW ₃	1999 12 29.9	06 33.78 +14 37.0 21.1	-0.95 + 1.0	2.5/30.4	33080
1999 WT ₉	1999 12 29.9	06 33.83 +28 23.4 16.3	-1.18 + 5.4	2.4/29.5	37242
(12447)	1999 12 29.9	06 33.84 +24 53.1 17.5	-1.24 + 2.8	0.6/29.8	36725
(9676)	1999 12 29.9	06 33.90 +23 49.3 18.1	-0.90 + 0.6	0.2/29.9	32907
(12673)	1999 12 30.0	06 34.11 +10 16.3 17.5	-0.87 + 1.2	4.4/30.7	37031
2076 T-2	1999 12 30.0	06 34.12 +18 06.6 18.2	-1.20 + 1.1	2.2/30.2	37342
1997 GZ ₁₄	1999 12 30.0	06 34.23 +27 08.1 19.2	-1.19 + 0.5	1.7/29.9	33077
1992 EC ₁	1999 12 30.0	06 34.32 -23 10.7 18.0	-0.91 - 2.8	20.3/27.4	20342
1979 MZ ₁	1999 12 30.0	06 34.35 +17 41.1 18.9	-0.96 + 2.3	1.9/30.4	32657
(12883)	1999 12 30.0	06 34.46 +18 15.7 16.5	-1.15 + 0.2	2.1/30.3	37087
(11395)	1999 12 30.0	06 34.49 -03 50.9 16.9	-0.53 - 0.5	4.7/31.3	35589
1998 RP ₆₄	1999 12 30.0	06 34.52 -09 59.4 18.2	-0.80 + 1.7	10.2/01.7	35715
1997 EU ₄₆	1999 12 30.1	06 34.58 +21 58.9 18.1	-1.08 + 0.5	0.4/30.2	37273
1979 MV ₃	1999 12 30.1	06 34.68 +16 48.0 19.8	-1.11 + 1.3	2.5/30.5	30778
1266 T-2	1999 12 30.1	06 35.02 +33 23.8 17.7	-1.25 + 0.1	4.0/29.8	32786
(11307)	1999 12 30.2	06 35.02 +31 16.5 15.9	-1.17 + 1.3	3.5/29.8	36872
(12735)	1999 12 30.2	06 35.03 +06 20.9 17.0	-1.08 - 2.1	6.6/30.7	37047
4587 P-L	1999 12 30.2	06 35.05 +19 20.7 18.6	-1.08 + 0.9	1.4/30.4	32785
1992 HA ₄	1999 12 30.2	06 35.19 +23 10.7 17.8	-0.99 + 0.8	0.0/30.2	37262
1998 RZ ₃₄	1999 12 30.2	06 35.24 +20 38.5 18.6	-1.09 + 1.7	0.9/30.4	37286
1997 GW ₆	1999 12 30.2	06 35.29 +00 43.8 18.4	-0.93 - 1.5	7.6/31.0	37273
(9309)	1999 12 30.2	06 35.49 +22 06.6 16.8	-0.91 + 1.7	0.4/30.4	32608
1991 VD ₁₀	1999 12 30.3	06 35.50 +16 31.7 18.4	-1.07 + 0.8	2.5/30.6	34839
1998 QU ₄₃	1999 12 30.3	06 35.66 +19 27.4 18.8	-1.14 + 3.4	1.4/30.6	34591
1998 QD ₉₉	1999 12 30.3	06 35.77 +23 36.9 16.8	-0.96 + 1.9	0.1/30.3	37285
1998 OM ₁₃	1999 12 30.3	06 35.82 +30 41.1 16.8	-1.28 - 1.9	3.4/30.2	37282
1998 QO ₈₄	1999 12 30.3	06 35.88 +25 42.1 19.0	-1.06 - 1.3	0.8/30.3	35712
1994 VR	1999 12 30.4	06 36.14 +36 51.8 17.5	-1.15 + 2.8	4.8/29.5	37266
(12837)	1999 12 30.4	06 36.17 +17 25.0 17.7	-1.15 + 3.0	2.2/30.9	37073
1998 QC ₃₉	1999 12 30.4	06 36.17 +19 53.8 18.8	-1.07 + 1.5	1.1/30.6	33082
1997 GR ₂₁	1999 12 30.4	06 36.27 +06 59.3 19.6	-0.92 - 0.2	5.0/31.1	33077
1998 QF ₄₇	1999 12 30.4	06 36.36 +46 46.7 18.2	-1.49 - 0.1	10.0/29.3	37284
1995 UL ₇	1999 12 30.5	06 36.33 +27 11.0 16.4	-1.20 + 1.2	1.7/30.3	37268

(9031)	1999 12 30.5	06 36.36 +22 07.1 15.6	-1.17 + 5.3	0.5/30.6	32181
1998 SR ₁₆₂	1999 12 30.5	06 36.43 +13 03.9 17.7	-0.93 - 0.6	3.1/30.9	37288
1998 QZ ₁₀₀	1999 12 30.5	06 36.46 +23 39.6 19.5	-0.93 + 1.4	0.1/30.5	35713
(9007)	1999 12 30.5	06 36.52 +13 44.2 16.7	-1.05 + 0.1	4.0/31.0	32175
1998 SD ₁₂₂	1999 12 30.5	06 36.77 +11 51.0 17.5	-0.86 - 0.4	3.5/31.0	36540
1998 OF ₁₀	1999 12 30.5	06 36.79 +15 44.0 18.8	-1.14 + 2.4	2.9/31.0	32757
1998 SR ₂	1999 12 30.5	06 36.85 +55 22.2 18.1	-1.37 - 1.4	8.0/29.4	35716
1993 PU ₅	1999 12 30.6	06 36.89 +17 00.2 18.3	-0.93 + 1.0	2.0/31.0	35688
(12936)	1999 12 30.6	06 36.91 +20 02.6 17.4	-0.96 + 1.1	1.1/30.8	37102
1998 QR ₁	1999 12 30.6	06 36.96 +20 23.4 17.3	-1.10 - 1.4	1.1/30.7	37283
1998 SM ₁₂₃	1999 12 30.7	06 37.20 +31 01.6 18.5	-1.10 + 1.2	2.4/30.3	35719
1998 RD ₅₁	1999 12 30.7	06 37.23 +17 37.5 17.3	-1.00 - 0.3	1.9/30.9	37286
1981 EW ₂₅	1999 12 30.7	06 37.27 +47 43.5 19.2	-1.34 - 0.8	12.1/29.7	26919
1993 TG ₂₆	1999 12 30.7	06 37.36 +37 15.5 17.0	-1.07 + 2.4	4.8/29.7	37264
1036 T-3	1999 12 30.7	06 37.43 +35 42.9 16.7	-1.06 - 1.7	5.0/30.4	37342
1999 VF ₅₃	1999 12 30.7	06 37.54 +29 11.6 16.4	-1.07 + 4.0	2.9/30.3	37230
1999 XE ₁	1999 12 30.7	06 37.65 +15 54.6 15.8	-1.02 + 1.0	3.1/31.2	37244
(9263)	1999 12 30.8	06 37.68 +24 49.3 18.1	-0.92 + 1.2	0.5/30.7	32596
1998 RC ₇₇	1999 12 30.8	06 38.10 +22 28.0 18.3	-0.99 + 1.8	0.2/30.9	37286
1998 QA ₁₅	1999 12 30.9	06 38.13 +13 16.6 18.5	-1.07 + 2.5	3.7/31.6	33080
(9181)	1999 12 30.9	06 38.16 +30 07.2 17.2	-1.25 - 1.0	2.6/30.7	32420
1991 VY	1999 12 30.9	06 38.39 +28 22.1 16.1	-1.14 + 3.7	2.3/30.5	37261
1998 QH	1999 12 30.9	06 38.39 +33 06.8 18.6	-1.23 - 0.4	3.7/30.6	37159
1995 UK ₆	1999 12 30.9	06 38.45 +26 07.5 16.4	-1.19 + 0.5	1.3/30.8	37267
(9526)	1999 12 30.9	06 38.47 +28 20.2 18.0	-1.01 - 0.8	1.7/30.8	32870
1998 RL ₅₃	1999 12 31.0	06 38.62 +36 48.8 17.9	-1.06 - 0.5	4.7/30.5	37286
1993 UL ₇	1999 12 31.0	06 38.95 +08 58.4 19.7	-0.85 + 1.7	4.7/01.0	33238
1998 QK ₁₉	1999 12 31.0	06 38.98 +18 17.5 17.2	-1.08 + 3.6	1.8/31.5	37283
1998 SA ₁₀	1999 12 31.0	06 39.03 -22 30.1 18.0	-0.93 - 2.1	13.3/03.1	36540
1998 QH ₇₉	1999 12 31.1	06 38.97 +07 33.6 20.0	-0.97 + 0.6	4.9/01.0	32770
1997 GK ₂₅	1999 12 31.1	06 39.32 +19 47.1 18.5	-1.11 + 1.0	1.2/31.3	35699
1998 SF ₁₂₇	1999 12 31.1	06 39.45 +38 35.3 17.4	-1.05 + 2.6	4.9/30.0	37287
1995 SU ₅₂	1999 12 31.2	06 39.52 +24 31.5 16.6	-1.23 - 1.1	0.6/31.2	37128
1998 MG ₂₉	1999 12 31.2	06 39.58 +24 40.5 18.9	-1.08 + 2.7	0.5/31.1	34921
1992 PB ₁	1999 12 31.2	06 39.63 +14 05.7 17.4	-0.85 + 2.3	2.8/01.0	37262
1998 MY ₇	1999 12 31.2	06 39.70 +16 51.2 18.5	-1.03 - 1.3	2.0/31.5	33558
1998 QO ₅₁	1999 12 31.2	06 39.91 +29 43.9 21.1	-1.07 - 0.1	1.9/31.0	33560
1973 SB ₂	1999 12 31.3	06 39.94 +32 29.8 18.1	-0.64 + 0.6	1.8/30.8	37255
(9712)	1999 12 31.3	06 40.03 +12 35.5 17.1	-0.58 + 0.8	2.3/01.0	33190
(12826)	1999 12 31.3	06 40.23 +16 39.2 17.6	-1.15 + 2.3	2.5/31.8	37070
1998 RZ ₈	1999 12 31.3	06 40.33 +18 03.1 19.1	-0.93 + 1.4	1.7/01.0	35713
1998 QF ₅₅	1999 12 31.4	06 40.34 +22 32.0 17.2	-1.15 + 0.7	0.2/31.4	37165
(12419)	1999 12 31.4	06 40.47 +31 26.3 16.0	-1.20 + 4.4	3.6/30.7	36718
1991 PM ₄	1999 12 31.4	06 40.57 +27 40.4 18.3	-1.21 - 0.2	1.7/31.3	35683
1997 BV ₃	1999 12 31.4	06 40.60 +21 53.5 17.2	-1.19 + 3.4	0.5/31.5	37272
(11371)	1999 12 31.4	06 40.67 +23 08.0 18.2	-1.18 + 0.3	0.0/31.5	35583
1998 RH ₇₄	1999 12 31.4	06 40.71 +22 47.6 17.3	-0.92 0.0	0.1/31.5	37286
(9409)	1999 12 31.5	06 40.92 +24 55.3 16.2	-0.94 + 1.5	0.7/31.4	32632
1998 RP ₆₆	1999 12 31.5	06 41.00 +21 59.5 18.2	-0.98 + 0.1	0.4/31.6	33004
1998 MP ₂₄	1999 12 31.5	06 41.13 +24 29.2 17.8	-1.12 + 0.1	0.6/31.5	32286
3393 T-3	1999 12 31.5	06 41.17 +08 59.5 18.6	-0.85 + 0.7	4.2/01.4	34618

1998 SC ₄₉	1999 12 31.5	06 41.21 +20 02.7 17.3	-0.95 + 1.4	1.1/31.8	37173
2077 T-3	1999 12 31.5	06 41.30 +38 11.4 18.6	-1.38 + 1.2	6.0/30.6	37342
1998 QE	1999 12 31.6	06 41.30 +26 28.0 17.5	-1.06 + 0.5	1.3/31.4	37159
1981 EJ ₁₄	1999 12 31.6	06 41.32 +30 06.9 19.6	-1.18 - 1.0	2.8/31.4	26917
(9139)	1999 12 31.6	06 41.37 +22 51.7 17.0	-1.18 + 2.1	10.6/21.0	32206
1991 RF ₁₁	1999 12 31.6	06 41.61 +29 10.7 16.2	-1.19 - 1.4	2.8/01.0	36508
1998 QS ₃₉	1999 12 31.6	06 41.72 +21 49.3 19.2	-1.09 + 2.1	0.4/31.8	34020
9606 P-L	1999 12 31.7	06 41.67 +25 39.7 18.7	-0.96 + 1.5	0.9/31.5	36122
(9249)	1999 12 31.7	06 41.81 +25 37.1 17.9	-1.19 + 1.8	1.0/31.6	32435
1998 QN ₅₀	1999 12 31.7	06 41.98 +20 19.1 17.5	-1.14 + 3.0	1.0/32.0	37284
(8086)	1999 12 31.7	06 42.07 +37 42.7 17.8	-0.82 + 1.1	3.1/30.8	30963
1999 XL ₁	1999 12 31.7	06 42.11 +17 22.9 16.5	-0.97 - 3.8	2.1/31.8	37244
2616 P-L	1999 12 31.7	06 42.11 +29 13.1 18.2	-1.16 + 1.8	2.5/31.4	34564
1998 SK ₃	1999 12 31.8	06 42.10 +28 18.0 20.0	-1.20 + 3.6	2.1/31.4	33014
1997 AA ₁₇	1999 12 31.8	06 42.26 +21 58.3 18.2	-1.23 + 1.3	10.2/21.0	37272
(12833)	1999 12 31.9	06 42.52 +22 15.2 17.5	-1.24 + 2.4	10.1/21.0	37072
(9399)	1999 12 31.9	06 42.55 +28 29.6 17.8	-1.09 + 1.4	1.8/31.6	32629
(9744)	1999 12 31.9	06 42.58 +19 52.5 17.7	-1.03 + 4.2	1.0/32.0	33198
1995 BJ	1999 12 31.9	06 42.61 +29 31.3 17.1	-1.01 - 2.2	2.2/31.8	36515
1997 GX ₁₅	1999 12 31.9	06 42.67 +17 07.3 18.9	-1.05 + 1.6	2.3/01.3	35699
1978 VC ₉	1999 12 31.9	06 42.67 +22 35.6 17.0	-1.05 + 0.3	10.3/12.0	37113
(9488)	1999 12 31.9	06 42.86 +34 08.0 17.6	-1.30 + 1.4	4.7/31.2	32650
(12238)	2000 01 01.0	06 43.00 +01 23.9 17.5	-0.58 - 1.0	4.4/02.1	36669
1998 WA ₁₅	2000 01 01.0	06 43.10 +10 30.5 17.6	-0.58 - 0.1	2.6/01.8	37289
1998 SK ₃₅	2000 01 01.0	06 43.17 +32 54.3 18.8	-1.11 + 0.8	3.3/31.5	35717
1994 PJ ₂₇	2000 01 01.0	06 43.21 +23 17.7 19.5	-1.10 + 2.1	0.1/01.0	35921
(9439)	2000 01 01.0	06 43.30 +23 27.8 18.4	-1.19 + 0.3	0.2/01.0	32639
(9857)	2000 01 01.0	06 43.33 +27 18.7 17.2	-0.64 - 1.3	0.8/31.9	36499
1994 PS ₂₈	2000 01 01.0	06 43.34 +17 29.1 17.8	-1.10 + 2.9	2.1/01.5	37265
(12903)	2000 01 01.1	06 43.46 +19 51.3 17.9	-1.07 + 1.6	1.1/01.3	37092
(12709)	2000 01 01.1	06 43.48 +03 40.9 17.3	-0.95 - 0.6	7.1/01.9	37040
(9148)	2000 01 01.1	06 43.54 +32 38.2 16.0	-1.23 + 0.6	4.9/31.6	32412
1993 FN ₂₂	2000 01 01.1	06 43.65 +17 32.2 19.7	-1.00 + 1.0	1.7/01.5	35687
1998 RZ ₄₅	2000 01 01.1	06 43.69 +16 15.8 19.4	-0.98 + 1.0	2.3/01.6	32993
1991 RG ₇	2000 01 01.1	06 43.74 +20 55.4 16.4	-1.09 - 1.1	1.0/01.2	37261
1995 WO	2000 01 01.1	06 43.75 +09 59.6 18.6	-1.10 + 1.2	4.9/02.1	32310
1998 QY ₅₅	2000 01 01.1	06 43.83 +20 04.8 16.8	-0.94 + 1.6	1.1/01.4	37165
1981 EP ₂₅	2000 01 01.1	06 43.86 +21 20.3 17.8	-0.96 + 0.6	0.6/01.3	37256
1988 GQ	2000 01 01.2	06 44.27 +16 26.4 17.1	-1.03 + 4.3	2.3/01.9	37257
1995 TZ	2000 01 01.2	06 44.33 +26 07.5 18.4	-1.22 + 1.6	1.1/01.1	37267
1998 ST ₆₆	2000 01 01.2	06 44.34 +12 16.0 18.9	-0.89 + 1.2	3.1/02.0	34223
(9153)	2000 01 01.2	06 44.37 +07 01.3 16.6	-0.98 - 2.1	6.3/01.9	32413
1995 UP ₃	2000 01 01.3	06 44.37 +30 19.8 17.1	-1.24 + 1.0	2.9/31.9	36517
1998 SU ₁₀	2000 01 01.3	06 44.54 +22 13.5 17.4	-0.92 + 1.0	0.3/01.4	37171
1994 EL ₁	2000 01 01.3	06 44.56 +20 50.5 15.1	-1.13 + 5.3	1.1/01.6	37265
1998 QK ₇₅	2000 01 01.3	06 44.56 +14 47.0 16.4	-0.92 - 1.4	2.9/01.7	37285
1998 QA ₁₉	2000 01 01.3	06 44.63 +28 51.5 19.5	-1.20 + 1.5	2.1/01.0	35710
(12887)	2000 01 01.3	06 44.67 +23 59.4 17.2	-0.93 + 1.7	0.3/01.3	37088
1979 MS ₄	2000 01 01.4	06 44.77 +19 16.8 19.6	-1.08 + 1.9	1.3/01.7	32738
1998 RP ₅₃	2000 01 01.4	06 44.93 +10 53.9 18.2	-1.07 + 0.3	4.9/02.0	32996
1994 PE ₃₉	2000 01 01.4	06 44.95 +14 16.5 19.2	-1.03 + 2.1	3.1/02.1	32748

