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EDITORIAL NOTICE

For the next few months, the dates of issue of the *Minor Planet Circulars* will again be displaced with respect to full moon by a few days.

Contributors of perturbed orbital elements are advised that use of the Epoch 1999 Aug. 10.0 TT (rather than 1999 Jan. 22.0 TT) will become effective *after* the next batch of *MPCs*.

R. McMillan, the principal investigator for Spacewatch, informs us that J. A. Larsen has uncovered a systematic error in the astrometry derived from Spacewatch scans. In the course of validating new software, Larsen discovered a bug in the 1991-vintage code that referred the positions of the moving objects, which are extracted from the scans into small arrays, to the pixel coordinate systems of the original scans. The way these “snaps” frames were handled by the software was causing the positions of the moving objects to be displaced by exactly one CCD row westward in right ascension with respect to the reference stars. This error affects only the scan-mode observations and not the stare-mode observations. The size of the error is time dependent but well understood. The Minor Planet Center has applied the relevant correction to 211 482 scan-mode observations made between 1991 Sept. 4 and 1999 Jan. 26. The opportunity was also taken to change to 695 the observatory code for non-Spacewatch observations listed originally as code 691. This latter change affects 1552 observations. Observatory code 691 will in the future be reserved for Spacewatch observations only. Because of the enormous number of corrections (amounting to ~ 10 percent of the published data), the modified observations will not be republished in these *Circulars*.

ERRATA

MPC Line
26933 – 3
33787 1
33790 –10

For the town was *read* the castle was

For b. 1945 *read* b. 1942

For anser brachyrhynchus *read* Anser brachyrhynchus.

The initial letters of the names of the genera for the other birds shown through *MPC* 33794 should also be in upper case.

33790 – 8
33840 1

For The Netherlands *read* Europe

For K. Lawrence (2) *read* S. Pravdo (2),

D. L. Rabinowitz (2)

33927 –22

Add The identification 1989 SD = 1976 JK₃

(*MPC* 15421) is invalid (see also *MPC* 33717)

NEW OBSERVATORY CODES

The following listing is a continuation to that on *MPC* 33817. 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	$\rho \cos \phi'$	$\rho \sin \phi'$	
649	265.3003	0.78207	+0.62117	Powell Observatory, Louisburg
650	242.9028	0.83510	+0.54836	Temecula
838	275.8378	0.76884	+0.63735	Dayton
840	276.2833	0.73235	+0.67870	Flint

CORRECTED OBSERVATIONS

The following observations correct those previously published.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	Mag.	N Obs.
1972 QF	* 1972 08	18.99972	22 50 49.62	−02 04 12.8	<i>MPC</i> 3630	16.0	095
1986 EY ₄	* 1986 03	11.18924	12 27 00.92	−02 41 35.7	<i>MPC</i> 11497		1 809
1986 EY ₄	1986 03	11.20799	12 26 59.83	−02 40 46.3	<i>MPC</i> 11497		1 809
1991 SE	1991 09	30.52292	22 52 20.84	−09 42 35.5	<i>MPC</i> 18873		413
(894)	1984 06	01.88055	16 26 43.68	−05 08 08.3	<i>MPC</i> 9402		2 563
(894)	1984 06	01.89444	16 26 42.99	−05 08 07.2	<i>MPC</i> 9402		2 563
(894)	1984 06	01.90833	16 26 42.34	−05 08 02.5	<i>MPC</i> 9402		2 563
(894)	1984 06	01.92222	16 26 41.71	−05 08 00.3	<i>MPC</i> 9402		2 563
(894)	1984 06	01.93611	16 26 41.01	−05 07 57.6	<i>MPC</i> 9402		2 563
(894)	1984 06	01.95000	16 26 40.47	−05 07 54.1	<i>MPC</i> 9402		2 563

Note 1: observations interchanged. 2: time corrected by -1 hour.

DELETED OBSERVATIONS

The following observations are to be deleted.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	Obs.
1984 BK ₇	1984 01 25.31458	08 51 05.91	+20 43 57.0	<i>MPC</i> 24976		675
1991 NM ₆	1954 05 23.24826	14 43 00.81	-06 47 02.0	<i>MPC</i> 25586		675
1999 BO ₁₆	1999 01 16.23426	06 31 17.33	+34 26 10.4	<i>MPS</i> 3705		704
1999 BO ₁₆	1999 01 16.25633	06 31 16.07	+34 26 12.5	<i>MPS</i> 3705		704
2370 T-3	1994 03 14.35173	10 45 23.03	-02 37 34.7	<i>MPC</i> 23590		675

Continuation to *MPC* 33818.[illegible]

1999 CV ₁₅₃	1999 02 13.44787	10 46 49.96	+09 41 51.8	1999 CF ₅₉	18.9	704
1999 CV ₁₅₃	1999 02 13.47588	10 46 49.05	+09 41 58.6	1999 CF ₅₉	18.9	704
1999 CE ₁₅₄	* 1999 02 07.43911	02 54 35.55	+13 56 25.9	1999 CG ₂	19.1	327
1999 CE ₁₅₄	1999 02 07.44228	02 54 35.77	+13 56 27.6	1999 CG ₂		327
1999 CE ₁₅₄	1999 02 07.44547	02 54 36.00	+13 56 29.1	1999 CG ₂		327
1999 CE ₁₅₄	1999 02 07.44891	02 54 36.26	+13 56 30.6	1999 CG ₂		327
1999 CF ₁₅₄	* 1999 02 13.22061	08 20 27.98	+27 37 03.4	1999 CB ₁₉		704
1999 CF ₁₅₄	1999 02 13.23452	08 20 27.17	+27 37 08.0	1999 CB ₁₉	17.7	704
1999 CF ₁₅₄	1999 02 13.24849	08 20 26.46	+27 37 12.8	1999 CB ₁₉	17.7	704
1999 CF ₁₅₄	1999 02 13.26250	08 20 25.83	+27 37 17.3	1999 CB ₁₉		704
1999 CF ₁₅₄	1999 02 13.27638	08 20 24.98	+27 37 21.3	1999 CB ₁₉		704
1999 DC ₇	* 1999 02 16.32493	10 15 49.46	+08 49 01.4	1999 CM ₁₁₄	20.0	704
1999 DC ₇	1999 02 16.34582	10 15 48.10	+08 49 06.4	1999 CM ₁₁₄	19.7	704
1999 DC ₇	1999 02 16.36682	10 15 47.03	+08 49 12.8	1999 CM ₁₁₄	19.9	704
1999 DG ₇	* 1999 02 16.11280	08 11 58.32	+16 32 14.1	1999 CQ ₅₉	18.1	704
1999 DG ₇	1999 02 16.13398	08 11 57.43	+16 32 18.7	1999 CQ ₅₉	18.3	704
1999 DG ₇	1999 02 16.15486	08 11 56.31	+16 32 21.9	1999 CQ ₅₉	18.3	704
1999 DG ₇	1999 02 16.17599	08 11 55.32	+16 32 23.5	1999 CQ ₅₉	18.8	704
1999 DJ ₇	* 1999 02 16.32438	10 09 51.85	+04 32 26.5	1999 CU ₇₆	19.9	704
1999 DJ ₇	1999 02 16.34527	10 09 50.81	+04 32 31.6	1999 CU ₇₆	20.1	704
1999 DJ ₇	1999 02 16.36626	10 09 49.66	+04 32 37.9	1999 CU ₇₆	20.1	704
1999 DJ ₇	1999 02 16.38716	10 09 48.51	+04 32 42.7	1999 CU ₇₆	19.8	704
1999 DK ₇	* 1999 02 16.22355	09 30 49.96	+12 43 50.4	1999 CY ₆₅		704
1999 DK ₇	1999 02 16.24440	09 30 48.57	+12 43 56.0	1999 CY ₆₅		704
1999 DK ₇	1999 02 16.26525	09 30 47.39	+12 44 00.0	1999 CY ₆₅		704

IDENTIFICATIONS

The following identifications with numbered minor planets continue the list on MPC 32128:

			Note				Note
1931 VH	=	(7394)	1	1932 EU	=	(6960)	1
1937 CN	=	(2886)	1	1949 OZ	=	(7142)	1
1949 XB	=	(9688)	1	1951 EZ ₂	=	(9332)	1
1953 UJ ₁	=	(9499)	1	1964 TL ₂	=	(8198)	1
1971 HN	=	(7344)	1	1972 EK	=	(10174)	1
1972 QF	=	(9801)	1	1972 RO ₁	=	(9733)	1
1972 RE ₄	=	(9560)	1	1972 TS	=	(9632)	1
1975 VP ₉	=	(9841)	1	1975 VF ₁₀	=	(7528)	1
1976 DN	=	(8896)	2	1976 DN	=	(8896)	3
1976 GV ₆	=	(9614)	1	1976 YY ₇	=	(4231)	1
1977 AY	=	(9604)	4	1977 AY	=	(9604)	5
1977 RM ₂₀	=	(8491)	6	1978 CQ	=	(5522)	1
1978 UQ ₁	=	(8788)	1	1979 WC ₁	=	(9379)	5
1981 AL ₃	=	(9687)	1	1981 NM	=	(9378)	7
1982 KT	=	(9458)	7	1984 BK ₇	=	(936)	1
1984 WW ₄	=	(9730)	1	1987 RS ₆	=	(10131)	1
1990 QU ₁₇	=	(9667)	1	1990 VS ₁₁	=	(9454)	1
1992 AQ ₃	=	(427)	1	1992 LJ ₁	=	(2484)	1
1992 OX ₁₀	=	(66)	1	1992 WX ₉	=	(1480)	1
1994 PG ₄₀	=	(570)	1	1996 FY ₂₃	=	(6753)	1
1996 TZ ₆₇	=	(4302)	1	1997 HJ ₁₈	=	(3124)	1

1997 XO ₁₃	= (8093)	1	1997 YH ₂₀	= (8032)	1
1997 YR ₂₁	= (3516)	1	1998 EK ₁₃	= (116)	1
1998 EO ₂₀	= (8598)	1	1998 EQ ₂₁	= (8598)	1
1998 ES ₂₁	= (116)	1	1998 MX ₄₆	= (7534)	1
1998 QN ₁₀₁	= (5779)	1	1998 QO ₁₀₇	= (5779)	1
1998 TJ ₃₀	= (9813)	1	1998 UW ₄₃	= (6865)	1
1999 BO ₁₆	= (776)	1	1999 BF ₂₃	= (8055)	1
1999 BS ₃₃	= (6942)	7	1999 CG ₂	= (4591)	1
1999 CU ₇₆	= (7930)	1	1999 CV ₁₅₃	= (10196)	1
1999 CE ₁₅₄	= (4173)	1	1999 CF ₁₅₄	= (891)	1
1999 DG ₇	= (9920)	1	1999 DK ₇	= (1034)	1

Note 1: by G. V. Williams. 2: by S. Nakano. 3: by T. Urata. 4: by H. Kaneda.
5: by T. Kobayashi. 6: by K. Ichikawa. 7: by A. Milani.

OBSERVATIONS OF COMETS

Observations are published here for the following observatory codes:

046	Kleť. 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 V. Redeva, G. Borisov and L. Vasileva.
104	San Marcello Pistoise. 0.40-m $f/5$ reflector + CCD. Observers L. Tesi, A. Caronia, A. Boattini and M. Tombelli. Measured by G. Forti, L. Tesi, A. Boattini and M. Tombelli.
107	Cavezzo. 0.40-m $f/5.5$ reflector + CCD. Observer M. Nicolini.
108	Montelupo. 0.30-m $f/5.7$ Schmidt-Cassegrain + CCD. Observers M. Tombelli, A. Boattini, L. Tesi, D. Guidetti, G. Forti and E. Masotti. Measured by M. Tombelli, A. Boattini, L. Tesi, S. Bartolini and G. Forti.
113	Drebach. 0.18-m $f/9$ refractor + CCD. Observers G. Lehmann and J. Kandler.
118	Modra. 0.6-m $f/5.5$ reflector + CCD. Observers A. Galád, D. Kalmančok, P. Kolény, L. Kornoš and J. Tóth.
249	SOHO. SOHO-LASCO coronagraphs C3 and C2. Observers D. A. Biesecker, S. Stezelberger and D. Lewis. New measurements by S. Gregory and D. A. Biesecker, with reduction by G. V. Williams, that supersede those previously published.
351	Sakamoto. 0.15-m $f/7.0$ lens + CCD. Observer Y. Kitamura.
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	Dynic Astronomical Observatory. 0.60-m $f/4.0$ reflector + CCD. Observers A. Sugie and Y. Ikari.
422	Loomberah. 0.25-m $f/4.1$ reflector + CCD. Observer G. J. Garradd.
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.
540	Linz. 0.3-m $f/5.2$ Schmidt-Cassegrain + CCD. Observer E. Meyer.
557	Ondřejov. 0.65-m $f/3.6$ reflector + CCD. Observers P. Pravec, L. Šarounová and M. Wolf.

- 568 Mauna Kea. 3.6-m Canada-France-Hawaii telescope + CCD. Observers C. Veillet and J. Anderson. Measured by C. Veillet, J. Anderson, W. Morgan and T. Parker.
- 587 Sormano. 0.5-m reflector + CCD. Observers G. Ventre, E. Colzani, F. Manca and M. Cavagna.
- 605 Marl. 0.2-m $f/10$ Schmidt-Cassegrain + CCD. Observer E. Jung.
- 615 St. Véran. 0.62-m $f/3.0$ reflector + CCD. Observers X. Leprette, X. Anterrieu, L. Bourgeois and G. Santacana. Measurer J. Serant.
- 620 Mallorca. 0.25-m $f/6.3$ reflector + CCD. Observers À. López, R. Pacheco and S. Sanchez.
- 662 Lick Observatory. 0.8-m Katzman Automatic Imaging Telescope. Observer W.-d. Li.
- 691 Kitt Peak. 0.91-m Spacewatch telescope. Observer J. V. Scotti.
- 699 LONEOS. 0.59-m Schmidt + CCD. Observers W. D. Ferris, S. M. Hermann, B. A. Skiff and B. W. Koehn. Measured by B. W. Koehn and E. Bowell.
- 704 LINEAR. 1.0-m $f/2.15$ reflector + CCD. Observers M. Blythe, F. Shelly and M. Bezpalko. Measured by J. Stuart, H. Viggh and R. Sayer.
- 739 Olathe. 0.25-m Schmidt-Cassegrain + CCD. Observer L. Robinson.
- 750 Hobbs Observatory, Fall Creek. 0.6-m $f/5$ telescope + CCD. Observer R. Elliott.
- 758 Cocoa. 0.3-m reflector + CCD. Observer I. Griffin.
- 840 Flint. 0.25-m $f/4.5$ reflector + CCD. Observer C. Bayus.
- 844 Los Molinos. 0.35-m $f/6.4$ reflector + CCD. Observers R. Salvo, O. Mendez and J. Ferreira.
- 859 Serra da Piedade. 0.30-m $f/3.3$ reflector + CCD. Observers C. Jacques and J. Amansio.
- 860 Valinhos. 0.20-m $f/3.3$ reflector + CCD. Observer P. R. Holvorcem.
- 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.
- 958 Dax. 0.32-m $f/5.7$ reflector + CCD. Observers P. Dupouy and F. Marechal. Measurers J.-F. Lahitte and F. Marechal.

Object	Date	UT	α_{2000}	δ_{2000}	Mag.	N Obs.
C/1995 O1 (Hale-Bopp)						
C/1995 O1	1999 03	10.46135	04 46 31.23	-68 07 30.5	15.3 N	422
C/1995 O1	1999 03	10.46164	04 46 31.25	-68 07 30.2	15.5 N	422
C/1995 O1	1999 03	10.46215	04 46 31.22	-68 07 30.3	15.4 N	422
C/1995 O1	1999 03	12.02205	04 46 41.63	-67 57 40.4	12.0 T	844
C/1995 O1	1999 03	12.02617	04 46 41.56	-67 57 39.8	11.9 T	844
C/1995 O1	1999 03	12.03851	04 46 41.76	-67 57 34.7	12.0 T	844
C/1995 O1	1999 03	26.08788	04 50 23.65	-66 33 26.0		844
C/1995 O1	1999 03	26.10825	04 50 24.45	-66 33 18.7		844
C/1995 O1	1999 03	26.11544	04 50 24.41	-66 33 17.3		844
C/1996 O2 (SOHO)						
C/1996 O2	1996 07	23.19580	07 52 27.1	+17 17 49		249
Geocentric position (AU)		-0.00127543	+0.00992391	+0.00397050		
C/1996 O2	1996 07	23.22676	07 52 48.9	+17 19 46		249
Geocentric position (AU)		-0.00127922	+0.00992192	+0.00397056		
C/1996 O2	1996 07	23.28867	07 53 28.1	+17 23 49		249
Geocentric position (AU)		-0.00128682	+0.00991794	+0.00397067		

C/1996 O2	1996 07	23.38895	07 54 34.5	+17 33 57		249
Geocentric position (AU)		-0.00129913	+0.00991146	+0.00397085		
C/1996 O2	1996 07	23.45195	07 55 22.6	+17 38 42		249
Geocentric position (AU)		-0.00130688	+0.00990738	+0.00397096		
C/1996 O2	1996 07	23.49062	07 55 49.4	+17 42 12		249
Geocentric position (AU)		-0.00131163	+0.00990487	+0.00397103		
C/1996 O2	1996 07	23.55058	07 56 38.5	+17 49 49		249
Geocentric position (AU)		-0.00131901	+0.00990098	+0.00397113		
C/1996 O2	1996 07	23.88316	08 01 29.3	+18 24 56		249
Geocentric position (AU)		-0.00136005	+0.00987918	+0.00397162		
C/1996 O2	1996 07	24.13265	08 06 06.7	+18 58 07		249
Geocentric position (AU)		-0.00139096	+0.00986264	+0.00397192		
C/1996 O2	1996 07	24.16352	08 06 52.1	+19 00 54		249
Geocentric position (AU)		-0.00139479	+0.00986058	+0.00397195		

C/1996 O3 (SOHO)

C/1996 O3	1996 07	25.12060	08 02 47.4	+17 30 37		249
Geocentric position (AU)		-0.00151439	+0.00979563	+0.00397261		
C/1996 O3	1996 07	25.15159	08 03 13.1	+17 33 08		249
Geocentric position (AU)		-0.00151829	+0.00979349	+0.00397262		
C/1996 O3	1996 07	25.18255	08 03 33.6	+17 36 51		249
Geocentric position (AU)		-0.00152218	+0.00979135	+0.00397263		
C/1996 O3	1996 07	25.24952	08 04 32.9	+17 42 30		249
Geocentric position (AU)		-0.00153062	+0.00978671	+0.00397264		
C/1996 O3	1996 07	25.27533	08 04 56.3	+17 45 34		249
Geocentric position (AU)		-0.00153387	+0.00978492	+0.00397264		
C/1996 O3	1996 07	25.37541	08 06 28.2	+17 56 18		249
Geocentric position (AU)		-0.00154651	+0.00977797	+0.00397266		

C/1996 O4 (SOHO)

C/1996 O4	1996 07	27.07355	08 07 18.8	+16 30 06		249
Geocentric position (AU)		-0.00176394	+0.00965657	+0.00397157		
C/1996 O4	1996 07	27.11968	08 07 56.9	+16 33 44		249
Geocentric position (AU)		-0.00176994	+0.00965318	+0.00397151		
C/1996 O4	1996 07	27.62217	08 14 59.2	+17 23 41		249
Geocentric position (AU)		-0.00183561	+0.00961602	+0.00397070		
C/1996 O4	1996 07	27.63339	08 15 09.6	+17 24 58		249
Geocentric position (AU)		-0.00183708	+0.00961518	+0.00397068		
C/1996 O4	1996 07	27.66325	08 15 39.1	+17 28 33		249
Geocentric position (AU)		-0.00184100	+0.00961295	+0.00397062		
C/1996 O4	1996 07	27.81319	08 18 17.5	+17 46 32		249
Geocentric position (AU)		-0.00186074	+0.00960175	+0.00397033		
C/1996 O4	1996 07	27.83900	08 18 48.9	+17 50 04		249
Geocentric position (AU)		-0.00186415	+0.00959981	+0.00397028		
C/1996 O4	1996 07	27.93959	08 20 55.0	+18 03 54		249
Geocentric position (AU)		-0.00187743	+0.00959226	+0.00397007		
C/1996 O4	1996 07	28.00826	08 22 33.4	+18 14 09		249
Geocentric position (AU)		-0.00188651	+0.00958709	+0.00396992		

C/1997 BA₆ (Spacewatch)

C/1997 BA ₆	1999 02	24.15192	08 50 58.41	-49 07 04.6		844
C/1997 BA ₆	1999 02	24.15444	08 50 58.19	-49 07 05.3		844
C/1997 BA ₆	1999 02	24.15797	08 50 57.79	-49 07 05.5		844
C/1997 BA ₆	1999 03	18.10642	08 19 23.32	-49 06 39.1	14.0 T	860

C/1997 BA ₆	1999 03 18.11310	08 19 22.82	-49 06 38.5	13.8 T	860
C/1997 BA ₆	1999 03 18.11864	08 19 22.42	-49 06 37.6	13.8 T	860

C/1997 J2 (Meunier-Dupouy)

C/1997 J2	1998 09 08.98112	21 14 18.27	+04 06 41.4		615
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C/1997 Q2 (SOHO)

C/1997 Q2	1997 08 22.77090	09 39 54.2	+09 45 44		249
Geocentric position (AU)	-0.00654076	+0.00496027	+0.00288273		
C/1997 Q2	1997 08 22.90763	09 42 11.4	+09 53 04		249
Geocentric position (AU)	-0.00656377	+0.00492949	+0.00287115		
C/1997 Q2	1997 08 22.95318	09 42 56.3	+09 55 15		249
Geocentric position (AU)	-0.00657143	+0.00491922	+0.00286727		
C/1997 Q2	1997 08 23.02888	09 44 14.0	+09 59 06		249
Geocentric position (AU)	-0.00658413	+0.00490212	+0.00286082		
C/1997 Q2	1997 08 23.06659	09 44 53.6	+10 01 02		249
Geocentric position (AU)	-0.00659046	+0.00489358	+0.00285759		
C/1997 Q2	1997 08 23.11471	09 45 44.4	+10 03 35		249
Geocentric position (AU)	-0.00659852	+0.00488268	+0.00285347		
C/1997 Q2	1997 08 23.17787	09 46 52.7	+10 06 56		249
Geocentric position (AU)	-0.00660909	+0.00486836	+0.00284805		
C/1997 Q2	1997 08 23.21217	09 47 30.8	+10 08 46		249
Geocentric position (AU)	-0.00661483	+0.00486057	+0.00284510		
C/1997 Q2	1997 08 23.26796	09 48 33.8	+10 11 51		249
Geocentric position (AU)	-0.00662415	+0.00484788	+0.00284030		
C/1997 Q2	1997 08 23.32565	09 49 40.3	+10 15 08		249
Geocentric position (AU)	-0.00663378	+0.00483475	+0.00283531		
C/1997 Q2	1997 08 23.37506	09 50 38.9	+10 18 00		249
Geocentric position (AU)	-0.00664202	+0.00482348	+0.00283104		
C/1997 Q2	1997 08 23.43164	09 51 48.1	+10 21 25		249
Geocentric position (AU)	-0.00665145	+0.00481057	+0.00282613		
C/1997 Q2	1997 08 23.52446	09 53 46.4	+10 27 09		249
Geocentric position (AU)	-0.00666688	+0.00478934	+0.00281806		
C/1997 Q2	1997 08 23.57576	09 54 55.3	+10 30 32		249
Geocentric position (AU)	-0.00667540	+0.00477758	+0.00281358		
C/1997 Q2	1997 08 23.62091	09 55 57.5	+10 33 30		249
Geocentric position (AU)	-0.00668290	+0.00476723	+0.00280963		
C/1997 Q2	1997 08 23.69625	09 57 46.3	+10 38 41		249
Geocentric position (AU)	-0.00669538	+0.00474992	+0.00280303		
C/1997 Q2	1997 08 23.77090	09 59 41.2	+10 44 03		249
Geocentric position (AU)	-0.00670773	+0.00473274	+0.00279647		
C/1997 Q2	1997 08 23.82848	10 01 16.1	+10 49 15		249
Geocentric position (AU)	-0.00671725	+0.00471946	+0.00279139		
C/1997 Q2	1997 08 23.86359	10 02 17.9	+10 51 29		249
Geocentric position (AU)	-0.00672305	+0.00471136	+0.00278829		
C/1997 Q2	1997 08 23.91518	10 03 57.1	+10 56 05		249
Geocentric position (AU)	-0.00673155	+0.00469944	+0.00278372		
C/1997 Q2	1997 08 23.96937	10 05 47.2	+11 00 40		249
Geocentric position (AU)	-0.00674049	+0.00468689	+0.00277892		
C/1997 Q2	1997 08 23.99346	10 06 41.6	+11 02 26		249
Geocentric position (AU)	-0.00674445	+0.00468131	+0.00277678		
C/1997 Q2	1997 08 24.00772	10 07 17.5	+11 03 48		249
Geocentric position (AU)	-0.00674680	+0.00467801	+0.00277551		

C/1997 Q2	1997 08 24.03565	10 08 27.9	+11 06 19		249
Geocentric position (AU)	-0.00675139	+0.00467154	+0.00277302		

C/1998 K5 (LINEAR)

C/1998 K5	1999 02 04.47698	02 53 08.76	+10 48 05.0	17.0 T	372
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C/1998 M3 (Larsen)

C/1998 M3	1999 03 16.79635	16 45 05.91	+21 01 02.3	18.6 T	360
C/1998 M3	1999 03 16.80208	16 45 05.81	+21 01 06.9		360
C/1998 M3	1999 03 16.80625	16 45 05.72	+21 01 10.7		360
C/1998 M3	1999 03 17.77131	16 44 49.94	+21 13 36.1	18.1 T	402
C/1998 M3	1999 03 17.77431	16 44 49.89	+21 13 39.8		402
C/1998 M3	1999 03 17.77732	16 44 49.93	+21 13 40.7		402
C/1998 M3	1999 03 17.78030	16 44 49.87	+21 13 44.1		402

C/1998 M5 (LINEAR)