1988 BH ₅	2000 01 01.4	06 45.05 +17 43.9	16.4	-1.09	-	4.0	2.1/01.5	37257
1998 ST ₅₀	2000 01 01.4	06 45.07 +28 43.8	17.8	-0.97	+	1.1	1.9/01.1	34928
1998 RC ₅₃	2000 01 01.5	06 45.46 +26 08.2	18.7	-1.01	+	1.2	1.1/01.4	35714
1998 RV ₇₇	2000 01 01.5	06 45.47 +39 00.3	17.9	-1.09	+	1.4	4.9/31.5	37286
1985 RJ	2000 01 01.5	06 45.63 +05 59.7	19.4	-0.91	+	1.5	5.0/02.9	33066
1994 RL ₂₃	2000 01 01.6	06 45.66 +16 33.6	18.8	-1.05	+	3.0	2.3/02.1	36515
1998 QN ₄	2000 01 01.6	06 45.86 +33 59.0	17.5	-1.27	+	1.5	4.5/31.9	33080
(12747)	2000 01 01.6	06 46.00 +24 47.0	16.4	-1.17	+	2.7	0.8/01.5	37050
1990 QS ₃	2000 01 01.6	06 46.12 +16 07.4	20.0	-1.02	+	2.2	2.3/02.2	32742
1998 SJ ₂₄	2000 01 01.7	06 46.18 +25 18.9	17.3	-0.98	+	2.2	0.8/01.6	37287
1998 KZ	2000 01 01.7	06 46.39 +57 24.1	17.8	-2.15	+	9.2	16.1/27.4	36899
1998 SN ₁₃₀	2000 01 01.7	06 46.40 +22 12.9	18.3	-0.88	+	0.9	0.2/01.8	37287
6103 P-L	2000 01 01.8	06 46.73 +31 15.8	18.2	-1.00	+	0.5	3.2/01.4	37341
9602 P-L	2000 01 01.8	06 46.85 +16 42.3	18.9	-0.56	+	1.2	1.2/02.4	37250
1996 AX ₃	2000 01 01.8	06 47.01 +29 29.3	17.4	-1.09	+	0.1	2.3/01.5	33075
(9337)	2000 01 01.9	06 47.05 +25 19.8	16.7	-0.99	+	0.9	0.8/01.8	36499
(12894)	2000 01 01.9	06 47.06 +19 52.6	17.1	-1.02	-	1.5	1.0/02.0	37090
(9522)	2000 01 01.9	06 47.11 +13 30.9	17.2	-0.79	-	0.9	2.8/02.4	32869
1990 VM ₂	2000 01 01.9	06 47.18 +22 41.2	16.6	-1.05	+	3.4	0.1/02.0	37260
1998 RF ₁₆	2000 01 01.9	06 47.25 +18 46.4	18.1	-0.99	+	2.3	1.4/02.3	37285
4115 P-L	2000 01 01.9	06 47.27 +21 31.2	17.8	-1.04	+	1.0	0.6/02.1	37341
1998 SN ₆₀	2000 01 01.9	06 47.28 +21 27.7	18.1	-0.90	+	1.8	0.5/02.1	37174
2186 T-2	2000 01 01.9	06 47.45 +25 47.4	19.4	-0.98	+	1.0	0.9/01.8	32733
1998 QB ₈₇	2000 01 02.0	06 47.45 +32 25.6	17.4	-1.06	-	3.7	3.2/01.9	37285
1998 SL ₂₂	2000 01 02.0	06 47.52 +22 15.9	18.6	-0.95	+	0.9	0.2/02.1	33018
1998 SY ₄₂	2000 01 02.0	06 47.61 +33 43.1	19.2	-1.09	+	1.3	3.5/01.3	33024
(9184)	2000 01 02.0	06 47.72 +31 27.5	16.6	-1.22	+	0.1	4.0/01.6	32420
1998 VP ₂₀	2000 01 02.0	06 47.76 +20 49.6	17.7	-0.86	+	1.3	0.6/02.2	37288
1998 QP ₅₇	2000 01 02.0	06 47.80 +17 57.1	16.9	-0.88	+	1.2	1.9/02.4	37284
1997 EO ₄₂	2000 01 02.1	06 47.87 +21 16.6	19.3	-1.11	+	0.9	0.6/02.2	35699
1994 RW ₁₇	2000 01 02.1	06 47.88 +23 04.1	19.0	-1.09	+	1.0	0.0/02.1	33073
1998 QH ₇₁	2000 01 02.1	06 48.05 +16 51.0	19.1	-1.07		0.0	2.2/02.5	35712
1998 RT ₆₆	2000 01 02.1	06 48.06 +13 09.3	17.5	-0.87	+	0.3	3.1/02.7	37169
1998 SB ₃₂	2000 01 02.1	06 48.28 +13 33.4	17.7	-0.88	+	1.2	2.9/02.9	37287
1998 QF ₅₀	2000 01 02.1	06 48.35 +35 26.2	18.5	-1.12	+	0.9	4.1/01.4	37284
1993 UW ₆	2000 01 02.2	06 48.51 +23 28.5	17.7	-0.92	+	2.6	0.2/02.2	37265
(12772)	2000 01 02.2	06 48.57 +24 21.0	16.6	-1.16	+	3.2	0.5/02.1	37057
(12834)	2000 01 02.2	06 48.78 +19 45.8	17.4	-1.20	+	3.0	1.3/02.6	37073
1997 JJ ₁₆	2000 01 02.3	06 48.97 +19 32.3	17.4	-1.07	+	1.6	1.3/02.6	37274
1998 RB	2000 01 02.3	06 49.16 -01 17.4	18.0	-0.95	+	0.4	8.9/03.9	33756
1998 RA ₇₃	2000 01 02.4	06 49.18 +22 45.2	17.3	-0.95	+	0.9	0.1/02.4	37286
1995 UW ₃	2000 01 02.4	06 49.26 +27 28.2	17.8	-1.18	+	1.0	2.0/02.2	30472
(9408)	2000 01 02.4	06 49.34 +21 49.6	17.1	-0.94	+	2.1	0.4/02.5	32632
1998 QB ₇₃	2000 01 02.4	06 49.60 +10 45.5	18.6	-0.89	+	0.2	3.9/03.3	35712
4778 P-L	2000 01 02.4	06 49.67 +15 45.4	18.2	-1.17	+	2.0	2.9/03.0	37341
1993 TM ₁₅	2000 01 02.5	06 49.72 +25 06.5	18.6	-0.95	+	1.9	0.7/02.4	33072
(9037)	2000 01 02.5	06 49.80 +18 56.0	17.1	-1.03	+	2.9	1.5/02.9	32182
6747 P-L	2000 01 02.5	06 49.92 +46 40.4	21.0	-1.33	+	0.7	7.1/01.0	34267
1993 TW ₃₈	2000 01 02.5	06 50.04 +09 43.9	17.8	-0.86	+	2.1	4.1/03.7	36513
(9562)	2000 01 02.6	06 50.04 +21 18.8	17.2	-0.88	+	1.8	0.5/02.7	32879
(12732)	2000 01 02.6	06 50.05 +23 42.4	16.8	-1.15	+	3.9	0.3/02.5	37047

(12729)	2000 01 02.6	06 50.07 +05 12.9	17.3	-1.03	-	0.5	6.9/03.6	37046
A913 CF	2000 01 02.6	06 50.09 +09 24.7	18.9	-0.86	+	1.1	4.3/03.6	33064
(9502)	2000 01 02.6	06 50.16 +15 33.7	18.8	-1.09	+	1.4	2.6/03.1	32654
(9790)	2000 01 02.6	06 50.16 +17 15.9	18.1	-0.57	+	0.3	1.1/03.0	33209
(12817)	2000 01 02.6	06 50.25 +17 37.9	17.7	-0.88	+	0.7	1.7/03.0	37068
1997 PF	2000 01 02.6	06 50.38 +16 20.3	19.3	-0.83	+	0.2	1.8/03.1	35700
1998 OE ₁₂	2000 01 02.6	06 50.39 +22 20.3	19.9	-1.05	+	3.0	0.2/02.7	35709
(10989)	2000 01 02.6	06 50.41 +09 45.4	18.2	-0.56	+	0.8	2.6/03.7	35209
(9512)	2000 01 02.7	06 50.55 +05 35.4	16.2	-0.94	+	5.2	6.9/04.7	32866
(9397)	2000 01 02.7	06 50.60 +18 27.6	19.4	-1.05	+	0.9	1.6/03.0	32629
3200 T-2	2000 01 02.7	06 50.70 +22 13.7	18.6	-0.94	+	2.1	0.2/02.8	36123
1995 WQ ₁	2000 01 02.7	06 50.72 +20 56.0	16.7	-1.10	-	0.8	0.9/02.8	37268
1998 QK ₅	2000 01 02.7	06 50.74 +18 25.6	17.9	-1.14	-	0.2	2.0/03.0	37283
1998 RT ₄₉	2000 01 02.8	06 50.92 +40 50.5	19.5	-1.22	+	0.5	5.7/01.7	33350
1998 RW ₆₁	2000 01 02.8	06 51.02 +22 20.0	18.8	-0.93	+	0.7	0.2/02.9	33273
1998 RK ₄₅	2000 01 02.8	06 51.07 +11 29.9	19.2	-0.94	+	1.6	3.9/03.7	35714
1998 PG ₁	2000 01 02.8	06 51.11 +34 17.1	18.4	-1.29	+	1.7	4.0/02.0	33346
(8241)	2000 01 02.8	06 51.29 +28 10.2	18.3	-0.61	+	0.8	1.0/02.5	35675
1998 SS ₁₄₇	2000 01 02.8	06 51.30 +52 03.3	17.9	-1.26	+	2.7	8.4/30.7	34305
1996 AG ₅	2000 01 02.9	06 51.45 +27 07.7	19.8	-1.08	+	1.8	1.6/02.6	26750
1998 RC ₆₉	2000 01 02.9	06 51.81 +23 38.9	17.6	-0.90	+	1.1	0.2/02.9	37170
(9587)	2000 01 03.0	06 51.93 +02 27.4	17.9	-0.94	+	0.9	6.6/04.5	32886
1991 RJ ₂₀	2000 01 03.0	06 52.13 +20 18.7	17.8	-1.14	+	2.8	1.1/03.3	37261
1998 OJ ₁	2000 01 03.0	06 52.18 +11 09.9	18.5	-1.02	-	1.4	4.1/03.6	33078
3338 T-1	2000 01 03.0	06 52.19 +27 11.7	19.6	-1.18	+	1.9	1.7/02.7	29948
1998 QE ₄₉	2000 01 03.0	06 52.28 +25 03.6	17.4	-1.01	+	1.5	0.8/02.9	37284
(9476)	2000 01 03.1	06 52.36 +15 59.8	17.6	-1.05	+	1.1	2.5/03.6	32647
1998 PS	2000 01 03.1	06 52.42 +21 09.5	19.1	-0.92	+	1.4	0.6/03.3	37283
(9285)	2000 01 03.1	06 52.57 +23 49.7	17.0	-0.97	+	0.9	0.3/03.1	32602
1998 MM ₁₉	2000 01 03.1	06 52.65 -18 35.9	17.3	-1.13	-	1.2	20.1/05.2	36537
1987 RR	2000 01 03.1	06 52.67 +07 32.9	17.6	-0.85	+	3.4	4.8/04.8	37257
1998 QC ₅₂	2000 01 03.2	06 52.69 -11 04.6	17.8	-0.92	+	2.3	12.2/06.6	33560
(11374)	2000 01 03.2	06 52.76 +11 55.9	18.4	-1.07	+	1.3	4.0/04.0	35584
1998 RS	2000 01 03.2	06 52.84 -00 21.8	18.0	-0.82	+	1.7	7.4/05.4	33350
1997 EK ₄₁	2000 01 03.2	06 53.12 +19 05.2	18.4	-1.16	+	0.4	1.5/03.5	37273
1993 TJ ₂₇	2000 01 03.2	06 53.18 +07 04.7	18.6	-0.86	+	1.5	5.3/04.6	33072
1994 PX ₉	2000 01 03.3	06 53.14 +24 52.2	19.3	-1.09	+	1.4	0.7/03.2	36071
1992 CD ₃	2000 01 03.3	06 53.16 +10 14.2	17.8	-0.98	+	3.6	4.5/04.6	36509
1998 SB ₂₈	2000 01 03.3	06 53.47 +37 12.4	18.5	-1.03	+	1.5	4.1/02.2	37172
1996 AF ₁₁	2000 01 03.4	06 53.75 +21 09.9	18.6	-1.07	+	0.2	0.7/03.5	33251
1994 PN ₂₅	2000 01 03.4	06 53.82 +22 55.1	17.6	-1.13	+	2.4	0.0/03.4	37265
1981 EH ₄₅	2000 01 03.4	06 54.00 +25 08.0	18.8	-1.13	-	2.0	1.0/03.4	26923
1998 OZ ₈	2000 01 03.5	06 54.02 +25 32.1	17.6	-1.21	+	0.3	1.0/03.3	37282
1998 ST ₁₆₀	2000 01 03.5	06 54.05 +19 17.6	18.6	-0.90	+	1.3	1.1/03.8	34025
1998 RC ₇₆	2000 01 03.5	06 54.15 +17 22.3	18.8	-1.06	+	2.3	1.8/04.0	35716
1997 KC	2000 01 03.5	06 54.19 +24 36.7	17.4	-1.14	+	6.2	0.6/03.3	37274
1996 HY ₁₀	2000 01 03.5	06 54.38 +35 35.4	18.3	-1.02	+	2.4	3.9/02.4	37270
1997 ES ₁₇	2000 01 03.5	06 54.44 +23 52.3	18.1	-1.10	+	0.4	0.3/03.5	37273
1998 YW ₆	2000 01 03.5	06 54.47 +31 29.6	18.9	-0.64	+	0.5	1.6/02.9	37289
5030 T-2	2000 01 03.6	06 54.53 +24 42.0	17.2	-0.65	-	0.7	0.4/03.5	37342
1997 GD ₄₂	2000 01 03.6	06 54.54 +13 12.8	17.4	-1.05	+	2.0	4.0/04.4	37274

1989 ST ₄	2000 01 03.6	06 54.59 +30 54.4 18.0	-1.05 + 2.4	2.7/02.9	33334
1981 EB ₁₇	2000 01 03.6	06 54.68 +27 22.8 17.7	-1.13 + 0.7	1.7/03.3	32739
1998 QZ ₁₀₁	2000 01 03.6	06 54.76 +10 00.0 18.5	-0.98 + 3.5	4.7/04.9	33563
1998 TC ₅	2000 01 03.6	06 54.83 +06 32.3 18.7	-0.82 - 0.3	4.3/04.8	34305
1998 JJ ₄	2000 01 03.7	06 54.87 +09 20.6 19.2	-1.10 + 0.3	4.9/04.7	32522
1994 PV ₃₉	2000 01 03.7	06 55.12 +22 34.2 18.4	-1.13 + 1.0	0.1/03.8	33340
1998 RJ ₁₅	2000 01 03.7	06 55.12 +19 37.2 20.2	-1.09 + 1.6	1.2/04.0	35713
1998 RR ₅₃	2000 01 03.7	06 55.22 +12 21.9 20.0	-0.96 + 1.0	3.3/04.5	35714
2590 P-L	2000 01 03.7	06 55.23 +29 57.2 19.0	-1.16 + 1.4	2.4/03.2	33129
1981 EN ₂₁	2000 01 03.7	06 55.37 +20 07.6 17.9	-0.93 + 1.3	0.9/04.0	37256
4219 T-3	2000 01 03.8	06 55.31 +21 44.0 20.3	-1.14 + 2.6	0.4/03.9	26187
(9907)	2000 01 03.8	06 55.35 +14 58.8 18.4	-0.56 + 1.4	1.5/04.5	33470
1998 MF ₄₁	2000 01 03.8	06 55.51 +25 14.8 19.5	-1.24 - 1.2	0.9/03.7	34219
(9343)	2000 01 03.8	06 55.56 +12 40.3 17.7	-1.07 + 1.7	3.8/04.6	36499
(9324)	2000 01 03.9	06 55.82 +25 18.2 16.5	-1.16 + 0.9	1.0/03.7	32611
(12808)	2000 01 03.9	06 55.83 +16 12.0 15.1	-0.96 + 8.2	3.3/04.9	37066
1998 OA ₁₂	2000 01 03.9	06 55.87 +35 47.2 18.1	-1.26 - 4.9	5.3/03.9	37158
1978 UN ₅	2000 01 03.9	06 55.87 +30 28.4 19.3	-1.13 + 1.2	2.5/03.4	33539
3063 T-2	2000 01 03.9	06 55.93 +47 32.2 17.8	-1.37 + 0.7	9.8/02.0	37342
(9335)	2000 01 03.9	06 55.94 +25 04.5 16.6	-1.01 + 3.0	0.8/03.7	32614
1998 QK ₁₆	2000 01 03.9	06 56.02 +30 37.4 18.3	-1.16 - 2.2	2.7/03.7	37283
1998 SY ₁₂	2000 01 03.9	06 56.05 +21 02.9 17.8	-1.05 + 5.7	0.6/04.2	37171
1996 EB ₂	2000 01 03.9	06 56.11 +35 48.8 17.3	-1.13 - 0.1	5.1/03.2	37269
(9158)	2000 01 03.9	06 56.21 +13 51.7 16.9	-1.10 + 3.9	3.5/04.9	32414
1997 GM ₆	2000 01 04.0	06 56.45 +07 53.4 19.3	-0.92 + 0.6	4.6/05.2	33344
(12707)	2000 01 04.0	06 56.45 +43 04.1 16.9	-1.29 + 4.9	7.7/01.7	37040
2695 P-L	2000 01 04.0	06 56.47 +24 01.4 17.6	-0.93 + 1.0	0.4/04.0	33735
(12915)	2000 01 04.0	06 56.49 +20 51.5 16.8	-1.03 + 1.2	0.7/04.2	37096
4517 P-L	2000 01 04.0	06 56.59 +34 04.7 17.0	-1.30 + 1.1	4.4/03.3	37341
1998 RX	2000 01 04.0	06 56.62 +37 36.6 16.9	-1.03 + 0.3	4.6/03.0	37285
1998 OP	2000 01 04.0	06 56.63 +17 27.7 18.3	-1.17 + 2.4	2.0/04.5	37282
1998 WJ ₁₇	2000 01 04.0	06 56.69 +18 44.1 18.6	-0.68 + 0.6	0.9/04.4	37289
1998 QT ₄₁	2000 01 04.0	06 56.73 +28 55.6 19.1	-1.09 + 1.0	2.1/03.7	35711
1998 SZ ₇₂	2000 01 04.1	06 57.09 +22 30.3 17.9	-0.88 + 1.8	0.1/04.2	37287
(9050)	2000 01 04.2	06 57.06 +20 58.5 16.4	-1.17 - 2.7	0.7/04.3	32185
1998 RG ₆₄	2000 01 04.2	06 57.35 +15 18.3 18.8	-1.09 + 2.4	2.7/04.9	35715
2168 T-2	2000 01 04.2	06 57.48 +20 16.2 17.8	-0.94 + 1.3	0.9/04.5	37342
1998 YW ₁	2000 01 04.2	06 57.49 +27 15.5 17.8	-0.63 0.0	0.9/03.9	35729
(11396)	2000 01 04.3	06 57.60 +07 13.0 17.5	-0.54 + 0.7	2.9/05.7	35589
1998 QM ₄₄	2000 01 04.3	06 57.92 +19 03.7 18.2	-1.11 + 3.1	1.5/04.7	37284
1980 UW ₁	2000 01 04.4	06 58.05 +24 00.3 17.7	-1.17 + 0.9	0.5/04.3	37255
1998 QX ₅	2000 01 04.4	06 58.10 +39 38.5 18.7	-1.17 + 1.5	4.9/03.0	33347
1998 SQ ₉₇	2000 01 04.4	06 58.42 -01 59.1 18.2	-0.81 + 2.2	7.6/07.2	35719
(9607)	2000 01 04.4	06 58.46 +34 09.9 18.4	-1.07 + 0.9	3.2/03.6	32890
1998 SL ₁₂	2000 01 04.5	06 58.76 +20 08.0 17.8	-0.94 + 1.8	0.8/04.8	37287
1998 OY ₉	2000 01 04.5	06 58.76 +17 07.8 19.9	-1.16 + 2.4	2.1/05.0	32757
(9405)	2000 01 04.5	06 58.76 +26 23.1 17.1	-0.99 + 1.8	1.3/04.3	32631
(12827)	2000 01 04.6	06 58.86 +20 03.2 16.7	-1.10 + 4.5	1.0/04.9	37071
1021 T-2	2000 01 04.6	06 58.88 +18 25.4 19.0	-1.12 + 1.9	1.7/05.0	23681
1998 UJ ₁	2000 01 04.6	06 59.03 +28 19.6 19.0	-1.09 + 3.2	1.8/04.1	33050
1995 SV ₅₀	2000 01 04.6	06 59.16 +26 19.1 18.0	-1.19 + 0.9	1.6/04.4	37267

1996 TH ₅₂	2000 01 04.6	06 59.22 +34 02.4 18.3	-0.66 + 0.6	2.2/03.7	35697
(11385)	2000 01 04.7	06 59.27 +22 05.9 17.4	-0.90 + 1.9	0.2/04.8	35586
1998 RW ₅₀	2000 01 04.7	06 59.28 +23 30.2 17.8	-1.03 + 0.5	0.3/04.6	37286
1997 FN ₁	2000 01 04.7	06 59.33 +17 22.8 18.3	-1.13 + 0.6	2.0/05.1	37273
4230 T-2	2000 01 04.7	06 59.34 +23 48.1 18.3	-0.95 + 2.2	0.3/04.6	37342
1995 FW	2000 01 04.7	06 59.37 +56 05.1 18.9	-2.17 - 4.0	16.2/03.4	30783
(12486)	2000 01 04.7	06 59.44 +30 26.1 17.2	-1.18 + 2.5	3.2/04.0	36736
1998 QX ₃₇	2000 01 04.7	06 59.62 +32 31.5 18.5	-1.21 - 0.3	3.7/04.2	37284
1998 UX ₂₅	2000 01 04.7	06 59.63 +04 51.4 18.6	-0.82 + 0.9	5.0/06.2	34594
(9509)	2000 01 04.8	06 59.89 +12 05.2 18.3	-1.08 + 1.7	3.9/05.7	32656
1990 YP	2000 01 04.8	06 59.95 +31 33.1 16.3	-1.17 - 7.8	4.2/05.0	37260
1998 RV ₄₂	2000 01 04.8	06 59.97 +15 04.2 17.5	-0.95 + 0.2	2.6/05.4	37168
1995 DG	2000 01 04.8	07 00.17 +03 05.1 16.1	-0.82 + 6.8	7.5/08.0	36884
1998 RC ₂₄	2000 01 04.8	07 00.23 +16 30.1 18.2	-0.96 + 2.1	2.4/05.5	35714
1998 SC ₂₈	2000 01 04.9	07 00.16 +21 49.3 19.2	-0.88 + 1.4	0.3/05.0	35717
1978 VL ₃	2000 01 04.9	07 00.18 +27 29.0 18.2	-1.21 + 2.4	1.8/04.5	32208
(9691)	2000 01 04.9	07 00.19 +18 03.4 18.8	-0.99 + 1.2	1.5/05.3	32911
1995 QH	2000 01 04.9	07 00.25 +21 04.5 16.1	-1.17 - 1.3	0.8/05.0	37127
1998 UY ₂₆	2000 01 04.9	07 00.29 +10 25.6 18.0	-0.92 + 1.5	3.7/05.9	35723
1991 VY ₄	2000 01 04.9	07 00.34 +23 21.2 15.8	-1.06 + 4.0	0.3/04.9	37261
1998 QO ₅₃	2000 01 04.9	07 00.55 -10 44.7 19.5	-0.88 + 0.5	9.3/08.3	33561
(11737)	2000 01 04.9	07 00.58 +16 07.7 16.6	-1.06 + 1.3	2.7/05.5	35894
(9006)	2000 01 04.9	07 00.59 +36 19.8 16.1	-1.22 + 5.9	5.3/03.3	32175
1998 QT ₉₀	2000 01 05.0	07 00.60 +29 10.2 17.8	-1.11 + 2.6	2.2/04.4	34302
1993 QV ₄	2000 01 05.0	07 00.71 +25 34.9 17.6	-0.99 + 1.4	1.0/04.8	37264
1998 SH ₁₀₆	2000 01 05.0	07 00.89 +38 40.4 18.3	-1.03 + 1.4	4.5/03.7	34023
1988 DB ₅	2000 01 05.0	07 00.94 +02 21.3 18.1	-0.96 + 0.5	7.4/06.5	35679
1998 RE ₂	2000 01 05.0	07 00.97 +14 48.2 16.8	-0.87 + 4.4	2.7/06.0	37285
1998 QW ₄₅	2000 01 05.0	07 01.00 +19 31.7 18.3	-1.16 + 1.1	1.2/05.3	37284
(9287)	2000 01 05.0	07 01.07 +22 35.6 18.0	-0.96 + 1.1	0.0/05.1	32602
(12278)	2000 01 05.1	07 01.53 +11 48.8 16.4	-0.96 + 0.3	4.6/06.0	36680
1991 NM	2000 01 05.2	07 01.71 +09 22.6 18.3	-0.82 - 1.1	3.4/06.1	34493
4536 T-2	2000 01 05.2	07 01.73 +04 48.0 19.5	-0.56 + 1.5	3.7/07.1	33059
(9577)	2000 01 05.2	07 01.99 +23 56.6 18.4	-1.14 + 1.0	0.5/05.2	32883
(9116)	2000 01 05.3	07 01.97 +15 11.8 17.4	-1.08 + 1.7	3.5/06.0	36498
1998 RH ₈₀	2000 01 05.3	07 02.03 +29 55.2 17.8	-0.95 + 1.9	2.1/04.7	36540
(9060)	2000 01 05.3	07 02.09 +27 10.6 16.8	-1.29 + 1.4	2.0/05.0	32187
(11377)	2000 01 05.3	07 02.12 +23 15.3 16.5	-0.89 + 2.2	0.2/05.3	35584
1998 XO ₇₉	2000 01 05.3	07 02.19 +09 06.7 17.2	-0.53 + 1.6	2.4/06.8	37289
1998 QO ₈₇	2000 01 05.3	07 02.24 +17 22.0 18.0	-0.95 - 1.6	1.8/05.7	37167
2132 T-2	2000 01 05.3	07 02.27 +04 48.6 19.1	-0.86 + 1.7	6.1/07.1	33130
(10847)	2000 01 05.3	07 02.29 +27 13.1 16.5	-1.02 - 1.6	1.6/05.1	34782
1995 DL	2000 01 05.3	07 02.32 +28 20.9 17.1	-0.94 + 0.9	1.8/04.9	34583
1998 WN ₁₁	2000 01 05.3	07 02.37 +22 03.3 17.4	-0.62 + 1.6	0.1/05.5	37177
5159 T-2	2000 01 05.4	07 02.41 +31 08.4 18.0	-0.65 0.0	1.6/04.7	37342
(12921)	2000 01 05.4	07 02.61 +09 24.0 17.3	-0.56 + 1.8	2.7/06.9	37097
(9608)	2000 01 05.5	07 02.78 +13 07.4 18.1	-0.84 + 1.0	2.6/06.3	32891
1994 PY ₁₉	2000 01 05.5	07 03.06 +24 08.5 17.2	-1.14 + 0.9	0.6/05.4	35691
1998 SW ₂₅	2000 01 05.5	07 03.11 +16 38.9 19.4	-0.87 + 2.2	1.7/06.2	35717
1992 YY ₁	2000 01 05.6	07 03.24 +24 52.8 16.7	-1.19 + 4.3	1.0/05.4	37121
1996 BB ₁	2000 01 05.6	07 03.60 +17 36.3 17.1	-1.05 + 0.4	2.1/06.1	37269

6202 P-L	2000 01 05.7	07 03.74 +17 31.1	19.1	-0.91	+	0.6	1.7/06.1	36121
1973 SF ₁	2000 01 05.7	07 03.79 +32 05.1	18.1	-0.65	+	1.3	1.8/04.8	37254
1996 SO ₈	2000 01 05.7	07 03.86 +24 38.3	17.3	-0.59	+	0.4	0.4/05.6	37270
1988 PV ₁	2000 01 05.7	07 03.96 +23 16.8	16.9	-1.22	-	0.6	10.7/26.0	37257
1993 TL ₂₈	2000 01 05.7	07 04.12 +21 25.6	17.3	-0.92	+	2.4	0.5/05.9	25068
3167 T-2	2000 01 05.8	07 04.13 +22 33.4	19.9	-1.11	+	2.3	7.9/17.0	33058
1997 NU ₆	2000 01 05.8	07 04.17 +13 15.2	17.7	-0.94	-	0.3	3.1/06.5	37274
(12764)	2000 01 05.8	07 04.27 +36 48.6	17.4	-1.03	+	2.4	4.2/04.4	37055
1998 MR ₃₇	2000 01 05.8	07 04.56 +26 48.7	18.0	-1.17	+	2.7	1.5/05.5	37282
1981 EL ₄₅	2000 01 05.8	07 04.63 +18 28.5	18.2	-1.08	-	0.9	1.7/06.0	26923
1997 GX ₁₄	2000 01 05.9	07 04.69 +39 17.0	19.1	-1.20	+	0.9	5.2/04.6	37273
1998 RN ₅₃	2000 01 05.9	07 04.74 +18 40.5	18.7	-1.01	+	1.1	1.4/06.3	35441
(12881)	2000 01 05.9	07 04.97 +19 50.5	18.1	-1.02	+	2.6	0.9/06.3	37086
(9496)	2000 01 05.9	07 05.03 +22 18.8	17.1	-0.95	+	2.5	8.4/26.0	32652
2703 P-L	2000 01 06.0	07 05.05 +10 21.0	19.3	-1.04	+	2.5	5.7/07.2	32728
1998 SV ₃₆	2000 01 06.0	07 05.08 +17 46.8	18.8	-1.10	+	1.8	1.9/06.4	35717
1998 QS ₇₇	2000 01 06.0	07 05.36 +22 46.0	17.8	-0.99	-	1.4	0.1/06.1	37166
1975 TE	2000 01 06.1	07 05.57 +29 58.4	17.3	-1.30	+	1.9	3.1/05.5	37255
1998 RN ₇₈	2000 01 06.1	07 05.66 +24 45.3	17.7	-1.07	+	3.1	0.8/05.9	33011
(12906)	2000 01 06.1	07 05.70 +17 31.8	17.1	-0.95	+	2.5	1.8/06.7	37093
1998 SN ₁₅₆	2000 01 06.1	07 05.71 +25 21.7	19.2	-0.96	+	1.3	0.8/05.9	35635
1998 SK ₂₂	2000 01 06.1	07 05.78 +15 18.0	18.4	-0.87	+	1.7	2.3/06.9	33018
1998 SE ₁₃₀	2000 01 06.2	07 05.94 +19 49.0	17.7	-0.92	+	1.5	0.9/06.5	37175
4178 T-1	2000 01 06.2	07 06.21 +26 27.3	19.0	-1.17	+	2.9	1.5/05.9	30095
1978 SJ ₇	2000 01 06.2	07 06.32 +43 10.7	18.2	-1.17	+	0.3	6.2/04.6	37255
1998 RF ₇₁	2000 01 06.2	07 06.33 +23 02.2	18.2	-0.93	+	2.3	0.2/06.2	33352
2098 P-L	2000 01 06.2	07 06.38 +04 06.2	16.8	-0.98	+	2.3	6.4/08.4	36578
1994 PC ₁₃	2000 01 06.3	07 06.38 +21 01.0	18.4	-1.06	+	1.4	0.6/06.4	37265
1995 YA ₇	2000 01 06.3	07 06.42 +19 08.7	19.7	-1.13	+	2.0	1.3/06.6	33075
1994 PP ₁₈	2000 01 06.3	07 06.56 +28 06.6	18.6	-1.15	+	0.7	2.1/05.9	34506
1997 HQ	2000 01 06.3	07 06.65 +12 25.2	16.7	-1.03	+	0.9	4.3/07.2	37274
1997 JY ₁₃	2000 01 06.3	07 06.76 +21 09.9	16.3	-1.07	+	2.5	0.7/06.5	37142
(12406)	2000 01 06.4	07 06.75 +22 41.5	16.8	-1.16	+	0.1	0.1/06.4	36714
(12891)	2000 01 06.4	07 06.77 +17 01.1	17.1	-0.95	+	1.7	1.9/06.9	37089
1998 QF ₁₀₄	2000 01 06.4	07 06.80 +45 29.5	17.6	-1.35	+	1.3	7.8/04.3	37285
(9588)	2000 01 06.4	07 06.87 +03 25.5	18.7	-0.93	+	1.1	5.9/08.2	32886
1985 PT	2000 01 06.4	07 06.87 +11 36.5	17.7	-0.96	+	5.0	3.7/07.9	33541
1997 BM ₈	2000 01 06.4	07 06.88 +25 19.4	17.4	-1.26	0.0		1.1/06.2	36523
1989 PF	2000 01 06.4	07 06.92 +04 07.3	17.9	-0.92	+	5.4	5.8/09.1	36876
(9151)	2000 01 06.4	07 07.10 +19 26.8	17.6	-1.06	+	3.8	1.4/06.8	32412
(12945)	2000 01 06.4	07 07.23 +17 46.4	17.6	-1.07	+	2.2	1.8/06.9	37104
1998 SD ₁₄₁	2000 01 06.5	07 07.18 +37 28.8	18.1	-1.04	+	1.5	4.3/05.1	33364
1998 SM ₆₂	2000 01 06.5	07 07.22 +07 44.3	18.7	-0.89	-	0.1	4.8/07.7	34536
1997 FF ₁	2000 01 06.5	07 07.27 +28 23.1	18.4	-1.19	+	2.5	2.3/05.9	35699
1995 SK	2000 01 06.5	07 07.28 +58 49.9	20.2	-2.05	-	3.5	13.8/05.7	30783
1999 VR ₉	2000 01 06.5	07 07.32 +23 30.1	15.8	-1.05	+	6.5	0.5/06.4	37203
1998 RA ₆₅	2000 01 06.5	07 07.35 +19 47.5	18.5	-0.94	+	1.7	0.9/06.8	33003
1998 QU ₅₂	2000 01 06.5	07 07.55 +19 46.7	17.5	-0.94	-	0.6	0.9/06.8	37165
1998 XS ₃₁	2000 01 06.5	07 07.58 +18 02.0	17.7	-0.59	+	0.3	0.9/07.0	37289
1994 KA	2000 01 06.5	07 07.73 +43 40.8	16.5	-1.44	+	6.5	7.1/03.7	37265
1987 QS ₅	2000 01 06.6	07 07.61 +34 14.4	18.0	-1.04	-	0.6	3.7/05.8	37257

1994 TR ₆	2000 01 06.6	07 07.68 +17 34.9	20.0	-1.01	+	2.1	1.6/07.1	33341
1996 DV ₁	2000 01 06.6	07 07.84 +26 13.7	18.6	-1.04	+	0.3	1.3/06.4	32949
(12239)	2000 01 06.6	07 07.85 +13 10.9	16.1	-0.98	+	0.1	4.3/07.4	36670
1998 QV ₁₇	2000 01 06.6	07 08.06 +16 22.7	18.9	-1.10	+	2.0	2.3/07.3	33267
1998 QK ₃₇	2000 01 06.6	07 08.08 +18 35.2	19.0	-1.12	+	1.3	1.4/07.0	32764
1994 GB ₁	2000 01 06.7	07 08.29 +30 23.1	17.4	-1.23	+	2.6	2.8/06.0	36514
1998 SB ₁	2000 01 06.7	07 08.37 +30 49.0	19.3	-0.93	+	1.7	2.4/05.9	33276
1998 RZ ₇₁	2000 01 06.7	07 08.44 +25 19.6	17.3	-0.97	+	2.2	1.0/06.5	37170
1998 WX ₄	2000 01 06.8	07 08.60 +13 13.4	16.3	-0.57	+	3.8	1.7/08.1	37288
1998 SY ₁₃₉	2000 01 06.9	07 09.08 +11 07.4	17.0	-0.86	-	0.3	3.5/07.8	35720
(9807)	2000 01 06.9	07 09.09 +17 19.5	17.2	-0.61	+	0.6	1.1/07.4	33213
1996 TS ₄₉	2000 01 06.9	07 09.37 +17 41.7	17.9	-0.56	+	0.7	0.9/07.5	37270
(9088)	2000 01 07.0	07 09.42 +15 47.5	18.2	-1.16	+	1.3	2.5/07.6	32194
1994 RY ₁	2000 01 07.0	07 09.50 -00 03.8	17.7	-0.97	+	4.5	7.7/10.3	36884
1998 ON ₁	2000 01 07.0	07 09.62 +10 27.3	18.2	-0.96	+	1.9	4.2/08.3	37282
1998 SK ₂	2000 01 07.0	07 09.71 +24 24.9	18.3	-0.91	+	1.5	0.6/06.9	37286
1993 OW ₁	2000 01 07.0	07 09.71 +02 29.2	16.8	-1.33	+	18.4	9.0/11.7	32306
(12054)	2000 01 07.0	07 09.79 +33 37.9	18.2	-0.67	+	1.6	2.3/05.8	36287
1999 UW ₁	2000 01 07.0	07 09.82 +36 35.2	18.1	-1.00	+	3.2	4.3/05.4	37190
1998 QB ₄₀	2000 01 07.1	07 09.84 +10 09.9	18.3	-0.93	+	3.4	4.0/08.6	37284
1998 QT ₇₇	2000 01 07.1	07 09.90 +38 06.2	19.9	-1.09	-	1.4	4.4/06.2	32983
1998 RW ₆₅	2000 01 07.1	07 09.91 +22 17.8	18.4	-0.96	+	1.3	0.1/07.1	34592
1998 SX ₄	2000 01 07.1	07 10.06 +06 40.0	18.1	-0.81	+	2.6	4.7/09.0	37286
1991 RO ₃	2000 01 07.1	07 10.30 +29 39.2	18.5	-1.23	0.0		2.8/06.6	35683
1998 QL ₂₆	2000 01 07.2	07 10.33 +19 57.9	17.9	-1.01	+	3.5	1.0/07.5	37161
1998 QH ₄₉	2000 01 07.2	07 10.35 +07 47.4	18.7	-0.87	+	4.7	4.8/09.3	33348
(9052)	2000 01 07.2	07 10.54 +24 43.3	17.0	-1.14	+	1.1	0.9/07.1	32185
1998 MV ₃₇	2000 01 07.2	07 10.64 +23 36.9	17.1	-1.11	+	7.4	0.4/07.1	37282
1997 SZ ₂₃	2000 01 07.3	07 10.73 +41 13.6	19.7	-0.73	+	1.1	3.7/05.2	31012
(12810)	2000 01 07.3	07 10.92 +20 37.4	17.3	-1.07	+	6.8	0.6/07.6	37066
(12746)	2000 01 07.3	07 10.94 +19 31.8	16.8	-1.21	+	0.2	1.2/07.6	37050
1995 DR ₁₃	2000 01 07.3	07 11.15 +21 33.5	17.4	-0.90	+	2.0	0.3/07.5	37127
1996 JS ₅	2000 01 07.3	07 11.18 +17 47.5	18.9	-0.84	+	1.8	1.3/07.9	33343
1995 UJ ₂	2000 01 07.3	07 11.23 +28 24.1	17.2	-1.23	+	1.5	2.6/06.9	36885
1998 SR ₆₃	2000 01 07.4	07 11.30 +22 27.5	18.9	-0.90	+	1.9	0.0/07.4	37287
1998 QE ₃₉	2000 01 07.4	07 11.45 +23 07.2	18.1	-0.94	+	1.6	0.2/07.4	37284
(12847)	2000 01 07.5	07 11.65 +17 33.0	16.7	-1.27	-	9.3	1.8/07.4	37076
(9641)	2000 01 07.5	07 11.90 +15 43.2	18.6	-1.04	+	1.2	2.3/08.2	32898
1998 SP ₇₅	2000 01 07.5	07 11.97 +05 14.0	19.4	-0.87	+	2.2	5.0/09.5	33039
1998 SP ₂₄	2000 01 07.6	07 12.16 +19 03.9	17.6	-0.90	+	2.9	1.2/08.0	37287
1998 ML ₃₁	2000 01 07.6	07 12.22 +22 30.1	18.6	-1.14	+	4.1	0.0/07.6	33508
1998 QC ₈₄	2000 01 07.6	07 12.37 +21 07.6	19.1	-0.98	-	1.2	0.4/07.8	35712
1998 RL ₉	2000 01 07.7	07 12.45 +14 40.8	19.3	-1.03	+	3.2	2.9/08.6	32991
1997 HP ₂	2000 01 07.7	07 12.65 +20 39.7	18.8	-1.04	+	2.0	0.6/07.9	37274
1998 SA ₅₅	2000 01 07.7	07 12.70 +19 13.0	18.2	-0.95	+	2.0	1.1/08.1	37287
1997 FT ₃	2000 01 07.7	07 12.73 +14 33.5	18.1	-1.11	+	1.1	3.4/08.4	32752
1994 UQ	2000 01 07.7	07 12.78 +36 52.6	17.5	-1.14	+	4.4	4.7/05.8	37266
1998 MT ₃₇	2000 01 07.7	07 12.79 +26 47.2	17.3	-1.06	+	2.3	1.7/07.3	37282
1998 SL ₉	2000 01 07.7	07 12.90 +24 32.2	19.3	-1.06	+	1.5	0.7/07.6	33015
1998 SO ₆₁	2000 01 07.7	07 12.90 +21 20.4	17.3	-0.98	+	0.7	0.4/07.9	37287
1998 RP ₅	2000 01 07.7	07 12.93 -00 07.2	17.2	-0.94	+	2.2	8.7/10.2	36903