C/1998 M5	1998 12 17.71047	18 49 55.43	+38 14 35.0	11.6 T	605
C/1998 M5	1998 12 17.72318	18 49 55.71	+38 14 43.0	11.6 T	605
C/1998 M5	1998 12 17.73628	18 49 55.94	+38 14 50.9	11.6 T	605
C/1998 M5	1998 12 20.72963	18 51 07.44	+38 45 56.4	11.7 T	605
C/1998 M5	1999 02 25.46369	19 37 17.03	+72 19 47.6	12.2 T	351
C/1998 M5	1999 02 25.46772	19 37 17.27	+72 20 00.4		351
C/1998 M5	1999 02 25.47125	19 37 17.62	+72 20 11.6		351
C/1998 M5	1999 02 26.95168	19 38 43.19	+73 41 05.1		587
C/1998 M5	1999 02 26.95341	19 38 43.29	+73 41 11.0		587
C/1998 M5	1999 02 26.95469	19 38 43.35	+73 41 15.2		587
C/1998 M5	1999 03 05.06395	19 45 10.00	+79 29 38.2		118
C/1998 M5	1999 03 05.08345	19 45 11.23	+79 30 47.9		118
C/1998 M5	1999 03 12.18440	19 59 00.53	+86 38 40.2	15.4 T	750
C/1998 M5	1999 03 12.19200	19 59 03.17	+86 39 08.8	15.1 T	750
C/1998 M5	1999 03 12.19823	19 59 04.70	+86 39 31.8	15.5 T	750
C/1998 M5	1999 03 16.15660	07 01 25.72	+89 14 02.0	16.2 T	750
C/1998 M5	1999 03 16.16345	07 01 51.93	+89 13 36.9	16.2 T	750
C/1998 M5	1999 03 16.21656	07 05 08.57	+89 10 22.0	16.1 T	750
C/1998 M5	1999 03 16.53086	07 18 30.97	+88 51 07.0	12.9 T	351
C/1998 M5	1999 03 16.53959	07 18 44.81	+88 50 34.2		351
C/1998 M5	1999 03 16.54273	07 18 50.67	+88 50 23.3		351
C/1998 M5	1999 03 16.55523	07 19 09.01	+88 49 36.4	12.7 T	402
C/1998 M5	1999 03 16.55649	07 19 11.22	+88 49 31.8		402
C/1998 M5	1999 03 16.55775	07 19 13.00	+88 49 27.1		402
C/1998 M5	1999 03 18.95721	07 43 20.40	+86 20 25.8		107
C/1998 M5	1999 03 18.96900	07 43 22.25	+86 19 42.7		107
C/1998 M5	1999 03 20.92347	07 48 50.39	+84 18 03.5	11.6 T	504
C/1998 M5	1999 03 20.92411	07 48 50.50	+84 18 00.3	11.6 T	504
C/1998 M5	1999 03 20.92475	07 48 50.63	+84 17 58.3	11.6 T	504
C/1998 M5	1999 03 20.92667	07 48 50.98	+84 17 51.0		504
C/1998 M5	1999 03 20.92731	07 48 51.07	+84 17 49.0		504
C/1998 M5	1999 03 20.92795	07 48 51.21	+84 17 47.0		504
C/1998 M5	1999 03 28.52784	07 59 34.90	+76 31 02.7	12.3 T	351
C/1998 M5	1999 03 28.53142	07 59 35.21	+76 30 49.8		351
C/1998 M5	1999 03 28.53557	07 59 35.04	+76 30 35.1		351

C/1998 P1 (Williams)

C/1998 P1	1999 01 29.90381	11 06 41.91	+22 00 10.2	11.6 T	605
C/1998 P1	1999 01 29.91633	11 06 37.87	+22 00 58.1	11.6 T	605

C/1998 P1	1999 01 29.93108	11 06 33.09	+22 01 55.3	11.5 T	605	C/1998 P1	1999 03 27.15869	07 25 03.52	+41 56 43.3	17.6 T	750
C/1998 P1	1999 02 12.94500	09 45 59.49	+34 38 38.4	12.1 T	605	C/1998 P1	1999 03 27.84160	07 24 19.05	+41 55 46.0		046
C/1998 P1	1999 02 12.95638	09 45 55.29	+34 39 03.3	12.1 T	605	C/1998 P1	1999 03 27.84388	07 24 18.95	+41 55 45.9		046
C/1998 P1	1999 02 17.90958	09 18 07.43	+37 26 55.9	14.1 T	071	C/1998 P1	1999 03 27.84514	07 24 18.85	+41 55 45.7		046
C/1998 P1	1999 02 17.91111	09 18 07.01	+37 26 57.4	14.0 T	071						
C/1998 P1	1999 02 17.91212	09 18 06.76	+37 26 59.6	14.2 T	071						
C/1998 P1	1999 02 17.91661	09 18 05.11	+37 27 09.1	14.6 T	071						
C/1998 P1	1999 02 17.91758	09 18 04.96	+37 27 09.7	14.2 T	071	P/1998 U3	1998 11 11.75313	06 57 21.37	+41 34 59.9	12.5 T	372
C/1998 P1	1999 02 25.51639	08 40 40.90	+40 08 55.1	13.3 T	351	P/1998 U3	1998 11 14.65590	06 58 32.62	+41 33 20.2	12.5 T	372
C/1998 P1	1999 02 25.51986	08 40 39.93	+40 08 57.0		351	P/1998 U3	1998 11 23.63264	07 00 16.78	+41 23 00.9	13.3 T	372
C/1998 P1	1999 02 25.52471	08 40 38.66	+40 09 00.8		351	P/1998 U3	1998 12 17.87038	06 50 40.58	+39 50 14.3	11.3 T	605
C/1998 P1	1999 02 26.93131	08 34 34.68	+40 28 43.5		587	P/1998 U3	1998 12 17.88821	06 50 39.71	+39 50 08.0	11.3 T	605
C/1998 P1	1999 02 26.93333	08 34 34.16	+40 28 45.2		587	P/1998 U3	1998 12 17.90534	06 50 38.97	+39 50 02.0	11.3 T	605
C/1998 P1	1999 02 27.07020	08 34 00.09	+40 30 32.6	14.0 T	758	P/1998 U3	1999 01 05.94507	06 34 00.46	+36 55 10.2		605
C/1998 P1	1999 02 27.07652	08 33 58.51	+40 30 36.5	13.9 T	758	P/1998 U3	1999 01 05.96056	06 33 59.59	+36 54 58.5		605
C/1998 P1	1999 02 28.24215	08 29 10.79	+40 44 47.3	15.2 T	739	P/1998 U3	1999 01 21.59132	06 22 31.30	+33 28 51.3	12.1 T	372
C/1998 P1	1999 02 28.55723	08 27 55.19	+40 48 19.7		900	P/1998 U3	1999 01 25.63160	06 20 38.23	+32 30 35.4	11.9 T	372
C/1998 P1	1999 02 28.56932	08 27 52.29	+40 48 28.2		900	P/1998 U3	1999 01 26.69410	06 20 13.87	+32 15 06.6	12.6 T	372
C/1998 P1	1999 03 02.07528	08 22 03.10	+41 03 49.5	14.9 T	739	P/1998 U3	1999 02 05.47059	06 18 25.47	+29 52 39.7	11.9 T	372
C/1998 P1	1999 03 02.08862	08 21 59.99	+41 03 58.6	15.1 T	739	P/1998 U3	1999 02 12.86143	06 19 21.51	+28 07 32.5	12.1 T	605
C/1998 P1	1999 03 03.51034	08 16 47.59	+41 16 18.8	13.0 T	402	P/1998 U3	1999 02 12.87346	06 19 21.74	+28 07 22.3	12.1 T	605
C/1998 P1	1999 03 03.51196	08 16 47.24	+41 16 19.3		402	P/1998 U3	1999 02 12.88503	06 19 21.89	+28 07 11.9	12.2 T	605
C/1998 P1	1999 03 03.51355	08 16 46.91	+41 16 20.1		402	P/1998 U3	1999 02 17.80043	06 21 04.21	+26 59 44.8	12.8 T	071
C/1998 P1	1999 03 03.58309	08 16 31.93	+41 16 52.8	12.6 T	903	P/1998 U3	1999 02 17.80238	06 21 04.38	+26 59 43.8	13.0 T	071
C/1998 P1	1999 03 03.59719	08 16 28.93	+41 16 58.4		903	P/1998 U3	1999 02 17.80493	06 21 04.40	+26 59 43.1	12.5 T	071
C/1998 P1	1999 03 04.05553	08 14 52.47	+41 20 30.6	15.5 N	739	P/1998 U3	1999 02 17.80684	06 21 04.44	+26 59 42.7	12.5 T	071
C/1998 P1	1999 03 06.89655	08 05 30.85	+41 38 26.4		046	P/1998 U3	1999 02 17.80876	06 21 04.50	+26 59 42.0	12.5 T	071
C/1998 P1	1999 03 06.89764	08 05 30.65	+41 38 26.9		046	P/1998 U3	1999 02 21.60694	06 22 57.05	+26 09 05.4	13.5 T	372
C/1998 P1	1999 03 06.89921	08 05 30.34	+41 38 27.2		046	P/1998 U3	1999 02 25.47764	06 25 21.49	+25 19 10.1	13.0 T	351
C/1998 P1	1999 03 08.75174	07 59 58.96	+41 46 55.8	14.6 T	118	P/1998 U3	1999 02 25.48156	06 25 21.72	+25 19 08.0		351
C/1998 P1	1999 03 08.76254	07 59 57.03	+41 46 59.0		118	P/1998 U3	1999 02 25.48521	06 25 21.82	+25 19 04.2		351
C/1998 P1	1999 03 12.97654	07 48 56.76	+41 58 54.2	14.6 T	113	P/1998 U3	1999 02 27.82546	06 27 02.30	+24 49 36.0		046
C/1998 P1	1999 03 13.00450	07 48 51.91	+41 59 00.1	14.3 T	113	P/1998 U3	1999 02 27.82644	06 27 02.34	+24 49 35.2		046
C/1998 P1	1999 03 13.24340	07 48 18.92	+41 59 24.6		840	P/1998 U3	1999 02 27.82833	06 27 02.42	+24 49 33.7		046
C/1998 P1	1999 03 13.26424	07 48 15.90	+41 59 27.8		840	P/1998 U3	1999 02 28.48933	06 27 32.57	+24 41 22.5		900
C/1998 P1	1999 03 16.49236	07 41 17.55	+42 03 02.4	14.1 T	402	P/1998 U3	1999 02 28.49395	06 27 32.83	+24 41 18.8		900
C/1998 P1	1999 03 16.49361	07 41 17.35	+42 03 02.4		402	P/1998 U3	1999 02 28.86297	06 27 49.94	+24 36 43.6	11.6 T	504
C/1998 P1	1999 03 16.49487	07 41 17.19	+42 03 02.6		402	P/1998 U3	1999 02 28.86538	06 27 50.05	+24 36 41.8	11.7 T	504
C/1998 P1	1999 03 16.51581	07 41 14.55	+42 03 06.4	14.9 T	351	P/1998 U3	1999 02 28.86780	06 27 50.18	+24 36 40.1	11.8 T	504
C/1998 P1	1999 03 16.51950	07 41 14.32	+42 03 00.3		351	P/1998 U3	1999 02 28.86925	06 27 50.20	+24 36 38.5	11.7 T	504
C/1998 P1	1999 03 17.87178	07 38 38.10	+42 03 30.9	15.4 T	113	P/1998 U3	1999 03 02.06727	06 28 47.70	+24 21 55.4	14.2 T	739
C/1998 P1	1999 03 17.90653	07 38 34.10	+42 03 31.3	15.4 T	113	P/1998 U3	1999 03 03.61576	06 30 04.97	+24 03 06.2		903
C/1998 P1	1999 03 17.92667	07 38 31.85	+42 03 31.2	15.4 T	113	P/1998 U3	1999 03 03.76927	06 30 13.21	+24 01 14.7		118
C/1998 P1	1999 03 20.17743	07 34 35.72	+42 03 15.8		840	P/1998 U3	1999 03 03.77810	06 30 13.65	+24 01 08.1		118
C/1998 P1	1999 03 20.19341	07 34 34.13	+42 03 15.6		840	P/1998 U3	1999 03 03.77810	06 30 13.65	+24 01 08.1		118
C/1998 P1	1999 03 20.90689	07 33 24.74	+42 02 56.9	13.7 T	504	P/1998 U3	1999 03 03.78098	06 30 13.77	+24 01 06.1	12.6 T	118
C/1998 P1	1999 03 20.90866	07 33 24.58	+42 02 56.8	13.6 T	504	P/1998 U3	1999 03 03.78098	06 30 13.77	+24 01 06.1	12.6 T	118
C/1998 P1	1999 03 20.91185	07 33 24.25	+42 02 56.6	13.3 T	504	P/1998 U3	1999 03 04.04926	06 30 27.78	+23 57 50.0	14.1 N	739
C/1998 P1	1999 03 20.91404	07 33 24.08	+42 02 56.4	13.4 T	504	P/1998 U3	1999 03 06.50406	06 32 40.25	+23 28 38.0	13.4 T	351
C/1998 P1	1999 03 22.26705	07 31 20.02	+42 02 02.8	18.0 T	750	P/1998 U3	1999 03 06.50771	06 32 40.49	+23 28 36.1		351
C/1998 P1	1999 03 22.27648	07 31 19.02	+42 02 03.7	18.2 T	750						
C/1998 P1	1999 03 22.28621	07 31 18.28	+42 02 02.8	17.7 T	750						
C/1998 P1	1999 03 27.14529	07 25 04.37	+41 56 44.7	17.3 T	750						

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P/1998 U3	1999 03 06.51171	06 32 40.71	+23 28 32.0		351
P/1998 U3	1999 03 08.83936	06 34 55.04	+23 01 17.8	13.6 T	118
P/1998 U3	1999 03 08.84874	06 34 55.60	+23 01 10.8		118
P/1998 U3	1999 03 12.07783	06 38 15.24	+22 24 14.0	16.3 T	750
P/1998 U3	1999 03 12.95424	06 39 11.88	+22 14 20.9	13.7 T	113
P/1998 U3	1999 03 12.96581	06 39 12.64	+22 14 12.9	13.7 T	113
P/1998 U3	1999 03 15.21943	06 41 43.16	+21 49 05.6	16.3 T	750
P/1998 U3	1999 03 15.22891	06 41 43.86	+21 48 59.2	16.7 T	750
P/1998 U3	1999 03 15.81258	06 42 24.17	+21 42 33.8		108
P/1998 U3	1999 03 15.81840	06 42 24.51	+21 42 29.2		108
P/1998 U3	1999 03 15.82066	06 42 24.67	+21 42 27.6		108
P/1998 U3	1999 03 15.82292	06 42 24.79	+21 42 24.9	11.0 T	108
P/1998 U3	1999 03 15.85836	06 42 27.15	+21 42 02.4	12.6 T	118
P/1998 U3	1999 03 15.86006	06 42 27.25	+21 42 01.2		118
P/1998 U3	1999 03 15.86170	06 42 27.37	+21 42 00.0		118
P/1998 U3	1999 03 15.87894	06 42 28.58	+21 41 48.6	12.8 T	504
P/1998 U3	1999 03 15.88185	06 42 28.74	+21 41 46.9		504
P/1998 U3	1999 03 15.88409	06 42 28.96	+21 41 45.3		504
P/1998 U3	1999 03 15.88793	06 42 29.13	+21 41 42.1		504
P/1998 U3	1999 03 15.89227	06 42 29.50	+21 41 39.4		504
P/1998 U3	1999 03 16.07033	06 42 41.93	+21 39 43.3	16.2 T	750
P/1998 U3	1999 03 16.07817	06 42 42.50	+21 39 37.7	16.4 T	750
P/1998 U3	1999 03 16.08404	06 42 42.88	+21 39 34.0	16.3 T	750
P/1998 U3	1999 03 16.48363	06 43 10.72	+21 35 12.2	13.2 T	351
P/1998 U3	1999 03 16.48775	06 43 10.94	+21 35 09.3		351
P/1998 U3	1999 03 16.49168	06 43 11.27	+21 35 07.0		351
P/1998 U3	1999 03 16.52014	06 43 13.13	+21 34 47.4	12.1 T	360
P/1998 U3	1999 03 16.52274	06 43 13.31	+21 34 45.6		360
P/1998 U3	1999 03 16.55764	06 43 15.67	+21 34 22.3	13.9 T	372
P/1998 U3	1999 03 17.11379	06 43 54.95	+21 28 17.4	15.9 T	750
P/1998 U3	1999 03 17.14607	06 43 57.34	+21 27 55.5	15.7 T	750
P/1998 U3	1999 03 17.77220	06 44 41.94	+21 21 06.2		118
P/1998 U3	1999 03 17.77478	06 44 42.12	+21 21 04.6		118
P/1998 U3	1999 03 17.77889	06 44 42.43	+21 21 01.7	11.8 T	118
P/1998 U3	1999 03 17.85366	06 44 47.75	+21 20 13.3	13.5 T	113
P/1998 U3	1999 03 17.88149	06 44 49.61	+21 19 54.9	13.6 T	113
P/1998 U3	1999 03 18.84941	06 45 59.64	+21 09 26.0	13.7 T	113
P/1998 U3	1999 03 18.85330	06 45 59.89	+21 09 23.6	12.4 T	540
P/1998 U3	1999 03 18.85451	06 45 59.95	+21 09 22.9		540
P/1998 U3	1999 03 18.85561	06 46 00.06	+21 09 21.6		540
P/1998 U3	1999 03 18.89139	06 46 02.67	+21 08 58.5	13.7 T	113
P/1998 U3	1999 03 19.12969	06 46 20.12	+21 06 24.4	16.0 T	750
P/1998 U3	1999 03 19.14349	06 46 21.06	+21 06 15.6	16.1 T	750
P/1998 U3	1999 03 19.15342	06 46 21.73	+21 06 09.1	16.1 T	750
P/1998 U3	1999 03 20.12466	06 47 33.62	+20 55 42.3		840
P/1998 U3	1999 03 20.14828	06 47 35.26	+20 55 26.2		840
P/1998 U3	1999 03 22.17450	06 50 08.34	+20 33 50.9	16.3 T	750
P/1998 U3	1999 03 22.17680	06 50 08.48	+20 33 49.6	16.1 T	750
P/1998 U3	1999 03 22.18003	06 50 08.72	+20 33 47.5	16.1 T	750
P/1998 U3	1999 03 22.18234	06 50 08.93	+20 33 46.1	16.2 T	750
P/1998 U3	1999 03 23.05522	06 51 16.57	+20 24 33.9		840
P/1998 U3	1999 03 23.07240	06 51 17.76	+20 24 21.3		840
P/1998 U3	1999 03 23.10728	06 51 20.52	+20 23 59.8	15.4 T	750

P/1998 U3	1999 03 23.11752	06 51 21.24	+20 23 53.4	15.5 T	750
P/1998 U3	1999 03 23.18844	06 51 26.70	+20 23 07.9	15.4 T	750
P/1998 U3	1999 03 26.81329	06 56 15.65	+19 45 16.2		046
P/1998 U3	1999 03 26.81589	06 56 15.86	+19 45 14.4		046
P/1998 U3	1999 03 26.81765	06 56 16.00	+19 45 13.4		046
P/1998 U3	1999 03 26.81883	06 56 16.09	+19 45 12.6		046
P/1998 U3	1999 03 27.15048	06 56 43.16	+19 41 46.9	15.3 T	750
P/1998 U3	1999 03 27.16302	06 56 44.16	+19 41 39.1	15.5 T	750
P/1998 U3	1999 03 27.17014	06 56 44.76	+19 41 34.2	15.4 T	750
P/1998 U3	1999 03 28.45667	06 58 30.97	+19 28 19.6	14.3 T	351
P/1998 U3	1999 03 28.46052	06 58 31.24	+19 28 17.1		351

C/1998 U5 (LINEAR)

C/1998 U5	1998 12 20.74907	21 17 48.73	+21 20 01.9	11.8 T	605
C/1998 U5	1998 12 20.76209	21 17 48.02	+21 19 42.6	11.9 T	605
C/1998 U5	1998 12 20.77641	21 17 47.35	+21 19 21.5	11.9 T	605
C/1998 U5	1999 03 16.83281	21 01 26.58	+14 10 51.7	14.9 T	1 360
C/1998 U5	1999 03 16.83542	21 01 26.55	+14 10 51.8		1 360
C/1998 U5	1999 03 16.83750	21 01 26.51	+14 10 52.3		1 360

P/1998 W1 (Spahr)

P/1998 W1	1999 01 29.83924	04 12 41.28	+16 51 21.9	15.6 T	605
P/1998 W1	1999 01 29.87395	04 12 43.17	+16 52 05.0	15.9 T	605
P/1998 W1	1999 02 05.44983	04 20 08.56	+19 25 35.1	16.5 T	372
P/1998 W1	1999 02 05.45556	04 20 08.97	+19 25 43.5	16.5 T	372
P/1998 W1	1999 02 26.87639	04 54 09.67	+26 22 38.5		587
P/1998 W1	1999 02 26.88119	04 54 10.29	+26 22 44.3		587
P/1998 W1	1999 02 28.51215	04 57 17.60	+26 49 06.3	16.8 T	367
P/1998 W1	1999 02 28.52118	04 57 18.61	+26 49 14.2		367
P/1998 W1	1999 02 28.52465	04 57 19.05	+26 49 19.0		367
P/1998 W1	1999 03 11.10704	05 19 04.10	+29 21 22.8	18.2 T	704
P/1998 W1	1999 03 11.11719	05 19 05.44	+29 21 31.1	18.2 T	704
P/1998 W1	1999 03 11.12743	05 19 06.98	+29 21 37.6	18.7 T	704
P/1998 W1	1999 03 11.13761	05 19 08.08	+29 21 44.8	18.7 T	704
P/1998 W1	1999 03 11.14778	05 19 09.11	+29 21 53.6	18.6 T	704
P/1998 W1	1999 03 11.78269	05 20 32.26	+29 29 57.4		118
P/1998 W1	1999 03 11.80045	05 20 34.50	+29 30 11.0		118
P/1998 W1	1999 03 11.83223	05 20 38.72	+29 30 35.1		046
P/1998 W1	1999 03 11.85903	05 20 42.12	+29 30 55.0		046
P/1998 W1	1999 03 15.83535	05 29 31.46	+30 18 44.3	17.2 T	118
P/1998 W1	1999 03 15.83674	05 29 31.68	+30 18 45.3		118
P/1998 W1	1999 03 20.86747	05 41 05.08	+31 12 43.5		587
P/1998 W1	1999 03 26.79020	05 55 11.15	+32 07 00.2	17.6 T	046
P/1998 W1	1999 03 26.79491	05 55 11.79	+32 07 02.8		046

C/1998 W3 (LINEAR)

C/1998 W3	1999 03 03.46253	06 32 26.51	+44 45 00.7	17.3 T	402
C/1998 W3	1999 03 03.46414	06 32 26.22	+44 45 00.2		402
C/1998 W3	1999 03 03.46575	06 32 26.23	+44 45 00.5		402
C/1998 W3	1999 03 08.86000	06 27 23.00	+44 53 39.4		118
C/1998 W3	1999 03 08.86715	06 27 22.65	+44 53 40.3	17.0 T	118
C/1998 W3	1999 03 12.87582	06 24 06.39	+44 58 43.8	17.5 T	113
C/1998 W3	1999 03 12.89475	06 24 05.54	+44 58 45.6	17.4 T	113

P/1998 X1 (ODAS)						
P/1998 X1	1999 02 16.86281	09 28 00.17	+16 18 51.6	18.0 T	615	
P/1998 X1	1999 02 16.87268	09 27 59.69	+16 18 52.8	17.8 T	615	
P/1998 X1	1999 02 16.87621	09 27 59.45	+16 18 53.9	18.2 T	615	
P/1998 X1	1999 02 16.87974	09 27 59.30	+16 18 54.7		615	
P/1998 X1	1999 02 16.88679	09 27 58.91	+16 18 56.0	18.1 T	615	
P/1998 X1	1999 02 16.89032	09 27 58.72	+16 18 56.5	18.0 T	615	
P/1998 X1	1999 02 16.89385	09 27 58.53	+16 18 57.4	17.9 T	615	
P/1998 X1	1999 02 16.89737	09 27 58.32	+16 18 58.7	18.0 T	615	
P/1998 X1	1999 02 16.90090	09 27 58.21	+16 18 58.8	18.1 T	615	
P/1998 X1	1999 02 16.90443	09 27 58.02	+16 18 59.9	17.9 T	615	
P/1998 X1	1999 02 16.90796	09 27 57.83	+16 19 00.6	17.9 T	615	
P/1998 X1	1999 02 16.91148	09 27 57.61	+16 19 01.1	17.8 T	615	
P/1998 X1	1999 02 16.91501	09 27 57.46	+16 19 01.7	18.0 T	615	
P/1998 X1	1999 02 16.91854	09 27 57.28	+16 19 02.3	17.9 T	615	
P/1998 X1	1999 02 16.92206	09 27 57.13	+16 19 03.4	17.8 T	615	
P/1998 X1	1999 03 16.51979	09 12 25.51	+17 09 53.3	19.0 T	402	
P/1998 X1	1999 03 16.52208	09 12 25.46	+17 09 50.7		402	
P/1998 X1	1999 03 16.52439	09 12 25.32	+17 09 51.9		402	

P/1998 Y2 (Li)						
P/1998 Y2	1999 01 13.52674	02 45 56.51	-00 26 05.5	17.0 T	372	
P/1998 Y2	1999 02 05.43785	03 03 09.02	+05 43 07.9	17.0 T	372	
P/1998 Y2	1999 02 17.76819	03 16 13.73	+08 49 08.8	16.7 T	071	
P/1998 Y2	1999 02 17.77867	03 16 14.43	+08 49 18.0	16.6 T	071	
P/1998 Y2	1999 02 17.78057	03 16 14.54	+08 49 19.6	16.5 T	071	
P/1998 Y2	1999 02 17.78248	03 16 14.65	+08 49 21.4	16.7 T	071	
P/1998 Y2	1999 03 11.76668	03 44 38.48	+13 49 46.1	16.3 T	118	
P/1998 Y2	1999 03 11.76973	03 44 38.68	+13 49 48.6		118	
P/1998 Y2	1999 03 12.84596	03 46 10.47	+14 03 22.7	16.9 T	113	
P/1998 Y2	1999 03 12.86119	03 46 11.80	+14 03 34.0	16.8 T	113	

C/1999 A1 (Tilbrook)						
C/1999 A1	1999 02 24.98778	23 04 16.48	-49 43 36.2		844	
C/1999 A1	1999 02 25.00520	23 04 15.70	-49 43 45.6		844	

C/1999 C1 (SOHO)						
C/1999 C1	1999 02 06.45898	21 49 09.9	-17 59 15		249	
Geocentric position (AU)	+0.00509573	-0.00639025	-0.00204239			
C/1999 C1	1999 02 06.48841	21 48 52.4	-17 55 33		249	
Geocentric position (AU)	+0.00510234	-0.00638489	-0.00203969			
C/1999 C1	1999 02 06.51339	21 48 36.9	-17 53 09		249	
Geocentric position (AU)	+0.00510795	-0.00638033	-0.00203739			
C/1999 C1	1999 02 06.53064	21 48 28.4	-17 51 11		249	
Geocentric position (AU)	+0.00511183	-0.00637718	-0.00203580			
C/1999 C1	1999 02 06.57177	21 48 01.3	-17 46 38		249	
Geocentric position (AU)	+0.00512106	-0.00636966	-0.00203202			
C/1999 C1	1999 02 06.59674	21 47 44.8	-17 44 15		249	
Geocentric position (AU)	+0.00512666	-0.00636509	-0.00202972			
C/1999 C1	1999 02 06.61396	21 47 34.3	-17 42 17		249	
Geocentric position (AU)	+0.00513053	-0.00636194	-0.00202813			
C/1999 C1	1999 02 06.63839	21 47 18.5	-17 39 25		249	
Geocentric position (AU)	+0.00513601	-0.00635746	-0.00202588			