1998 QW ₈₉	2000 01 07.8	07 13.09 +36 16.3 18.1	-1.24 - 1.7	4.6/07.0	37285	1995 WG ₅	2000 01 08.7	07 16.86 +11 51.0 16.8	-1.04 + 2.0	4.6/09.8	37268
1998 RP ₁₉	2000 01 07.8	07 13.12 +22 31.6 17.3	-1.02 + 1.4	0.1/07.8	37285	1998 QQ ₅₇	2000 01 08.7	07 16.89 +20 13.8 21.0	-1.01 + 1.9	0.7/08.9	32978
1989 TU ₄	2000 01 07.8	07 13.31 +22 27.9 19.1	-0.97 + 2.8	0.0/07.9	33335	1998 RJ ₅₂	2000 01 08.7	07 16.95 +31 32.1 18.5	-1.07 + 3.0	3.3/07.6	35714
(12867)	2000 01 07.8	07 13.33 +13 20.3 17.3	-1.10 + 3.6	3.4/09.0	37083	(12807)	2000 01 08.7	07 17.12 +22 48.9 17.1	-1.04 + 3.2	0.2/08.7	37066
1997 MA ₄	2000 01 07.8	07 13.34 +24 13.7 18.0	-0.98 + 1.5	0.6/07.7	35700	(12788)	2000 01 08.7	07 17.14 +11 24.9 16.9	-1.12 + 2.4	4.6/10.0	37061
1997 LC	2000 01 07.9	07 13.32 +19 46.6 18.7	-0.94 + 1.8	0.8/08.2	37274	1981 UZ ₂₄	2000 01 08.8	07 17.24 +34 16.0 17.8	-1.27 + 3.4	4.6/07.4	37256
1994 TO ₄	2000 01 07.9	07 13.35 +01 32.3 19.2	-0.94 + 2.3	7.0/10.3	33073	1995 UE ₁₈	2000 01 08.8	07 17.32 +17 41.3 20.0	-1.11 + 1.5	2.1/09.3	30784
1998 RU ₅₉	2000 01 07.9	07 13.39 +37 47.2 18.7	-1.26 + 0.1	5.2/06.6	37286	1996 BJ ₄	2000 01 08.8	07 17.43 +24 13.3 17.2	-1.05 + 6.1	0.7/08.6	37132
1997 GE ₇	2000 01 07.9	07 13.48 +03 54.8 19.1	-0.93 + 1.2	6.2/09.9	35699	1998 QX ₆	2000 01 08.8	07 17.60 +31 04.9 19.0	-1.30 - 2.4	3.3/08.4	32760
1998 SM ₄₆	2000 01 07.9	07 13.50 +22 26.8 17.6	-0.88 + 1.5	0.0/07.9	37287	1998 SZ ₂	2000 01 08.8	07 17.61 +25 46.3 18.1	-1.00 + 5.4	1.1/08.4	37171
(12299)	2000 01 07.9	07 13.52 +25 17.5 16.6	-1.15 + 3.3	1.3/07.6	36686	1998 MK ₅	2000 01 08.9	07 17.74 +17 53.2 16.1	-1.02 + 8.0	1.7/09.6	32523
1998 ST ₅₆	2000 01 07.9	07 13.54 +26 27.8 18.4	-1.12 + 1.9	1.4/07.5	37173	1998 SK ₁₃₉	2000 01 08.9	07 17.77 +02 09.2 18.0	-0.82 - 0.1	6.3/10.8	33759
1997 GP ₁₃	2000 01 07.9	07 13.66 +16 20.8 17.8	-1.09 + 1.7	2.5/08.5	37273	1994 PS ₃₂	2000 01 08.9	07 17.78 +24 16.7 18.1	-1.10 + 0.4	0.7/08.7	32747
1998 OJ ₂	2000 01 07.9	07 13.73 +15 34.8 18.3	-1.05 + 3.6	2.6/08.8	37157	4406 T-1	2000 01 08.9	07 17.85 +46 12.6 18.1	-1.33 + 1.7	8.7/06.2	37342
1998 SH ₁₃₅	2000 01 07.9	07 13.78 +07 13.5 17.6	-0.82 + 2.2	4.6/09.7	34593	1998 SD ₁₃₁	2000 01 08.9	07 17.99 +29 07.6 17.4	-0.96 + 1.1	2.3/08.2	35719
1993 FJ ₂₀	2000 01 07.9	07 13.83 +20 25.0 17.7	-1.11 + 1.2	0.9/08.2	37121	1998 SF ₁₂₃	2000 01 09.0	07 18.14 +37 15.8 18.3	-1.06 + 1.4	4.5/07.4	37287
1993 TN ₃₀	2000 01 08.0	07 13.88 +22 22.9 18.5	-0.91 + 2.5	0.0/08.0	33339	1998 SU ₁₂₈	2000 01 09.0	07 18.31 +24 57.0 17.7	-0.96 + 2.4	0.9/08.7	37174
1998 SA ₂₄	2000 01 08.0	07 13.99 +22 48.5 17.5	-0.97 + 3.9	0.2/08.0	37172	1998 QN ₄₂	2000 01 09.0	07 18.38 +30 18.1 18.3	-1.09 - 0.1	2.6/08.4	36539
(9133)	2000 01 08.0	07 14.13 +02 59.4 18.4	-0.97 + 0.7	6.9/10.1	32204	1998 RG ₆₇	2000 01 09.0	07 18.62 +22 44.4 18.0	-0.91 + 0.8	0.2/09.0	33100
(11370)	2000 01 08.0	07 14.27 +22 49.3 18.6	-1.04 + 1.9	0.2/08.0	35583	1998 SY ₁₁₅	2000 01 09.1	07 18.74 +42 44.2 18.1	-1.31 + 1.4	7.0/06.8	37287
1998 SR ₁₃₉	2000 01 08.0	07 14.28 +20 23.7 16.9	-1.00 - 0.1	0.7/08.3	37175	6844 P-L	2000 01 09.1	07 18.75 +32 24.6 20.1	-0.64 + 1.1	2.0/08.0	33996
(9570)	2000 01 08.1	07 14.21 +17 07.6 17.2	-0.92 + 1.8	1.7/08.6	32881	1993 FY ₄₁	2000 01 09.1	07 19.07 +25 43.5 17.3	-1.11 + 1.9	1.6/08.8	37264
1997 CC ₂₂	2000 01 08.1	07 14.42 +29 16.2 18.1	-1.26 + 1.6	3.0/07.5	29928	(12965)	2000 01 09.2	07 19.28 +34 43.9 17.0	-1.20 - 0.6	4.5/08.2	37110
1998 QD ₂₁	2000 01 08.1	07 14.63 +18 55.7 17.3	-1.07 + 2.2	1.4/08.5	37160	1998 ST ₆₁	2000 01 09.2	07 19.29 +03 31.8 18.2	-0.84 + 0.9	5.9/11.3	33357
(9507)	2000 01 08.2	07 14.78 +28 20.1 18.4	-1.20 - 0.1	2.0/07.8	32655	1998 OC ₁₄	2000 01 09.2	07 19.30 +10 28.3 17.6	-0.93 + 7.0	4.7/11.2	32758
1995 OU ₂	2000 01 08.2	07 14.82 +10 36.9 19.2	-0.53 + 1.3	2.1/09.6	31542	1998 QF ₉₁	2000 01 09.3	07 19.94 +40 48.9 18.9	-1.18 + 1.9	5.7/07.3	35712
1997 TQ ₁₂	2000 01 08.2	07 14.83 +18 34.8 19.7	-0.58 + 0.8	0.7/08.6	30988	1998 UR ₁₆	2000 01 09.4	07 19.86 +23 50.4 17.7	-0.87 + 2.1	0.5/09.2	37288
(12690)	2000 01 08.2	07 14.88 +05 48.9 15.9	-0.87 - 0.2	5.8/09.6	37035	4572 P-L	2000 01 09.4	07 19.89 +33 32.3 18.2	-0.65 + 1.0	2.2/08.1	37341
1998 TW ₃₄	2000 01 08.2	07 14.91 +07 48.2 17.9	-0.84 + 1.7	4.3/09.8	37288	1995 BU ₈	2000 01 09.4	07 19.97 +24 43.7 18.5	-0.94 + 2.2	0.9/09.1	33248
1998 RS ₆₅	2000 01 08.2	07 14.94 +26 51.9 18.8	-1.06 + 1.2	1.5/07.8	33003	(12479)	2000 01 09.4	07 20.08 +12 16.1 17.7	-1.08 + 3.1	4.2/10.6	36734
1995 UA ₁	2000 01 08.2	07 14.99 +30 56.5 17.6	-1.26 - 0.4	3.8/07.6	32464	(12445)	2000 01 09.4	07 20.27 +30 42.1 17.2	-0.94 + 3.8	2.6/08.3	36725
1998 SN ₁₀₈	2000 01 08.3	07 15.08 +11 08.8 17.8	-0.83 + 1.1	3.5/09.5	37287	1998 QS ₃₀	2000 01 09.4	07 20.31 +04 11.2 19.5	-0.91 + 4.1	6.1/12.1	33347
1996 BR ₈	2000 01 08.3	07 15.12 +24 03.7 16.5	-0.99 + 3.5	0.6/08.1	32948	(12697)	2000 01 09.5	07 20.57 +09 36.0 16.3	-0.89 + 3.1	5.3/11.1	37037
1998 RB ₆₂	2000 01 08.3	07 15.17 +35 32.9 18.0	-1.06 + 0.4	4.3/07.1	37286	(9376)	2000 01 09.5	07 20.65 +19 31.4 17.2	-0.98 + 2.3	0.9/09.9	32624
(9711)	2000 01 08.3	07 15.21 +17 07.3 16.0	-0.93 - 0.5	1.7/08.8	33190	(10745)	2000 01 09.5	07 20.65 +19 14.4 18.4	-0.85 + 3.7	0.9/10.0	34756
1989 TA ₄	2000 01 08.3	07 15.45 +28 47.3 18.9	-1.03 + 3.0	2.4/07.6	32921	1997 HX ₇	2000 01 09.5	07 20.78 +02 07.4 18.8	-0.95 + 0.1	6.6/11.5	33344
1998 RP ₁	2000 01 08.4	07 15.61 +24 50.7 19.5	-0.99 + 1.7	0.8/08.2	37167	(12438)	2000 01 09.6	07 20.73 +11 01.0 16.3	-0.89 + 0.7	5.6/10.7	36723
1998 RR ₆₅	2000 01 08.4	07 15.70 +29 39.8 17.8	-1.05 + 1.0	2.7/07.7	37286	1998 TP ₁₇	2000 01 09.6	07 20.92 +19 41.0 16.1	-0.87 + 4.3	0.7/10.0	37288
1998 QL ₃₇	2000 01 08.4	07 15.75 +14 36.4 17.2	-1.12 + 1.5	3.4/09.2	37284	1998 QX ₅₀	2000 01 09.6	07 21.14 +32 39.2 18.0	-1.18 + 0.9	3.7/08.6	37284
1998 QT ₁₀	2000 01 08.4	07 15.76 +10 28.5 18.3	-0.96 + 6.1	4.1/10.2	35710	1996 JH ₁₄	2000 01 09.6	07 21.17 +34 06.6 18.7	-0.99 + 3.2	3.7/08.1	35929
1995 EF ₈	2000 01 08.4	07 15.92 +21 59.3 17.1	-0.90 + 2.8	0.1/08.5	37266	1996 CW ₃	2000 01 09.7	07 21.33 +31 00.7 17.4	-1.16 - 1.8	3.3/09.1	37269
1997 BV ₈	2000 01 08.4	07 15.92 +16 49.0 18.5	-1.16 + 4.4	2.2/09.2	32751	1998 QO ₅₄	2000 01 09.7	07 21.40 +20 53.2 19.0	-1.01 + 1.4	0.4/09.9	37284
1997 GR ₂₀	2000 01 08.4	07 15.97 +24 04.3 19.1	-1.08 + 2.0	0.6/08.3	32752	1987 SJ ₂	2000 01 09.7	07 21.49 +19 56.6 18.0	-1.08 + 2.9	0.8/10.0	37257
1998 UF ₃₃	2000 01 08.4	07 15.99 +37 01.2 17.5	-1.17 + 3.2	4.7/06.7	34594	1992 RO ₃	2000 01 09.7	07 21.61 +21 29.9 19.2	-0.88 + 1.7	0.2/09.9	33548
2104 T-1	2000 01 08.5	07 16.04 +26 28.1 18.1	-1.16 + 2.2	1.6/08.1	32786	1998 SF ₄₉	2000 01 09.7	07 21.63 +25 38.4 16.8	-0.88 + 1.7	1.1/09.4	35717
(12691)	2000 01 08.5	07 16.12 +34 05.1 17.3	-1.27 + 2.6	4.5/07.3	37035	1997 SF ₂₈	2000 01 09.8	07 21.65 +29 19.2 19.4	-0.65 + 0.7	1.5/09.0	33701
(9359)	2000 01 08.5	07 16.24 +34 57.0 16.9	-1.18 0.0	5.0/07.5	32619	1998 QS ₉	2000 01 09.8	07 21.82 +33 56.4 16.9	-1.22 - 1.9	4.4/09.1	37160
1997 SV ₁₄	2000 01 08.5	07 16.27 +22 42.2 19.2	-0.62 + 0.6	0.1/08.5	30987	1999 XD ₃₆	2000 01 09.8	07 21.85 +29 31.8 16.6	-1.10 + 7.2	2.7/08.6	37247
1998 RF ₂₃	2000 01 08.6	07 16.74 +19 33.6 17.6	-0.97 + 4.1	1.0/09.0	37285	1995 DR ₂	2000 01 09.8	07 22.05 +29 22.1 17.3	-0.91 + 3.5	2.1/08.9	37266
1998 SP	2000 01 08.6	07 16.78 +29 19.2 18.5	-0.92 + 1.6	2.0/07.9	34302	(9773)	2000 01 09.9	07 22.09 +17 57.3 18.8	-0.96 - 0.3	1.1/10.3	33205
5565 P-L	2000 01 08.6	07 16.83 +33 49.6 16.5	-1.33 + 2.8	5.5/07.5	37341	(12686)	2000 01 09.9	07 22.14 +42 56.9 17.6	-1.32 + 0.5	7.0/08.0	37034

(9721) 2000 01 09.9 07 22.16 +23 31.7 16.5 -1.16 + 6.7 0.6/09.7 33192
 (12703) 2000 01 09.9 07 22.27 +29 18.6 17.5 -1.13 + 1.6 2.8/09.2 37038
 (9264) 2000 01 09.9 07 22.28 +29 46.9 17.7 -1.02 + 0.9 2.4/09.2 32596
 1998 QY₇₄ 2000 01 09.9 07 22.30 +18 05.6 17.7 -1.10 - 3.5 1.6/10.2 37166
 1994 PQ₁ 2000 01 09.9 07 22.49 +41 57.9 19.2 -1.37 + 8.0 6.6/06.8 25083
 1998 RL₄ 2000 01 10.0 07 22.64 +55 05.0 20.6 -1.82 - 0.8 11.4/06.6 32989
 1998 WV₁₈ 2000 01 10.0 07 22.70 +10 54.8 17.2 -0.72 - 0.1 2.9/11.0 35726
 1995 WK₄ 2000 01 10.0 07 22.72 +22 18.3 17.7 -1.10 + 4.1 0.1/10.0 37130
 (9388) 2000 01 10.0 07 22.74 +23 35.6 18.6 -1.16 + 3.8 0.6/09.9 32627
 1998 RM₈₀ 2000 01 10.0 07 22.76 +35 34.2 18.0 -1.00 + 1.4 4.0/08.6 33566
 1999 XD₈₆ 2000 01 10.0 07 22.81 +23 42.6 16.9 -1.14 + 3.7 0.8/09.9 37248
 1998 SE₁₃₂ 2000 01 10.0 07 22.94 +04 35.2 17.0 -0.88 + 0.5 5.5/11.9 37287
 1998 SV₁₀ 2000 01 10.0 07 22.95 +19 24.6 19.1 -0.94 + 2.2 0.8/10.4 35716
 1991 RW₂₁ 2000 01 10.1 07 22.94 +37 51.0 16.5 -1.32 - 3.7 7.8/09.5 37261
 1993 FO₇ 2000 01 10.1 07 22.96 +25 37.1 15.6 -1.07 + 4.3 1.7/09.6 37263
 1998 RD₄₃ 2000 01 10.1 07 23.10 +24 11.5 18.6 -1.02 + 0.8 0.7/09.9 33350
 1995 TE₈ 2000 01 10.1 07 23.37 +10 18.7 17.5 -1.09 + 3.7 4.6/11.7 37267
 (12684) 2000 01 10.1 07 23.41 +34 05.8 17.4 -1.25 - 0.4 4.4/09.1 37033
 1992 HS₄ 2000 01 10.1 07 23.42 +24 08.6 17.9 -0.95 + 3.9 0.6/09.9 37262
 1998 TV₆ 2000 01 10.2 07 23.50 +00 09.1 17.4 -0.80 + 0.4 6.5/12.6 36905
 1994 PB₃₆ 2000 01 10.2 07 23.58 +20 40.9 17.6 -1.05 + 1.8 0.6/10.4 32748
 (9371) 2000 01 10.2 07 23.63 +22 15.6 16.6 -1.08 + 3.8 0.1/10.2 32622
 1998 QM₄₀ 2000 01 10.2 07 23.64 +29 10.4 18.2 -1.12 - 0.8 2.3/09.7 33560
 1992 LE 2000 01 10.2 07 23.75 +08 23.6 19.3 -0.82 + 3.4 3.5/12.1 34841
 1998 QF₂₃ 2000 01 10.2 07 23.76 +36 44.9 18.1 -1.21 - 0.3 5.4/09.0 33081
 1986 QJ₂ 2000 01 10.2 07 23.84 +28 16.9 18.0 -0.91 + 1.5 1.7/09.6 33066
 1998 SC₁₂ 2000 01 10.3 07 23.79 +07 08.8 18.8 -0.83 + 1.5 4.2/12.1 33277
 1998 QP₁₀₀ 2000 01 10.3 07 23.83 +28 44.2 18.2 -1.02 + 2.8 2.4/09.5 37285
 1997 SY₃₂ 2000 01 10.3 07 23.91 +30 31.5 19.2 -0.62 + 1.2 1.6/09.3 35701
 1998 SR₂₂ 2000 01 10.3 07 23.95 +31 30.6 18.3 -0.97 + 1.1 2.9/09.3 37172
 1981 QK₃ 2000 01 10.3 07 23.98 +38 18.4 18.2 -1.24 - 0.7 5.8/09.0 37256
 1995 UN₈ 2000 01 10.3 07 24.18 +32 41.0 18.2 -1.25 + 2.4 3.9/09.2 37268
 (9906) 2000 01 10.3 07 24.30 +42 29.0 17.4 -1.28 + 1.1 6.9/08.3 33470
 1991 RA 2000 01 10.4 07 24.24 +61 00.6 17.3 -2.51 - 3.9 18.7/08.0 37260
 (12051) 2000 01 10.4 07 24.36 +36 31.3 17.5 -1.35 + 1.1 5.7/08.9 36286
 1993 FC₁₃ 2000 01 10.4 07 24.36 +23 54.8 16.8 -1.11 + 4.1 0.8/10.2 37121
 1998 QM₂₉ 2000 01 10.4 07 24.57 +11 14.4 18.8 -1.01 + 2.0 4.6/11.7 32500
 (8993) 2000 01 10.4 07 24.67 -03 01.3 17.0 -1.03 + 9.6 9.4/15.8 32172
 1995 FM₃ 2000 01 10.5 07 24.70 +27 11.1 18.5 -0.90 + 2.2 1.6/09.9 35693
 1998 VY₂₉ 2000 01 10.5 07 24.91 +13 35.2 16.7 -0.63 - 0.3 1.9/11.5 37288
 1990 SU₁₆ 2000 01 10.5 07 24.93 +21 55.0 17.0 -1.05 + 4.1 0.0/10.6 37116
 4543 P-L 2000 01 10.5 07 25.02 +26 04.2 18.6 -1.25 + 2.3 1.6/10.1 33129
 1999 XC₉₁ 2000 01 10.6 07 25.26 +21 06.0 17.8 -1.12 + 2.3 10.8/31.0 37248
 1997 JL₁₃ 2000 01 10.6 07 25.31 +16 51.5 17.8 -1.04 + 2.2 1.8/11.2 37274
 1995 VH₂ 2000 01 10.6 07 25.34 +18 47.9 17.6 -1.12 + 3.5 1.3/11.0 37268
 4564 T-2 2000 01 10.6 07 25.36 +25 13.0 21.1 -1.17 + 2.6 1.2/10.3 33059
 1997 AH₅ 2000 01 10.6 07 25.45 +24 29.7 17.2 -1.23 + 1.7 1.1/10.4 37271
 (9519) 2000 01 10.6 07 25.48 +17 42.4 17.2 -1.04 + 0.7 1.6/11.0 32868
 1998 SE₁₆₄ 2000 01 10.7 07 25.52 +40 34.8 18.6 -1.15 + 3.0 5.4/08.2 34305
 1998 QB₃₅ 2000 01 10.7 07 25.56 +33 24.1 17.0 -1.28 - 4.3 5.0/10.2 37284
 (12358) 2000 01 10.7 07 25.59 +09 59.0 17.4 -0.92 + 1.3 4.3/12.0 36701

2166 T-1 2000 01 10.8 07 26.00 +32 06.5 16.9 -1.30 + 2.2 4.6/09.7 25436
 1998 SV₁₃₄ 2000 01 10.8 07 26.23 +21 38.8 17.5 -0.87 + 2.2 6.6/31.0 37288
 (9182) 2000 01 10.8 07 26.30 +19 41.7 16.0 -1.15 + 0.1 1.0/11.1 32420
 (11387) 2000 01 10.8 07 26.45 +25 05.5 18.3 -1.01 + 1.9 0.9/10.5 35587
 1998 QM₁₀₆ 2000 01 10.8 07 26.47 +38 55.5 18.1 -1.16 + 1.4 5.5/09.0 37285
 1998 SN₂₇ 2000 01 10.9 07 26.43 +14 38.9 16.5 -1.22 - 6.9 2.7/11.0 37287
 (9363) 2000 01 10.9 07 26.44 +39 46.7 15.8 -1.17 + 6.8 7.3/07.7 32620
 1998 QK₄₃ 2000 01 10.9 07 26.47 +20 04.9 17.8 -1.06 + 4.3 0.7/11.2 37163
 1999 VJ 2000 01 10.9 07 26.48 +42 48.6 17.8 -1.26 + 5.1 7.8/07.8 37197
 1998 SF₆₇ 2000 01 10.9 07 26.49 +24 39.1 18.2 -0.98 + 3.1 0.8/10.6 33282
 (12570) 2000 01 10.9 07 26.50 +09 06.5 17.1 -0.88 - 0.8 3.9/12.1 36761
 (9386) 2000 01 10.9 07 26.60 +19 46.4 17.2 -0.91 + 1.9 0.7/11.2 32626
 1995 XA 2000 01 10.9 07 26.67 +15 15.4 18.9 -1.10 + 0.9 2.5/11.6 32750
 1982 TJ 2000 01 10.9 07 26.85 +22 37.4 17.2 -1.19 + 3.5 10.2/31.0 37114
 1981 EA₁₄ 2000 01 11.0 07 26.82 +11 14.7 19.0 -1.01 + 1.7 4.0/12.2 26917
 1999 RH₄₂ 2000 01 11.0 07 26.84 +36 21.1 18.0 -1.07 + 0.9 5.0/09.4 37295
 1990 QB₁₉ 2000 01 11.0 07 26.87 +23 45.6 19.1 -1.07 + 1.5 0.6/10.8 37259
 (12426) 2000 01 11.0 07 26.90 +19 10.9 16.6 -1.12 + 0.7 1.2/11.3 36720
 1997 LH₄ 2000 01 11.0 07 26.93 -01 10.9 18.1 -0.92 + 3.1 8.6/14.2 36892
 1992 AT₂ 2000 01 11.0 07 26.99 +22 14.8 17.7 -1.06 + 1.1 0.1/11.0 37261
 1994 QX 2000 01 11.0 07 27.10 +32 32.6 17.6 -1.24 - 3.4 4.1/10.5 37266
 1998 QG₇₄ 2000 01 11.1 07 27.30 +08 55.3 17.7 -0.87 + 1.2 4.4/12.7 37285
 1998 QL₁ 2000 01 11.1 07 27.37 +15 52.1 17.6 -0.98 + 2.0 2.2/11.8 33559
 3182 T-2 2000 01 11.1 07 27.38 +14 36.4 17.8 -1.09 + 4.3 2.8/12.1 33384
 2110 P-L 2000 01 11.1 07 27.42 +22 24.7 19.5 -1.03 + 1.6 0.2/11.1 37340
 1998 SL₁₁₅ 2000 01 11.1 07 27.44 +25 57.8 18.8 -0.99 + 1.9 1.3/10.7 33041
 1998 VU₆ 2000 01 11.1 07 27.45 +24 01.9 17.3 -0.59 + 2.0 0.4/10.8 37288
 (12714) 2000 01 11.1 07 27.51 +23 47.4 16.9 -0.61 + 0.2 0.4/10.9 37042
 1996 CD₂ 2000 01 11.1 07 27.54 +26 43.3 17.3 -1.09 - 1.1 1.6/10.7 37132
 1999 XV₈₆ 2000 01 11.1 07 27.57 +20 59.6 16.3 -1.06 - 0.3 0.3/11.2 37248
 (12659) 2000 01 11.2 07 27.71 +27 10.4 17.1 -1.16 + 2.4 2.4/10.6 37027
 (12726) 2000 01 11.2 07 27.85 +10 36.1 16.3 -1.03 + 4.4 4.8/12.8 37045
 1993 FV₄₅ 2000 01 11.2 07 28.11 +14 49.5 19.0 -0.97 + 2.8 2.2/12.2 35687
 (9021) 2000 01 11.2 07 28.12 +32 14.2 16.4 -1.19 - 1.2 3.4/10.4 32179
 1998 QZ₃₅ 2000 01 11.3 07 28.58 +31 30.0 17.8 -1.11 + 0.1 3.3/10.5 37284
 (9829) 2000 01 11.3 07 28.60 +18 28.8 17.4 -0.72 + 1.7 0.9/11.8 33452
 1252 T-2 2000 01 11.3 07 28.62 +25 10.4 20.1 -1.06 + 2.0 1.2/11.0 26577
 (9705) 2000 01 11.4 07 28.67 +38 13.1 17.7 -1.07 + 1.9 5.5/09.4 32915
 1998 QF₅₁ 2000 01 11.4 07 28.86 +21 55.2 18.2 -1.09 + 2.2 0.0/11.4 37284
 1998 QQ₁₀₁ 2000 01 11.4 07 29.02 +01 43.9 17.4 -0.83 + 4.8 6.3/14.9 36903
 1993 TQ₂₉ 2000 01 11.4 07 29.06 +13 58.9 18.8 -0.87 + 2.8 3.0/12.6 32935
 (12683) 2000 01 11.5 07 29.05 +20 06.4 17.2 -1.07 + 3.5 0.7/11.7 37033
 1998 QT₆₂ 2000 01 11.5 07 29.12 +09 00.2 18.3 -0.89 + 2.7 3.7/13.3 33561
 4646 P-L 2000 01 11.5 07 29.22 +05 26.4 16.6 -0.83 + 2.7 5.8/13.8 37341
 (10239) 2000 01 11.5 07 29.32 +44 37.0 18.3 -1.08 + 1.8 5.8/08.6 33916
 (9038) 2000 01 11.6 07 29.44 +11 24.9 16.7 -0.97 + 6.7 3.7/13.4 32182
 1993 FO₂₇ 2000 01 11.6 07 29.45 +17 43.7 17.5 -1.05 + 0.9 1.9/12.0 37263
 1998 MN₁₆ 2000 01 11.6 07 29.64 +19 57.3 16.7 -1.03 + 8.7 0.7/12.0 37282
 1998 SA₆₁ 2000 01 11.6 07 29.92 +25 41.9 17.6 -0.97 + 2.3 1.3/11.2 37174
 1998 UO₂ 2000 01 11.6 07 29.93 +40 39.6 19.0 -1.16 + 2.3 5.7/09.2 37288
 1989 UA₆ 2000 01 11.7 07 29.89 +25 32.0 18.1 -0.70 + 1.7 0.8/11.2 33543

1998 SV ₂₃	2000 01 11.7	07 30.01 +49 27.3 19.4	-1.24 + 1.1	9.0/08.3	33277
(10664)	2000 01 11.7	07 30.08 +13 17.5 17.8	-0.57 + 0.6	1.7/12.8	34479
1998 QT ₁₈	2000 01 11.7	07 30.27 +18 07.6 17.6	-1.12 + 1.8	1.4/12.2	37283
1997 HD ₉	2000 01 11.7	07 30.33 +20 44.2 19.6	-1.03 + 1.8	0.4/11.9	37274
1991 PJ ₁₅	2000 01 11.8	07 30.32 +21 08.4 18.0	-1.13 + 3.5	0.3/11.9	37260
1998 SF ₁₃₆	2000 01 11.8	07 30.57 +23 44.7 18.8	-1.12 + 3.4	0.7/11.6	37288
1296 T-2	2000 01 11.9	07 30.78 +19 14.1 18.3	-1.03 + 2.7	1.0/12.2	33130
1993 FB ₁₉	2000 01 11.9	07 30.91 +15 29.6 17.2	-1.02 + 5.2	2.6/12.9	23523
(9555)	2000 01 12.0	07 31.18 +31 44.5 17.1	-1.20 + 4.3	3.9/10.6	32877
1998 QB	2000 01 12.0	07 31.27 +26 11.4 17.1	-1.21 0.0	1.8/11.6	35709
(9358)	2000 01 12.0	07 31.45 +20 22.3 17.1	-1.00 + 3.3	0.5/12.2	32619
(9361)	2000 01 12.0	07 31.45 +12 15.2 18.3	-0.96 + 2.0	3.3/13.2	32620
1998 RD ₅₆	2000 01 12.1	07 31.66 +28 08.2 19.8	-1.06 + 1.0	2.0/11.4	32998
1984 SZ ₅	2000 01 12.1	07 31.73 +34 20.4 18.6	-1.26 + 2.1	4.3/10.6	37257
(9706)	2000 01 12.1	07 31.85 +22 20.1 17.2	-0.93 + 2.1	0.2/12.1	32915
(12334)	2000 01 12.1	07 31.92 +15 17.4 15.7	-1.06 + 5.7	3.1/13.2	36695
1990 WO ₄	2000 01 12.2	07 32.10 +12 47.1 16.9	-0.89 + 1.9	4.2/13.3	36877
(12841)	2000 01 12.2	07 32.27 +22 16.1 17.3	-1.16 + 2.6	0.2/12.2	37075
(9086)	2000 01 12.4	07 33.12 +14 35.1 17.0	-1.19 + 0.6	3.0/13.2	32193
(12721)	2000 01 12.4	07 33.43 +19 09.0 17.3	-1.12 + 3.2	0.9/12.8	37044
1998 UQ ₂₅	2000 01 12.5	07 33.84 +19 48.8 18.2	-0.87 + 3.3	0.5/12.9	33574
1996 KL ₁	2000 01 12.6	07 33.82 +15 53.1 19.5	-0.81 + 4.5	1.4/13.5	30902
1998 QQ ₁₂	2000 01 12.6	07 33.85 +12 19.2 20.1	-1.11 + 3.7	3.4/13.9	33080
1998 QS ₁₃	2000 01 12.6	07 33.91 +22 27.3 19.8	-1.10 + 2.3	0.3/12.5	36002
1981 EL ₁₆	2000 01 12.6	07 33.98 +29 57.1 18.6	-1.30 + 0.4	3.3/11.8	29608
1993 FS ₁₀	2000 01 12.6	07 34.03 +12 03.8 18.0	-1.00 + 3.5	3.5/14.0	33071
1998 QM ₂	2000 01 12.6	07 34.09 +13 14.1 17.3	-1.07 + 2.1	3.2/13.7	32759
(12431)	2000 01 12.6	07 34.19 +18 45.8 16.8	-1.02 + 9.4	1.1/13.2	36721
6245 P-L	2000 01 12.6	07 34.25 +01 00.6 18.2	-0.93 + 2.4	7.6/15.4	33129
1998 SQ ₅₃	2000 01 12.7	07 34.41 +36 59.8 19.1	-1.09 - 0.4	4.7/11.2	37287
(11379)	2000 01 12.7	07 34.68 +24 39.2 18.4	-1.00 + 3.1	0.9/12.4	35585
1998 QW ₁₇	2000 01 12.7	07 34.69 +21 46.8 19.5	-1.12 + 1.4	0.0/12.8	32760
4841 T-1	2000 01 12.7	07 34.73 +41 20.9 18.3	-1.21 + 1.8	6.2/10.3	37342
(12356)	2000 01 12.8	07 34.72 +19 13.9 17.1	-0.92 + 2.2	0.8/13.1	36700
1998 SL ₄₇	2000 01 12.8	07 34.86 +25 32.4 17.9	-1.20 + 2.6	1.5/12.4	37172
(9375)	2000 01 12.8	07 34.89 +19 42.3 16.1	-1.06 + 4.3	0.8/13.1	32624
4174 T-2	2000 01 12.8	07 34.93 +19 47.1 18.3	-0.91 + 2.9	0.6/13.1	33384
1990 SX ₆	2000 01 12.8	07 34.96 +23 41.2 18.6	-1.05 + 3.7	0.7/12.6	37259
1993 GK ₁	2000 01 13.0	07 35.64 +23 33.2 17.1	-1.13 + 1.6	0.9/12.8	37264
1998 RU ₅₆	2000 01 13.0	07 35.72 +16 16.2 16.9	-0.97 + 2.0	2.1/13.7	37286
(12793)	2000 01 13.0	07 35.73 +26 33.7 17.9	-1.20 + 2.1	1.9/12.4	37062
(9797)	2000 01 13.0	07 35.82 +20 07.2 18.4	-0.83 + 2.0	0.4/13.3	33210
2104 T-2	2000 01 13.0	07 36.02 +20 27.2 18.5	-0.93 + 1.9	0.4/13.2	37342
1998 MN ₈	2000 01 13.1	07 36.04 +13 37.5 19.9	-1.11 + 5.4	3.0/14.4	32285
1998 UM ₁₈	2000 01 13.1	07 36.16 -00 07.9 18.7	-0.54 + 3.7	4.0/17.1	35722
1991 SE ₁	2000 01 13.1	07 36.34 +25 14.9 17.5	-1.13 + 5.8	1.5/12.6	37118
1992 UH ₁	2000 01 13.2	07 36.45 +28 17.2 16.5	-1.21 + 1.3	3.3/12.5	37263
1998 SK ₆₃	2000 01 13.2	07 36.81 +24 54.1 16.4	-0.92 + 3.3	1.2/12.8	37174
1998 QO ₁₀₀	2000 01 13.2	07 36.88 +19 38.4 18.0	-0.96 + 4.5	0.7/13.6	33562
(9220)	2000 01 13.3	07 37.32 +20 09.6 17.3	-1.11 + 0.7	0.5/13.5	32428
1998 QK ₃₄	2000 01 13.4	07 37.38 +37 36.6 17.5	-1.27 - 1.5	5.7/12.0	37162

2664 P-L	2000 01 13.4	07 37.39 +33 29.2 19.1	-1.01 + 1.2	3.9/11.9	36120
1998 RA ₅₅	2000 01 13.4	07 37.52 +03 18.3 20.4	-0.90 + 2.4	5.5/16.1	34022
1996 CT ₈	2000 01 13.4	07 37.59 +11 06.5 17.3	-0.93 + 8.8	4.1/15.5	37269
(9545)	2000 01 13.4	07 37.70 +13 37.3 18.0	-0.90 + 3.9	2.3/14.7	32875
1998 RD ₄₄	2000 01 13.5	07 37.74 +30 40.4 18.9	-1.06 + 2.3	3.2/12.3	35714
1991 SV ₁	2000 01 13.5	07 37.83 +32 35.1 17.7	-1.22 + 2.1	4.1/12.2	37118
1998 SV ₁₄₄	2000 01 13.5	07 37.88 +27 25.8 17.8	-1.04 + 2.5	2.0/12.7	33760
1998 RD ₅₄	2000 01 13.5	07 37.89 +14 08.9 18.2	-1.05 + 1.7	2.7/14.4	37286
1998 TX ₅	2000 01 13.5	07 38.04 +20 24.0 17.2	-0.95 + 1.8	0.3/13.7	37288
1997 HW ₇	2000 01 13.5	07 38.16 +18 30.0 18.4	-0.99 + 1.9	1.0/14.0	37274
1997 EQ ₂	2000 01 13.5	07 38.19 +18 46.1 16.9	-1.09 + 6.1	1.2/14.0	37272
(9304)	2000 01 13.6	07 38.10 +19 13.9 17.6	-1.03 + 4.4	0.8/13.9	32606
1998 UZ ₂₁	2000 01 13.6	07 38.23 +34 08.4 18.5	-1.07 + 3.4	3.9/11.8	37177
1998 RL ₆₅	2000 01 13.6	07 38.30 +23 13.4 18.0	-0.96 + 1.9	0.6/13.4	37286
(12706)	2000 01 13.7	07 38.53 +43 05.6 17.6	-1.35 + 1.1	7.8/11.4	37039
1997 JE ₁₈	2000 01 13.7	07 38.85 +20 26.4 19.0	-1.10 + 3.8	0.4/13.9	33698
1988 VA ₅	2000 01 13.7	07 38.86 +24 43.9 17.7	-1.20 + 2.8	1.3/13.3	37258
4214 T-1	2000 01 13.7	07 38.92 +16 27.0 17.3	-0.97 + 4.1	2.1/14.5	36943
1998 QB ₅₂	2000 01 13.7	07 38.99 +03 17.0 18.4	-0.91 + 3.5	5.8/16.7	36539
(12787)	2000 01 13.8	07 39.19 +27 48.8 16.9	-1.27 + 0.5	2.5/13.2	37061
1997 CL ₂₀	2000 01 13.8	07 39.28 +25 31.6 18.8	-1.15 + 3.2	1.4/13.3	32956
1998 SH ₄₉	2000 01 13.9	07 39.39 +02 30.3 18.8	-0.93 + 2.3	6.0/16.6	37287
1989 AJ ₆	2000 01 13.9	07 39.43 +25 33.0 17.2	-1.17 + 0.6	1.6/13.5	37258
(9434)	2000 01 13.9	07 39.66 +25 16.4 18.3	-1.17 + 3.3	1.4/13.4	32638
1997 CF ₂₉	2000 01 13.9	07 39.80 +17 53.5 16.5	-1.11 + 3.3	1.6/14.5	36891
1998 SA ₁₄₄	2000 01 13.9	07 39.82 +19 18.2 16.9	-0.92 + 2.8	0.7/14.3	36541
1995 TD	2000 01 14.0	07 39.99 +11 15.8 18.3	-1.10 + 3.6	3.9/15.5	32309
1992 EX ₉	2000 01 14.0	07 40.26 +15 10.4 16.7	-0.99 + 3.4	2.7/15.0	36880
(9069)	2000 01 14.0	07 40.38 -10 35.8 16.2	-1.35 - 8.5	17.1/16.0	32189
(12873)	2000 01 14.1	07 40.25 +22 10.2 17.6	-1.15 + 0.7	0.3/14.0	37084
1997 JD ₁₄	2000 01 14.1	07 40.33 -01 23.3 17.4	-0.95 + 1.6	8.5/17.2	36892
1998 QW ₇₃	2000 01 14.1	07 40.37 +02 55.8 20.0	-0.93 + 1.9	5.6/16.7	35712
(9008)	2000 01 14.1	07 40.41 +22 02.9 15.4	-1.14 + 7.4	0.3/14.0	32176
1998 QR ₄₃	2000 01 14.1	07 40.42 +29 49.5 18.1	-1.26 + 2.7	3.3/13.0	32709
1998 SD ₁₃₀	2000 01 14.1	07 40.58 +18 48.7 17.7	-0.92 + 2.3	0.8/14.5	37287
1083 T-2	2000 01 14.1	07 40.58 +26 40.7 16.6	-1.03 + 1.6	2.4/13.5	36943
(12417)	2000 01 14.1	07 40.70 +20 51.1 17.1	-1.14 + 5.2	0.2/14.3	36717
1998 SC ₂₄	2000 01 14.1	07 40.71 +23 41.5 17.9	-0.92 + 3.0	0.7/13.9	37287
2731 P-L	2000 01 14.1	07 40.75 +06 07.0 18.8	-0.83 + 3.2	4.9/16.6	37340
1990 SC ₈	2000 01 14.1	07 40.76 +14 37.8 19.2	-0.99 + 4.7	2.4/15.3	32742
(12642)	2000 01 14.2	07 40.70 +12 30.1 16.2	-0.98 + 3.1	4.4/15.5	36780
1998 SP ₅₃	2000 01 14.2	07 40.91 +23 21.5 17.9	-0.99 + 1.0	0.6/14.0	37173
(12218)	2000 01 14.2	07 41.02 +22 12.8 15.2	-1.15 + 6.0	0.4/14.1	36664
1998 RO ₃₈	2000 01 14.3	07 41.19 +27 37.9 17.1	-1.25 + 2.5	2.5/13.5	36903
1996 BS ₉	2000 01 14.3	07 41.19 +17 40.3 20.3	-0.98 + 2.7	1.2/14.8	36073
(9477)	2000 01 14.3	07 41.22 +18 25.0 17.8	-1.11 + 3.0	1.3/14.7	32648
1981 EZ ₂₂	2000 01 14.4	07 41.56 +24 59.3 18.2	-1.22 + 2.4	1.4/13.9	32298
1994 PL ₁₂	2000 01 14.4	07 41.60 +19 55.0 16.8	-1.08 + 1.9	0.6/14.6	33072
1995 CC ₂	2000 01 14.4	07 41.66 +20 32.3 16.5	-1.59 - 9.0	0.4/14.4	25432
1990 VC ₆	2000 01 14.4	07 41.77 +02 21.4 17.8	-0.94 + 1.9	6.3/17.0	35682
(9437)	2000 01 14.4	07 41.85 +21 43.6 16.4	-1.12 + 5.8	0.2/14.4	32638