C/1999 C1	1999 02 06.65563	21 47 08.3	-17 37 42		249	
Geocentric position (AU)	+0.00513987	-0.00635429	-0.00202429			
C/1999 C1	1999 02 06.68007	21 46 51.1	-17 34 52		249	
Geocentric position (AU)	+0.00514535	-0.00634981	-0.00202203			
C/1999 C1	1999 02 06.69732	21 46 39.7	-17 33 02		249	
Geocentric position (AU)	+0.00514922	-0.00634663	-0.00202044			
C/1999 C1	1999 02 06.72754	21 46 19.1	-17 29 50		249	
Geocentric position (AU)	+0.00515599	-0.00634107	-0.00201765			
C/1999 C1	1999 02 06.74476	21 46 07.8	-17 27 46		249	
Geocentric position (AU)	+0.00515985	-0.00633790	-0.00201606			
C/1999 C1	1999 02 06.76796	21 45 51.5	-17 25 16		249	
Geocentric position (AU)	+0.00516505	-0.00633362	-0.00201391			
C/1999 C1	1999 02 06.78514	21 45 39.6	-17 23 20		249	
Geocentric position (AU)	+0.00516889	-0.00633046	-0.00201232			
C/1999 C1	1999 02 06.82408	21 45 12.1	-17 18 59		249	
Geocentric position (AU)	+0.00517761	-0.00632326	-0.00200872			
C/1999 C1	1999 02 06.85000	21 44 54.3	-17 16 01		249	
Geocentric position (AU)	+0.00518341	-0.00631847	-0.00200632			
C/1999 C1	1999 02 06.86721	21 44 42.3	-17 14 04		249	
Geocentric position (AU)	+0.00518726	-0.00631529	-0.00200473			
C/1999 C1	1999 02 06.89104	21 44 25.0	-17 11 22		249	
Geocentric position (AU)	+0.00519259	-0.00631087	-0.00200252			
C/1999 C1	1999 02 06.90830	21 44 12.4	-17 09 22		249	
Geocentric position (AU)	+0.00519646	-0.00630767	-0.00200092			
C/1999 C1	1999 02 06.97181	21 43 25.5	-17 02 02		249	
Geocentric position (AU)	+0.00521065	-0.00629588	-0.00199503			
C/1999 C1	1999 02 06.98904	21 43 12.3	-17 00 03		249	
Geocentric position (AU)	+0.00521450	-0.00629267	-0.00199343			
C/1999 C1	1999 02 07.01340	21 42 53.8	-16 57 16		249	
Geocentric position (AU)	+0.00521994	-0.00628814	-0.00199117			
C/1999 C1	1999 02 07.03064	21 42 40.7	-16 55 12		249	
Geocentric position (AU)	+0.00522380	-0.00628493	-0.00198957			
C/1999 C1	1999 02 07.07177	21 42 07.4	-16 50 19		249	
Geocentric position (AU)	+0.00523298	-0.00627726	-0.00198575			
C/1999 C1	1999 02 07.09672	21 41 48.4	-16 47 22		249	
Geocentric position (AU)	+0.00523855	-0.00627260	-0.00198343			
C/1999 C1	1999 02 07.11433	21 41 34.6	-16 45 19		249	
Geocentric position (AU)	+0.00524248	-0.00626930	-0.00198179			
C/1999 C1	1999 02 07.13839	21 41 14.3	-16 42 28		249	
Geocentric position (AU)	+0.00524785	-0.00626480	-0.00197955			
C/1999 C1	1999 02 07.15572	21 40 59.9	-16 40 21		249	
Geocentric position (AU)	+0.00525171	-0.00626156	-0.00197793			
C/1999 C1	1999 02 07.18007	21 40 39.7	-16 37 26		249	
Geocentric position (AU)	+0.00525714	-0.00625700	-0.00197567			
C/1999 C1	1999 02 07.22181	21 40 04.1	-16 32 19		249	
Geocentric position (AU)	+0.00526644	-0.00624916	-0.00197178			
C/1999 C1	1999 02 07.23909	21 39 48.9	-16 30 11		249	
Geocentric position (AU)	+0.00527029	-0.00624592	-0.00197017			
C/1999 C1	1999 02 07.26340	21 39 27.2	-16 27 15		249	
Geocentric position (AU)	+0.00527571	-0.00624135	-0.00196790			
C/1999 C1	1999 02 07.28064	21 39 11.6	-16 25 04		249	
Geocentric position (AU)	+0.00527955	-0.00623810	-0.00196629			

C/1999 C1	1999 02 07.32180	21 38 33.1	-16 19 53	249
Geocentric position (AU)	+0.00528871	-0.00623035	-0.00196244	
C/1999 C1	1999 02 07.34674	21 38 09.4	-16 16 43	249
Geocentric position (AU)	+0.00529426	-0.00622565	-0.00196011	
C/1999 C1	1999 02 07.36400	21 37 52.4	-16 14 30	249
Geocentric position (AU)	+0.00529810	-0.00622239	-0.00195850	
C/1999 C1	1999 02 07.38840	21 37 28.7	-16 11 21	249
Geocentric position (AU)	+0.00530353	-0.00621778	-0.00195622	
C/1999 C1	1999 02 07.40566	21 37 11.1	-16 09 05	249
Geocentric position (AU)	+0.00530737	-0.00621451	-0.00195460	
C/1999 C1	1999 02 07.43161	21 36 44.2	-16 05 38	249
Geocentric position (AU)	+0.00531314	-0.00620960	-0.00195218	
C/1999 C1	1999 02 07.44886	21 36 25.3	-16 03 19	249
Geocentric position (AU)	+0.00531697	-0.00620634	-0.00195056	
C/1999 C1	1999 02 07.47207	21 36 01.1	-16 00 20	249
Geocentric position (AU)	+0.00532213	-0.00620194	-0.00194839	
C/1999 C1	1999 02 07.48929	21 35 41.1	-15 58 05	249
Geocentric position (AU)	+0.00532595	-0.00619867	-0.00194677	
C/1999 C1	1999 02 07.51339	21 35 13.9	-15 54 27	249
Geocentric position (AU)	+0.00533131	-0.00619409	-0.00194452	
C/1999 C1	1999 02 07.53063	21 34 54.1	-15 52 21	249
Geocentric position (AU)	+0.00533513	-0.00619082	-0.00194290	
C/1999 C1	1999 02 07.57180	21 34 03.4	-15 46 22	249
Geocentric position (AU)	+0.00534427	-0.00618299	-0.00193904	

P/1999 D1 (Hermann)

P/1999 D1	1999 02 20.40541	12 15 00.34	+03 20 24.3	18.4 T	699
P/1999 D1	1999 02 20.42580	12 14 59.55	+03 19 50.7		699
P/1999 D1	1999 02 20.44621	12 14 58.73	+03 19 16.0		699
P/1999 D1	1999 02 21.73316	12 14 09.68	+02 43 57.7	18.9 T	372
P/1999 D1	1999 03 13.04620	11 55 06.02	-06 12 45.6	17.1 T	113
P/1999 D1	1999 03 13.07045	11 55 04.21	-06 13 24.5	17.2 T	113
P/1999 D1	1999 03 13.55207	11 54 30.02	-06 26 12.3	17.1 T	367
P/1999 D1	1999 03 13.55693	11 54 29.69	-06 26 19.2		367
P/1999 D1	1999 03 13.97446	11 53 59.16	-06 37 26.9		104
P/1999 D1	1999 03 13.97631	11 53 59.01	-06 37 28.8		104
P/1999 D1	1999 03 13.97818	11 53 58.88	-06 37 31.5		104
P/1999 D1	1999 03 15.91861	11 51 37.53	-07 28 20.8		108
P/1999 D1	1999 03 15.92321	11 51 36.73	-07 28 27.1		108
P/1999 D1	1999 03 15.92857	11 51 36.89	-07 28 35.1	16.5 T	108
P/1999 D1	1999 03 15.97428	11 51 33.30	-07 29 48.5		118
P/1999 D1	1999 03 15.97591	11 51 33.12	-07 29 51.9		118
P/1999 D1	1999 03 15.98915	11 51 32.14	-07 30 12.3	17.1 T	118
P/1999 D1	1999 03 16.57212	11 50 49.86	-07 45 12.2	17.7 T	402
P/1999 D1	1999 03 16.57671	11 50 49.51	-07 45 19.8		402
P/1999 D1	1999 03 16.57903	11 50 49.37	-07 45 23.7		402
P/1999 D1	1999 03 16.58542	11 50 48.78	-07 45 33.6	18.0 T	372
P/1999 D1	1999 03 16.64566	11 50 44.16	-07 47 06.1	17.2 T	360
P/1999 D1	1999 03 16.64983	11 50 43.84	-07 47 12.5		360
P/1999 D1	1999 03 16.65399	11 50 43.49	-07 47 18.5		360
P/1999 D1	1999 03 17.63804	11 49 31.70	-08 12 26.1	17.6 T	402
P/1999 D1	1999 03 17.64034	11 49 31.48	-08 12 29.9		402
P/1999 D1	1999 03 17.64264	11 49 31.25	-08 12 31.5		402

P/1999 D1	1999 03 18.41920	11 48 35.42	-08 31 52.4		428
P/1999 D1	1999 03 18.87139	11 48 02.11	-08 43 28.5		046
P/1999 D1	1999 03 18.87365	11 48 01.98	-08 43 31.4		046
P/1999 D1	1999 03 18.87574	11 48 01.80	-08 43 34.0		046
P/1999 D1	1999 03 18.87817	11 48 01.61	-08 43 38.9		046
P/1999 D1	1999 03 22.26732	11 43 58.10	-10 05 55.5	18.5 T	704
P/1999 D1	1999 03 22.28373	11 43 56.85	-10 06 17.0	18.4 T	704
P/1999 D1	1999 03 22.30002	11 43 55.65	-10 06 40.0	18.6 T	704
P/1999 D1	1999 03 22.31640	11 43 54.36	-10 07 02.4	18.7 T	704
P/1999 D1	1999 03 22.33278	11 43 53.15	-10 07 26.8	19.1 T	704
P/1999 D1	1999 03 22.63316	11 43 32.18	-10 14 32.0	17.2 T	360
P/1999 D1	1999 03 22.63750	11 43 31.83	-10 14 37.7		360
P/1999 D1	1999 03 22.64115	11 43 31.55	-10 14 43.1		360
P/1999 D1	1999 03 22.70937	11 43 26.49	-10 16 18.1	17.9 T	372
P/1999 D1	1999 03 26.23298	11 39 25.75	-11 36 11.3	17.9 T	2 860
P/1999 D1	1999 03 26.23726	11 39 25.34	-11 36 13.7	17.6 T	2 860
P/1999 D1	1999 03 26.24262	11 39 25.16	-11 36 22.9	17.6 T	2 860

D/1999 E1 (Li)

D/1999 E1	1999 01 22.08312	06 30 40.00	-06 06 39.3	17.5 N	3 704
D/1999 E1	1999 01 22.10491	06 30 39.15	-06 06 21.6	17.3 N	3 704
D/1999 E1	1999 01 22.12682	06 30 38.54	-06 06 08.7		3 704
D/1999 E1	1999 01 22.14860	06 30 37.85	-06 05 54.0	17.4 N	3 704
D/1999 E1	1999 03 13.17569	06 24 42.94	+04 41 24.2	16.5 T	662
D/1999 E1	1999 03 16.14473	06 25 40.92	+05 16 38.0	16.8 T	662
D/1999 E1	1999 03 16.16436	06 25 41.29	+05 16 51.7	16.7 T	662
D/1999 E1	1999 03 16.19431	06 25 41.93	+05 17 12.7	16.8 T	662
D/1999 E1	1999 03 17.01175	06 25 59.36	+05 26 47.0	16.3 T	859
D/1999 E1	1999 03 17.01494	06 25 59.44	+05 26 50.1	16.0 T	859
D/1999 E1	1999 03 17.01826	06 25 59.46	+05 26 53.1	16.0 T	859
D/1999 E1	1999 03 17.02198	06 25 59.56	+05 26 55.7	16.0 T	859
D/1999 E1	1999 03 17.02439	06 25 59.72	+05 26 55.8	15.6 T	758
D/1999 E1	1999 03 17.02573	06 25 59.63	+05 26 58.6	15.9 T	859
D/1999 E1	1999 03 17.02802	06 25 59.80	+05 26 58.6	15.5 T	758
D/1999 E1	1999 03 17.03254	06 25 59.89	+05 27 01.6	15.5 T	758
D/1999 E1	1999 03 17.03816	06 25 59.97	+05 27 07.3	15.4 T	758
D/1999 E1	1999 03 17.04863	06 26 00.14	+05 27 12.2	15.6 T	758
D/1999 E1	1999 03 17.46832	06 26 09.44	+05 32 07.8	17.2 T	422
D/1999 E1	1999 03 17.47051	06 26 09.49	+05 32 09.8	17.2 T	422
D/1999 E1	1999 03 17.47269	06 26 09.55	+05 32 11.0	17.1 T	422
D/1999 E1	1999 03 17.56032	06 26 11.42	+05 33 10.7	16.3 T	372
D/1999 E1	1999 03 17.56302	06 26 11.42	+05 33 10.7	16.3 T	372
D/1999 E1	1999 03 17.57014	06 26 11.66	+05 33 18.0	15.9 T	367
D/1999 E1	1999 03 17.57552	06 26 11.78	+05 33 20.6	16.3 T	372
D/1999 E1	1999 03 17.57882	06 26 11.85	+05 33 22.3		367
D/1999 E1	1999 03 17.58248	06 26 11.91	+05 33 25.0	15.8 T	402
D/1999 E1	1999 03 17.58479	06 26 11.96	+05 33 25.8		402
D/1999 E1	1999 03 17.58710	06 26 12.05	+05 33 27.1		402
D/1999 E1	1999 03 17.58715	06 26 11.99	+05 33 27.2		367
D/1999 E1	1999 03 17.58940	06 26 12.08	+05 33 30.2		402
D/1999 E1	1999 03 17.75726	06 26 15.93	+05 35 25.6		118
D/1999 E1	1999 03 17.75737	06 26 16.09	+05 35 24.5		104
D/1999 E1	1999 03 17.76128	06 26 16.04	+05 35 28.5		118

D/1999 E1	1999 03 17.76157	06 26 16.13	+05 35 28.3		104	D/1999 E1	1999 03 23.05742	06 28 27.94	+06 35 38.2		844
D/1999 E1	1999 03 17.76333	06 26 16.06	+05 35 30.2	15.9 T	118	D/1999 E1	1999 03 26.80302	06 30 16.57	+07 16 25.1		046
D/1999 E1	1999 03 17.76551	06 26 16.16	+05 35 32.0		104	D/1999 E1	1999 03 26.80457	06 30 16.60	+07 16 26.2		046
D/1999 E1	1999 03 17.76875	06 26 16.20	+05 35 35.1		104	D/1999 E1	1999 03 26.80581	06 30 16.67	+07 16 27.2		046
D/1999 E1	1999 03 17.77325	06 26 16.31	+05 35 37.2	17.0 T	104	D/1999 E1	1999 03 26.80696	06 30 16.67	+07 16 28.2		046
D/1999 E1	1999 03 17.85729	06 26 18.10	+05 36 35.8		046	D/1999 E1	1999 03 27.52497	06 30 38.81	+07 24 08.0	15.8 T	402
D/1999 E1	1999 03 17.85848	06 26 18.15	+05 36 36.1		046	D/1999 E1	1999 03 27.52659	06 30 38.89	+07 24 08.8		402
D/1999 E1	1999 03 17.85954	06 26 18.18	+05 36 36.4		046	D/1999 E1	1999 03 27.52819	06 30 38.93	+07 24 09.5		402
D/1999 E1	1999 03 17.86160	06 26 18.23	+05 36 38.2		046	10P/Tempel 2					
D/1999 E1	1999 03 18.37751	06 26 30.08	+05 42 39.6	15.5 T	428	10P	1999 03 16.82083	16 50 31.45	-07 58 13.2	18.3 N	360
D/1999 E1	1999 03 18.38783	06 26 30.36	+05 42 46.8	15.4 T	428	10P	1999 03 16.82535	16 50 31.81	-07 58 12.5		360
D/1999 E1	1999 03 18.74847	06 26 38.72	+05 46 52.6		118	10P	1999 03 22.78385	16 57 40.40	-07 42 47.9	18.4 N	360
D/1999 E1	1999 03 18.75529	06 26 38.83	+05 46 57.5		118	10P	1999 03 22.78872	16 57 40.71	-07 42 47.2		360
D/1999 E1	1999 03 18.75707	06 26 38.89	+05 46 58.5	16.0 T	118	21P/Giacobini-Zinner					
D/1999 E1	1999 03 18.76229	06 26 38.99	+05 47 02.5	16.2 T	046	21P	1999 02 25.41501	03 34 56.91	-13 17 20.1	14.4 T	351
D/1999 E1	1999 03 18.76352	06 26 39.02	+05 47 03.2		046	21P	1999 02 25.42345	03 34 58.27	-13 17 12.8		351
D/1999 E1	1999 03 18.76481	06 26 39.06	+05 47 04.0		046	21P	1999 02 25.44251	03 35 01.43	-13 16 57.8		351
D/1999 E1	1999 03 18.82172	06 26 40.35	+05 47 43.3		557	21P	1999 02 27.00541	03 39 23.54	-12 55 10.9	13.2 T	758
D/1999 E1	1999 03 18.82578	06 26 40.45	+05 47 46.1		557	21P	1999 02 27.01921	03 39 25.59	-12 54 59.9	13.4 T	758
D/1999 E1	1999 03 18.84529	06 26 40.92	+05 47 58.9	16.3 T	113	21P	1999 03 01.72804	03 46 52.41	-12 17 47.2		118
D/1999 E1	1999 03 18.88741	06 26 41.92	+05 48 28.1	16.3 T	113	21P	1999 03 01.74630	03 46 55.36	-12 17 31.6		118
D/1999 E1	1999 03 18.91216	06 26 42.42	+05 48 45.4		107	21P	1999 03 01.75189	03 46 56.28	-12 17 27.5	14 T	118
D/1999 E1	1999 03 18.92221	06 26 42.67	+05 48 52.2		107	21P	1999 03 04.04292	03 53 07.03	-11 46 33.6	15.1 N	739
D/1999 E1	1999 03 19.79709	06 27 03.68	+05 58 52.9	16.2 T	046	21P	1999 03 06.46286	03 59 32.99	-11 14 24.6	15.7 T	351
D/1999 E1	1999 03 19.79844	06 27 03.76	+05 58 54.6		046	21P	1999 03 06.47207	03 59 34.35	-11 14 18.9		351
D/1999 E1	1999 03 19.79969	06 27 03.75	+05 58 55.1		046	21P	1999 03 16.45107	04 25 04.65	-09 09 31.6	16.0 T	351
D/1999 E1	1999 03 19.80093	06 27 03.79	+05 58 55.6		046	21P	1999 03 16.45549	04 25 05.49	-09 09 26.3		351
D/1999 E1	1999 03 19.90358	06 27 06.33	+06 00 07.1	15.9 N	620	29P/Schwassmann-Wachmann 1					
D/1999 E1	1999 03 19.91076	06 27 06.46	+06 00 10.9	16.2 N	620	29P	1999 03 16.78767	15 21 58.74	-29 07 37.8	15.3 T	360
D/1999 E1	1999 03 19.92050	06 27 06.66	+06 00 17.4	16.0 N	620	29P	1999 03 16.79063	15 21 58.70	-29 07 37.9	16.2 N	360
D/1999 E1	1999 03 20.84672	06 27 29.83	+06 10 47.4	16.3 T	958	29P	1999 03 22.76493	15 21 08.47	-29 13 43.0	15.3 T	360
D/1999 E1	1999 03 20.85131	06 27 29.91	+06 10 50.9	16.7 T	958	29P	1999 03 22.76823	15 21 08.45	-29 13 43.1	16.5 N	360
D/1999 E1	1999 03 20.87178	06 27 30.40	+06 11 04.5	16.8 T	958	49P/Arend-Rigaux					
D/1999 E1	1999 03 20.89853	06 27 31.08	+06 11 23.5	16.6 T	958	49P	1999 03 16.75260	14 45 41.99	+10 51 18.4	18.4 N	360
D/1999 E1	1999 03 20.98116	06 27 33.23	+06 12 22.5	15.8 T	860	49P	1999 03 16.75816	14 45 41.79	+10 51 21.7		360
D/1999 E1	1999 03 20.98657	06 27 33.37	+06 12 25.8	16.1 T	860	49P	1999 03 18.49406	14 44 48.04	+11 07 10.3	18.6 T	691
D/1999 E1	1999 03 20.99054	06 27 33.46	+06 12 28.6	16.4 T	860	49P	1999 03 18.49819	14 44 47.91	+11 07 12.6	18.6 T	691
D/1999 E1	1999 03 20.99454	06 27 33.53	+06 12 30.6	16.1 T	860	49P	1999 03 18.50226	14 44 47.76	+11 07 14.7	18.6 T	691
D/1999 E1	1999 03 21.04133	06 27 34.65	+06 13 02.6	16.2 T	859	49P	1999 03 18.50631	14 44 47.62	+11 07 17.1	18.6 T	691
D/1999 E1	1999 03 21.05574	06 27 35.05	+06 13 13.3	16.2 T	859	49P	1999 03 18.51077	14 44 47.47	+11 07 19.3	18.6 T	691
D/1999 E1	1999 03 21.06046	06 27 35.16	+06 13 16.3	16.0 T	859	49P	1999 03 18.51472	14 44 47.34	+11 07 21.7	18.6 T	691
D/1999 E1	1999 03 22.06543	06 28 01.31	+06 24 32.3	16.4 T	859	52P/Harrington-Abell					
D/1999 E1	1999 03 22.06957	06 28 01.40	+06 24 35.8	15.8 T	859	52P	1999 01 22.86551	07 06 06.34	+38 03 21.2		587
D/1999 E1	1999 03 22.07983	06 28 01.67	+06 24 42.3	16.1 T	859	52P	1999 02 17.62674	07 07 53.54	+32 25 43.7	13.9 T	372
D/1999 E1	1999 03 22.47847	06 28 12.33	+06 29 07.9	15.8 T	360	52P	1999 02 21.60365	07 10 31.21	+31 29 50.4	14.1 T	372
D/1999 E1	1999 03 22.48125	06 28 12.42	+06 29 09.7		360	52P	1999 02 25.49825	07 13 39.57	+30 35 21.5	13.8 T	351
D/1999 E1	1999 03 22.48403	06 28 12.50	+06 29 11.8		360	52P	1999 02 25.50516	07 13 39.92	+30 35 15.6		351
D/1999 E1	1999 03 22.53733	06 28 13.83	+06 29 47.7	16.5 T	372	52P	1999 02 25.50913	07 13 40.07	+30 35 12.2		351
D/1999 E1	1999 03 22.81638	06 28 21.48	+06 32 53.1	16.2 T	118	52P	1999 02 26.91435	07 14 55.42	+30 15 37.1		587
D/1999 E1	1999 03 22.81962	06 28 21.59	+06 32 55.4		118	52P	1999 02 26.91638	07 14 55.48	+30 15 35.5		587
D/1999 E1	1999 03 22.82300	06 28 21.66	+06 32 57.7		118						
D/1999 E1	1999 03 22.99800	06 28 26.41	+06 34 57.8		844						
D/1999 E1	1999 03 23.03044	06 28 27.23	+06 35 19.4		844						