1997 VB ₁	2000 01 14.4	07 41.98 +25 07.3 18.1	-0.61 + 1.1	0.7/13.9	36893	(9231)	2000 01 15.7	07 47.15 +26 05.2 17.1	-1.25 + 2.5	2.0/15.0	32431
1998 SB ₅₉	2000 01 14.5	07 42.05 +16 17.5 19.1	-0.88 + 2.9	1.6/15.3	35718	1992 EP ₇	2000 01 15.7	07 47.36 +13 30.0 19.1	-0.92 + 5.2	2.3/17.1	30471
1992 UE ₆	2000 01 14.5	07 42.30 +33 05.8 16.0	-1.22 + 5.8	5.5/12.6	37263	1998 SH ₁₆₃	2000 01 15.7	07 47.53 +32 54.1 20.6	-1.06 + 1.8	3.6/14.1	33300
1996 TW	2000 01 14.5	07 42.41 +42 56.0 18.2	-0.70 + 0.8	3.7/11.3	37270	(9630)	2000 01 15.8	07 47.61 +23 32.3 18.0	-0.97 + 1.9	0.7/15.5	32896
1981 EC ₄₇	2000 01 14.5	07 42.46 +15 13.3 19.0	-1.01 + 4.1	2.2/15.5	26923	1993 EJ	2000 01 15.8	07 47.69 +31 56.9 17.6	-1.17 + 4.2	4.3/14.1	32745
1992 UJ ₅	2000 01 14.6	07 42.42 +20 25.0 16.3	-1.11 + 2.5	0.5/14.7	36881	1998 PL	2000 01 15.8	07 47.86 +19 05.9 18.0	-1.12 + 5.7	0.8/16.2	37282
1995 BP ₁₅	2000 01 14.6	07 42.47 +15 24.2 17.5	-0.81 + 5.2	1.5/15.7	31106	1998 ST ₁₄₄	2000 01 15.8	07 47.87 +07 37.9 17.5	-0.80 + 2.4	4.1/18.0	36541
(9875)	2000 01 14.6	07 42.48 +13 15.9 16.9	-1.02 + 2.6	3.0/15.7	36499	1998 SU ₅₆	2000 01 15.8	07 47.89 +30 07.0 19.3	-1.17 + 2.2	3.0/14.6	35718
(9000)	2000 01 14.6	07 42.76 +12 03.1 17.2	-1.11 + 2.0	3.3/15.9	32174	1997 GF ₃₆	2000 01 15.9	07 48.10 +26 26.4 18.8	-1.18 + 3.5	2.2/15.1	30086
1996 DM ₂	2000 01 14.6	07 42.93 +22 29.6 17.4	-0.97 + 4.4	0.4/14.5	37269	(12738)	2000 01 15.9	07 48.14 +09 06.1 15.5	-0.94 +11.8	5.5/18.8	37048
1993 FV ₂₄	2000 01 14.7	07 43.12 +20 23.1 18.9	-1.07 + 2.2	0.3/14.9	37263	(11390)	2000 01 15.9	07 48.21 +21 30.0 18.2	-0.87 + 2.1	6.7/05.0	35588
1998 RJ ₁	2000 01 14.7	07 43.23 +19 48.8 16.4	-0.88 + 2.5	0.6/15.0	37167	(9648)	2000 01 15.9	07 48.32 +27 27.5 16.8	-1.19 + 3.8	2.3/15.0	32900
1998 QA ₉₁	2000 01 14.7	07 43.26 +05 11.0 17.9	-0.92 + 4.5	5.0/17.5	34020	1997 CB	2000 01 15.9	07 48.33 +09 09.0 17.9	-1.06 + 6.2	4.3/18.1	36523
(9012)	2000 01 14.8	07 43.54 +22 01.2 16.9	-1.06 + 0.7	0.3/14.8	32177	1998 RQ ₆₄	2000 01 15.9	07 48.33 +18 45.0 18.6	-0.89 + 2.6	0.7/16.3	35715
1993 BU ₇	2000 01 14.8	07 43.59 +16 50.3 17.7	-1.09 + 2.5	1.9/15.5	37263	(12819)	2000 01 16.0	07 48.53 +10 32.3 17.7	-0.82 + 1.8	3.1/17.6	37068
1998 SH ₁₃₈	2000 01 14.8	07 43.66 +20 29.1 19.8	-0.88 + 2.3	0.2/15.0	35720	1998 RQ ₆₈	2000 01 16.0	07 48.55 +22 39.3 18.5	-0.95 + 2.1	0.5/15.8	35715
1998 SH ₁₂₂	2000 01 14.8	07 43.66 +14 15.6 18.4	-0.84 + 1.8	2.1/16.0	35635	1998 QG ₅₀	2000 01 16.0	07 48.55 +39 07.8 19.4	-1.23 + 0.3	5.8/13.8	37284
(12230)	2000 01 14.9	07 43.85 +15 47.7 16.3	-1.03 + 4.8	2.3/16.0	36667	(9193)	2000 01 16.0	07 48.80 +01 37.6 15.7	-0.99 - 1.3	8.0/18.3	32422
1997 HA ₁₀	2000 01 14.9	07 43.87 +24 17.1 19.2	-0.99 + 3.2	0.9/14.5	37274	1981 EG ₂₀	2000 01 16.0	07 48.88 +28 35.3 18.8	-0.97 + 1.3	2.1/15.1	26918
1998 QP ₄₂	2000 01 14.9	07 43.87 +22 19.6 19.6	-1.13 + 1.7	0.4/14.8	32708	1997 MR ₈	2000 01 16.0	07 48.90 +15 18.7 18.4	-0.99 + 7.1	2.1/17.1	30474
1990 QE	2000 01 14.9	07 43.95 +28 19.0 17.4	-1.26 - 2.9	2.5/14.4	37259	1998 TG ₃	2000 01 16.0	07 48.93 -10 06.8 18.7	-0.95 + 2.4	9.3/21.3	35721
1998 SS ₁₂₃	2000 01 14.9	07 44.01 +09 05.8 17.7	-0.85 + 2.8	3.8/16.8	35719	(9777)	2000 01 16.1	07 48.90 +21 02.8 17.8	-1.06 + 3.6	0.0/16.1	33205
1998 RA ₆₈	2000 01 15.0	07 44.21 +35 05.0 17.2	-1.09 + 1.0	4.3/13.3	37286	1995 SP ₃	2000 01 16.1	07 48.92 +14 52.1 18.4	-1.16 + 1.7	2.3/16.9	37267
1993 FP ₁₀	2000 01 15.0	07 44.27 +19 10.7 16.8	-1.03 + 4.7	1.0/15.4	36881	1993 FC ₃₇	2000 01 16.1	07 49.14 +12 01.1 18.3	-1.02 + 3.7	3.5/17.5	35687
1998 SY ₃	2000 01 15.0	07 44.39 +14 45.4 19.9	-0.92 + 2.6	2.0/16.0	33707	1993 DX ₂	2000 01 16.1	07 49.31 +17 51.3 18.1	-1.06 + 5.5	1.2/16.7	37263
1170 T-2	2000 01 15.0	07 44.46 +02 08.0 18.0	-0.91 + 4.2	7.9/18.4	19329	1998 QL ₁₉	2000 01 16.2	07 49.33 +25 49.0 17.9	-1.11 + 3.2	1.7/15.5	37283
3039 T-2	2000 01 15.0	07 44.60 +16 50.2 20.3	-0.98 + 3.8	1.5/15.8	27928	1998 RC ₄₈	2000 01 16.2	07 49.47 +15 51.3 19.5	-0.98 + 2.5	1.6/17.0	35714
(9149)	2000 01 15.0	07 44.61 +00 08.9 16.4	-0.94 + 2.3	8.1/18.4	32412	(12839)	2000 01 16.2	07 49.48 +19 45.6 17.5	-1.02 + 5.7	0.5/16.5	37074
1998 RC ₈₀	2000 01 15.1	07 44.57 +10 23.7 17.2	-0.83 + 4.8	3.5/17.0	36540	1998 QC ₇₁	2000 01 16.2	07 49.58 +11 53.3 19.0	-0.93 + 1.7	2.8/17.6	35712
(12564)	2000 01 15.1	07 44.65 +19 01.1 17.5	-0.93 + 2.5	0.7/15.4	36759	1998 QZ ₈₄	2000 01 16.3	07 49.76 +17 15.5 18.7	-1.15 + 0.9	1.5/16.8	35712
1998 QD ₃₂	2000 01 15.1	07 44.90 +08 36.4 17.7	-0.86 + 6.9	4.0/17.7	33559	1998 SP ₁₃₃	2000 01 16.3	07 49.85 +19 04.0 18.2	-1.08 + 2.6	0.7/16.6	37288
(12658)	2000 01 15.2	07 45.07 +21 20.5 17.5	-0.59 + 1.7	0.0/15.2	37027	1998 ST ₇₄	2000 01 16.3	07 49.92 +23 21.4 19.1	-1.13 + 3.8	0.8/16.0	33283
1997 GA	2000 01 15.2	07 45.15 +15 00.8 19.2	-1.08 + 1.5	2.4/16.0	33497	1998 SW ₁₄₀	2000 01 16.3	07 50.00 +20 17.3 18.1	-0.91 + 2.2	0.2/16.5	35720
1998 SA ₁₄₀	2000 01 15.2	07 45.17 +04 06.0 19.1	-0.94 + 1.3	5.3/17.5	33759	1991 PA ₁₅	2000 01 16.4	07 50.21 +12 48.6 18.4	-1.07 + 3.5	3.1/17.7	36508
3382 T-3	2000 01 15.2	07 45.20 +11 14.4 18.5	-1.06 + 3.1	3.8/16.6	36125	1998 QC ₂₃	2000 01 16.4	07 50.39 +21 11.2 19.3	-1.02 + 4.1	0.1/16.4	33081
1998 RS ₆₄	2000 01 15.2	07 45.28 +45 01.1 18.3	-1.36 + 0.1	8.9/12.1	37286	(9447)	2000 01 16.4	07 50.41 +27 50.9 17.6	-0.99 + 4.7	2.1/15.3	32641
1995 UE	2000 01 15.2	07 45.47 +29 35.0 17.5	-1.27 + 0.9	3.7/14.3	37267	1998 MZ ₂₃	2000 01 16.4	07 50.51 +20 39.9 16.4	-1.12 + 0.5	0.1/16.5	37282
1998 SM ₅₈	2000 01 15.2	07 45.48 +18 30.8 17.8	-0.93 + 2.9	0.9/15.7	37287	(12913)	2000 01 16.4	07 50.53 +12 26.7 17.5	-0.91 + 2.2	2.8/17.7	37095
(12718)	2000 01 15.3	07 45.47 +24 38.8 17.3	-1.18 + 4.7	1.4/14.8	37043	1992 SS ₁₆	2000 01 16.4	07 50.60 +19 53.3 17.3	-1.19 + 3.1	0.5/16.6	36881
(9232)	2000 01 15.3	07 45.60 +24 19.1 17.2	-1.25 + 1.7	1.3/15.0	32431	1991 LU ₁	2000 01 16.5	07 50.63 +13 14.2 18.8	-0.85 + 1.9	2.3/17.6	33545
1998 RG ₇₂	2000 01 15.3	07 45.65 +11 58.8 18.8	-0.95 + 3.8	3.1/16.8	33008	1998 QM ₅₇	2000 01 16.5	07 50.74 +22 44.2 18.4	-1.00 + 2.0	0.6/16.3	32717
1998 QQ ₆₀	2000 01 15.3	07 45.74 +31 04.4 19.1	-1.14 - 2.8	3.4/14.6	33085	(12676)	2000 01 16.5	07 50.91 +03 57.0 17.5	-0.91 + 0.2	6.4/18.9	37031
1993 TK ₃₇	2000 01 15.3	07 45.83 +05 17.6 18.3	-0.84 + 3.8	5.2/18.1	37264	(11771)	2000 01 16.5	07 50.96 +31 45.3 18.8	-1.00 + 2.4	3.1/15.0	35903
1998 OF ₇	2000 01 15.3	07 45.94 +20 14.0 18.9	-1.18 + 1.0	0.4/15.5	33079	1998 QV ₁₂	2000 01 16.5	07 50.98 +21 25.8 17.8	-1.13 + 0.4	0.2/16.5	37283
1991 CL	2000 01 15.5	07 46.32 +15 42.8 15.6	-0.93 + 8.2	2.1/16.6	37260	1998 RK ₆₆	2000 01 16.5	07 51.04 +18 40.0 17.9	-0.93 + 2.1	0.8/16.9	37169
1997 GQ ₄₁	2000 01 15.5	07 46.34 +23 22.7 16.2	-1.08 + 4.4	1.0/15.2	36892	1994 QV	2000 01 16.5	07 51.09 +39 52.3 17.0	-1.31 - 0.4	6.7/14.6	37266
1978 VQ ₉	2000 01 15.5	07 46.79 +35 23.2 18.2	-1.13 + 4.7	4.5/13.2	37255	1979 MM ₂	2000 01 16.6	07 51.14 +15 57.6 19.5	-1.07 + 1.2	1.8/17.3	30778
(12765)	2000 01 15.5	07 46.79 +34 07.4 17.0	-0.98 + 3.3	3.8/13.5	37055	1997 JA ₁₁	2000 01 16.6	07 51.28 +08 23.6 17.3	-0.86 + 6.6	4.1/19.2	36892
1993 FN ₆	2000 01 15.5	07 46.83 +32 50.1 18.8	-1.20 + 2.6	4.5/13.9	32745	1979 OZ ₉	2000 01 16.6	07 51.29 +14 34.1 21.2	-1.14 + 4.0	2.4/17.6	27553
2785 P-L	2000 01 15.6	07 46.74 +22 25.4 18.6	-1.01 + 3.2	0.4/15.4	32785	(9697)	2000 01 16.6	07 51.34 +12 46.1 17.5	-0.88 + 2.8	2.8/17.9	32913
1992 DM ₉	2000 01 15.6	07 46.75 +07 21.9 18.8	-0.94 + 3.4	5.0/17.8	33338	(9634)	2000 01 16.6	07 51.40 +10 56.5 18.9	-0.82 + 2.3	2.9/18.2	32897

1998 QF ₄₈	2000 01 16.7	07 51.53 +21 28.2 17.4	-1.16 + 0.7	0.2/16.7	37164
1993 FP ₂₃	2000 01 16.7	07 51.61 +21 43.5 16.2	-1.09 + 1.7	0.3/16.6	26400
1995 WX ₄	2000 01 16.7	07 51.66 +13 56.8 17.1	-1.07 + 2.4	3.1/17.8	36886
1998 RX ₅₉	2000 01 16.7	07 51.70 +11 35.0 18.4	-1.06 + 2.5	3.6/18.1	35715
1997 LH ₉	2000 01 16.7	07 51.86 +15 31.4 18.6	-0.99 + 3.1	1.9/17.6	36353
4253 T-2	2000 01 16.8	07 51.97 +15 18.8 19.5	-1.07 + 4.7	2.0/17.8	29669
1998 SX ₆₀	2000 01 16.8	07 52.10 +37 07.4 18.3	-1.07 + 1.5	5.3/14.5	37287
1993 TF ₆	2000 01 16.8	07 52.11 +05 21.4 20.7	-0.85 + 1.8	4.6/19.2	32933
1990 RV ₃	2000 01 16.8	07 52.14 +25 28.3 19.0	-1.09 + 2.0	1.5/16.2	32742
(12425)	2000 01 16.8	07 52.20 +33 53.5 17.5	-1.25 + 2.8	4.9/15.0	36719
(11779)	2000 01 16.8	07 52.29 +26 15.8 17.9	-1.04 + 3.7	1.9/16.0	35905
1998 QN ₇₅	2000 01 16.8	07 52.34 -11 38.1 16.3	-0.88 + 4.5	11.3/23.8	36539
(12567)	2000 01 16.9	07 52.34 +19 03.1 16.7	-0.85 + 2.9	0.6/17.2	36760
1993 BD	2000 01 16.9	07 52.41 +21 40.5 16.5	-1.02 + 8.1	0.4/16.8	37121
1993 FM ₁₀	2000 01 16.9	07 52.66 +23 34.8 18.8	-1.10 + 3.6	1.0/16.6	32745
1998 SR ₄₃	2000 01 16.9	07 52.74 +23 28.8 17.3	-0.94 + 2.2	0.9/16.6	35717
1998 QP ₇₀	2000 01 17.0	07 53.02 +02 43.2 19.1	-0.93 + 1.9	6.0/19.9	35712
(9223)	2000 01 17.1	07 53.17 +15 35.7 16.6	-1.10 + 2.3	2.1/17.8	32429
1998 SX ₁₆₃	2000 01 17.1	07 53.52 +36 15.1 18.2	-0.98 + 3.1	4.4/14.6	34305
(9354)	2000 01 17.1	07 53.55 +13 28.9 16.9	-1.05 + 1.4	2.9/18.2	32618
1998 QS ₉₀	2000 01 17.2	07 53.77 +30 21.0 18.7	-1.19 + 3.2	3.3/15.8	35712
1994 TO ₁₅	2000 01 17.2	07 53.78 +34 39.6 17.3	-1.26 + 3.2	5.2/15.0	37266
(12197)	2000 01 17.2	07 54.05 +12 06.8 16.4	-0.97 + 4.3	3.8/18.8	36658
1993 TV ₁₉	2000 01 17.3	07 54.02 +23 39.0 17.1	-0.93 + 3.4	0.9/16.8	37264
(9329)	2000 01 17.3	07 54.17 +12 41.5 17.2	-1.10 + 1.4	3.2/18.4	32612
6790 P-L	2000 01 17.3	07 54.40 +22 36.5 19.5	-1.06 + 3.8	0.6/17.1	34267
1998 UY ₂₁	2000 01 17.4	07 54.49 +06 38.3 17.9	-1.04 + 0.9	5.3/19.2	34027
1998 QM ₄₂	2000 01 17.4	07 54.61 +16 55.7 18.1	-1.11 + 2.9	1.6/18.0	35711
1994 PV ₃₇	2000 01 17.4	07 54.72 +17 48.6 18.4	-1.04 + 3.3	1.0/17.9	37266
1993 RT ₆	2000 01 17.4	07 54.93 +19 35.6 18.9	-0.93 + 2.3	0.4/17.7	32932
1992 EA ₂₆	2000 01 17.4	07 54.94 +35 53.1 17.4	-1.23 - 1.0	6.5/15.7	37262
(12801)	2000 01 17.5	07 54.90 +31 02.8 16.9	-1.12 + 4.9	4.3/15.8	37064
1998 QM ₅₃	2000 01 17.5	07 55.05 +31 25.8 17.8	-1.03 + 0.3	3.5/16.1	33348
(12803)	2000 01 17.5	07 55.06 +19 51.1 17.8	-1.08 + 4.0	0.3/17.7	37065
1993 FE ₅₉	2000 01 17.5	07 55.15 +35 55.6 17.4	-1.27 + 0.9	5.3/15.7	29662
1998 SA ₅₆	2000 01 17.5	07 55.19 +19 19.2 19.0	-0.89 + 2.8	0.5/17.8	35718
1984 BZ ₆	2000 01 17.5	07 55.29 +20 03.0 18.3	-0.92 + 3.1	0.3/17.7	35678
1998 TR ₃₀	2000 01 17.5	07 55.31 +12 46.9 18.0	-0.86 + 2.2	2.5/18.8	36541
6761 P-L	2000 01 17.6	07 55.31 +08 17.7 17.2	-0.82 + 3.9	4.1/19.8	36579
4326 P-L	2000 01 17.6	07 55.39 +19 36.6 21.4	-1.00 + 2.2	0.4/17.8	34265
1998 SR ₇₀	2000 01 17.6	07 55.53 +34 36.9 18.5	-0.99 + 2.4	4.2/15.5	37287
1994 PK ₃₅	2000 01 17.6	07 55.80 +19 15.2 19.8	-1.05 + 2.4	0.5/17.9	32940
1996 AU ₁₃	2000 01 17.7	07 55.79 +28 34.1 19.8	-1.06 + 2.6	2.7/16.5	31387
1997 GR ₂₄	2000 01 17.7	07 55.88 +03 20.4 18.4	-0.88 + 3.1	5.3/20.7	37274
1991 RR ₁₆	2000 01 17.7	07 56.01 +31 58.4 17.8	-0.87 + 2.0	2.9/16.0	37261
1998 RO ₄₅	2000 01 17.7	07 56.09 +11 50.3 18.6	-1.03 + 3.8	3.3/19.2	35714
1979 MS ₅	2000 01 17.7	07 56.17 +20 22.6 19.0	-1.07 + 5.8	0.1/17.9	34821
(9272)	2000 01 17.7	07 56.22 +14 00.2 18.1	-0.93 + 3.4	2.2/18.9	32598
1995 CZ ₁	2000 01 17.8	07 56.42 +09 45.8 18.0	-1.50 - 7.6	5.4/18.3	25432
1989 GU ₃	2000 01 17.8	07 56.44 +16 45.6 17.5	-1.04 + 1.7	1.4/18.4	33067
1998 SV ₁₃₂	2000 01 17.8	07 56.55 +12 00.9 17.6	-0.87 + 1.6	2.8/19.2	34304

1998 QN ₂	2000 01 17.8	07 56.56 +15 50.5 18.3	-1.14 + 1.6	1.8/18.5	37283
1998 OA ₁₅	2000 01 17.8	07 56.58 +26 03.6 19.0	-1.13 + 1.3	1.9/17.2	32758
1994 UT ₁	2000 01 17.9	07 56.65 +42 30.2 16.9	-1.22 + 3.5	7.6/14.3	37266
1998 ML ₂₉	2000 01 17.9	07 56.71 +25 38.2 19.9	-1.21 + 2.2	1.8/17.2	32487
(9442)	2000 01 17.9	07 57.00 +22 19.9 16.2	-1.03 + 8.7	0.6/17.6	32639
1998 SA ₁₂₆	2000 01 17.9	07 57.04 +22 28.4 18.1	-0.90 + 3.9	0.6/17.7	33361
1991 LJ ₃	2000 01 18.0	07 57.04 +15 58.1 19.1	-1.14 + 3.3	1.8/18.7	35284
(12235)	2000 01 18.0	07 57.21 +08 52.6 16.6	-0.85 - 0.3	3.4/19.6	36669
1998 QL ₈₉	2000 01 18.1	07 57.69 +02 33.9 19.3	-0.94 + 1.8	5.6/21.0	34302
1994 TR ₁	2000 01 18.2	07 57.87 +02 59.8 18.9	-0.93 + 2.8	5.3/21.2	33551
1992 EV ₈	2000 01 18.2	07 58.00 +17 44.7 18.5	-0.96 + 6.7	1.1/18.8	33230
1998 SP ₁₁₅	2000 01 18.2	07 58.01 +20 09.1 18.0	-0.89 + 2.2	0.2/18.3	37287
1999 VC ₇₂	2000 01 18.2	07 58.08 +16 29.5 16.8	-1.18 + 2.3	1.9/18.8	37236
1998 QM ₉₄	2000 01 18.2	07 58.22 +16 26.0 18.0	-1.01 + 3.0	1.6/18.9	33349
1993 TU ₂₉	2000 01 18.3	07 58.33 +20 37.6 17.4	-0.90 + 3.5	0.0/18.3	33339
1998 TZ ₁₈	2000 01 18.3	07 58.49 +14 53.7 19.1	-0.96 + 2.8	1.8/19.3	35721
1998 QP ₄₀	2000 01 18.3	07 58.54 +29 29.4 16.0	-1.21 - 3.1	3.7/17.5	37284
4625 P-L	2000 01 18.3	07 58.70 +24 32.3 17.9	-1.16 + 3.4	1.6/17.8	36120
1993 TS ₂₂	2000 01 18.4	07 58.86 +37 29.5 19.0	-1.06 + 2.5	5.8/15.7	32934
1991 HN	2000 01 18.4	07 58.87 +25 12.2 17.9	-0.59 + 2.4	0.9/17.6	36507
1998 RH ₇₆	2000 01 18.5	07 59.28 +24 26.9 17.0	-0.94 + 3.3	1.3/17.9	37286
(9002)	2000 01 18.5	07 59.45 +16 15.4 16.7	-0.96 + 5.9	1.5/19.4	32174
1979 MC ₈	2000 01 18.5	07 59.53 +18 15.0 20.4	-1.05 + 2.8	0.8/18.9	30779
1997 GZ ₆	2000 01 18.5	07 59.55 +26 42.8 18.4	-1.14 + 3.8	2.7/17.6	36891
1992 SF ₁₁	2000 01 18.5	07 59.61 +18 33.6 17.2	-0.85 + 2.7	0.7/18.9	33338
(9168)	2000 01 18.5	07 59.65 +06 30.5 16.9	-1.03 + 2.1	5.4/21.0	32417
1998 QP ₁	2000 01 18.6	07 59.58 +28 24.0 19.3	-1.24 + 1.4	2.8/17.5	34591
1997 FY ₂	2000 01 18.6	07 59.70 +28 41.6 18.0	-1.22 + 2.0	3.3/17.4	33344
(12771)	2000 01 18.6	07 59.78 +24 43.7 17.5	-1.16 + 4.7	1.5/17.9	37057
1996 UX ₃	2000 01 18.6	07 59.93 -05 22.8 17.8	-0.56 + 1.3	5.4/23.5	33555
1996 AP ₂	2000 01 18.7	08 00.12 +24 57.5 16.6	-1.17 - 2.8	1.9/18.3	33075
1998 QZ ₅₀	2000 01 18.7	08 00.14 +16 24.3 18.8	-0.93 + 4.3	1.4/19.5	35631
1998 OC ₁	2000 01 18.7	08 00.21 +12 05.7 19.8	-1.08 + 4.9	3.2/20.2	33078
1996 AE ₁₈	2000 01 18.8	08 00.43 +16 25.1 19.4	-1.00 + 4.4	1.4/19.5	32750
1981 EV ₄₅	2000 01 18.8	08 00.72 +20 18.7 20.0	-0.91 + 2.0	0.1/18.9	20811
(9428)	2000 01 18.8	08 00.74 +08 56.1 16.8	-0.92 + 8.6	4.0/21.4	32636
1996 HF ₁₁	2000 01 18.8	08 00.77 +22 50.8 19.0	-0.89 + 3.0	0.7/18.5	34014
(9344)	2000 01 18.8	08 00.88 +26 57.7 16.7	-1.17 + 0.9	2.9/18.0	32616
1998 MC ₃₂	2000 01 18.9	08 00.96 +20 33.4 17.7	-1.17 + 0.8	0.0/18.9	37282
1978 SB ₈	2000 01 18.9	08 01.12 +29 46.0 17.3	-1.26 + 2.4	3.8/17.6	36500
(12742)	2000 01 18.9	08 01.14 +18 52.1 16.9	-0.85 + 4.7	0.5/19.3	37049
(9345)	2000 01 19.0	08 01.30 +15 19.5 17.7	-1.10 + 1.3	2.0/19.7	32616
(12331)	2000 01 19.0	08 01.34 +29 08.6 16.5	-1.25 + 4.7	3.5/17.6	36694
1998 SA ₁₄₅	2000 01 19.0	08 01.36 +41 50.3 18.8	-1.05 + 1.6	5.7/15.6	35720
1998 QS ₉₃	2000 01 19.0	08 01.37 +11 02.8 19.2	-0.96 + 7.8	3.2/21.0	36003
1998 SG ₆₀	2000 01 19.0	08 01.50 +22 06.0 16.9	-0.88 + 3.3	0.5/18.8	37287
1998 UC ₄	2000 01 19.0	08 01.63 +02 03.7 17.7	-0.91 + 2.3	5.8/22.0	37288
(10112)	2000 01 19.1	08 01.80 +01 23.5 17.6	-0.84 + 0.6	5.5/22.0	33884
1998 RD ₅	2000 01 19.1	08 01.83 +26 53.2 17.6	-1.12 + 5.0	2.4/18.0	34302
1998 QO ₅	2000 01 19.1	08 02.00 -15 29.0 19.6	-0.91 + 8.4	12.2/29.0	33080
(12391)	2000 01 19.1	08 02.16 +25 30.4 17.0	-1.00 + 5.3	1.7/18.3	36710

(12886)	2000 01 19.2	08 02.24 +30 40.4 17.4	-1.10 + 0.6	3.5/17.8	37088
1996 TQ ₁₂	2000 01 19.2	08 02.34 -26 11.5 18.1	-1.15 + 6.4	21.2/01.9	32054
1997 FQ ₁	2000 01 19.2	08 02.41 +22 11.7 19.0	-1.15 + 1.9	0.7/19.0	32958
1998 RY ₅₄	2000 01 19.2	08 02.57 +07 37.0 18.0	-0.91 + 2.4	4.1/21.4	35714
3118 T-2	2000 01 19.3	08 02.57 +13 34.2 19.2	-1.03 + 4.6	2.4/20.5	33130
1998 TR ₃₃	2000 01 19.3	08 02.66 +21 32.3 18.4	-0.91 + 3.2	0.3/19.1	36541
1992 RH ₃	2000 01 19.3	08 02.68 +18 27.7 19.1	-1.19 + 3.5	0.8/19.6	29100
1998 SQ ₃₇	2000 01 19.3	08 02.80 +22 55.0 18.8	-0.91 + 2.2	0.7/19.0	33355
(12277)	2000 01 19.3	08 02.86 +36 09.3 16.1	-1.08 + 8.0	6.2/15.9	36680
1995 SG ₄	2000 01 19.3	08 02.89 +30 41.9 18.2	-1.51 - 5.1	4.1/18.7	37267
1998 RK ₇₅	2000 01 19.3	08 03.06 +39 21.1 16.5	-1.20 + 1.6	7.3/16.3	33565
1993 VU ₇	2000 01 19.4	08 03.03 +15 55.8 17.8	-0.92 +10.0	1.5/21.0	32746
(9561)	2000 01 19.4	08 03.05 +25 11.9 17.6	-1.18 + 1.9	1.7/18.7	32879
1994 PH ₁₈	2000 01 19.4	08 03.12 +17 17.0 19.1	-1.09 + 3.8	1.2/19.9	30092
1998 SB ₆₅	2000 01 19.4	08 03.28 +32 03.7 17.0	-1.11 + 5.1	4.3/17.2	33758
1986 TV ₆	2000 01 19.4	08 03.46 +25 44.4 17.6	-1.08 + 1.2	1.7/18.7	37257
(9736)	2000 01 19.5	08 03.44 +19 51.9 18.4	-0.82 + 2.8	0.1/19.6	33196
1993 TZ ₂₉	2000 01 19.5	08 03.51 +23 25.3 17.6	-0.93 + 3.5	1.0/19.0	33237
1998 QE ₂₅	2000 01 19.5	08 03.53 +11 17.1 19.3	-0.96 + 6.4	3.1/21.4	32696
1998 QE ₅₇	2000 01 19.5	08 03.56 +13 41.0 18.4	-1.06 + 4.1	2.4/20.7	35711
1164 T-3	2000 01 19.5	08 03.80 +06 50.8 18.7	-0.85 + 0.9	4.0/21.6	33130
1998 QV ₇₃	2000 01 19.6	08 03.96 +03 11.0 15.9	-1.02 - 4.0	7.6/21.3	37285
(9699)	2000 01 19.6	08 04.00 +03 48.6 18.0	-0.89 + 3.2	4.9/22.5	32913
1998 SS ₁₁₇	2000 01 19.7	08 04.42 +20 44.9 17.2	-1.14 + 2.3	0.1/19.7	34023
1992 CS ₂	2000 01 19.7	08 04.42 +15 42.0 17.4	-1.03 + 1.6	1.7/20.4	37262
(12919)	2000 01 19.7	08 04.46 +13 23.1 17.3	-1.11 + 1.9	2.5/20.8	37097
1998 SN ₆₅	2000 01 19.8	08 04.97 +30 37.9 19.2	-1.00 + 3.5	3.0/18.1	33758
1994 PG ₁₈	2000 01 19.8	08 05.11 +13 25.7 16.7	-0.98 + 5.5	2.8/21.2	36884
1994 QR	2000 01 19.8	08 05.13 +15 08.3 18.6	-0.99 + 4.6	1.9/21.0	33073
1998 QP ₅₁	2000 01 19.8	08 05.17 +18 06.1 18.1	-1.10 + 2.4	0.9/20.2	32715
1990 QE ₇	2000 01 19.9	08 05.10 +18 46.1 16.6	-0.99 + 4.1	0.7/20.2	37259
1995 WA ₄₂	2000 01 19.9	08 05.10 +12 24.4 17.6	-1.05 + 3.3	3.4/21.2	36887
1998 QW ₈₆	2000 01 19.9	08 05.32 +15 00.1 18.2	-1.06 - 0.4	1.8/20.6	37166
(9212)	2000 01 19.9	08 05.34 +10 12.6 16.9	-1.06 + 2.4	4.4/21.5	32426
1995 DZ ₁	2000 01 19.9	08 05.40 +26 55.5 18.0	-0.88 + 3.7	1.8/18.7	37266
(10031)	2000 01 19.9	08 05.52 +06 28.4 17.4	-0.96 + 0.6	4.3/22.0	33865
1996 EB	2000 01 19.9	08 05.58 +38 06.3 16.6	-1.14 + 7.3	7.1/16.2	37269
1998 SZ ₁₁₄	2000 01 20.0	08 05.69 +21 26.4 17.3	-0.96 + 3.3	0.4/19.8	36904
1998 SO ₁₂₉	2000 01 20.0	08 05.78 +24 08.1 17.4	-0.93 + 2.9	1.3/19.4	36904
1995 WO ₃	2000 01 20.0	08 05.92 +17 34.3 17.5	-1.10 + 3.1	1.2/21.0	29946
(9351)	2000 01 20.0	08 05.98 +16 32.6 18.8	-1.09 + 2.7	1.4/20.7	32618
1981 EP ₂₇	2000 01 20.0	08 05.99 +03 10.6 18.5	-0.83 + 3.9	5.4/23.3	37256
1998 SA ₂₈	2000 01 20.1	08 05.98 +26 58.7 17.7	-1.00 + 2.8	2.2/19.0	36540
1996 GV ₁₇	2000 01 20.1	08 06.24 +02 16.8 18.5	-0.81 + 2.3	5.2/23.3	33253
1998 SZ ₁₄₀	2000 01 20.2	08 06.37 +17 37.6 17.0	-0.92 + 2.6	0.9/20.6	36905
(9217)	2000 01 20.2	08 06.51 +25 01.8 18.9	-1.13 + 4.6	1.8/19.4	32427
1994 PS ₃₁	2000 01 20.2	08 06.56 +12 45.3 19.9	-0.99 + 3.5	2.5/21.5	35691
1982 ST ₇	2000 01 20.2	08 06.59 +24 08.5 17.2	-1.15 + 1.4	1.6/19.7	37256
1997 GH ₉	2000 01 20.2	08 06.60 +27 42.4 19.2	-1.14 + 2.0	2.6/19.1	32960
1981 EJ ₁₃	2000 01 20.2	08 06.69 +25 32.8 16.8	-1.16 - 1.0	2.3/19.6	36501
1998 SU ₅₉	2000 01 20.2	08 06.73 +13 12.2 17.6	-1.00 + 5.3	2.7/21.6	33033