1999 APR. 2

M.P.C. 34099

52P	1999 02 26.92181	07 14 55.78	+30 15 30.9		587	93P	1999 02 12.84192	06 16 02.40	+37 12 59.0	17.2 T	605
52P	1999 02 27.04395	07 15 03.00	+30 13 53.0	13.7 T	758	93P	1999 02 26.89305	06 28 27.13	+34 37 35.8		587
52P	1999 02 27.05014	07 15 03.24	+30 13 46.6	13.7 T	758	93P	1999 02 26.89560	06 28 27.32	+34 37 35.4		587
52P	1999 02 28.53549	07 16 27.31	+29 53 10.3	12.6 T	900	93P	1999 02 26.89757	06 28 27.52	+34 37 33.8		587
52P	1999 02 28.54477	07 16 27.88	+29 53 02.6		900	93P	1999 02 26.90220	06 28 27.73	+34 37 31.1		587
52P	1999 02 28.87436	07 16 47.18	+29 48 27.5	12.8 T	504	93P	1999 02 28.88524	06 30 33.48	+34 17 02.1	15.4 T	504
52P	1999 02 28.87602	07 16 47.31	+29 48 25.7	12.7 T	504	93P	1999 02 28.88645	06 30 33.61	+34 17 01.9		504
52P	1999 02 28.87870	07 16 47.46	+29 48 23.6	12.7 T	504	93P	1999 03 03.46995	06 33 23.82	+33 50 52.0	15.2 T	402
52P	1999 02 28.87987	07 16 47.57	+29 48 22.2	13.3 T	504	93P	1999 03 03.47156	06 33 23.91	+33 50 51.6		402
52P	1999 03 03.49711	07 19 27.89	+29 12 21.1	12.3 T	402	93P	1999 03 03.47317	06 33 24.02	+33 50 50.1		402
52P	1999 03 03.49872	07 19 27.98	+29 12 19.9		402	93P	1999 03 03.79425	06 33 45.65	+33 47 35.6		118
52P	1999 03 03.50032	07 19 28.08	+29 12 18.5		402	93P	1999 03 03.79587	06 33 45.78	+33 47 35.0		118
52P	1999 03 03.53021	07 19 29.94	+29 11 53.4	12.3 T	903	93P	1999 03 03.79735	06 33 45.86	+33 47 34.2	16.0 T	118
52P	1999 03 03.58750	07 19 33.46	+29 11 05.7		903	93P	1999 03 08.82670	06 39 37.03	+32 58 10.2	16.3 T	118
52P	1999 03 06.51925	07 22 47.68	+28 31 03.4	14.2 T	351	93P	1999 03 08.83060	06 39 37.35	+32 58 08.2		118
52P	1999 03 06.52334	07 22 47.99	+28 31 00.5		351	93P	1999 03 16.53576	06 49 16.01	+31 45 49.5	15.9 T	360
52P	1999 03 06.52767	07 22 48.33	+28 30 56.8		351	93P	1999 03 16.53819	06 49 16.21	+31 45 48.0		360
52P	1999 03 16.48554	07 35 25.67	+26 17 40.6	13.0 T	402	93P	1999 03 17.78711	06 50 54.24	+31 34 24.3		118
52P	1999 03 16.48683	07 35 25.76	+26 17 39.6		402	93P	1999 03 17.78914	06 50 54.42	+31 34 23.3		118
52P	1999 03 16.48808	07 35 25.88	+26 17 38.7		402	93P	1999 03 17.79986	06 50 55.22	+31 34 17.3	16.7 T	118
52P	1999 03 16.50219	07 35 27.08	+26 17 26.8	14.4 T	351	93P	1999 03 20.93947	06 55 05.49	+31 05 59.5	16.9 T	504
52P	1999 03 16.50596	07 35 27.23	+26 17 24.5		351	93P	1999 03 20.94094	06 55 05.70	+31 05 58.2	16.6 T	504
52P	1999 03 16.54878	07 35 30.72	+26 16 50.8	12.9 T	360	93P	1999 03 20.94499	06 55 05.94	+31 05 57.3	16.6 T	504
52P	1999 03 16.55104	07 35 30.90	+26 16 48.8		360	93P	1999 03 20.94675	06 55 06.18	+31 05 55.8	16.3 T	504
52P	1999 03 27.55407	07 51 50.01	+23 54 02.8	14.0 T	402						
52P	1999 03 27.55534	07 51 50.18	+23 54 01.9		402						
52P	1999 03 27.55661	07 51 50.28	+23 54 01.4		402						
60P/Tsuchinshan 2						103P	103P/Hartley 2				
60P	1999 03 03.48568	06 36 39.37	+19 18 53.6	16.8 T	402	103P	1999 03 22.68038	12 19 54.75	-12 38 15.2	18.5 T	360
60P	1999 03 03.48729	06 36 39.53	+19 18 53.3		402	103P	1999 03 22.68611	12 19 54.49	-12 38 13.2		360
60P	1999 03 03.48889	06 36 39.59	+19 18 53.2		402	103P	1999 03 22.69132	12 19 54.27	-12 38 11.7		360
60P	1999 03 03.80742	06 37 03.20	+19 17 16.1	17.6 T	118		129P/Shoemaker-Levy 3				
60P	1999 03 03.81095	06 37 03.41	+19 17 15.2		118	129P	1999 03 17.71633	13 53 56.89	-18 43 56.8	18.4 T	402
60P	1999 03 03.81258	06 37 03.55	+19 17 14.7		118	129P	1999 03 17.71933	13 53 56.83	-18 43 57.5		402
60P	1999 03 08.81638	06 43 36.37	+18 52 27.2		118	129P	1999 03 17.72233	13 53 56.68	-18 43 57.2		402
60P	1999 03 08.81933	06 43 36.66	+18 52 26.5	16.4 T	118	131P	131P/Mueller 2				
60P	1999 03 10.16172	06 45 29.48	+18 45 49.7	17.8 T	704	131P	1999 01 13.47976	09 15 15.92	+05 31 36.5		568
60P	1999 03 10.17184	06 45 30.37	+18 45 47.1	17.8 T	704	131P	1999 01 13.66089	09 15 08.80	+05 31 56.3		568
60P	1999 03 10.18199	06 45 31.21	+18 45 43.6	18.4 T	704	131P	1999 01 14.46216	09 14 37.66	+05 33 27.7		568
60P	1999 03 10.19216	06 45 31.90	+18 45 40.1	18.4 T	704		135P/Shoemaker-Levy 8				
60P	1999 03 16.52847	06 55 03.30	+18 14 02.7	17.4 T	360	135P	1999 03 20.20944	11 27 17.89	-02 28 07.9	19.3 T	704
60P	1999 03 16.53090	06 55 03.56	+18 14 01.8		360	135P	1999 03 20.22748	11 27 17.01	-02 28 02.2	19.3 T	704
74P/Smirnova-Chernykh						135P	1999 03 20.24547	11 27 16.44	-02 27 54.2	19.1 T	704
74P	1999 02 04.21426	03 14 50.36	+16 25 13.6	18.9 T	699	135P	1999 03 20.26353	11 27 15.67	-02 27 49.5	19.1 T	704
74P	1999 02 04.22698	03 14 50.58	+16 25 16.1		699	135P	1999 03 20.28165	11 27 15.04	-02 27 40.4	19.4 T	704
74P	1999 02 04.23971	03 14 50.92	+16 25 17.8		699	135P	1999 03 23.25510	11 25 19.62	-02 10 13.0	19.1 T	704
93P/Lovas 1						135P	1999 03 23.26975	11 25 19.12	-02 10 06.9	19.1 T	704
93P	1999 01 05.87228	06 13 26.81	+45 02 29.7	13.8 T	605	135P	1999 03 23.28445	11 25 18.19	-02 10 01.6	19.5 T	704
93P	1999 01 05.88301	06 13 26.47	+45 02 22.9	14.0 T	605	135P	1999 03 23.29912	11 25 17.91	-02 09 57.4	19.5 T	704
93P	1999 01 05.89829	06 13 25.83	+45 02 12.9	13.8 T	605	135P	1999 03 23.31380	11 25 17.02	-02 09 52.8	19.5 T	704
93P	1999 02 12.82878	06 16 01.96	+37 13 10.5	17.0 T	605	139P	139P/Väisälä-Oterma				
						139P	1999 03 16.12457	04 00 06.76	+20 01 06.5	21.9 N	691
							1999 03 16.14391	04 00 07.90	+20 01 09.9	19.8 T	691

140P/Bowell-Skiff						
140P	1999 03 03.49131	06 43 37.16	+26 33 17.0	16.1 T	402	
140P	1999 03 03.49292	06 43 37.22	+26 33 16.5		402	
140P	1999 03 03.49453	06 43 37.28	+26 33 16.5		402	
140P	1999 03 03.82059	06 43 50.65	+26 32 01.8		118	
140P	1999 03 03.82256	06 43 50.74	+26 32 01.6		118	
140P	1999 03 03.82431	06 43 50.80	+26 32 01.2	16.1 T	118	
140P	1999 03 08.78712	06 47 40.66	+26 12 57.2	16.0 T	118	
140P	1999 03 08.79725	06 47 41.13	+26 12 54.8		118	
140P	1999 03 16.54236	06 55 18.49	+25 40 52.0	15.9 T	360	
140P	1999 03 16.54462	06 55 18.64	+25 40 51.1		360	
140P	1999 03 17.81405	06 56 44.68	+25 35 16.5		118	
140P	1999 03 17.81660	06 56 44.88	+25 35 16.0		118	
140P	1999 03 17.81878	06 56 44.98	+25 35 15.1	15.6 T	118	
140P	1999 03 27.85633	07 09 41.72	+24 47 47.1		046	
140P	1999 03 27.85958	07 09 42.03	+24 47 45.7		046	

Note 1: bad seeing. 2: faint image. 3: prediscovery 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.

010 Caussols

J.-M. Petit, Observatoire de la Côte d'Azur, B.P. 4229, Boulevard de l'Observatoire, F-06304 Nice Cedex, France [petit@obs-nice.fr]
 Observers J.-M. Petit, J.-P. Rivet
 Measurer J.-M. Petit
 0.9-m Schmidt telescope + CCD
 1999 CU₆₆, 4, 1, 0; (8099), 4, 1, 0; (10199), 4, 1, 0; [12, 3, 0*, 1999/02/21–1999/02/22]

012 Uccle

T. Pauwels, Koninklijke Sterrenwacht van België, Ringlaan 3, B-1180 Brussels, Belgium [Thierry.Pauwels@oma.be]
 Observers T. Pauwels, S. Ipatov
 Measurer T. Pauwels
 0.85-m $f/2.5$ Schmidt + CCD
 GSC-1.2

1990 SM₆, 5, 1, 0; 1990 VB₆, 5, 1, 0; 1992 RK₇, 6, 1, 0; 1993 SL₃, 5, 1, 0; 1996 NF₃, 5, 1, 0; 1999 DD₇ *, 15, 3, 19; 1999 EB₅ *, 15, 2, 5; 1999 EC₅ *, 9, 2, 5; (222), 5, 1, 0; [70, 9, 3*, 1999/02/25–1999/03/16]

046 Klet

J. Tichá, Hvězdárna Klet, Zátkovo nábreží 4, CZ-37001 České Budějovice, Czech Republic [klet@klet.cz]
 Observers J. Tichá, M. Tichý, Z. Moravec
 Measurer M. Tichý
 0.57-m $f/5.2$ reflector + CCD
 USNO-SA2.0

1981 SN, 9, 3, 12; 1986 TZ₃, 16, 4, 14; 1988 AA₂, 6, 2, 5; 1995 JC, 9, 3, 14; 1996 TT₉, 6, 2, 2; 1997 AP₁₀, 4, 1, 0; 1997 QB₁, 8, 2, 22; 1997 RC, 9, 3, 18; 1997 SF₃, 3, 1, 0; 1998 AJ, 10, 2, 2; 1998 BN₁₀, 6, 2, 6; 1998 DP, 6, 2, 5; 1998 QK₅₆, 4, 1, 0; 1998 WM, 3, 1, 0; 1998 XD, 3, 1, 0; 1998 YP₁₁, 4, 1, 0; 1999 AP₁₀, 3, 1, 0; 1999 BY₉, 4, 1, 0; 1999 CU₃, 5, 1, 0; 1999 CV₃, 8, 2, 3; 1999 CT₈, 4, 1, 0; 1999 CV₈, 5, 1, 0; 1999 CF₉, 25, 6, 23; 1999 CM₁₀, 4, 1, 0; 1999 CV₄₈, 10, 2, 1; 1999 CO₉₅, 3, 1, 0; 1999 CW₁₁₇, 9, 3, 12; 1999 DB₂, 3, 1, 0; 1999 DJ₄, 8, 2, 5; 1999 DB₇, 12, 2, 12; 1999 EY₂, 4, 1, 0; 1999 EF₃ *, 25, 6, 14; 1999 EO₃, 4, 1, 0; 1999 EE₅, 6, 2, 1; 1999 EF₅, 4, 1, 0; 1999 FA, 12, 3, 7; 1999 FB, 12, 3, 7; 1999 FQ₅, 5, 1, 0; 1999 FR₅, 3, 1, 0; 1999 FN₁₉, 4, 1, 0; 1999 FO₁₉, 4, 1, 0; 1999 FP₁₉, 5, 1, 0; 1999 FQ₁₉, 5, 1, 0; 1999 FR₁₉, 5, 1, 0; 1999 FX₂₀ *, 13, 2, 1; 1999 FY₂₀ *, 9, 2, 1; 1999 FG₂₁ *, 9, 2, 2; 1999 FH₂₁ *, 9, 2, 2; 1999 FJ₂₁, 2, 1, 0; 1999 FK₂₁, 17, 3, 2; (1268), 3, 1, 0; (3352), 10, 3, 28; (3722), 3, 1, 0; (4023), 3, 1, 0; [385, 54, 5*, 1999/02/24–1999/03/27]

057 Belgrade

V. Protitch-Benishek, Astronomical Observatory, Volgina 7, YG-11050 Belgrade, Yugoslavia [vprotic@aob.aob.bg.ac.yu]
 Observers V. Protitch-Benishek, Vl. Benishek, I. Graovac
 0.14-m $f/10$ Askania astrograph + CCD
 GSC

1999 CV₃, 11, 2, 3; (10115), 18, 2, 3; [29, 2, 0*, 1999/03/09–1999/03/12]

071 Bulgarian National Observatory

V. Radeva, Astronomical Observatory and Planetarium, Varna, Bulgaria [astro@ms3.tu-varna.acad.bg]
 Observers V. Radeva, G. Apostolovska, A. Marinov
 Measurers V. Radeva, G. Borisov
 0.50-m $f/1.4$ Schmidt
 GSC

1998 YP₁₁, 3, 1, 0; 1999 AQ₁₀, 3, 1, 0; 1999 BE₈, 2, 1, 0; (9), 5, 1, 0; (10115), 3, 1, 0; [16, 5, 0*, 1999/02/16–1999/02/17]

097 Wise Observatory, Mitzpeh Ramon

A. Gal-Yam, Wise Observatory, Tel-Aviv University, IL-69978 Tel-Aviv, Israel [ilam@trendline.co.il]
 Observer A. Gal-Yam
 Measurer I. Manulis
 1.0-m $f/7$ reflector + CCD
 USNO-A2.0
 1999 CV₃, 4, 2, 2; 1999 FL₂₁ *, 6, 2, 2; [10, 2, 1*, 1999/03/20–1999/03/23]

098 Asiago Observatory, Cima Ekar

U. Munari, Osservatorio Astronomico di Padova, Sede di Asiago, I-36012 Asiago (VI), Italy [munari@astras.pd.astro.it]
 Observers U. Munari, F. Castellani, M. Tombelli, P. Antolini
 Measurers F. Castellani, M. Tombelli, G. Forti
 0.67-m $f/3.2$ Schmidt
 1997 UP₈, 2, 1, 0; [2, 1, 0*, 1994/12/03]

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, E. Gregori, A. Caronia
 Measurers G. Forti, L. Tesi, A. Boattini, M. Tombelli, G. D'Abramo
 0.40-m $f/5$ reflector + CCD
 GSC, USNO-A1.0
 1995 DU₃, 5, 2, 7; 1996 GJ₂, 1, 1, 0; 1996 OE₂, 3, 1, 0; 1996 OM₂, 5, 2, 7; 1996 OP₂, 7, 2, 7; 1996 PD₃, 3, 1, 0; 1996 UL₁, 10, 3, 4; 1997 SL₁₇, 5, 2, 7; 1997 UK₅, 2, 1, 0; 1998 BE₇, 7, 2, 53; 1998 SA₁₅, 8, 2, 7; 1998 XA₃, 4, 2, 1; 1998 YD₁₀, 3, 1, 0; 1998 YE₁₀, 4, 1, 0; 1999 AQ₁₀, 4, 1, 0; 1999 BE₈, 3, 1, 0; 1999 BF₈, 9, 3, 6; 1999 BJ₈, 9, 1, 0; 1999 CY₂, 12, 3, 2; 1999 CZ₂, 3, 1,

0; 1999 CV₃, 2, 1, 0; 1999 CF₀, 4, 1, 0; 1999 CG₁₆, 4, 1, 0; 1999 CJ₁₆, 3, 1, 0; 1999 CK₁₁₁, 12, 3, 2; 1999 DB₂, 4, 1, 0; 1999 DY₂, 3, 1, 0; 1999 DK₃, 3, 1, 0; 1999 DV₃, 3, 1, 0; 1999 DJ₄, 2, 1, 0; 1999 DB₇, 4, 1, 0; 1999 EY₂, 3, 1, 0; 1999 EN₃, 3, 1, 0; 1999 ED₅, 3, 1, 0; 1999 EE₅, 5, 1, 0; 1999 EF₅, 3, 1, 0; 1999 FA, 4, 1, 0; 1999 FB, 2, 1, 0; 1999 FQ₅, 3, 1, 0; 1999 FR₅, 3, 1, 0; 1999 FH₁₀ *, 13, 3, 2; 1999 FP₁₀, 3, 1, 0; 1999 FN₁₉, 5, 1, 0; 1999 FP₁₉, 4, 1, 0; (3931), 2, 1, 0; (7133), 2, 1, 0; [209, 46, 1*, 1999/01/20–1999/03/24]

106 Črni vrh

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

0.36-m $f/6.7$ Schmidt-Cassegrain + CCD + V filter, 0.19-m $f/4$ Baker-Schmidt + CCD

GSC 1.1, USNO-SA1.0

1998 WM₇, 5, 2, 7; 1999 BB₂, 3, 1, 0; 1999 BS₉, 3, 1, 0; 1999 BN₁₂, 3, 1, 0; 1999 BP₁₂, 3, 1, 0; 1999 BQ₁₂, 2, 1, 0; 1999 EJ₃ *, 7, 2, 1; (178), 3, 1, 0; (222), 3, 1, 0; (240), 3, 1, 0; (260), 3, 1, 0; (449), 3, 1, 0; (563), 3, 1, 0; (906), 3, 1, 0; (994), 3, 1, 0; (1187), 3, 1, 0; (1612), 3, 1, 0; (2111), 3, 1, 0; (3223), 3, 1, 0; (5092), 3, 1, 0; (5673), 3, 1, 0; (6376), 3, 1, 0; (9765), 2, 1, 0; [73, 23, 1*, 1999/03/12–1999/03/21]

107 Cavezzo

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

Observers M. Facchini, M. Nicolini

Measurer M. Nicolini

0.40-m $f/5.5$ reflector + CCD

GSC

(7412), 3, 1, 0; [3, 1, 0*, 1999/02/23]

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, G. Forti, E. Masotti

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

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

GSC

1996 PD₃, 6, 1, 0; 1997 TU₁₈, 3, 1, 0; 1997 XL₁₀, 7, 2, 1; 1997 YO₄, 3, 1, 0; 1999 CJ₁₆, 5, 1, 0; 1999 DV₃, 10, 3, 5; 1999 EE₅, 6, 2, 1; 1999 FA, 4, 1, 0; 1999 FP₁₀ *, 10, 2, 3; 1999 FO₁₉, 3, 1, 0; (5042), 4, 1, 0; (7198), 7, 2, 1; (7957), 6, 2, 1; [74, 13, 1*, 1999/03/15–1999/03/24]

113 Volkssternwarte Drebach, Schönbrunn

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

[g.lehmann@abo.freiepresse.de]

Observers G. Lehmann, J. Kandler

Measurers G. Lehmann, J. Kandler, K. Lehmann

0.50-m $f/4$ reflector + CCD, 0.18-m $f/9.0$ refractor + CCD

USNO-A2.0

1988 FM₁, 6, 3, 6; 1988 RX₂, 5, 2, 12; 1989 AV₆, 2, 1, 0; 1989 CD₆, 6, 3, 12; 1990 TE₉, 5, 2, 12; 1990 TG₁₃, 6, 2, 5; 1991 AQ₂, 4, 2, 6; 1991 GM₁₀, 2, 1, 0; 1991 RX₄, 2, 1, 0; 1991 RC₅, 4, 2, 6; 1991 RT₄₀, 4, 2, 6; 1991 TL₃, 8, 3, 11; 1992 DL₄, 6, 2, 11; 1992 HL₄, 2, 1, 0; 1993 SF₄, 2, 1, 0; 1997 UA₄, 6, 3, 6; 1998 BQ, 2, 1, 0; 1999 BW₃, 5, 2, 12; 1999 BE₇, 4, 2, 12; (10199), 3, 1, 0; [84, 20, 0*, 1999/03/06–1999/03/18]

115 Zelenchukskaya

Yu. N. Gnedin, Pulkovo Observatory, Russian Academy of Sciences, 196140 St.

Petersburg, Russia [gnedin@pulkovo.spb.su]

Observers N. A. Tikhonov, K. L. Maslennikov, S. V. Zharikov

Measurers K. L. Maslennikov, O. P. Bykov

6-m reflector + CCD

APM

1996 TW₅₉, 10, 1, 0; [10, 1, 0*, 1996/07/14]

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

1997 SG₁, 2, 1, 0; 1999 BO₃, 3, 1, 0; [5, 2, 0*, 1999/03/12–1999/03/13]

118 Modra

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

[ago@fmph.uniba.sk]

Observers A. Galád, D. Kalmančok, L. Kornoš, P. Kolény, J. Tóth, E. Kostolanský
0.6-m $f/5.5$ reflector + CCD

GSC, USNO-SA1.0

1995 LH, 6, 3, 14; 1996 HO, 5, 2, 13; 1998 AP₇, 8, 3, 6; 1998 BT₂₆, 11, 4, 18; 1998 QK₅₆, 6, 3, 15; 1998 YN₁, 2, 1, 0; 1998 YP₁₁, 6, 3, 26; 1999 BN, 10, 4, 18; 1999 BE₈, 10, 4, 27; 1999 BY₉, 3, 1, 0; 1999 CU₃, 3, 1, 0; 1999 CV₃, 11, 4, 17; 1999 CW₇, 3, 1, 0; 1999 CF₉, 18, 7, 19; 1999 DB₂, 11, 5, 7; 1999 DY₂, 9, 4, 20; 1999 DK₃, 6, 2, 12; 1999 DU₃, 12, 5, 26; 1999 DJ₄, 5, 2, 14; 1999 DB₇, 2, 1, 0; 1999 EY₂, 4, 1, 0; 1999 EE₅, 4, 2, 1; 1999 EF₅, 2, 1, 0; 1999 FA, 3, 1, 0; 1999 FB, 6, 2, 2; 1999 FV₃ *, 12, 4, 6; 1999 FQ₅, 3, 1, 0; 1999 FR₅, 3, 1, 0; 1999 FN₁₉, 7, 2, 1; 1999 FO₁₉, 6, 2, 1; 1999 FF₂₁ *, 9, 3, 2; (101), 3, 1, 0; (189), 3, 1, 0; (449), 3, 1, 0; (730), 2, 1, 0; (1036), 6, 3, 27; (1051), 3, 1, 0; (1373), 6, 3, 27; (1508), 4, 2, 25; (1627), 2, 1, 0; (1863), 2, 1, 0; (1866), 4, 2, 14; (1981), 2, 1, 0; (3040), 4, 2, 13; (3122), 4, 2, 25; (3199), 6, 3, 27; (3352), 2, 1, 0; (4195), 6, 2, 2; (4503), 2, 1, 0; (4730), 2, 1, 0; (4895), 3, 1, 0; (5131), 4, 2, 27; (5164), 4, 2, 28; (5224), 2, 1, 0; (5718), 4, 2, 2; (5738), 4, 2, 13; (5856), 4, 2, 14; (5870), 2, 1, 0; (5983), 2, 1, 0; (6047), 5, 2, 1; (6053), 4, 2, 12; (6224), 3, 1, 0; (6322), 2, 1, 0; (6411), 4, 2, 14; (6454), 4, 2, 14; (6569), 2, 1, 0; (7262), 2, 1, 0; (7358), 4, 2, 13; (7947), 2, 1, 0; (7962), 2, 1, 0; (10041), 3, 1, 0; (10115), 3, 1, 0; (10207), 3, 2, 5; (10227), 3, 1, 0; [347, 74, 2*, 1999/02/26–1999/03/27]

120 Višňjan

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

Observers K. Korlević, O. Persuric, P. Korlević, A. Ritosa, P. Radovan,

M. Dobrilović, M. Jurić, B. Lukic

Measurers K. Korlević, M. Jurić

0.41-m $f/4.3$ reflector + CCD

USNO-SA1.0

1973 SP₄, 3, 1, 0; 1981 UE₂₆, 2, 1, 0; 1990 QT₉, 3, 1, 0; 1990 RJ₃, 3, 1, 0; 1991 CW₂, 6, 2, 11; 1991 RC₅, 2, 1, 0; 1991 SA₁, 2, 1, 0; 1993 BD₁₃, 3, 1, 0; 1993 RZ₃, 8, 3, 4; 1995 CM₁, 3, 1, 0; 1997 RA₉, 3, 1, 0; 1997 SZ₁, 9, 3, 7; 1997 VW₃, 3, 1, 0; 1997 YN₈, 3, 1, 0; 1998 YV₁₆, 3, 1, 0; 1999 BX₅, 2, 1, 0; 1999 BE₈, 3, 1, 0; 1999 BK₁₃, 3, 1, 0; 1999 BM₁₅, 2, 1, 0; 1999 CE₂, 3, 1, 0; 1999 CS₄, 3, 1, 0; 1999 CT₄, 2, 1, 0; 1999 CY₁₁, 3, 1, 0; 1999 CF₁₄, 3, 1, 0; 1999 CG₁₄, 2, 1, 0; 1999 CH₁₄, 3, 1, 0; 1999 CJ₁₄, 3, 1, 0; 1999 CL₁₄, 3, 1, 0; 1999 CN₁₄, 3, 1, 0; 1999 CP₁₄, 5, 2, 7; 1999 CQ₁₄, 3, 1, 0; 1999 CR₁₄, 5, 2, 7; 1999 CS₁₄, 3, 1, 0; 1999 CT₁₄, 3, 1, 0; 1999 CV₁₄, 3, 1, 0; 1999 CW₁₄, 3, 1, 0; 1999 CX₁₄, 3, 1, 0; 1999 CC₄₆, 2, 1, 0; 1999 CP₅₀, 2, 1, 0; 1999 CF₆₆, 2, 1, 0; 1999 CB₉₇, 2, 1, 0; 1999 CE₁₀₆, 3, 1, 0; 1999 CT₁₀₇, 3, 1, 0; 1999 DZ, 6, 2, 3; 1999 DL₄, 8, 3, 6; 1999 EG, 3, 1, 0; 1999 EW₂ *, 11, 4, 5; 1999 EZ₂ *, 8, 3, 6; 1999 EQ₄ *, 9, 3, 3; 1999 ER₄ *, 8, 3, 2; 1999 ES₄ *, 16, 5, 9; 1999 FG *, 11, 4, 7; 1999 FH *, 11, 4, 7; 1999 FJ *, 11, 4, 7; 1999 FM, 3, 1, 0; 1999 FZ₂, 3, 1, 0; 1999 FF₇ *, 8, 3, 7; 1999 FL₁₀ *, 6, 2, 7; 1999 FM₁₀ *, 6, 2, 2; 1999 FN₁₀ *, 6, 2, 2; 1999 FY₃₀, 6, 2, 4; 1999 FM₃₁, 6, 2, 4; 1999 FO₃₁, 6, 2, 4; 1999 FK₃₂, 5, 2, 4; 1999 FP₃₂ *, 8, 2, 4; 1999 FQ₃₂ *, 6, 2, 4; 1999 FR₃₂ *, 5, 2, 4; 1999 FS₃₂ *, 5, 2, 4; 1999 FT₃₂ *, 4, 2, 4; 1999 FU₃₂ *, 4, 2, 4; 3075 T-1, 2, 1, 0; (401), 3, 1, 0; (547), 3, 1, 0; (808), 3, 1, 0; (961), 6, 2, 4; (1539), 3, 1, 0; (1542), 3, 1, 0; (1859), 6, 2, 2; (2014), 3, 1, 0; (2036), 16, 4, 5; (2460), 3, 1, 0; (2584), 2, 1, 0; (2762), 2, 1, 0; (3056), 3, 1, 0; (3069), 8, 1, 0; (3481), 4, 2, 1; (3654), 3, 1, 0; (3762), 4, 1, 0; (3938), 6, 2, 2; (4013), 3, 1, 0; (4172), 3, 1, 0; (4516), 3, 1, 0; (4640), 3, 1, 0; (4839), 9, 3, 2; (4898), 5, 2, 10; (4950), 3, 1, 0; (5705), 3, 1, 0; (6072), 3, 1, 0; (6739), 2, 1, 0; (7014), 2, 1, 0; (7260), 3, 1, 0; (7957), 3, 1, 0; (8242), 3, 1, 0; (8329), 6, 2, 4; (8353), 5, 2, 1; (9947), 3, 1, 0; (10043), 3, 1, 0; [476, 108, 18*, 1999/02/05–1999/03/28]

121 Kharkov University, Chuguevskaya Station

Yu. N. Krugly, Astronomical Observatory, Kharkov State University, Sumska

Street 35, Kharkov 310022, Ukraine [krugly@astron.kharkov.ua]