(9800)	2000 01 20.3	08 06.87 +20 15.6 17.7	-1.06 + 4.1	0.0/20.3	33211
1997 FR ₃	2000 01 20.3	08 06.90 +08 10.4 19.5	-1.04 + 3.8	4.9/22.4	32958
1998 SV ₁₆₃	2000 01 20.3	08 07.12 +34 03.1 17.1	-0.98 + 4.4	4.4/17.7	37288
1998 SE ₂₂	2000 01 20.3	08 07.20 +15 55.0 19.2	-0.97 + 3.0	1.4/21.1	35716
1998 RU ₆₈	2000 01 20.3	08 07.22 +27 27.9 17.8	-0.94 + 2.0	2.4/19.2	36904
1978 UD ₇	2000 01 20.3	08 07.23 +33 05.8 18.7	-1.28 + 2.4	4.5/18.3	35676
1994 PE ₁₆	2000 01 20.3	08 07.24 +21 46.9 18.3	-1.07 + 1.2	0.6/20.2	32747
1998 OT ₁	2000 01 20.4	08 07.52 +20 55.6 18.4	-1.19 + 0.8	0.3/20.4	32756
1998 QA ₄	2000 01 20.4	08 07.54 +34 34.3 21.4	-1.17 + 0.6	4.5/18.5	33080
1995 BQ ₈	2000 01 20.4	08 07.62 +22 13.5 18.3	-0.90 + 3.6	0.7/20.1	33074
1998 RO ₇₉	2000 01 20.4	08 07.64 +29 35.2 19.8	-0.95 + 2.9	3.0/18.9	33275
1998 QM ₂₈	2000 01 20.5	08 07.96 +20 34.6 18.3	-0.99 + 3.0	0.1/20.5	33347
1981 QD ₄	2000 01 20.6	08 08.06 +31 34.2 16.5	-1.21 - 1.1	4.1/19.2	37256
1998 ON ₁₂	2000 01 20.6	08 08.14 +17 49.7 18.8	-1.05 + 4.0	0.8/21.0	33346
1998 SO ₆₄	2000 01 20.6	08 08.52 +02 50.6 19.4	-0.90 + 3.9	5.3/23.9	35718
1978 VP ₃	2000 01 20.6	08 08.55 +23 50.5 17.3	-0.91 + 3.9	1.3/20.0	36873
1998 QR ₄₈	2000 01 20.7	08 08.70 +19 42.3 19.8	-0.99 + 2.8	7.4/10.0	33084
(9670)	2000 01 20.7	08 08.78 +07 15.0 16.6	-0.82 + 4.4	4.3/23.3	36499
(12355)	2000 01 20.7	08 08.95 +17 36.5 17.1	-0.92 + 3.1	0.9/21.2	36700
1998 OJ ₇	2000 01 20.8	08 09.22 +11 57.3 18.6	-1.03 + 2.8	2.9/22.2	33079
1986 TG ₁	2000 01 20.8	08 09.38 +41 15.1 17.3	-1.31 0.0	7.5/17.9	37257
1998 QP ₆₉	2000 01 20.9	08 09.33 +00 50.5 18.3	-0.99 + 0.4	6.8/23.9	37285
1995 SH ₃₂	2000 01 20.9	08 09.72 +24 23.1 17.3	-1.19 + 1.4	2.1/20.4	29109
1998 RL ₅₉	2000 01 21.0	08 10.03 +14 31.0 17.5	-0.92 + 3.0	2.0/22.0	36540
1998 RG	2000 01 21.0	08 10.04 +18 21.3 17.4	-0.90 + 7.7	0.7/21.4	33350
(9627)	2000 01 21.0	08 10.08 +03 37.2 17.5	-0.92 + 1.9	5.1/23.9	32895
1977 TU ₃	2000 01 21.0	08 10.08 -02 17.3 17.1	-0.84 + 2.4	7.1/25.4	36873
1997 GJ ₂₃	2000 01 21.0	08 10.15 +39 08.8 19.0	-1.16 + 3.4	5.9/17.6	37274
1985 RF ₃	2000 01 21.0	08 10.20 +19 42.2 18.2	-0.96 + 4.5	0.1/21.2	37257
1998 WR ₁₅	2000 01 21.0	08 10.22 +18 37.5 18.3	-0.80 + 3.5	0.4/21.4	36086
1998 SE ₁₂₃	2000 01 21.1	08 10.28 +09 59.0 18.5	-0.90 + 3.2	3.3/22.9	35719
1997 GP ₂₇	2000 01 21.1	08 10.31 +19 21.6 19.1	-1.12 + 2.7	0.3/21.2	32963
1998 QO ₁₀₅	2000 01 21.1	08 10.35 +30 04.5 16.6	-1.20 + 4.7	4.3/19.3	37285
1993 FW ₉	2000 01 21.1	08 10.36 +23 51.7 18.1	-1.06 + 3.8	1.3/20.5	34289
1994 PL ₄	2000 01 21.1	08 10.48 +12 55.1 18.3	-0.99 + 5.6	2.5/22.5	35690
1994 PC ₁₆	2000 01 21.1	08 10.64 +15 50.9 19.1	-1.03 + 3.4	1.5/21.9	35690
1994 GR ₂	2000 01 21.1	08 10.64 +21 01.6 19.3	-1.13 + 4.6	0.4/21.0	32747
(9516)	2000 01 21.2	08 10.62 +17 05.4 17.3	-0.86 + 3.2	1.0/21.7	32867
1993 FE ₈	2000 01 21.2	08 10.66 +23 50.5 18.2	-1.06 + 4.3	1.3/20.5	32745
1986 PX	2000 01 21.2	08 10.72 +15 20.6 18.2	-1.18 + 4.2	1.9/22.0	32300
(9701)	2000 01 21.3	08 11.08 +15 19.0 17.8	-1.07 + 3.4	2.0/22.1	32914
1998 SL ₇₅	2000 01 21.3	08 11.10 +22 01.6 19.0	-0.96 + 3.8	0.6/21.0	35718
6106 P-L	2000 01 21.3	08 11.11 +21 42.6 18.4	-1.03 + 2.2	0.6/21.0	36121
1998 VD ₉	2000 01 21.3	08 11.16 -04 13.1 17.7	-0.83 + 2.4	7.3/26.0	36905
1998 VJ ₅	2000 01 21.3	08 11.17 +36 11.1 18.5	-1.03 + 2.3	4.4/18.5	37288
(12485)	2000 01 21.4	08 11.46 +20 24.9 17.0	-1.11 + 2.5	0.2/21.3	36735
(9214)	2000 01 21.4	08 11.51 +23 41.9 16.9	-1.23 + 1.5	1.4/20.9	32427
(9196)	2000 01 21.4	08 11.51 +21 42.0 15.8	-1.14 + 5.3	0.7/21.1	32423
(9501)	2000 01 21.4	08 11.63 +15 26.9 19.2	-0.97 + 3.1	1.4/22.2	32654
1998 TT ₂₆	2000 01 21.4	08 11.67 +06 20.2 18.3	-0.85 + 2.0	4.3/23.8	35721
1998 SB ₁₁₉	2000 01 21.4	08 11.74 +24 35.5 17.9	-1.11 + 3.4	1.8/20.7	34593

1991 TX	2000 01 21.4	08 11.90 +46 20.7 17.6	-1.44 + 8.1	9.5/15.8	37261	1998 SM ₁₂₉	2000 01 22.2	08 15.02 +16 48.3 18.5	-0.94 + 3.6	1.0/22.8	35719
1998 SS ₂	2000 01 21.4	08 11.91 +07 03.3 17.5	-0.98 + 0.7	4.1/23.4	37286	1997 UY ₂₀	2000 01 22.2	08 15.03 +03 53.9 19.0	-0.77 + 2.6	4.0/25.2	31148
1998 RO ₂₀	2000 01 21.4	08 11.92 +15 58.0 18.9	-1.12 + 4.5	1.5/22.2	36085	(9401)	2000 01 22.2	08 15.14 +41 27.4 17.3	-1.20 + 2.6	6.9/18.4	36061
1981 EL ₁₄	2000 01 21.5	08 12.04 +33 34.5 19.1	-1.08 + 0.3	4.5/19.5	26917	1998 SC ₄₃	2000 01 22.2	08 15.26 +26 21.7 18.7	-1.03 + 3.1	2.1/21.1	35717
1995 UQ ₄	2000 01 21.5	08 12.22 +41 20.5 15.8	-1.33 + 4.5	8.3/17.6	28303	4031 T-3	2000 01 22.2	08 15.27 +16 12.7 18.5	-1.07 + 5.1	1.4/23.0	32294
1984 SS	2000 01 21.5	08 12.31 -15 16.5 17.4	-1.02 + 1.9	11.1/28.7	33333	1998 QE ₉₈	2000 01 22.3	08 15.28 +23 53.9 19.5	-1.09 + 4.1	1.3/21.6	33089
1998 SZ ₅₉	2000 01 21.6	08 12.30 +13 36.4 17.8	-1.00 + 5.6	2.4/22.8	33034	1995 UQ ₁	2000 01 22.3	08 15.50 +11 19.1 17.2	-1.08 + 3.9	3.7/23.9	36885
1997 EB ₅₄	2000 01 21.6	08 12.33 +23 05.6 18.1	-1.07 + 3.0	1.0/21.1	33555	1998 TX ₁₇	2000 01 22.3	08 15.50 +10 38.2 17.3	-0.79 + 3.8	2.8/24.1	34929
1991 RL ₁	2000 01 21.6	08 12.54 +02 15.4 18.2	-1.02 + 4.2	6.3/24.9	37260	(9826)	2000 01 22.3	08 15.55 +06 41.4 17.8	-0.83 + 2.5	3.8/24.8	33217
(9609)	2000 01 21.6	08 12.64 +08 01.7 16.8	-0.84 + 1.5	3.5/23.7	32891	1998 PJ	2000 01 22.3	08 15.57 +20 28.5 19.3	-1.09 + 3.0	0.2/22.2	33755
(9521)	2000 01 21.6	08 12.68 +13 19.8 18.5	-1.09 + 3.9	2.5/22.8	32869	1998 QE ₅₄	2000 01 22.3	08 15.60 +21 32.0 16.2	-1.18 + 0.9	0.7/22.1	36903
1995 DN ₁	2000 01 21.7	08 12.76 +30 03.0 18.3	-0.91 + 2.4	2.8/19.9	35692	1998 VH ₃₄	2000 01 22.4	08 15.82 +20 03.0 17.6	-0.87 + 1.2	0.1/22.4	36820
1998 SL ₅₄	2000 01 21.7	08 12.78 +17 15.9 18.2	-1.04 + 3.2	0.9/22.2	35717	1997 GV ₃	2000 01 22.4	08 15.98 +33 06.5 18.1	-1.24 + 3.3	5.6/20.1	37273
1997 EF ₄₁	2000 01 21.7	08 12.78 +11 58.7 18.4	-1.10 + 4.1	3.2/23.1	35699	1994 PL ₃₅	2000 01 22.4	08 16.00 +14 56.6 18.0	-1.00 + 3.6	1.9/23.3	32748
1998 RD ₆₉	2000 01 21.7	08 12.85 +21 15.3 18.0	-1.15 + 3.9	0.5/21.5	35715	1998 SV ₁₂₆	2000 01 22.4	08 16.01 +22 35.1 17.6	-0.93 + 5.0	1.0/21.9	34024
1998 SE ₄	2000 01 21.7	08 12.93 +35 05.6 18.2	-1.05 + 1.3	4.8/19.3	33353	1998 RA ₃₉	2000 01 22.4	08 16.07 +09 53.7 18.4	-0.89 + 6.0	3.4/24.6	34021
(12493)	2000 01 21.7	08 12.94 +19 01.7 17.2	-0.83 + 4.9	0.3/21.9	36737	1998 UD ₇	2000 01 22.5	08 16.10 +24 13.2 18.8	-0.99 + 3.1	1.3/21.7	35722
1993 FY ₃₄	2000 01 21.7	08 13.02 +11 59.5 18.4	-1.00 + 4.6	2.9/23.2	33071	1994 PL ₃	2000 01 22.5	08 16.27 +20 42.4 17.8	-1.06 + 2.3	0.4/22.4	32747
1998 SZ ₁₃₈	2000 01 21.7	08 13.09 +12 11.0 19.3	-1.16 + 3.1	2.8/23.0	35720	(9779)	2000 01 22.5	08 16.32 +21 54.0 18.0	-1.10 + 2.9	0.7/22.2	33206
1997 KH	2000 01 21.7	08 13.16 +16 52.4 18.3	-0.97 + 3.3	1.0/22.3	33077	1998 RL ₆₁	2000 01 22.5	08 16.35 +24 56.9 17.8	-1.22 + 2.0	2.0/21.7	35715
1993 FE ₂₀	2000 01 21.7	08 13.17 +22 38.2 17.1	-1.04 + 6.0	1.1/21.2	32663	1981 QJ ₃	2000 01 22.5	08 16.57 +18 35.0 18.3	-0.83 + 3.2	0.3/22.8	35678
1998 SC ₄₆	2000 01 21.8	08 13.15 +15 56.5 17.9	-0.85 + 2.7	1.2/22.5	34303	1998 RN ₁₆	2000 01 22.6	08 16.58 +10 42.1 19.5	-1.05 + 4.6	3.1/24.3	35714
1998 RO ₆₇	2000 01 21.8	08 13.18 +09 26.5 18.4	-1.04 + 3.1	3.9/23.6	33005	(11388)	2000 01 22.6	08 16.78 +08 10.0 16.4	-0.69 + 2.1	3.1/24.8	35587
1991 PA ₅	2000 01 21.8	08 13.21 +20 32.3 18.7	-1.14 + 2.5	0.2/21.7	33743	1998 TM ₅	2000 01 22.6	08 16.83 +24 32.4 19.2	-0.99 + 3.6	1.5/21.8	34305
(9017)	2000 01 21.8	08 13.22 +19 49.2 16.8	-1.09 + 1.3	0.0/21.8	32178	4758 P-L	2000 01 22.6	08 16.87 +27 05.9 18.7	-0.95 + 2.1	2.5/21.4	33054
1997 RG ₉	2000 01 21.8	08 13.25 +19 18.0 17.8	-0.91 - 0.3	0.2/21.9	33753	(9289)	2000 01 22.7	08 16.96 +36 41.0 18.0	-1.19 + 0.8	5.4/20.0	32603
(12770)	2000 01 21.8	08 13.30 +21 33.0 16.9	-1.14 + 5.7	0.7/21.5	37056	(12467)	2000 01 22.7	08 17.09 +25 24.8 17.0	-1.22 + 4.5	2.5/21.7	36731
1997 UJ	2000 01 21.8	08 13.35 +05 56.3 18.8	-0.55 + 1.5	2.7/24.5	33558	1990 SX ₃	2000 01 22.7	08 17.17 +22 02.7 16.9	-1.15 - 0.8	0.8/22.4	37259
(12892)	2000 01 21.8	08 13.51 +11 28.9 16.0	-0.93 + 1.5	3.3/23.2	37089	6607 P-L	2000 01 22.7	08 17.27 +18 16.2 16.5	-1.04 + 5.2	0.6/23.0	33384
1998 RA ₇₇	2000 01 21.9	08 13.64 +27 13.7 20.3	-1.15 + 3.5	2.4/20.7	35716	1998 SN ₂₂	2000 01 22.7	08 17.39 -00 47.8 16.9	-0.86 + 4.6	7.9/27.0	37287
1989 CB ₆	2000 01 21.9	08 13.65 +20 29.6 16.8	-1.02 + 4.8	0.3/21.8	23514	1998 MM ₇	2000 01 22.7	08 17.46 +27 13.1 18.8	-1.12 + 6.9	2.6/21.2	32756
(12744)	2000 01 21.9	08 13.69 +16 52.6 16.9	-1.17 + 2.4	1.3/22.4	37050	1992 PH ₂	2000 01 22.8	08 17.35 +12 26.0 17.7	-0.87 + 1.1	2.1/24.0	36510
(12193)	2000 01 21.9	08 13.77 +32 09.4 15.1	-1.06 + 8.6	4.7/19.1	36657	1993 FL ₈₁	2000 01 22.8	08 17.40 +17 33.1 17.9	-1.04 + 4.5	0.8/23.2	34501
(9651)	2000 01 21.9	08 13.84 +20 02.7 18.4	-1.04 + 2.8	0.1/21.9	32901	1995 WX ₂	2000 01 22.8	08 17.47 +11 45.4 17.7	-1.06 + 2.6	3.6/24.1	35694
(9308)	2000 01 21.9	08 13.92 +17 52.8 18.0	-1.09 + 1.4	0.7/22.3	32607	(9379)	2000 01 22.8	08 17.63 +19 05.6 16.9	-0.93 + 2.8	0.2/23.0	32624
1994 PY ₃₇	2000 01 21.9	08 14.00 +19 54.3 19.9	-1.09 + 2.9	0.0/22.0	35691	(12796)	2000 01 22.8	08 17.71 +02 57.0 18.3	-1.08 + 0.6	7.4/26.0	37063
1999 UG ₁₁	2000 01 22.0	08 14.18 +36 14.2 16.3	-1.46 -12.2	7.4/21.9	37194	1998 RA ₅₉	2000 01 22.8	08 17.74 +11 58.0 17.1	-1.06 + 3.4	3.2/24.2	36903
1998 QO ₁₀	2000 01 22.0	08 14.24 +12 56.0 18.5	-1.07 + 3.9	2.5/23.3	37283	(8125)	2000 01 22.8	08 17.79 +26 03.5 17.8	-0.62 + 0.6	1.2/21.7	31779
(12233)	2000 01 22.0	08 14.26 +20 16.0 17.1	-1.04 + 5.4	0.2/22.0	36668	1989 BA	2000 01 22.8	08 17.81 +58 27.6 14.8	-2.21 -15.0	20.9/23.1	32741
1991 RE ₄	2000 01 22.0	08 14.31 +25 20.8 19.9	-1.15 + 2.4	1.9/21.2	35062	1998 UF ₄₂	2000 01 22.9	08 17.93 +22 50.5 18.0	-1.02 + 3.6	1.1/22.3	34307
1998 RV ₇₁	2000 01 22.0	08 14.46 +20 24.8 17.2	-1.00 + 4.0	0.2/22.0	33007	1998 UD ₂₀	2000 01 22.9	08 17.98 +18 34.7 19.0	-0.82 + 3.7	0.3/23.2	34307
1992 RV ₆	2000 01 22.1	08 14.59 +21 50.6 19.3	-0.84 + 3.0	0.5/21.8	35686	1998 QG ₉₈	2000 01 23.0	08 18.26 +08 10.7 19.6	-1.05 + 4.5	3.9/25.2	33349
1998 QY ₂₀	2000 01 22.1	08 14.62 +18 57.2 19.9	-1.05 + 3.1	0.3/22.3	34591	1416 T-2	2000 01 23.0	08 18.27 +04 33.3 19.5	-0.53 + 2.5	2.8/26.2	35672
1090 T-3	2000 01 22.1	08 14.65 +36 36.4 20.4	-1.19 + 0.8	5.4/19.5	36124	1993 FH ₁₆	2000 01 23.0	08 18.35 +21 19.5 16.5	-1.03 + 5.5	0.8/22.7	30451
1998 SY ₅₉	2000 01 22.1	08 14.69 +17 47.1 17.5	-0.84 + 4.7	0.7/22.6	36540	1998 QE ₅₁	2000 01 23.0	08 18.37 +21 25.2 19.5	-1.17 + 3.2	0.6/22.7	35631
1993 FL ₃₃	2000 01 22.1	08 14.71 +27 01.3 16.9	-1.12 + 3.8	2.9/20.9	23526	1998 SH ₂₅	2000 01 23.0	08 18.50 +27 15.1 16.8	-0.99 + 4.4	2.6/21.6	37287
1981 EH ₃₁	2000 01 22.1	08 14.72 +07 57.3 19.0	-0.95 + 7.2	5.2/24.8	21967	1996 JF ₉	2000 01 23.0	08 18.60 +14 19.7 20.8	-0.83 + 4.0	1.5/24.1	27562
(9632)	2000 01 22.1	08 14.75 +22 11.1 19.2	-0.91 + 3.5	0.7/21.7	32896	1993 FR ₁₃	2000 01 23.0	08 18.71 +30 40.6 17.5	-1.12 + 4.4	4.9/21.0	37263
1998 QH ₅₂	2000 01 22.1	08 14.78 +24 03.8 16.4	-1.15 - 0.2	1.8/21.6	36903	1078 T-3	2000 01 23.1	08 18.87 -02 36.4 17.5	-0.96 0.0	8.6/26.6	37342
(12836)	2000 01 22.1	08 14.83 +18 10.1 16.9	-1.12 + 4.4	0.8/22.5	37073	1992 EW ₁₇	2000 01 23.2	08 19.07 +01 35.8 18.2	-0.90 + 5.2	6.1/26.9	37262
1996 TN ₄₉	2000 01 22.2	08 14.99 +06 02.4 18.5	-0.55 + 1.9	2.8/24.9	35697	4858 P-L	2000 01 23.2	08 19.18 +04 54.9 18.1	-0.80 + 4.7	4.9/26.3	33383