0.70-m $f/4$ reflector + CCD

GSC

1999 CV₃, 6, 2, 1; (190), 4, 1, 0; [10, 2, 0*, 1999/03/16–1999/03/18]

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

1999 EE₅, 3, 1, 0; [3, 1, 0*, 1999/03/16]

138 Village-Neuf

C. Demeautis, 9 rue de Huningue, F-68300 Saint-Louis, France

[Sky.walker@wanadoo.fr]

Observers C. Demeautis, D. Matter

Measurer C. Demeautis

0.30-m $f/4$ reflector + CCD

GSC

1997 TV₂₆, 3, 1, 0; 1997 UA₉, 3, 1, 0; [6, 2, 0*, 1999/03/24]

143 Gnosca

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

0.20-m $f/7.1$ reflector + CCD

GSC

1996 PY₇, 3, 1, 0; 1998 BP₆, 7, 2, 2; 1999 BD₄, 3, 1, 0; 1999 BM₁₄, 5, 2, 1; 1999 CR₂, 5, 2, 1; 1999 CY₄, 6, 2, 2; 1999 CC₁₀, 2, 1, 0; 1999 EV₂ *, 8, 3, 8; 1999 EY₄ *, 9, 3, 7; 1999 EZ₄ *, 8, 3, 7; 1999 FK₁₀ *, 6, 2, 1; 1999 FZ₂₀ *, 7, 2, 1; 1999 FA₂₁ *, 6, 2, 1; 1999 FB₂₁ *, 6, 2, 1; [81, 14, 7*, 1999/03/07–1999/03/24]

145 's-Gravenwezel Observatory

T. Alderweireldt, Rozenlaan 14, B-2970 's-Gravenwezel, Belgium

[Tom.Alderweireldt@ping.be]

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

GSC-1.2

1989 UA, 4, 1, 0; 1990 SM₆, 4, 1, 0; (222), 4, 1, 0; (2318), 3, 1, 0; (3582), 4, 1, 0; (10013), 7, 2, 12; [26, 6, 0*, 1999/01/05–1999/03/15]

151 Eschenberg Observatory, Winterthur

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

[griesser@spectraweb.ch]

0.25-m $f/8.0$ reflector + CCD

GSC

1998 XB, 3, 1, 0; 1998 YP₁₁, 8, 2, 19; 1999 CV₃, 44, 9, 19; 1999 CF₉, 19, 5, 8; 1999 EE₅, 10, 2, 2; 1999 FA, 16, 3, 7; (587), 3, 1, 0; (1036), 3, 1, 0; (1373), 3, 1, 0; (1863), 6, 2, 19; (1866), 3, 1, 0; (1981), 6, 2, 1; (3040), 3, 1, 0; (3199), 6, 2, 7; (4503), 2, 1, 0; (6047), 3, 1, 0; (6411), 6, 2, 19; (9671), 2, 1, 0; (10115), 6, 2, 2; [152, 19, 0*, 1999/02/26–1999/03/24]

159 Monte Agliale

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

Italy [ilra@comune.lucca.it]

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

Measurers S. Donati, M. M. M. Santangelo

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

USNO-A1.0

1989 ML, 4, 1, 0; 1998 WL₉, 2, 1, 0; 1999 AK₂₅, 2, 1, 0; 1999 BJ₁₂, 5, 1, 0; 1999 CF₂₁, 2, 1, 0; 1999 CG₈₂, 5, 1, 0; 1999 CN₈₇, 4, 1, 0; 1999 DE₇ *, 12, 3, 19; 1999 EK₃ *, 27, 5, 7; 1999 ET₄ *, 24, 4, 10; 1999 FT₁₉ *, 9, 2, 1; 1999 FU₁₉ *, 10, 2, 1; 1999 FQ₂₁ *, 7, 2, 1; 1999 FR₂₁ *, 10, 2,

1; 1999 FS₂₁ *, 10, 2, 1; 1999 FT₂₁ *, 8, 2, 1; 1999 FU₂₁ *, 6, 2, 1; (140), 5, 1, 0; (7994), 4, 1, 0; [156, 19, 10*, 1999/01/18–1999/03/25]

292 Burlington

T. Handley, 13 Linden Road, Burlington, NJ 08016, U.S.A.

0.30-m $f/3.0$ Schmidt-Cassegrain + focal reducer + CCD

GSC

1997 SX, 3, 1, 0; 1998 XB, 3, 1, 0; 1999 CQ₅, 14, 5, 9; 1999 CV₅, 14, 5, 9; [34, 4, 0*, 1999/02/15–1999/03/17]

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]

Observer I. Robbins

Measurer S. Parello

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

GSC

(1240), 6, 3, 15; (1373), 4, 2, 28; (1866), 4, 2, 6; (6618), 4, 2, 16; (9671), 4, 2, 16; [22, 5, 0*, 1999/01/21–1999/02/27]

303 Mérida

O. Naranjo, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street,

Cambridge, MA 02318, U.S.A. [onaranjo@cfa.harvard.edu]

1.0-m Schmidt + CCD

1989 AV₆, 7, 4, 3; 1989 SX₅, 5, 4, 3; 1996 KO, 7, 4, 3; 1998 XS₉₆ *, 4, 3, 2; 1998 XT₉₆ *, 5, 4, 3; 1998 XU₉₆ *, 3, 2, 1; 1998 XV₉₆ *, 3, 2, 1; 1998 XW₉₆ *, 4, 3, 2; 1998 XX₉₆ *, 7, 4, 3; 1998 XY₉₆ *, 7, 4, 3; 1998 XZ₉₆ *, 7, 4, 3; 1998 XA₉₇ *, 6, 3, 2; 1998 XB₉₇ *, 6, 3, 2; 1998 XC₉₇ *, 6, 4, 3; 1998 XD₉₇ *, 7, 4, 3; 1998 XE₉₇ *, 6, 4, 3; 1998 XF₉₇ *, 6, 4, 3; 1998 XG₉₇ *, 7, 4, 3; 1998 XH₉₇ *, 6, 4, 3; 1998 XJ₉₇ *, 7, 4, 3; 1998 YU₁₆, 5, 4, 3; 1998 YS₂₁, 5, 4, 3; 1998 YT₂₁, 6, 4, 3; 1998 YD₂₈, 4, 3, 2; 1999 AA₁₃, 4, 3, 3; 1999 AC₁₆, 5, 4, 3; 1999 BE₅, 3, 3, 3; 1999 BN₃₀, 5, 4, 3; 1999 CG₁₇, 4, 3, 2; 1999 CF₈₅, 5, 4, 3; 1999 CN₁₀₂, 7, 4, 3; 1999 CV₁₃₆, 7, 4, 3; (376), 7, 4, 3; (1336), 7, 4, 3; (8008), 4, 3, 2; (10020), 3, 2, 1; (10183), 4, 3, 2; (10243), 6, 3, 2; [207, 38, 17*, 1998/12/11–1998/12/14]

327 Peking Observatory, Xinglong Station

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Zhongguancun, Peking 100101, Peoples Republic of China

[zj@bac.pku.edu.cn]

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

Measurers Y. J. Chen, X. M. Teng

0.60-m Schmidt + CCD

1999 FA, 4, 1, 0; 1999 FS₄, 3, 1, 0; 1999 FJ₂₁, 3, 1, 0; 1999 FK₂₁, 3, 1, 0; [13, 4, 0*, 1999/03/19–1999/03/26]

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 FA, 3, 1, 0; [3, 1, 0*, 1999/03/23]

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, USNO-A2.0

1995 LH, 3, 1, 0; 1996 NW, 4, 2, 6; 1996 UC, 4, 2, 6; 1996 WC₃, 3, 1, 0; 1997 TW₂₅, 4, 2, 6; 1997 VP, 2, 1, 0; 1998 QK₅₆, 3, 1, 0; 1998 YP₁₁, 3, 1, 0; 1999 BG₇, 5, 2, 6; 1999 CF₉, 3, 1, 0; 1999 CZ₅₄, 3, 1, 0; 1999 DB₂, 3, 1, 0; 1999 DY₂, 3, 1, 0; 1999 DK₃, 3, 1, 0; 1999 ED₅, 3, 1, 0;

1999 EE₅, 3, 1, 0; 1999 FA, 3, 1, 0; 1999 FB, 3, 1, 0; (2597), 2, 1, 0; (2921), 2, 1, 0; [62, 20, 0*, 1999/02/17–1999/03/22]

365 Kashihara

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

[nag01736@niftyserve.or.jp]

0.28-m $f/6.3$ refractor + CCD

GSC

1999 CL₃, 2, 1, 0; [2, 1, 0*, 1999/03/16]

367 Yatsuka

H. Abe, 461-2, Futago, Yatsuka-Cho, Shimane-Ken, 690-14 Japan

[abehiro@daikonshima.or.jp]

0.26-m $f/6.0$ reflector + CCD

GSC

1990 WB₂, 2, 1, 0; 1991 GV, 2, 1, 0; 1993 XN₁, 4, 2, 3; 1995 CX, 4, 2, 3; 1997 UA₉, 4, 2, 3; 1997 VG₄, 2, 1, 0; 1997 WD₃, 2, 1, 0; 1997 XV, 2, 1, 0; 1997 YY₅, 2, 1, 0; 1999 EG₅ *, 8, 4, 10; [32, 10, 1*, 1999/03/13–1999/03/23]

376 Uenohara

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

0.30-m reflector + CCD

GSC

1997 SE₁₆, 4, 2, 29; 1997 SD₂₅, 4, 2, 4; 1999 CH₉, 3, 2, 2; [11, 3, 0*, 1999/01/22–1999/02/20]

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

1999 BZ₁₄, 2, 1, 0; 1999 BY₂₅, 3, 2, 2; 1999 BZ₂₅, 1, 1, 0; 1999 DV₂, 2, 1, 0; [8, 4, 0*, 1999/02/12–1999/02/19]

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

1990 VS₅, 2, 1, 0; 1992 UU₁₀ *, 6, 3, 14; [8, 2, 1*, 1992/10/19–1996/01/18]

402 Dynic Astronomical Observatory

A. Sugie, Dynic Astronomical Observatory, Taga 283-1, Taga, Inukami-Gun, Shiga-Ken, 522-0341 Japan [sugiea@mx.biwa.or.jp]

Observers A. Sugie, Y. Ikari

0.60-m $f/5.0$ reflector + CCD

GSC

1974 OU₁, 2, 1, 0; 1996 JN, 2, 1, 0; 1997 WM₁₆, 3, 1, 0; 1998 QK₅₆, 3, 1, 0; 1998 UT₁₈, 3, 1, 0; 1998 YP₁₁, 3, 1, 0; 1999 BE₈, 6, 2, 10; 1999 BY₉, 4, 1, 0; 1999 CL₁, 4, 2, 10; 1999 CF₉, 6, 2, 13; 1999 DB₂, 3, 1, 0; 1999 ED₅, 4, 1, 0; 1999 EE₅, 10, 3, 11; 1999 EF₅, 7, 2, 10; 1999 FA, 4, 1, 0; 1999 FB, 6, 2, 10; 1999 FN₁₉, 3, 1, 0; (3103), 3, 1, 0; (7206), 4, 1, 0; [80, 19, 0*, 1999/02/04–1999/03/27]

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 SY₅, 2, 1, 0; 1989 TD₁₆, 2, 1, 0; 1990 QV₅, 2, 1, 0; 1990 QE₇, 2, 1, 0; 1990 SB₆, 2, 1, 0; 1990 UB₃, 2, 1, 0; 1991 BJ₂, 2, 1, 0; 1991 PV₁₆, 2, 1, 0; 1991 RH₄, 4, 2, 3; 1992 RK₇, 2, 1, 0; 1994 NS₁, 4, 2, 1; 1994 TK₁₁, 2, 1, 0; 1998 AL₇, 2, 1, 0; 1998 SF₁₃₈, 2, 1, 0; 1999 AR, 2, 1, 0; 1999 AU₉, 2, 1, 0; 1999 AZ₂₂, 2, 1, 0; 1999 AA₂₃, 4, 2, 10; 1999 AE₂₄, 4, 2, 10; 1999 BX₂, 2, 1, 0; 1999 BZ₂, 2, 1, 0; 1999 BD₁₂, 4, 2, 7; 1999 CE, 2, 1, 0; 1999 CJ, 3, 1, 0; 1999 CO, 2, 1, 0; 1999 CW, 2, 1, 0; 1999 CX, 2, 1, 0; 1999 CG₁, 2, 1, 0; 1999 CS₁, 2, 1, 0; 1999 CT₁, 2, 1, 0; 1999 CU₁, 6, 3, 30; 1999 CV₁, 2, 1, 0; 1999 CW₁, 2, 1, 0; 1999 CX₁, 2, 1, 0; 1999 CB₂, 2, 1, 0; 1999 CC₂, 2, 1, 0; 1999 CD₂, 4, 2, 22; 1999 CJ₄, 3, 1, 0; 1999 CJ₅, 2, 1, 0; 1999 CL₅, 2, 1, 0; 1999 CQ₅, 2, 1, 0; 1999 CR₅, 2, 1, 0; 1999 CS₅, 2, 1, 0; 1999 CT₅, 2, 1, 0; 1999 CU₅, 2, 1, 0; 1999 CV₅, 2, 1, 0; 1999 CW₅, 2, 1, 0; 1999 CH₈, 2, 1, 0; 1999 CJ₈, 2, 1, 0; 1999 CK₈, 2, 1, 0; 1999 CL₈, 2, 1, 0; 1999 CM₈, 2, 1, 0; 1999 CN₉, 5, 2, 6; 1999 CO₉, 2, 1, 0; 1999 CP₉, 2, 1, 0; 1999 CQ₉, 2, 1, 0; 1999 CG₁₀, 2, 1, 0; 1999 CJ₁₀, 2, 1, 0; 1999 DG₂, 2, 1, 0; 1999 DH₂, 2, 1, 0; 1999 DJ₂, 4, 2, 23; 1999 DL₂, 3, 1, 0; 1999 DN₂, 4, 2, 17; 1999 DO₂, 4, 2, 23; 1999 DP₂, 2, 1, 0; 1999 DQ₂, 4, 2, 17; 1999 DR₂, 4, 2, 17; 1999 DZ₂, 4, 2, 23; 1999 DA₃, 4, 2, 17; 1999 DC₃, 4, 2, 17; [178, 70, 0*, 1994/09/04–1999/03/22]

413 Siding Spring

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

G. V. Williams, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A. [gwilliams@cfa.harvard.edu] (6)

C.-I. Lagerkvist, Uppsala Observatory, Box 515, S-75120 Uppsala, Sweden [classe@laban.uu.se] (8)

Observers K. S. Russell

Measurers O. Hernius, A. Gnädig, G. V. Williams

1.2-m U.K. Schmidt

(5) 1998 QS₅₂, 2, 1, 0; [2, 1, 0*, 1983/06/14]

(6) 1995 BZ₁, 2, 1, 0; [2, 1, 0*, 1982/07/16]

(8) 1993 FR₈₄, 1, 1, 0; [1, 1, 0*, 1993/04/16]

422 Loomberah

G. J. Garradd, P.O. Box 157, Tamworth, NSW 2340, Australia [loomberah@ozemail.com.au]

0.45-m $f/5.4$ reflector + CCD, 0.25-m $f/4.1$ reflector + CCD

GSC, ACT, USNO-A2.0

1989 ML, 3, 1, 0; 1997 TU₁₈, 3, 1, 0; 1998 QS₅₂, 3, 1, 0; 1998 QK₅₆, 2, 1, 0; 1999 BE₈, 3, 1, 0; 1999 CW₈, 3, 1, 0; 1999 DB₂, 5, 2, 3; 1999 DY₂, 5, 2, 3; 1999 DJ₄, 6, 2, 13; 1999 EO₃, 3, 1, 0; 1999 EE₅, 7, 2, 1; 1999 EF₅, 9, 2, 1; 1999 FB, 4, 1, 0; 1999 FR₅, 3, 1, 0; 1999 FN₁₉, 6, 2, 1; 1999 FO₁₉, 8, 2, 1; 1999 FP₁₉, 4, 2, 1; 1999 FQ₁₉, 10, 3, 2; 1999 FR₁₉, 4, 1, 0; 1999 FJ₂₁, 2, 1, 0; 1999 FK₂₁, 11, 2, 1; (324), 2, 1, 0; (444), 6, 2, 1; (524), 4, 1, 0; (9969), 12, 3, 5; [128, 25, 0*, 1999/03/12–1999/03/26]

423 North Ryde

S. McAndrew, 2/32 Twin Rd, North Ryde, NSW 2113, Australia [smcandrew@ozemail.com.au]

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

GSC

1986 TU₆, 1, 1, 0; 1988 BJ, 3, 1, 0; 1993 SK₁₆, 5, 2, 11; (587), 7, 2, 4; [16, 4, 0*, 1999/02/21–1999/03/25]

426 Woomera

F. B. Zoltowski, 10 Gundawarra St., P.O. Box 84, Woomera, SA 5720, Australia [100356.23@CompuServe.com]

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

USNO-SA2.0

1997 VP₂, 6, 2, 1; 1997 WU₇, 6, 2, 1; 1997 YG₁, 4, 2, 1; 1997 YA₅, 6, 2, 1; 1997 YN₈, 6, 2, 1; 1998 BK₁₀, 5, 2, 1; 1999 AY₂₂, 5, 2, 1; 1999 BM₉, 3, 1, 0; 1999 BR₁₄, 3, 1, 0; 1999 CE₄, 6, 2, 1; 1999 CF₄, 3, 1, 0; 1999 CG₄, 4, 2, 1; 1999 CH₄, 3, 2, 1; 1999 EY₂, 3, 1, 0; 1999 EV₄ *, 5, 2, 1; 1999 EW₄ *, 4, 2, 1; (252), 6, 2, 1; [78, 17, 2*, 1999/03/13–1999/03/14]

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

1982 JB₂, 2, 2, 1; 1991 PU, 2, 2, 1; 1994 YH₁, 4, 2, 2; 1997 UK₃, 2, 1, 0; 1998 QS₅₂, 3, 1, 0; 1998 RT₄, 2, 1, 0; 1998 YQ₁₁, 3, 1, 0; 1999 BO₉, 6, 3, 23; 1999 CC₉, 4, 2, 13; 1999 CU₉, 7, 4, 22; 1999 CV₉, 7, 4, 22; 1999 DB₂, 2, 1, 0; 1999 DE₂, 6, 3, 20; 1999 DF₂, 6, 3, 20; 1999 EG *, 10, 5, 16; 1999 EH *, 8, 5, 18; 1999 EJ *, 10, 5, 16; 1999 EC₃ *, 9, 5, 13; 1999 EH₃ *, 7, 4, 8; 1999 EP₃ *, 9, 4, 9; 1999 EH₅ *, 12, 5, 9; 1999 EJ₅ *, 9, 4, 8; 1999 EO₅ *, 6, 4, 8; 1999 FR₅, 6, 3, 4; 1999 FQ₁₉, 3, 2, 1; 1999 FK₂₁, 2, 1, 0; 1999 FN₂₁ *, 4, 2, 1; 1999 FO₂₁ *, 3, 2, 1; (1863), 23, 5, 22; (4169), 2, 1, 0; (5350), 2, 1, 0; (5732), 3, 1, 0; (9969), 2, 1, 0; [186, 33, 11*, 1999/03/04–1999/03/27]

429 Hawker

J. B. Child, 64 Woolner Circuit, Hawker, ACT 2614, Australia

[jlbchild@dynamite.com.au]

0.32-m $f/4.8$ reflector + CCD

GSC-1.1, GSC-1.2

(444), 6, 2, 1; (1695), 4, 1, 0; (2449), 4, 1, 0; [14, 3, 0*, 1999/02/19–1999/03/15]

470 Ceccano

G. Masi, Via Madonna de Loco 47, I-03023 Ceccano (FR), Italy

[gianmasi@fr.flashnet.it]

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

USNO-A1.0

1999 CL₁₂, 2, 1, 0; 1999 FT₅, 5, 2, 3; [7, 2, 0*, 1999/03/21–1999/03/23]

491 Yebes

J. F. Lahulla, Centro Astronómico de Yebes, Apartado 148, E-19080 Guadalajara, Spain [lahulla@cay.es]

Observers J. F. Lahulla, J. García

0.40-m $f/5$ astrograph + CCD

GSC

1989 TH₁, 2, 1, 0; 1989 UR, 5, 1, 0; 5211 T-2, 1, 1, 0; (191), 2, 1, 0; (684), 2, 1, 0; (931), 2, 1, 0; (1036), 3, 1, 0; (1242), 3, 1, 0; (1330), 2, 1, 0; (1503), 3, 1, 0; (4503), 3, 1, 0; [28, 11, 0*, 1998/11/24–1999/02/24]

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

1998 XZ₈, 2, 1, 0; [2, 1, 0*, 1999/03/20]

540 Linz

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

0.30-m $f/5.2$ Schmidt Cassegrain + CCD

USNO-A2.0

1998 YL₈, 7, 2, 7; 1999 CV₃, 7, 2, 12; 1999 CF₉, 3, 1, 0; (6245), 6, 2, 7; [23, 4, 0*, 1999/02/27–1999/03/18]

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

1986 TB, 6, 2, 1; 1996 HH₁, 2, 1, 0; 1997 RS₅, 2, 1, 0; 1997 TE, 5, 2, 1; 1997 YG₂₀, 3, 1, 0; 1999 EY₆, 5, 2, 1; 1999 FW₃ *, 9, 4, 5; 1999 FS₁₉ *, 5, 2, 1; (5157), 3, 1, 0; [40, 9, 2*, 1999/03/18–1999/03/24]

557 Ondřejov

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Observers P. Pravec, L. Šarounová, M. Wolf

0.65-m $f/3.6$ reflector + CCD

USNO-SA1.0, GSC, USNO-SA2.0

1995 OD₁, 4, 2, 7; 1996 HQ, 2, 1, 0; 1996 HU, 2, 1, 0; 1996 HH₁₀, 4, 2, 1; 1996 HL₂₅, 2, 1, 0; 1996 QD, 4, 2, 5; 1997 PD₃, 6, 3, 32; 1997 QD₁, 4, 2, 1; 1997 QV₂, 6, 2, 21; 1997 SX₁, 5, 2, 1; 1997 SZ₁, 5, 2, 1; 1997 SB₂, 4, 2, 12; 1997 SC₂, 2, 1, 0; 1997 SN₂, 4, 2, 4; 1997 SC₄, 2, 1, 0; 1997 SD₄, 3, 2, 24; 1997 SO₂₅, 5, 2, 2; 1997 TB₁₀, 3, 2, 5; 1997 TG₁₀, 7, 2, 2; 1997 TA₁₇, 4, 2, 1; 1997 TU₁₈, 1, 1, 0; 1997 TO₁₉, 4, 2, 2; 1997 UT, 5, 2, 12; 1997 UX₇, 5, 2, 11; 1997 UL₉, 4, 2, 5; 1997 US₁₀, 2, 1, 0; 1997 UU₁₀, 4, 2, 5; 1997 UX₁₄, 2, 1, 0; 1997 VV₂, 2, 1, 0; 1997 VC₅, 2, 1, 0; 1997 VH₆, 2, 1, 0; 1997 VJ₆, 8, 3, 14; 1998 AP₈, 4, 2, 2; 1998 AW₈, 5, 2, 2; 1998 AX₈, 5, 2, 24; 1998 DP₁, 4, 2, 7; 1998 XH₃₈, 2, 1, 0; 1998 XG₅₀, 3, 1, 0; 1998 YV₃, 2, 1, 0; 1998 YP₁₁, 7, 2, 2; 1998 YJ₁₂, 2, 1, 0; 1999 BV₈, 3, 1, 0; 1999 CF₂, 2, 1, 0; 1999 CE₃, 2, 1, 0; 1999 CN₃, 2, 1, 0; 1999 CV₃, 22, 4, 18; 1999 CX₃, 3, 2, 14; 1999 CW₇, 12, 3, 5; 1999 CR₉, 8, 3, 12; 1999 CR₁₄, 1, 1, 0; 1999 CG₂₆, 4, 2, 6; 1999 CD₂₈, 5, 2, 2; 1999 CC₃₂, 3, 1, 0; 1999 CB₆₁, 3, 1, 0; 1999 CM₆₆, 2, 1, 0; 1999 CH₉₂, 6, 3, 5; 1999 EB₃ *, 6, 3, 7; 1999 EG₃ *, 10, 4, 12; 1999 EE₅, 6, 2, 2; 1999 EL₅ *, 8, 4, 12; 1999 EH₉ *, 4, 2, 2; 1999 FA, 15, 2, 1; 1999 FB, 3, 1, 0; 1999 FM *, 4, 2, 1; 1999 FQ₃ *, 12, 3, 6; 1999 FR₃ *, 4, 2, 1; 1999 FW₆ *, 4, 2, 2; 1999 FQ₁₀, 3, 1, 0; 1999 FN₁₉, 8, 3, 2; 1999 FO₁₉, 7, 3, 2; 1999 FP₁₉, 5, 2, 1; 1999 FR₁₉, 9, 2, 1; 1999 FC₂₁ *, 8, 3, 2; 1999 FD₂₁ *, 8, 3, 2; 1999 FJ₂₁, 7, 2, 2; 1999 FK₂₁, 11, 2, 2; 1999 FM₂₁ *, 5, 2, 2; (2976), 2, 1, 0; (4061), 1, 1, 0; (5686), 2, 1, 0; (9902), 2, 1, 0; (10115), 9, 2, 1; [394, 82, 11*, 1998/12/29–1999/03/27]

561 Piskésető

L. Kiss, Pf. 596, H-6701 Szeged, Hungary [l.kiss@physx.u-szeged.hu]

Observers K. Sárneczky, L. Kiss, É. Barát

Measurers K. Sárneczky, L. Kiss

0.60-m Schmidt telescope + CCD

USNO-A2.0

1972 HL, 3, 1, 0; 1998 SR₄₉, 3, 1, 0; 1998 ST₄₉, 3, 1, 0; 1998 XV₉, 2, 1, 0; 1998 XY₁₂, 10, 2, 1; (725), 4, 1, 0; (852), 4, 1, 0; (1627), 4, 1, 0; (5131), 4, 1, 0; [37, 9, 0*, 1998/12/15–1999/01/26]

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

1968 OB, 6, 2, 60; 1968 OK, 3, 1, 0; 1971 QO₁, 3, 1, 0; 1973 SX₂, 3, 1, 0; 1975 SE, 6, 2, 30; 1976 SE₅, 3, 1, 0; 1976 UZ₇, 3, 1, 0; 1977 AC₂, 3, 1, 0; 1978 PC₃, 3, 1, 0; 1980 PE₃, 3, 1, 0; 1981 CH, 3, 1, 0; 1982 RK₁, 3, 1, 0; 1985 VA₁, 6, 2, 59; 1987 RW, 3, 1, 0; 1988 MH, 3, 1, 0; 1988 TN₁, 6, 1, 0; 1989 AV₆, 3, 1, 0; 1989 GV₁, 3, 1, 0; 1989 GD₄, 6, 2, 90; 1989 TY₂, 6, 2, 533; 1989 TU₃, 3, 1, 0; 1989 UW₃, 3, 1, 0; 1990 BT, 3, 1, 0; 1990 QT, 3, 1, 0; 1990 QU₃, 6, 2, 556; 1990 TD, 3, 1, 0; 1990 TY₇, 3, 1, 0; 1990 UK₅, 3, 1, 0; 1990 XN, 3, 1, 0; 1991 PQ₈, 3, 1, 0; 1991 RC₁₀, 3, 1, 0; 1991 RC₂₈, 6, 2, 29; 1991 SM, 6, 2, 29; 1991 SN, 3, 1, 0; 1991 SA₁, 3, 1, 0; 1991 SK₂, 6, 2, 435; 1991 TL₃, 3, 1, 0; 1992 BJ, 3, 1, 0; 1992 CG₃, 3, 1, 0; 1992 EW₁₆, 3, 1, 0; 1992 GV₃, 6, 2, 29; 1992 JL₁, 3, 1, 0; 1992 KA, 9, 3, 582; 1992 SW₁₆, 3, 1, 0; 1992 SA₂₂, 3, 1, 0; 1992 TV, 3, 1, 0; 1992 VL, 3, 1, 0; 1992 WZ₁, 6, 2, 60; 1992 WR₅, 12, 3, 89; 1992 XM, 6, 2, 31; 1993 FA₄₀, 3, 1, 0; 1993 JK, 3, 1, 0; 1993 PC₇, 3, 1, 0; 1993 QS₄, 3, 1, 0; 1993 RQ₄, 3, 1, 0; 1993 RM₁₄, 3, 1, 0; 1993 TW₁, 3, 1, 0; 1993 TN₂, 9, 3, 584; 1993 TG₁₉, 6, 2, 27; 1993 TQ₃₆, 3, 1, 0; 1993 TZ₃₈, 3, 1, 0; 1993 XQ₂, 6, 2, 537; 1993 XW₂, 3, 1, 0; 1994 BP₄, 3, 1, 0; 1994 PM₁, 3, 1, 0; 1994 PX₁₅, 3, 1, 0; 1994 SV₉, 3, 1, 0; 1994 US₂, 3, 1, 0; 1994 VB₂, 3, 1, 0; 1994 VU₂, 3,

1, 0; 1994 VW₆, 6, 1, 0; 1994 WL₃, 3, 1, 0; 1994 YT₁, 3, 1, 0; 1995 AZ, 3, 1, 0; 1995 BL₄, 3, 1, 0; 1995 DN₁, 3, 1, 0; 1995 FM, 6, 2, 417; 1995 FM₈, 3, 1, 0; 1995 YK₂₀, 3, 1, 0; 1996 CQ, 3, 1, 0; 1996 CZ₂, 3, 1, 0; 1996 DH₂, 3, 1, 0; 1996 ED₂, 3, 1, 0; 1996 FT₆, 6, 2, 58; 1996 FN₁₅, 3, 1, 0; 1996 FM₁₆, 3, 1, 0; 1996 GG₁₈, 6, 2, 57; 1996 HL₁, 3, 1, 0; 1996 HC₁₆, 3, 1, 0; 1996 HP₂₃, 3, 1, 0; 1996 JJ, 3, 1, 0; 1996 JO, 6, 2, 436; 1996 KT₈, 6, 1, 0; 1996 KR₉, 6, 2, 31; 1996 LL, 3, 1, 0; 1996 OO₁, 3, 1, 0; 1997 GG₇, 3, 1, 0; 1997 NK₁, 3, 1, 0; 1997 NP₁₁, 3, 1, 0; 1997 PL₄, 3, 1, 0; 1997 RF₈, 3, 1, 0; 1997 SE, 3, 1, 0; 1997 SG₂₁, 3, 1, 0; 1997 TM₁, 3, 1, 0; 1997 TU₁₇, 3, 1, 0; 1997 UU₂, 3, 1, 0; 1997 UM₅, 9, 2, 27; 1997 UH₂₅, 3, 1, 0; 1997 VP, 3, 1, 0; 1997 VJ₁, 3, 1, 0; 1997 VW₃, 3, 1, 0; 1997 VX₇, 3, 1, 0; 1997 WG₁, 3, 1, 0; 1997 WP₁, 1, 1, 0; 1997 WR₅, 3, 1, 0; 1997 WQ₃₄, 3, 1, 0; 1997 WE₃₆, 3, 1, 0; 1997 WF₃₆, 3, 1, 0; 1997 WC₅₇, 6, 2, 29; 1997 YR₂, 6, 1, 0; 1998 BX₁₃, 6, 2, 494; 1998 FY₃₅, 6, 2, 37; 1998 FQ₈₇, 3, 1, 0; 1998 HH₇₇, 3, 1, 0; 1998 QJ₃₇, 3, 1, 0; 1998 QS₅₅, 3, 1, 0; 1998 QU₆₀, 6, 2, 28; 1998 QF₇₀, 3, 1, 0; 1998 QL₉₂, 3, 1, 0; 1998 RG₄₉, 3, 1, 0; 1998 RC₅₈, 3, 1, 0; 1998 RL₅₉, 3, 1, 0; 1998 RB₆₅, 6, 2, 35; 1998 SX₇, 6, 2, 32; 1998 SW₃₂, 3, 1, 0; 1998 SS₃₇, 3, 1, 0; 1998 SR₁₁₇, 3, 1, 0; 1998 SK₁₁₉, 3, 1, 0; 1998 SC₁₂₂, 3, 1, 0; 1998 SX₁₄₆, 3, 1, 0; 1998 SP₁₄₇, 6, 2, 495; 1998 TO₁₅, 6, 1, 0; 1998 TE₂₉, 3, 1, 0; 1998 UT₁₅, 6, 2, 173; 1998 UH₃₁, 3, 1, 0; 1998 UF₃₇, 3, 1, 0; 1998 VB₅, 3, 1, 0; 1998 VB₆, 3, 1, 0; 1998 VA₃₂, 3, 1, 0; 1998 VK₃₃, 3, 1, 0; 1998 WC₃, 6, 2, 471; 1998 WV₅, 3, 1, 0; 1998 WP₆, 3, 1, 0; 1998 WB₈, 3, 1, 0; 1998 WR₉, 3, 1, 0; 1998 WS₉, 3, 1, 0; 1998 WA₁₂, 3, 1, 0; 1998 WQ₁₃, 3, 1, 0; 1998 WW₁₉, 3, 1, 0; 1998 WZ₂₀, 3, 1, 0; 1998 WR₂₁, 3, 1, 0; 1998 WA₂₂, 3, 1, 0; 1998 WT₂₃, 3, 1, 0; 1998 WV₂₃, 3, 1, 0; 1998 WZ₂₃, 3, 1, 0; 1998 WF₂₄, 3, 1, 0; 1998 XC, 3, 1, 0; 1998 XN₃, 3, 1, 0; 1998 XB₄, 6, 2, 495; 1998 XC₄, 6, 2, 435; 1998 XP₁₁, 6, 2, 464; 1998 XL₁₇, 3, 1, 0; 1998 XG₂₄, 3, 1, 0; 1998 XF₄₄, 3, 1, 0; 1998 XJ₅₃, 3, 1, 0; 1998 XW₆₂, 6, 2, 61; 1998 XL₇₇, 3, 1, 0; 1998 XO₇₇, 3, 1, 0; 1998 XE₈₀, 3, 1, 0; 1998 XG₈₀, 3, 1, 0; 1998 YE, 6, 1, 0; 1998 YR, 3, 1, 0; 1998 YX, 3, 1, 0; 1998 YB₃, 3, 1, 0; 1998 YD₃, 3, 1, 0; 1998 YN₆, 3, 1, 0; 1998 YB₁₂, 3, 1, 0; 1998 YF₁₂, 6, 2, 89; 1998 YT₂₀, 3, 1, 0; 1998 YJ₂₂, 3, 1, 0; 1999 AS, 3, 1, 0; 1999 AC₂, 3, 1, 0; 1999 AG₂, 3, 1, 0; 1999 AR₃, 3, 1, 0; 1999 AM₄, 3, 1, 0; 1999 AJ₅, 3, 1, 0; 1999 AY₆, 9, 3, 623; 1999 AD₇, 3, 1, 0; 1999 AC₈, 6, 2, 52; 1999 AL₈, 3, 1, 0; 1999 AS₉, 3, 1, 0; 1999 AM₂₀, 3, 1, 0; 1999 AG₂₄, 3, 1, 0; 1999 AN₂₄, 3, 1, 0; 1999 BB, 3, 1, 0; 1999 BD, 3, 1, 0; 1999 BO₁, 6, 2, 472; 1999 BZ₃, 9, 3, 90; 1999 BC₄, 3, 1, 0; 1999 BQ₄, 6, 2, 34; 1999 BE₆, 3, 1, 0; 1999 BD₁₂, 3, 1, 0; 1999 BF₁₅, 3, 1, 0; 1999 BW₂₄, 3, 1, 0; 1999 BB₂₇, 6, 1, 0; 1999 CA, 3, 1, 0; 1999 CV, 3, 1, 0; 1999 CW, 3, 1, 0; 1999 CA₃, 6, 2, 60; 1999 CW₄, 3, 1, 0; 1999 CL₅, 3, 1, 0; 1999 CM₁₀, 3, 1, 0; 1999 CY₁₄, 3, 1, 0; 1999 CR₂₀, 3, 1, 0; 1999 CT₃₀, 3, 1, 0; 1999 CE₅₂, 6, 2, 120; 1999 CJ₆₂, 3, 1, 0; 1999 DP₁, 3, 1, 0; 2549 P-L, 6, 2, 34; 4623 P-L, 3, 1, 0; 1149 T-1, 3, 1, 0; 4205 T-3, 3, 1, 0; (10105), 3, 1, 0; (10235), 3, 1, 0; [877, 234, 3*, 1996/02/15–1999/02/19]

568 Mauna Kea

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C. Veillet, Canada-France-Hawaii Telescope Corporation, P.O. Box 1597, Kamuela, HI 96743, U.S.A. [veillet@cfht.hawaii.edu] (3)

J. J. Kavelaars, Department of Physics and Astronomy, McMaster University, Hamilton, ON L8S 4M1, Canada [kavelaars@physics.mcmaster.ca] (6)

Observers D. Jewitt (1), J. Luu (1), C. Trujillo (1), D. J. Tholen (2), J. Bauer (2), C. Veillet (3), J. Anderson (3), M. VanDalsen (6), D. Hanes (6), J. J. Kavelaars (6)

Measurers C. Trujillo (1), D. J. Tholen (2), C. Veillet (3), J. Anderson (3), W. Morgan (3), T. Parker (3), B. Gladman (6), J.-M. Petit (6)

3.6-m Canada-France-Hawaii Telescope + CCD, 2.24-m reflector + CCD
USNO-A1.0, USNO-SA1.0

(1) 1995 DC₂, 4, 2, 6; 1999 CB₁₁₉ *, 4, 2, 8; 1999 CC₁₁₉ *, 4, 2, 7; 1999 CD₁₁₉ *, 4, 2, 2; 1999 CE₁₁₉ *, 4, 2, 7; 1999 CF₁₁₉ *, 4, 2, 6; 1999 CG₁₁₉ *, 4, 2, 6; 1999 CH₁₁₉ *, 4, 2, 8; 1999 CJ₁₁₉ *, 4, 2, 6; 1999 CK₁₁₉ *, 4, 3, 8; 1999 CL₁₁₉ *, 4, 2, 6; 1999 CM₁₁₉ *, 4, 2, 7; 1999 CN₁₁₉ *, 4, 2, 7; 1999 CW₁₃₁ *, 4, 2, 8; 1999 CX₁₃₁ *, 4, 3, 7; 1999 CY₁₃₁ *, 4, 2, 8; 1999 CZ₁₃₁ *, 4, 2, 8; 1999 CA₁₃₂ *, 4, 2, 6; 1999 CP₁₃₃ *, 4, 2, 6; 1999 CQ₁₃₃ *, 4, 2, 5; 1999 CR₁₃₃ *, 4, 2, 6; 1999 CM₁₅₃ *, 4, 2, 25; 1999 CN₁₅₃ *, 4, 2, 25; 1999 CO₁₅₃ *, 4, 2, 5; 1999 CP₁₅₃ *, 5, 2, 33; 1999 CQ₁₅₃ *, 4, 2, 30; 1999 CR₁₅₃ *, 4, 2, 31; 1999 CS₁₅₃ *, 5, 2, 33; 1999 CT₁₅₃ *, 4, 2, 32; 1999 CU₁₅₃ *, 4, 2, 31; 1999 CG₁₅₄ *, 5, 2, 31; 1999 CH₁₅₄ *, 4, 2, 32; [131, 32, 31*, 1999/02/10–1999/03/16]

(2) 1989 ML, 7, 3, 12; [7, 1, 0*, 1999/03/10–1999/03/22]

(3) 1991 VB, 6, 3, 2; 1996 JF₁, 4, 2, 1; 1999 AU₃₄ *, 3, 2, 1; 1999 AV₃₄ *, 3, 2, 1; 1999 AW₃₄ *, 3, 2, 1; 1999 AX₃₄ *, 3, 2, 1; 1999 AY₃₄ *, 3, 2, 1; 1999 AZ₃₄ *, 3, 2, 1; 1999 AA₃₅ *, 3, 2, 1; 1999 AB₃₅ *, 3, 2, 1; 1999 AC₃₅ *, 3, 2, 1; 1999 AD₃₅ *, 3, 2, 1; 1999 CB₁₂₉ *, 3, 2, 1; 1999 CC₁₂₉ *, 3, 2, 1; 1999 CD₁₂₉ *, 3, 2, 1; 1999 CE₁₂₉ *, 3, 2, 1; 1999 CF₁₂₉ *, 3, 2, 1; 1999 CG₁₂₉ *, 3, 2, 1; 1999 CH₁₂₉ *, 3, 2, 1; 1999 CJ₁₂₉ *, 4, 2, 1; 1999 CK₁₂₉ *, 3, 2, 1; 1999 CL₁₂₉ *, 4, 2, 1; 1999 CM₁₂₉ *, 4, 2, 1; 1999 CN₁₂₉ *, 4, 2, 1; 1999 CO₁₂₉ *, 4, 2, 1; 1999 CP₁₂₉ *, 4, 2, 1; 1999 CQ₁₂₉ *, 4, 2, 1; 1999 CR₁₂₉ *, 4, 2, 1; 1999 CS₁₂₉ *, 4, 2, 1; 1999 CT₁₂₉ *, 4, 2, 1; 1999 CU₁₂₉ *, 4, 2, 1; 1999 CV₁₂₉ *, 4, 2, 1; 1999 CW₁₂₉ *, 6, 3, 2; 1999 CX₁₂₉ *, 4, 2, 1; 1999 CY₁₂₉ *, 6, 3, 2; 1999 CZ₁₂₉ *, 6, 3, 2; 1999 CA₁₃₀ *, 6, 3, 2; 1999 CB₁₃₀ *, 6, 3, 2; 1999 CC₁₃₀ *, 4, 2, 1; 1999 CD₁₃₀ *, 6, 3, 2; 1999 CE₁₃₀ *, 8, 4, 3; 1999 CF₁₃₀ *, 4, 2, 1; 1999 CG₁₃₀ *, 8, 4, 3; 1999 CH₁₃₀ *, 6, 3, 2; 1999 CJ₁₃₀ *, 4, 2, 1; 1999 CK₁₃₀ *, 4, 2, 1; 1999 CL₁₃₀ *, 6, 3, 2; 1999 CM₁₃₀ *, 4, 2, 1; 1999 CN₁₃₀ *, 4, 2, 1; 1999 CO₁₃₀ *, 4, 2, 1; 1999 CP₁₃₀ *, 6, 3, 2; 1999 CQ₁₃₀ *, 4, 2, 1; 1999 CR₁₃₀ *, 6, 3, 2; 1999 CS₁₃₀ *, 4, 2, 1; 1999 CT₁₃₀ *, 4, 2, 1; 1999 CU₁₃₀ *, 4, 2, 1; 1999 CV₁₃₀ *, 4, 2, 1; 1999 CW₁₃₀ *, 4, 2, 1; 1999 CX₁₃₀ *, 4, 2, 1; 1999 CY₁₃₀ *, 4, 2, 1; 1999 CZ₁₃₀ *, 4, 2, 1; 1999 CA₁₃₁ *, 4, 2, 1; 1999 CB₁₃₁ *, 4, 2, 1; 1999 CC₁₃₁ *, 4, 2, 1; 1999 CD₁₃₁ *, 4, 2, 1; 1999 CE₁₃₁ *, 4, 2, 1; 1999 CF₁₃₁ *, 4, 2, 1; 1999 CG₁₃₁ *, 4, 2, 1; 1999 CH₁₃₁ *, 4, 2, 1; 1999 CJ₁₃₁ *, 4, 2, 1; 1999 CK₁₃₁ *, 4, 2, 1; 1999 CL₁₃₁ *, 4, 2, 1; 1999 CM₁₃₁ *, 4, 2, 1; 1999 CN₁₃₁ *, 4, 2, 1; 1999 CO₁₃₁ *, 4, 2, 1; 1999 CP₁₃₁ *, 4, 2, 1; 1999 CQ₁₃₁ *, 4, 2, 1; 1999 CR₁₃₁ *, 4, 2, 1; 1999 CS₁₃₁ *, 4, 2, 1; 1999 CT₁₃₁ *, 4, 2, 1; 1999 CU₁₃₁ *, 4, 2, 1; 1999 CV₁₃₁ *, 4, 2, 1; 1999 CW₁₃₁ *, 4, 2, 1; 1999 CX₁₃₁ *, 4, 2, 1; 1999 CY₁₃₁ *, 4, 2, 1; 1999 CZ₁₃₁ *, 4, 2, 1; 1999 CA₁₄₄ *, 4, 2, 1; 1999 CB₁₄₄ *, 4, 2, 1; 1999 CC₁₄₄ *, 4, 2, 1; 1999 CD₁₄₄ *, 4, 2, 1; 1999 CE₁₄₄ *, 4, 2, 1; 1999 CF₁₄₄ *, 4, 2, 1; 1999 CG₁₄₄ *, 4, 2, 1; 1999 CH₁₄₄ *, 4, 2, 1; 1999 CJ₁₄₄ *, 4, 2, 1; 1999 CK₁₄₄ *, 4, 2, 1; 1999 CL₁₄₄ *, 4, 2, 1; 1999 CM₁₄₄ *, 4, 2, 1; 1999 CN₁₄₄ *, 4, 2, 1; 1999 CO₁₄₄ *, 4, 2, 1; 1999 CP₁₄₄ *, 4, 2, 1; 1999 CQ₁₄₄ *, 4, 2, 1; 1999 CR₁₄₄ *, 4, 2, 1; 1999 CS₁₄₄ *, 4, 2, 1; 1999 CT₁₄₄ *, 4, 2, 1; 1999 CU₁₄₄ *, 4, 2, 1; 1999 CV₁₄₄ *, 4, 2, 1; 1999 CW₁₄₄ *, 4, 2, 1; 1999 CX₁₄₄ *, 3, 2, 1; 1999 CY₁₄₄ *, 6, 3, 2; 1999 CZ₁₄₄ *, 6, 3, 2; 1999 CA₁₅₄ *, 4, 2, 1; 1999 CB₁₅₄ *, 4, 2, 1; 1999 CC₁₅₄ *, 6, 3, 2; 1999 CD₁₅₄ *, 6, 3, 2; 1999 CE₁₅₄ *, 4, 2, 1; 1999 CF₁₅₄ *, 4, 2, 1; 1999 CG₁₅₄ *, 4, 2, 1; 1999 CH₁₅₄ *, 4, 2, 1; 1999 CI₁₅₄ *, 4, 2, 1; 1999 CJ₁₅₄ *, 4, 2, 1; 1999 CK₁₅₄ *, 4, 2, 1; 1999 CL₁₅₄ *, 4, 2, 1; 1999 CM₁₅₄ *, 4, 2, 1; 1999 CN₁₅₄ *, 4, 2, 1; 1999 CO₁₅₄ *, 4, 2, 1; 1999 CP₁₅₄ *, 4, 2, 1; 1999 CQ₁₅₄ *, 4, 2, 1; 1999 CR₁₅₄ *, 4, 2, 1; 1999 CS₁₅₄ *, 4, 2, 1; 1999 CT₁₅₄ *, 4, 2, 1; 1999 EN₅ *, 4, 2, 1; [579, 140, 138*, 1999/01/13–1999/03/10]

(6) 1997 CV₂₉, 1, 1, 0; 1999 DA, 5, 1, 0; [6, 2, 0*, 1999/02/16–1999/03/23]

587 Sormano

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

[sormano@tin.it]

Observers A. Testa, V. Giuliani, F. Manca, P. Ghezzi, P. Sicoli, M. Cavagna
0.5-m reflector + CCD

GSC

1996 VD₁, 2, 1, 0; 1998 BB₁₉, 6, 3, 7; 1998 VT₃₃, 1, 1, 0; 1998 WD₂, 2, 1, 0; 1999 CF₉, 2, 1, 0; 1999 DB₂, 2, 1, 0; 1999 DY₂, 2, 1, 0; 1999 DK₃, 4, 2, 24; 1999 EE₅, 5, 2, 3; 1999 EF₅, 3, 1, 0; 1999 FA, 5, 2, 2; 1999 FB, 2, 1, 0; 1999 FQ₅, 2, 1, 0; 1999 FR₅, 2, 1, 0; 1999 FQ₁₀, 3, 1, 0; 1999 FN₁₉, 2, 1, 0; 1999 FR₁₉, 2, 1, 0; [47, 17, 0*, 1999/02/24–1999/03/24]

589 Santa Lucia Stroncone

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

[vagnozzi@freenet.hut.fi]

0.50-m *f*/2.8 Ritchey-Chrétien + CCD

GSC

1996 PL, 3, 1, 0; 1999 BL₇, 3, 1, 0; [6, 2, 0*, 1999/02/18]

595 Farra d'Isonzo

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

[ccaf@tmedia.it]

Observers A. Toso, E. Pettarin, M. Spolaor, G. Lombardi, L. Bittesini, W. Boschin

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

0.4-m $f/4.5$ reflector + CCD
GSC

1993 UD₁, 4, 2, 1; 1993 VN, 4, 1, 0; 1994 CV, 2, 1, 0; 1994 CW, 4, 2, 1; 1994 CM₁, 2, 1, 0; 1994 PB₁, 2, 1, 0; 1996 PL, 2, 1, 0; 1997 SX₂, 6, 3, 2; 1997 SA₃, 4, 2, 5; 1997 SB₃, 2, 1, 0; 1998 YY₆, 4, 2, 1; 1998 YE₂₁, 4, 2, 1; 1999 BJ₈, 7, 1, 0; 1999 BK₁₂, 4, 2, 4; 1999 CA₁, 4, 2, 4; 1999 FK *, 6, 3, 7; 1999 FS₅ *, 6, 3, 6; 1999 FT₅ *, 6, 3, 4; (3698), 2, 1, 0; [75, 19, 3*, 1999/02/12–1999/03/25]

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

1995 DP₂, 3, 2, 6; 1995 EU, 7, 2, 15; 1996 TS₁₅, 5, 2, 1; 1996 UP₁, 3, 1, 0; 1997 UP₈, 3, 1, 0; 1999 BL₇, 1, 1, 0; [22, 6, 0*, 1999/02/18–1999/03/12]

599 Campo Imperatore-CINEOS

A. Carusi, Istituto Astrofisica Spaziale-Planetogia, Viale Università 11, I-00185 Rome, Italy [carusi@saturn.ias.fra.cnr.it]

Observers A. Boattini, A. Di Clemente

Measurers A. Boattini, G. Forti

0.60-m $f/3$ Schmidt + CCD

GSC

1997 NP₁₁ *, 2, 1, 0; [2, 1, 1*, 1997/07/10]

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

1979 KD, 5, 1, 0; 1988 RQ₁₂, 5, 1, 0; 1992 EE, 10, 2, 5; 1997 TR₂₄, 5, 1, 0; 1997 VD₄, 5, 1, 0; 1999 CV₃, 5, 1, 0; (17), 5, 1, 0; (68), 5, 1, 0; (101), 10, 2, 5; (274), 5, 1, 0; (304), 4, 1, 0; (590), 5, 1, 0; (918), 5, 1, 0; (1034), 5, 1, 0; (1541), 5, 1, 0; (1728), 5, 1, 0; (1774), 5, 1, 0; (1908), 5, 1, 0; (1946), 5, 1, 0; (2067), 5, 1, 0; (2390), 5, 1, 0; (2413), 5, 1, 0; (2637), 5, 1, 0; (2878), 5, 1, 0; (2880), 5, 1, 0; (3268), 5, 1, 0; (3281), 5, 1, 0; (3501), 5, 1, 0; (4283), 5, 1, 0; (4594), 5, 1, 0; (4656), 5, 1, 0; (5160), 5, 1, 0; (5447), 5, 1, 0; (5550), 5, 1, 0; (5673), 5, 1, 0; (5726), 5, 1, 0; (5959), 5, 1, 0; (5979), 4, 1, 0; (5981), 5, 1, 0; (6115), 5, 1, 0; (6181), 5, 1, 0; (6401), 5, 1, 0; (6423), 5, 1, 0; (6969), 5, 1, 0; (7018), 5, 1, 0; (7181), 5, 1, 0; (7936), 5, 1, 0; (8094), 5, 1, 0; (8119), 5, 1, 0; (8128), 5, 1, 0; (8144), 5, 1, 0; (9871), 5, 1, 0; (9971), 5, 1, 0; [273, 53, 0*, 1999/02/08–1999/02/27]

611 Starkenburg Sternwarte, Heppenheim

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

Observers M. Busch, S. Kluegl, P. Wehrle

Measurers M. Busch, S. Kluegl

0.45-m $f/4.4$ reflector + CCD

USNO-A2.0

1988 RX₂, 2, 1, 0; 1997 SX₁₅, 2, 1, 0; 1997 WM₄₉, 2, 1, 0; 1999 EE₅, 4, 1, 0; 1999 FA, 3, 1, 0; 1999 FB, 3, 1, 0; [16, 6, 0*, 1997/11/19–1999/03/17]

615 St. Véran

J. Schwaenen, Allée D 5, B-6001 Marcinelle, Belgium [jean.schwaenen@ping.be]

Observers B. Zeller, F. Papon, J. Bourgeois

Measurer J. Schwaenen

0.62-m $f/3$ reflector + CCD

GSC, USNO

(1796), 1, 1, 0; (2060), 4, 1, 0; [5, 2, 0*, 1998/09/08–1999/02/13]

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 À. López, R. Pacheco

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

GSC

1987 RF₁, 6, 2, 7; 1997 RV₂, 3, 1, 0; 1999 AX₂₅, 3, 1, 0; 1999 CV₃, 6, 1, 0; 1999 CF₉, 5, 1, 0; 1999 DY₂, 3, 1, 0; 1999 EE₅, 12, 3, 10; 1999 FA, 8, 2, 3; 1999 FB, 11, 3, 10; 1999 FR₅, 4, 1, 0; [61, 10, 0*, 1999/03/09–1999/03/26]

621 Bergisch Gladbach

W. Bickel, Schau ins Land 21, D-51429 Bergisch Gladbach, Germany [0220455671-0001@t-online.de]

0.60-m $f/5$ reflector + CCD

USNO-SA1.0

1979 SC, 8, 3, 5; 1990 SF₉, 12, 2, 2; 1993 FZ₄, 10, 3, 5; 1997 SW₃₃, 11, 2, 1; 1999 CP₅, 13, 3, 4; 1999 CL₈, 6, 2, 1; 1999 CX₉, 12, 3, 14; 1999 EM₃ *, 16, 4, 6; 1999 EF₇ *, 6, 2, 2; 1999 EG₇ *, 6, 2, 2; 1999 FT₃ *, 6, 2, 2; 1999 FU₃ *, 12, 2, 2; 2231 T-2, 8, 2, 2; (6268), 4, 2, 1; (7962), 10, 3, 29; (8054), 5, 2, 1; [145, 16, 5*, 1999/02/11–1999/03/18]

625 Kihei-AMOS Remote Maui Experimental Site

P. Kervin, Air Force Maui Optical Station, 535 Lipoa Parkway, Suite 200, Kihei, Maui, HI 96753, U.S.A. [paul@ulua.mhpcc.af.mil]

Observers J. Africano, D. Nishimoto, J. Pye, P. Kervin, B. Africano

Measurers J. Africano, V. Soo Hoo, P. Sydney

0.30-m Schmidt-Cassegrain + CCD

1999 ER₃ *, 5, 2, 3; 1999 ES₃ *, 4, 2, 3; 1999 EE₅, 4, 1, 0; (587), 3, 2, 4; (1468), 7, 3, 5; (3199), 5, 2, 4; (3460), 4, 2, 3; (5856), 5, 2, 1; (6411), 6, 2, 4; [43, 9, 2*, 1999/03/05–1999/03/16]

627 Blauvac

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

0.26-m $f/4.7$ reflector + CCD

GSC, USNO-SA1.0

(3139), 3, 1, 0; (3460), 3, 1, 0; (3682), 3, 1, 0; (5092), 6, 2, 8; (5224), 3, 1, 0; (5785), 2, 1, 0; (5983), 2, 1, 0; [22, 7, 0*, 1999/03/15–1999/03/23]

628 Mülheim-Ruhr

A. Martin, Turtle Star Observatory, Friedhostr. 15, D-45478 Mülheim-Ruhr, Germany [axelm@bph.ruhr-uni-bochum.de]

Observers A. Boeker, A. Martin

0.2-m Schmidt-Cassegrain + CCD

USNO-A2.0

1998 QT₆₀, 4, 1, 0; 1998 WS, 13, 3, 26; 1999 CV₃, 4, 1, 0; (217), 4, 1, 0; [25, 4, 0*, 1999/02/26–1999/03/28]

636 Essen

A. Knöfel, Saarbrücker Str. 8, D-40476 Düsseldorf, Germany [aknoefel@dip.de]

0.318-m $f/5.7$ reflector + CCD

USNO-A2.0

1998 WZ₂₃, 4, 2, 2; 1999 EE₅, 2, 1, 0; 1999 FA, 6, 1, 0; (364), 5, 2, 1; (562), 5, 2, 1; (606), 5, 2, 1; (651), 5, 2, 1; (736), 4, 2, 1; (1041), 5, 2, 1; (1268), 6, 2, 2; (1447), 4, 2, 1; (1952), 4, 2, 5; (3223), 6, 2, 5; (4016), 6, 2, 2; (4172), 4, 2, 2; (10111), 5, 2, 2; [76, 16, 0*, 1999/02/24–1999/03/17]

637 Hamburg-Himmelsmoor

D. Husar, Himmelsmoor 18, D-22397 Hamburg, Germany

[100655.3400@compuserve.com]

0.2-m $f/5.8$ reflector + CCD

GSC

(2500), 2, 1, 0; [2, 1, 0*, 1998/12/20]

649 Powell Observatory, Louisburg

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

[lrobinson@ix.netcom.com]

Observers L. Robinson, L. Yerino

0.35-m Schmidt-Cassegrain + CCD

GSC 1.1

(183), 3, 1, 0; (291), 3, 1, 0; (444), 3, 1, 0; (676), 3, 1, 0; (763), 3, 1, 0; (768), 3, 1, 0; (790), 3, 1, 0; (795), 3, 1, 0; (798), 2, 1, 0; (808), 3, 1, 0; (834), 3, 1, 0; (876), 3, 1, 0; (919), 3, 1, 0; (947), 2, 1, 0; (996), 3, 1, 0; [43, 15, 0*, 1999/03/26–1999/03/27]

650 Temecula

J. R. Vail, 32170 Caminito Osuna, Temecula, CA 92592-1208, U.S.A.

[jimvail@pe.net]

0.25-m Schmidt-Cassegrain + CCD

USNO-SA2.0, GSC-1.1

1990 SU₈, 2, 1, 0; 1999 CK₁₀₉, 2, 1, 0; 1999 CX₁₂₅, 2, 1, 0; (306), 2, 1, 0; (1014), 2, 1, 0; (1615), 2, 1, 0; (1954), 2, 1, 0; [14, 7, 0*, 1999/02/24–1999/03/13]

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 BN₅, 2, 1, 0; 1999 CE₁₀, 2, 1, 0; [4, 2, 0*, 1999/02/20]

658 Dominion Astrophysical Observatory, Victoria

J. B. Tatum, Dept. of Physics, University of Victoria, P.O. Box 3055, Victoria, BC

V8W 3P6, Canada [universe@uvvm.uvic.ca]

Observer D. D. Balam

1.82-m Plaskett telescope + CCD

USNO-A1.0, USNO-A2.0

1998 UD₁, 3, 1, 0; 1998 UT₁₈, 3, 1, 0; 1998 XC₉, 3, 1, 0; 1998 XQ₁₆, 3, 1, 0; 1999 AF₄, 2, 1, 0; 1999 AR₇, 3, 1, 0; 1999 AP₁₀, 9, 3, 18; 1999 CS₃, 9, 3, 15; 1999 CT₃, 6, 2, 14; 1999 CU₃, 3, 1, 0; 1999 CT₈, 6, 2, 14; 1999 CV₈, 3, 1, 0; 1999 CF₉, 3, 1, 0; 1999 CG₉, 5, 2, 1; 1999 CS₄₅, 2, 1, 0; 1999 CL₁₅₃, 3, 1, 0; 1999 DB₂, 3, 2, 14; 1999 DY₂, 3, 1, 0; 1999 DJ₄, 2, 1, 0; 1999 EO₃, 3, 1, 0; 1999 ED₅, 3, 1, 0; 1999 EF₅, 3, 1, 0; 1999 FA, 3, 1, 0; 1999 FQ₅, 6, 2, 1; (2528), 3, 1, 0; [98, 25, 0*, 1999/02/15–1999/03/21]

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 J. Atienza-Rosel, W. M. Owen Jr, E. W. Hayne, A. Nagypal,

G. Genevier, G. Miller, J. R. Foster

Measurer W. M. Owen Jr

0.61-m $f/16$ reflector + CCD

ACT

(1), 3, 1, 0; (4), 5, 2, 1; (8), 12, 3, 6; (9), 13, 5, 7; (10), 13, 4, 3; (12), 11, 3, 30; (15), 5, 2, 2; (17), 8, 2, 4; (19), 2, 1, 0; (20), 2, 1, 0; (21), 13, 5, 6; (36), 11, 4, 30; (39), 4, 2, 5; (40), 2, 1, 0; (41), 4, 2, 5; (60), 2, 1, 0; (75), 5, 2, 4; (88), 2, 1, 0; (120), 10, 4, 30; (121), 2, 1, 0; (130), 5, 2, 2; (132), 2, 1, 0; (171), 4, 2, 4; (176), 2, 1, 0; (192), 11, 4, 30; (233), 7, 3, 2; (275), 2, 1, 0; (313), 2, 1, 0; (356), 2, 1, 0; (386), 2, 1, 0; (389), 4, 2, 6; (404), 2, 1, 0; (444), 3, 1, 0; (451), 2, 1, 0; (481), 2, 1, 0; (483), 2, 1, 0; (524), 1, 1, 0; (580), 3, 1, 0; (702), 2, 1, 0; (748), 2, 1, 0; (1284), 9, 3, 7; (2342), 4, 1, 0; (9969), 1, 1, 0; (10072), 1, 1, 0; [206, 44, 0*, 1999/02/26–1999/03/29]

675 Palomar

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

[efh@alps.jpl.nasa.gov] (2)

C. J. van Houten, Sterrewacht Leiden, Postbus 9513, NL-2300 RA Leiden, The Netherlands [vanhouten@rnlh11.leidenuniv.nl] (4)

Observers T. Gehrels (4, L), E. F. Helin (2, S), K. Lawrence (2, S)

Measurers K. Lawrence (2), C. J. van Houten (4), I. van Houten-Groeneveld (4), A. Wisse (4)

1.2-m Oschin Schmidt (L), 0.46-m Schmidt (S)

(2) 1983 VQ₁, 1, 1, 0; 1991 JN₇ *, 3, 2, 1; 1994 GT₁₁ *, 4, 2, 3; 1997 SG₁, 3, 2, 1; 1998 JN₁, 6, 3, 24; 1998 KK₁₇, 4, 2, 3; 1999 CV₃, 3, 2, 2; [24, 7, 2*, 1990/12/18–1994/05/05]

(4) 2022 P-L *, 8, 8, 32; 2039 P-L *, 8, 8, 32; 2155 P-L *, 5, 5, 32; 2156 P-L *, 8, 4, 5; 2231 P-L *, 3, 3, 4; 2234 P-L *, 11, 7, 32; 2654 P-L *, 6, 3, 4; 2734 P-L *, 6, 3, 4; 2849 P-L *, 8, 5, 32; 3009 P-L *, 8, 6, 5; 3015 P-L *, 13, 6, 5; 3056 P-L *, 5, 4, 5; 3080 P-L *, 4, 4, 4; 3548 P-L *, 4, 4, 9; 4128 P-L *, 7, 7, 30; 4160 P-L *, 3, 3, 2; 4218 P-L *, 5, 5, 32; 4326 P-L *, 6, 4, 4; 4737 P-L *, 8, 4, 4; 4774 P-L *, 4, 4, 4; 4809 P-L *, 5, 5, 32; 4844 P-L *, 5, 3, 4; 4868 P-L *, 6, 3, 4; 4899 P-L *, 8, 4, 4; 4905 P-L *, 8, 4, 4; 4908 P-L *, 6, 4, 4; 6329 P-L *, 8, 4, 4; 6349 P-L *, 5, 3, 4; 6514 P-L *, 8, 8, 32; 6705 P-L *, 6, 6, 32; 6747 P-L *, 6, 3, 4; 6790 P-L *, 7, 7, 32; 6799 P-L *, 8, 4, 4; 6801 P-L *, 8, 4, 4; 7646 P-L *, 4, 4, 9; 9548 P-L *, 4, 4, 9; 9609 P-L *, 6, 6, 32; 1034 T-1 *, 5, 4, 3; 1056 T-1 *, 5, 4, 3; 1080 T-1 *, 8, 7, 51; 1211 T-1 *, 5, 4, 8; 1283 T-1 *, 7, 5, 9; 2128 T-1 *, 5, 4, 3; 2139 T-1 *, 5, 4, 3; 2141 T-1 *, 5, 4, 9; 3041 T-1 *, 6, 4, 8; 3188 T-1 *, 8, 5, 22; 3198 T-1 *, 4, 3, 2; 4104 T-1 *, 11, 8, 53; 4105 T-1 *, 11, 8, 53; 4142 T-1 *, 6, 4, 9; 4198 T-1 *, 4, 3, 3; 4273 T-1 *, 5, 4, 9; 4371 T-1 *, 10, 8, 53; 4841 T-1 *, 5, 4, 30; 1078 T-2 *, 14, 8, 16; 1104 T-2 *, 28, 8, 16; 1131 T-2 *, 8, 4, 10; 1245 T-2 *, 9, 5, 10; 1283 T-2 *, 15, 8, 16; 1346 T-2 *, 23, 8, 16; 1510 T-2 *, 8, 5, 11; 2028 T-2 *, 19, 8, 16; 2070 T-2 *, 15, 8, 16; 2141 T-2 *, 15, 8, 16; 2148 T-2 *, 15, 8, 16; 2176 T-2 *, 15, 8, 16; 2638 T-2 *, 25, 8, 16; 3156 T-2 *, 10, 5, 10; 3190 T-2 *, 15, 8, 16; 3311 T-2 *, 17, 8, 16; 3370 T-2 *, 7, 4, 6; 4089 T-2 *, 15, 8, 16; 4231 T-2 *, 15, 8, 16; 4249 T-2 *, 13, 7, 15; 4259 T-2 *, 18, 8, 16; 4305 T-2 *, 8, 4, 6; 4500 T-2 *, 13, 7, 16; 4742 T-2 *, 8, 4, 6; 4810 T-2 *, 7, 4, 6; 4834 T-2 *, 7, 4, 6; 5003 T-2 *, 6, 3, 5; 5022 T-2 *, 6, 3, 5; 5155 T-2 *, 6, 3, 5; 1061 T-3 *, 11, 6, 15; 1176 T-3 *, 11, 6, 15; 1232 T-3 *, 6, 3, 5; 2017 T-3 *, 9, 5, 14; 2075 T-3 *, 13, 7, 15; 2107 T-3 *, 7, 4, 9; 2356 T-3 *, 23, 7, 15; 2391 T-3 *, 22, 7, 15; 2466 T-3 *, 8, 4, 6; 3129 T-3 *, 13, 7, 15; 3192 T-3 *, 20, 7, 15; 3283 T-3 *, 8, 4, 6; 3391 T-3 *, 8, 4, 6; 3479 T-3 *, 13, 7, 15; 3511 T-3 *, 12, 4, 6; 4079 T-3 *, 10, 5, 10; 4236 T-3 *, 12, 6, 11; 4268 T-3 *, 10, 5, 10; 4340 T-3 *, 8, 4, 6; [957, 103, 103*, 1960/09/24–1977/10/22]

678 Fountain Hills

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0.32-m $f/5.5$ reflector + CCD

GSC

1999 AS₂₄, 4, 1, 0; 1999 BO₆, 6, 3, 3; 1999 CA₃, 2, 1, 0; 1999 CO₅₇, 6, 2, 1; 1999 EM *, 9, 4, 4; 1999 FE₇ *, 8, 4, 4; 1999 FG₇ *, 5, 2, 1; 1999 FV₁₉ *, 7, 3, 6; [47, 8, 4*, 1999/02/24–1999/03/25]

683 Goodricke-Pigott Observatory, Tucson

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[tucker@noao.edu]

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

GSC

1990 ST₂, 5, 2, 1; 1995 GS₅, 6, 2, 3; 1996 UC, 3, 1, 0; 1996 YZ₂, 6, 2, 1; 1997 VT₆, 5, 2, 1; 1999 BC₆, 6, 2, 1; 1999 BG₇, 3, 1, 0; 1999 CU₁₁₈, 5, 2, 1; 1999 DG₄, 9, 3, 15; 1999 DH₅, 6, 2, 1; 1999 EF₅ *, 5, 2, 1; 1999 EQ₅ *, 6, 2, 1; 1999 ER₅ *, 6, 2, 1; 1999 ES₅ *, 9, 2, 1; 1999 ET₅ *, 5, 2, 1; 1999 EU₅ *, 15, 4, 9; 1999 EV₅ *, 6, 2, 1; 1999 EW₅ *, 6, 2, 1; 1999 EX₅ *, 6, 2, 1; 1999 EY₅ *, 6, 2, 1; 4865 P-L, 6, 2, 1; 2127 T-1, 5, 2, 1; 3288 T-2, 6, 2, 1; (3441), 9, 2, 1; (8065), 6, 2, 1; [156, 25, 10*, 1999/03/06–1999/03/22]

684 Prescott

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

[comba@northlink.com]

0.46-m $f/4.5$ reflector + CCD

GSC

1996 HY₁, 5, 2, 1; 1996 MN, 4, 2, 1; 1996 OE, 4, 2, 1; 1996 PA₁, 4, 2, 1; 1996 RJ₃, 4, 2, 1; 1996 TT₁₁, 4, 2, 1; 1996 UA, 4, 2, 1; 1996 UU₁, 4, 2, 1; 1996 VM₂, 4, 2, 1; 1997 QJ, 4, 2, 1; 1997 RS₅, 4, 2, 2; 1997 SJ₁₁, 4, 2, 1; 1997 TU₁₈, 3, 1, 0; 1997 UE, 4, 2, 1; 1997 UK₁, 4, 2, 1; 1997 UY₂, 4, 2, 1; 1997 VA₄, 4, 2, 1; 1997 WB₁, 4, 2, 1; 1997 WD₃, 5, 2, 3; 1997 YE₈, 4, 2, 1;

1997 YP₁₄, 4, 2, 1; 1999 CY₈, 4, 2, 1; 1999 CZ₅₃, 2, 1, 0; 1999 CQ₅₄, 4, 2, 1; 1999 CH₁₀₁, 5, 2, 1; 1999 CJ₁₀₁, 4, 2, 1; 1999 DD₃, 5, 2, 1; 1999 EA *, 9, 4, 6; 1999 EB *, 12, 5, 7; 1999 EC *, 9, 4, 6; 1999 ED *, 13, 6, 12; 1999 EE *, 11, 6, 13; 1999 EF *, 8, 4, 6; 1999 ED₃ *, 4, 2, 1; 1999 EE₃ *, 8, 4, 9; 1999 EQ₃ *, 11, 5, 8; 1999 ET₃ *, 8, 4, 6; 1999 FL *, 4, 2, 1; 1999 FF₁, 4, 2, 1; 1999 FP₅ *, 8, 3, 3; 1999 FQ₅, 3, 1, 0; 1999 FQ₁₀, 3, 1, 0; 4599 P-L, 4, 2, 1; (3399), 2, 1, 0; (3514), 2, 1, 0; (5373), 3, 1, 0; [235, 46, 12*, 1999/03/05–1999/03/24]

688 Lowell Observatory, Anderson Mesa Station

G. Snyder, Gettysburg College, 300 N. Washington St., Gettysburg, PA 17325,
U.S.A. [marschal@gettysburg.edu]

Observers L. A. Marschall, C. Henrichson, A. Rizvi, J. Lynch, A. Duffy

Measurer G. A. Snyder

1.8-m reflector + CCD

USNO-A2.0

1990 SF₃, 4, 1, 0; 1999 EM₅ *, 7, 2, 1; [11, 2, 1*, 1999/03/14–1999/03/16]

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 T. Gehrels, J. Larsen, J. Montani, J. V. Scotti, A. Tubiolo

0.91-m Spacewatch telescope + CCD

GSC

1951 RX, 3, 1, 0; 1973 SP₄, 6, 2, 17; 1976 SQ₇, 3, 1, 0; 1976 UP₁₈, 3, 1, 0; 1978 SA₇, 5, 2, 23; 1978 SO₇, 3, 1, 0; 1978 UK₇, 3, 1, 0; 1979 HW₆, 3, 1, 0; 1979 MB₉, 3, 1, 0; 1979 QD₂, 3, 1, 0; 1980 FX₃, 3, 1, 0; 1980 TV₂, 3, 1, 0; 1981 ET₁₅, 3, 1, 0; 1981 EH₂₀, 9, 3, 9; 1981 EK₂₃, 3, 1, 0; 1981 EX₂₇, 3, 1, 0; 1981 EU₃₄, 3, 1, 0; 1981 ET₄₂, 12, 4, 14; 1981 EA₄₃, 6, 2, 17; 1981 ET₄₆, 6, 2, 4; 1982 YR₁, 4, 2, 17; 1984 QS, 3, 1, 0; 1988 RM₄, 3, 1, 0; 1988 SL₂, 6, 2, 25; 1988 SU₂, 3, 1, 0; 1988 SX₂, 3, 1, 0; 1988 VM₅, 6, 2, 1; 1989 EG₁, 3, 1, 0; 1989 GV₁, 6, 2, 1; 1989 RD₂, 3, 1, 0; 1989 TP₁₁, 6, 2, 6; 1989 TK₁₆, 5, 2, 14; 1990 QX₁, 6, 2, 5; 1990 QC₃, 9, 3, 9; 1990 QX₇, 3, 1, 0; 1990 RJ₃, 3, 1, 0; 1990 SE₆, 3, 1, 0; 1990 TT₄, 3, 1, 0; 1990 TB₆, 9, 3, 37; 1990 TH₇, 6, 2, 6; 1990 TE₉, 9, 3, 8; 1990 VT₁, 3, 1, 0; 1990 WS₂, 3, 1, 0; 1990 WQ₆, 6, 2, 3; 1991 AQ₂, 3, 1, 0; 1991 CW₂, 12, 4, 12; 1991 PT₁₂, 15, 5, 12; 1991 RO₁, 9, 3, 7; 1991 RJ₄, 3, 1, 0; 1991 VW₈, 12, 4, 36; 1992 CJ₃, 9, 3, 28; 1992 EQ₉, 3, 1, 0; 1992 GN₃, 3, 1, 0; 1992 RC₄, 3, 1, 0; 1992 SB₁₀, 3, 1, 0; 1993 FG₁₂, 3, 1, 0; 1993 HG₁, 2, 1, 0; 1993 QY, 6, 2, 4; 1993 QU₉, 3, 1, 0; 1993 RK₄, 3, 1, 0; 1993 SS₄, 3, 1, 0; 1993 TJ₁₅, 3, 1, 0; 1993 TM₂₅, 9, 3, 10; 1993 TH₃₂, 6, 2, 14; 1993 TZ₃₈, 3, 1, 0; 1993 UC₃, 3, 1, 0; 1993 UC₈, 11, 4, 15; 1993 VS, 3, 1, 0; 1993 VZ₄, 9, 3, 9; 1994 AW, 3, 1, 0; 1994 AD₁₁, 3, 1, 0; 1994 BP₄, 2, 1, 0; 1994 CV, 3, 1, 0; 1994 JM, 3, 1, 0; 1994 PU, 3, 1, 0; 1994 PR₃₉, 3, 1, 0; 1994 UO₁, 6, 2, 1; 1994 XL, 3, 1, 0; 1994 YP₁, 9, 3, 14; 1995 BP₂, 3, 1, 0; 1995 DE, 3, 1, 0; 1995 EL₃, 3, 1, 0; 1995 GV₂, 3, 1, 0; 1995 GS₅, 6, 2, 8; 1996 GD₂₁, 9, 3, 9; 1996 HJ₁, 6, 2, 4; 1996 JF₂, 3, 1, 0; 1996 NS₃, 3, 1, 0; 1996 NN₄, 6, 2, 6; 1996 NE₅, 6, 2, 31; 1996 RB, 3, 1, 0; 1996 RJ₃, 3, 1, 0; 1996 TK₁₅, 9, 3, 10; 1996 UV, 6, 2, 7; 1996 VU₂, 9, 3, 5; 1996 VZ₃₇, 3, 1, 0; 1997 MC₈, 3, 1, 0; 1997 NN₁, 3, 1, 0; 1997 NZ₃, 3, 1, 0; 1997 PQ₄, 6, 2, 4; 1997 QJ, 3, 1, 0; 1997 QY₂, 3, 1, 0; 1997 RV₂, 3, 1, 0; 1997 RA₉, 3, 1, 0; 1997 SE₂, 3, 1, 0; 1997 SF₃, 6, 2, 9; 1997 SL₃, 3, 1, 0; 1997 SX₂₁, 6, 2, 6; 1997 SK₃₁, 9, 3, 14; 1997 TJ₁₀, 9, 3, 36; 1997 TK₂₄, 3, 1, 0; 1997 UU₂, 3, 1, 0; 1997 UV₂, 3, 1, 0; 1997 UJ₃, 3, 1, 0; 1997 UK₅, 2, 1, 0; 1997 UO₇, 6, 2, 6; 1997 UC₁₅, 3, 1, 0; 1997 UH₂₅, 3, 1, 0; 1997 VD₃, 6, 2, 5; 1997 VU₃, 14, 5, 14; 1997 VD₅, 6, 2, 8; 1997 VS₃, 3, 1, 0; 1997 VW₆, 6, 2, 14; 1997 VY₆, 3, 1, 0; 1997 WP₁₄, 3, 1, 0; 1997 WT₃₄, 11, 4, 15; 1997 WK₃₅, 3, 1, 0; 1997 WL₃₇, 3, 1, 0; 1997 WT₃₇, 3, 1, 0; 1997 WL₄₄, 5, 2, 26; 1997 XV, 3, 1, 0; 1997 XY₆, 6, 2, 8; 1998 YQ, 12, 4, 14; 1998 BA₂₀, 3, 1, 0; 1998 QK₅₆, 3, 1, 0; 1998 QR₉₁, 3, 1, 0; 1998 SN₂, 2, 1, 0; 1998 UF₁₁, 3, 1, 0; 1998 UY₁₃, 3, 1, 0; 1998 UR₁₅, 3, 1, 0; 1998 UA₂₃, 3, 1, 0; 1998 VC₂₃, 3, 1, 0; 1998 VU₂₉, 3, 1, 0; 1998 VJ₃₀, 3, 1, 0; 1998 VW₃₂, 9, 3, 5; 1998 VN₄₀, 3, 1, 0; 1998 VG₄₄ *, 12, 5, 126; 1998 WB₇, 3, 1, 0; 1998 WS₉, 3, 1, 0; 1998 WP₁₁, 6, 2, 5; 1998 WZ₁₄, 3, 1, 0; 1998 WB₁₅, 6, 2, 6; 1998 WL₁₅, 3, 1, 0; 1998 WM₁₅, 6, 1, 0; 1998 WO₁₅, 9, 3, 7; 1998 WP₁₅, 6, 2, 1; 1998 WC₁₆, 6, 2, 1; 1998 WA₁₇, 6, 2, 5; 1998 WC₁₇, 6, 1, 0; 1998 WJ₁₇, 6, 2, 5; 1998 WR₁₈, 3, 1, 0; 1998 WV₁₈, 6, 2, 5; 1998 WY₁₈, 3, 1, 0; 1998 WS₂₂, 3, 1, 0; 1998 WA₂₃, 3, 1, 0; 1998 WF₂₃, 3, 1, 0; 1998 WG₂₃, 6, 2, 4; 1998 WL₂₆, 6, 2, 6; 1998 XN₁₃, 6, 2, 6; 1998 XM₁₈, 6, 2, 4; 1998 XF₂₃, 6, 2, 4; 1998 XC₂₆, 3, 1, 0; 1998 XW₉₆, 3, 1, 0; 1998 XX₉₆, 3, 1, 0; 1998 XY₉₆, 3, 1, 0; 1998 XB₉₇, 2, 1, 0; 1998 XG₉₇, 3, 1, 0; 1998 YU₂, 5, 2, 3; 1998 YP₁₂, 3, 1, 0; 1998 YM₁₆, 6, 2, 40; 1998 YV₁₆, 3, 1, 0; 1998 YB₁₇, 6, 2, 4; 1998 YG₁₇, 3, 1, 0; 1998 YJ₁₇, 1, 1, 0; 1998 YN₁₇, 6, 2, 3; 1998 YO₁₇, 3, 1, 0; 1998 YE₂₂, 6, 2, 3; 1999 AH₁, 6, 2, 3; 1999 AE₅, 3, 1, 0; 1999 AW₆, 3, 1, 0; 1999 AL₇, 3, 1, 0; 1999 AH₁₃, 3, 1, 0; 1999 AN₁₉, 9, 3, 1; 1999 AU₁₉, 3, 1, 0; 1999 AJ₂₀, 3, 1, 0; 1999 AP₂₀, 2, 1, 0; 1999 AM₂₁, 3, 1, 0; 1999 AQ₂₁, 3, 1, 0; 1999 AS₂₁, 5, 1, 0; 1999 AT₂₁, 6, 2, 13; 1999 AM₂₄, 9, 3, 14; 1999 AN₂₄, 3, 1, 0; 1999 AF₂₅, 3, 1, 0; 1999 AR₂₅, 3, 1, 0; 1999 AZ₂₆, 3, 1, 0; 1999 AN₃₀, 4, 2, 10; 1999 AR₃₀, 3, 1, 0; 1999 AT₃₀,

6, 2, 1; 1999 AU₃₀, 5, 2, 3; 1999 AY₃₀, 6, 2, 4; 1999 AH₃₁, 6, 2, 3; 1999 AJ₃₁, 6, 2, 2; 1999 AS₃₁, 3, 1, 0; 1999 AQ₃₄, 3, 1, 0; 1999 AR₃₄, 8, 3, 25; 1999 BK₃, 3, 1, 0; 1999 BT₂, 3, 1, 0; 1999 BS₃, 3, 1, 0; 1999 BU₃, 9, 3, 8; 1999 BL₄, 9, 3, 15; 1999 BP₅, 3, 1, 0; 1999 BR₅, 3, 1, 0; 1999 BS₅, 6, 2, 1; 1999 BW₅, 3, 1, 0; 1999 BE₆, 9, 3, 39; 1999 BF₆, 6, 2, 1; 1999 BK₇, 12, 4, 32; 1999 BB₈, 3, 1, 0; 1999 BW₈, 3, 1, 0; 1999 BA₉, 6, 2, 3; 1999 BB₉, 9, 3, 14; 1999 BE₉, 6, 2, 10; 1999 BD₁₀, 3, 1, 0; 1999 BF₁₀, 6, 2, 6; 1999 BG₁₀, 9, 3, 6; 1999 BK₁₀, 6, 2, 3; 1999 BN₁₀, 6, 2, 3; 1999 BP₁₀, 3, 1, 0; 1999 BD₁₁, 6, 2, 8; 1999 BS₁₁, 3, 1, 0; 1999 BL₁₃, 3, 1, 0; 1999 BM₁₃, 3, 1, 0; 1999 BN₁₃, 9, 3, 9; 1999 BO₁₃, 3, 1, 0; 1999 BP₁₃, 6, 2, 1; 1999 BQ₂₈, 6, 2, 6; 1999 BJ₂₉, 6, 2, 9; 1999 CY₁, 3, 1, 0; 1999 CE₂, 6, 2, 25; 1999 CV₂, 3, 1, 0; 1999 CY₂, 3, 1, 0; 1999 CZ₂, 6, 2, 4; 1999 CN₄, 3, 1, 0; 1999 CP₄, 3, 1, 0; 1999 CU₄, 6, 2, 28; 1999 CW₄, 6, 2, 39; 1999 CA₉, 3, 1, 0; 1999 CN₁₀, 11, 4, 32; 1999 CS₁₀, 6, 2, 14; 1999 CD₁₂, 3, 1, 0; 1999 CL₁₂, 6, 2, 29; 1999 CU₁₄, 3, 1, 0; 1999 CW₁₄, 3, 1, 0; 1999 CJ₁₆, 3, 1, 0; 1999 CL₁₆, 3, 1, 0; 1999 CS₁₉, 3, 1, 0; 1999 CY₂₀, 3, 1, 0; 1999 CB₂₆, 6, 2, 2; 1999 CC₂₆, 6, 2, 4; 1999 CD₂₆, 6, 2, 13; 1999 CE₂₆, 3, 1, 0; 1999 CG₂₆, 5, 2, 9; 1999 CV₂₈, 12, 3, 11; 1999 CD₂₉, 3, 1, 0; 1999 CG₂₉, 3, 1, 0; 1999 CH₂₉, 3, 1, 0; 1999 CM₂₉, 3, 1, 0; 1999 CS₂₉, 3, 1, 0; 1999 CU₂₉, 6, 2, 6; 1999 CV₂₉, 3, 1, 0; 1999 CW₂₉, 3, 1, 0; 1999 CX₂₉, 6, 2, 6; 1999 CN₃₃, 3, 1, 0; 1999 CO₃₃, 3, 1, 0; 1999 CP₃₃, 9, 3, 6; 1999 CQ₃₃, 9, 3, 6; 1999 CR₃₃, 3, 1, 0; 1999 CS₃₃, 3, 1, 0; 1999 CT₃₃, 6, 2, 5; 1999 CU₃₃, 6, 2, 4; 1999 CV₃₃, 6, 2, 4; 1999 CW₃₃, 6, 2, 5; 1999 CX₃₃, 6, 2, 4; 1999 CY₃₃, 6, 2, 4; 1999 CZ₃₃, 3, 1, 0; 1999 CA₃₄, 6, 2, 5; 1999 CB₃₄, 3, 1, 0; 1999 CC₃₄, 3, 1, 0; 1999 CD₃₄, 6, 2, 6; 1999 CE₃₄, 3, 1, 0; 1999 CF₃₄, 6, 2, 6; 1999 CG₃₄, 3, 1, 0; 1999 CH₃₄, 3, 1, 0; 1999 CJ₃₄, 3, 1, 0; 1999 CK₃₄, 3, 1, 0; 1999 CT₃₇, 6, 2, 6; 1999 CX₃₇, 6, 2, 4; 1999 CY₃₇, 6, 2, 4; 1999 CZ₃₇, 9, 3, 5; 1999 CA₃₈, 3, 1, 0; 1999 CB₃₈, 6, 2, 5; 1999 CC₃₈, 6, 2, 4; 1999 CD₃₈, 3, 1, 0; 1999 CF₃₈, 3, 1, 0; 1999 CG₃₈, 12, 4, 32; 1999 CH₃₈, 6, 2, 1; 1999 CJ₃₈, 6, 2, 4; 1999 CK₃₈, 6, 2, 4; 1999 CL₃₈, 6, 2, 4; 1999 CM₃₈, 3, 1, 0; 1999 CN₃₈, 3, 1, 0; 1999 CP₃₈, 3, 1, 0; 1999 CQ₃₈, 3, 1, 0; 1999 CT₃₈, 3, 1, 0; 1999 CO₄₂, 3, 1, 0; 1999 CB₄₂, 9, 3, 37; 1999 CT₄₂, 6, 2, 13; 1999 CV₄₂, 6, 2, 5; 1999 CZ₄₂, 6, 2, 5; 1999 CD₄₆, 9, 3, 8; 1999 CE₄₆, 3, 1, 0; 1999 CF₆₀, 9, 3, 31; 1999 CG₆₀, 6, 2, 17; 1999 CH₆₀, 6, 2, 34; 1999 CJ₆₀, 12, 4, 34; 1999 CK₆₀, 6, 2, 31; 1999 CL₆₀, 6, 2, 14; 1999 CM₆₀, 6, 2, 14; 1999 CU₆₀, 3, 1, 0; 1999 CV₆₀, 3, 1, 0; 1999 CZ₆₀, 3, 1, 0; 1999 CH₆₈, 3, 1, 0; 1999 CK₆₈, 6, 2, 4; 1999 CH₇₁, 3, 1, 0; 1999 CJ₇₁, 3, 1, 0; 1999 CK₇₁, 12, 4, 32; 1999 CZ₇₃, 12, 4, 12; 1999 CD₇₄, 6, 2, 17; 1999 CF₇₄, 9, 3, 25; 1999 CK₇₆, 6, 1, 0; 1999 CD₈₆, 3, 1, 0; 1999 CO₈₆, 3, 1, 0; 1999 CH₉₀, 6, 2, 3; 1999 CS₉₀, 3, 1, 0; 1999 CT₉₀, 3, 1, 0; 1999 CK₉₁, 3, 1, 0; 1999 CM₉₁, 9, 3, 6; 1999 CN₉₁, 3, 1, 0; 1999 CQ₉₁, 3, 1, 0; 1999 CS₉₁, 3, 1, 0; 1999 CT₉₁, 3, 1, 0; 1999 CV₉₁, 3, 1, 0; 1999 CY₉₁, 3, 1, 0; 1999 CL₉₃, 3, 1, 0; 1999 CN₉₃, 3, 1, 0; 1999 CO₉₃, 3, 1, 0; 1999 CP₉₃, 6, 2, 4; 1999 CQ₉₃, 6, 2, 5; 1999 CR₉₃, 6, 2, 6; 1999 CL₉₅, 3, 1, 0; 1999 CM₉₅, 3, 1, 0; 1999 CN₉₅, 6, 2, 4; 1999 CO₉₅, 9, 3, 31; 1999 CP₉₅, 3, 1, 0; 1999 CA₉₇, 9, 3, 34; 1999 CB₉₇, 12, 4, 25; 1999 CD₉₇, 9, 3, 14; 1999 CE₉₇, 3, 1, 0; 1999 CB₉₈, 6, 2, 8; 1999 CC₉₈, 9, 3, 6; 1999 CG₉₈, 3, 1, 0; 1999 CK₉₈, 3, 1, 0; 1999 CM₁₀₂, 3, 1, 0; 1999 CT₁₀₂, 3, 1, 0; 1999 CJ₁₀₄, 3, 1, 0; 1999 CD₁₀₄, 18, 6, 38; 1999 CE₁₀₄, 3, 1, 0; 1999 CF₁₀₄, 3, 1, 0; 1999 CJ₁₀₄, 6, 2, 14; 1999 CK₁₀₄, 6, 2, 25; 1999 CL₁₀₄, 3, 1, 0; 1999 CZ₁₀₅, 6, 2, 4; 1999 CE₁₀₉, 3, 1, 0; 1999 CK₁₁₁, 6, 2, 3; 1999 CV₁₁₂, 3, 1, 0; 1999 CY₁₁₆, 9, 3, 6; 1999 CN₁₁₈, 3, 1, 0; 1999 CO₁₁₈, 3, 1, 0; 1999 CA₁₃₀, 3, 1, 0; 1999 CB₁₃₂ *, 6, 2, 2; 1999 CC₁₃₂ *, 9, 3, 8; 1999 CD₁₃₂ *, 9, 3, 8; 1999 CE₁₃₂ *, 6, 2, 2; 1999 CF₁₃₂ *, 5, 2, 2; 1999 CG₁₃₂ *, 6, 2, 2; 1999 CH₁₃₂ *, 9, 3, 8; 1999 CJ₁₃₂ *, 9, 3, 8; 1999 CK₁₃₂ *, 6, 2, 2; 1999 CL₁₃₂ *, 9, 3, 5; 1999 CM₁₃₂ *, 6, 2, 2; 1999 CN₁₃₂ *, 9, 3, 5; 1999 CO₁₃₂ *, 6, 2, 2; 1999 CP₁₃₂ *, 9, 3, 8; 1999 CQ₁₃₂ *, 8, 3, 8; 1999 CR₁₃₂ *, 5, 2, 2; 1999 CS₁₃₂ *, 6, 2, 2; 1999 CT₁₃₂ *, 6, 2, 2; 1999 CU₁₃₂ *, 12, 3, 7; 1999 CV₁₃₂ *, 6, 2, 1; 1999 CW₁₃₂ *, 6, 2, 1; 1999 CX₁₃₂ *, 9, 3, 4; 1999 CY₁₃₂ *, 6, 2, 4; 1999 CZ₁₃₂ *, 6, 2, 4; 1999 CA₁₃₃ *, 9, 2, 4; 1999 CB₁₃₃ *, 6, 2, 4; 1999 CC₁₃₃ *, 6, 2, 4; 1999 CD₁₃₃ *, 5, 2, 4; 1999 CE₁₃₃ *, 9, 3, 30; 1999 CF₁₃₃ *, 6, 2, 4; 1999 CG₁₃₃ *, 6, 2, 4; 1999 CH₁₃₃ *, 6, 2, 4; 1999 CI₁₃₃ *, 6, 2, 4; 1999 CJ₁₃₃ *, 6, 2, 4; 1999 CK₁₃₃ *, 6, 2, 4; 1999 CL₁₃₃ *, 6, 2, 4; 1999 CM₁₃₃ *, 6, 2, 4; 1999 CN₁₃₃ *, 9, 3, 5; 1999 CO₁₃₃ *, 9, 3, 5; 1999 CS₁₃₃ *, 6, 2, 5; 1999 CT₁₃₃ *, 6, 2, 5; 1999 CU₁₃₃ *, 5, 2, 5; 1999 CV₁₃₃ *, 5, 2, 5; 1999 CW₁₃₃ *, 9, 3, 6; 1999 CX₁₃₃ *, 5, 2, 5; 1999 CY₁₃₃ *, 6, 2, 5; 1999 CZ₁₃₃ *, 6, 2, 5; 1999 CA₁₃₄ *, 6, 2, 5; 1999 CB₁₃₄ *, 6, 2, 5; 1999 CC₁₃₄ *, 6, 2, 5; 1999 CD₁₃₄ *, 6, 2, 5; 1999 CE₁₃₄ *, 6, 2, 5; 1999 CF₁₃₄ *, 6, 2, 5; 1999 CG₁₃₄ *, 6, 2, 5; 1999 CH₁₃₄ *, 6, 2, 5; 1999 CI₁₃₄ *, 6, 2, 5; 1999 CJ₁₃₄ *, 6, 2, 5; 1999 CK₁₃₄ *, 9, 3, 6; 1999 CL₁₃₄ *, 5, 2, 5; 1999 CM₁₃₄ *, 9, 3, 6; 1999 CN₁₃₄ *, 6, 2, 5; 1999 CO₁₃₄ *, 6, 2, 5; 1999 CP₁₃₄ *, 9, 2, 5; 1999 CR₁₃₄ *, 6, 2, 5; 1999 CS₁₃₄ *, 6, 2, 5; 1999 CT₁₃₄ *, 6, 2, 5; 1999 CU₁₃₄ *, 5, 2, 5; 1999 CV₁₃₄ *, 6, 2, 5; 1999 CW₁₃₄ *, 9, 3, 6; 1999 CX₁₃₄ *, 5, 2, 5; 1999 CY₁₃₄ *, 6, 2, 5; 1999 CZ₁₃₄ *, 6, 2, 5; 1999 CA₁₃₅ *, 9, 3, 6; 1999 CB₁₃₅ *,

1999 EQ₁₀ *, 6, 2, 8; 1999 ER₁₀ *, 6, 2, 8; 1999 ES₁₀ *, 6, 2, 9; 1999 ET₁₀ *, 6, 2, 9; 1999 EU₁₀ *, 6, 2, 9; 1999 EV₁₀ *, 5, 2, 8; 1999 EW₁₀ *, 6, 2, 9; 1999 EX₁₀ *, 6, 2, 7; 1999 EY₁₀ *, 6, 2, 8; 1999 EZ₁₀ *, 6, 2, 9; 1999 EA₁₁ *, 6, 2, 8; 1999 EB₁₁ *, 6, 2, 8; 1999 EC₁₁ *, 6, 2, 9; 1999 ED₁₁ *, 5, 2, 8; 1999 EE₁₁ *, 5, 2, 7; 1999 EF₁₁ *, 6, 2, 7; 1999 EG₁₁ *, 5, 2, 8; 1999 EH₁₁ *, 6, 2, 9; 1999 EJ₁₁ *, 6, 2, 9; 1999 EK₁₁ *, 6, 2, 9; 1999 EL₁₁ *, 6, 2, 9; 1999 EM₁₁ *, 6, 2, 9; 1999 EN₁₁ *, 5, 2, 9; 1999 EO₁₁ *, 6, 2, 8; 1999 EP₁₁ *, 6, 2, 9; 1999 FJ₁ *, 6, 2, 9; 1999 FK₁ *, 6, 2, 2; 1999 FL₁ *, 9, 3, 5; 1999 FM₁ *, 9, 3, 6; 1999 FN₁ *, 9, 3, 3; 1999 FO₁ *, 6, 2, 2; 1999 FP₁ *, 6, 2, 2; 1999 FQ₁ *, 6, 2, 2; 1999 FR₁ *, 9, 3, 3; 1999 FS₁ *, 6, 2, 2; 1999 FT₁ *, 6, 2, 2; 1999 FU₁ *, 6, 2, 2; 1999 FV₁ *, 6, 2, 2; 1999 FW₁ *, 6, 2, 2; 1999 FX₁ *, 9, 3, 6; 1999 FY₁ *, 6, 2, 2; 1999 FZ₁ *, 6, 2, 2; 1999 FA₂ *, 9, 3, 3; 1999 FB₂ *, 9, 3, 3; 1999 FC₂ *, 9, 3, 5; 1999 FD₂ *, 6, 2, 2; 1999 FE₂ *, 8, 3, 3; 1999 FF₂ *, 6, 2, 2; 1999 FG₂ *, 6, 2, 2; 1999 FH₂ *, 6, 2, 2; 1999 FJ₂ *, 6, 2, 2; 1999 FK₂ *, 6, 2, 2; 1999 FL₂ *, 6, 2, 2; 1999 FM₂ *, 6, 2, 2; 1999 FN₂ *, 6, 2, 2; 1999 FO₂ *, 6, 2, 2; 1999 FP₂ *, 9, 3, 8; 1999 FQ₂ *, 9, 3, 8; 1999 FR₂ *, 6, 2, 2; 1999 FS₂ *, 6, 2, 2; 1999 FT₂ *, 6, 2, 2; 1999 FU₂ *, 5, 2, 2; 1999 FV₂ *, 8, 3, 8; 1999 FW₂ *, 6, 2, 2; 1999 FX₂ *, 5, 2, 2; 1999 FY₂ *, 6, 2, 1; 1999 FZ₂ *, 15, 5, 7; 1999 FA₃ *, 6, 2, 1; 1999 FB₃ *, 9, 3, 5; 1999 FC₃ *, 9, 3, 5; 1999 FD₃ *, 6, 2, 1; 1999 FE₃ *, 6, 2, 1; 1999 FF₃ *, 6, 2, 1; 1999 FG₃ *, 9, 3, 5; 1999 FH₃ *, 12, 4, 6; 1999 FK₃ *, 6, 2, 4; 1999 FY₃ *, 6, 2, 4; 1999 FZ₃ *, 9, 3, 8; 1999 FA₄ *, 6, 2, 4; 1999 FB₄ *, 8, 3, 8; 1999 FC₄ *, 6, 2, 3; 1999 FD₄ *, 9, 3, 6; 1999 FE₄ *, 6, 2, 3; 1999 FF₄ *, 6, 2, 3; 1999 FG₄ *, 6, 2, 3; 1999 FH₄ *, 6, 2, 3; 1999 FJ₄ *, 6, 2, 3; 1999 FK₄ *, 6, 2, 3; 1999 FL₄ *, 6, 2, 3; 1999 FM₄ *, 6, 2, 3; 1999 FN₄ *, 6, 2, 3; 1999 FO₄ *, 15, 4, 7; 1999 FP₄ *, 12, 4, 7; 1999 FQ₄ *, 5, 2, 2; 1999 FR₄ *, 8, 3, 6; 1999 FS₄ *, 12, 4, 7; 1999 FT₄ *, 6, 2, 2; 1999 FU₄ *, 9, 3, 7; 1999 FV₄ *, 9, 3, 6; 1999 FW₄ *, 9, 3, 6; 1999 FX₄ *, 9, 3, 6; 1999 FY₄ *, 9, 3, 6; 1999 FZ₄ *, 9, 3, 6; 1999 FA₅ *, 9, 3, 6; 1999 FB₅ *, 6, 2, 1; 1999 FC₅ *, 6, 2, 1; 1999 FD₅ *, 6, 2, 1; 1999 FE₅ *, 9, 3, 4; 1999 FF₅ *, 5, 2, 1; 1999 FG₅ *, 6, 2, 1; 1999 FH₅ *, 9, 3, 5; 1999 FJ₅ *, 9, 3, 5; 1999 FK₅ *, 9, 3, 5; 1999 FL₅ *, 6, 2, 1; 1999 FM₅ *, 6, 2, 1; 1999 FN₅ *, 8, 3, 5; 1999 FO₅ *, 6, 2, 1; 1999 FQ₅ *, 12, 4, 6; 1999 FS₅ *, 3, 1, 0; 1999 FT₅ *, 3, 1, 0; 1999 FU₅ *, 3, 1, 0; 1999 FV₅ *, 3, 1, 0; 1999 FW₅ *, 3, 1, 0; 1999 FX₅ *, 5, 2, 8; 1999 FS₁₀ *, 6, 2, 8; 1999 FT₁₀ *, 5, 2, 8; 1999 FU₁₀ *, 6, 2, 6; 1999 FV₁₀ *, 5, 2, 5; 1999 FW₁₀ *, 6, 2, 8; 1999 FX₁₀ *, 6, 2, 8; 1999 FY₁₀ *, 6, 2, 6; 1999 FZ₁₀ *, 6, 2, 5; 1999 FA₁₁ *, 6, 2, 7; 1999 FB₁₁ *, 6, 2, 6; 1999 FC₁₁ *, 6, 2, 7; 1999 FD₁₁ *, 5, 2, 6; 1999 FE₁₁ *, 6, 2, 6; 1999 FF₁₁ *, 6, 2, 3; 1999 FG₁₁ *, 6, 2, 4; 1999 FH₁₁ *, 6, 2, 6; 1999 FJ₁₁ *, 6, 2, 5; 1999 FK₁₁ *, 5, 2, 4; 1999 FL₁₁ *, 6, 2, 4; 1999 FM₁₁ *, 6, 2, 6; 1999 FN₁₁ *, 6, 2, 4; 1999 FO₁₁ *, 6, 2, 4; 1999 FP₁₁ *, 4, 2, 4; 1999 FQ₁₁ *, 6, 2, 4; 1999 FR₁₁ *, 6, 2, 5; 1999 FS₁₁ *, 6, 2, 6; 1999 FT₁₁ *, 6, 2, 5; 1999 FU₁₁ *, 6, 2, 5; 1999 FW₁₁ *, 5, 2, 5; 1999 FX₁₁ *, 6, 2, 5; 1999 FY₁₁ *, 6, 2, 5; 1999 FZ₁₁ *, 6, 2, 5; 1999 FA₁₂ *, 6, 2, 4; 1999 FB₁₂ *, 6, 2, 4; 1999 FC₁₂ *, 6, 2, 5; 1999 FD₁₂ *, 5, 2, 5; 1999 FE₁₂ *, 6, 2, 6; 1999 FF₁₂ *, 6, 2, 6; 1999 FG₁₂ *, 6, 2, 6; 1999 FH₁₂ *, 6, 2, 6; 1999 FJ₁₂ *, 5, 2, 6; 1999 FK₁₂ *, 6, 2, 4; 1999 FL₁₂ *, 6, 2, 5; 1999 FM₁₂ *, 6, 2, 4; 1999 FN₁₂ *, 5, 2, 5; 1999 FO₁₂ *, 6, 2, 4; 1999 FP₁₂ *, 6, 2, 4; 1999 FQ₁₂ *, 6, 2, 4; 1999 FR₁₂ *, 6, 2, 5; 1999 FS₁₂ *, 6, 2, 5; 1999 FT₁₂ *, 5, 2, 5; 1999 FU₁₂ *, 6, 2, 4; 1999 FV₁₂ *, 6, 2, 4; 1999 FW₁₂ *, 6, 2, 4; 1999 FX₁₂ *, 6, 2, 3; 1999 FY₁₂ *, 6, 2, 5; 1999 FZ₁₂ *, 6, 2, 5; 1999 FA₁₃ *, 6, 2, 5; 1999 FB₁₃ *, 6, 2, 5; 1999 FC₁₃ *, 6, 2, 5; 1999 FD₁₃ *, 6, 2, 4; 1999 FE₁₃ *, 6, 2, 5; 1999 FJ₁₃ *, 6, 2, 5; 1999 FK₁₃ *, 6, 2, 5; 1999 FL₁₃ *, 6, 2, 4; 1999 FM₁₃ *, 6, 2, 5; 1999 FN₁₃ *, 6, 2, 5; 1999 FO₁₃ *, 6, 2, 5; 1999 FP₁₃ *, 6, 2, 5; 1999 FQ₁₃ *, 6, 2, 5; 1999 FR₁₃ *, 6, 2, 5; 1999 FS₁₃ *, 6, 2, 5; 1999 FT₁₃ *, 6, 2, 4; 1999 FU₁₃ *, 6, 2, 5; 1999 FV₁₃ *, 6, 2, 5; 1999 FW₁₃ *, 6, 2, 5; 1999 FX₁₃ *, 6, 2, 5; 1999 FY₁₃ *, 6, 2, 5; 1999 FZ₁₃ *, 6, 2, 5; 1999 FA₁₄ *, 5, 2, 5; 1999 FB₁₄ *, 6, 2, 4; 1999 FC₁₄ *, 6, 2, 5; 1999 FD₁₄ *, 6, 2, 4; 1999 FE₁₄ *, 6, 2, 5; 1999 FF₁₄ *, 6, 2, 4; 1999 FG₁₄ *, 5, 2, 4; 1999 FH₁₄ *, 6, 2, 4; 1999 FJ₁₄ *, 6, 2, 4; 1999 FK₁₄ *, 6, 2, 4; 1999 FL₁₄ *, 6, 2, 5; 1999 FM₁₄ *, 6, 2, 4; 1999 FN₁₄ *, 6, 2, 4; 1999 FO₁₄ *, 5, 2, 4; 1999 FP₁₄ *, 6, 2, 5; 1999 FQ₁₄ *, 6, 2, 4; 1999 FR₁₄ *, 6, 2, 5; 1999 FS₁₄ *, 5, 2, 4; 1999 FT₁₄ *, 6, 2, 4; 1999 FU₁₄ *, 5, 2, 4; 1999 FV₁₄ *, 5, 2, 4; 1999 FW₁₄ *, 6, 2, 5; 1999 FX₁₄ *, 6, 2, 5; 1999 FY₁₄ *, 6, 2, 4; 1999 FZ₁₄ *, 6, 2, 4; 1999 FA₁₅ *, 6, 2, 4; 1999 FB₁₅ *, 5, 2, 4; 1999 FC₁₅ *, 6, 2, 5; 1999 FD₁₅ *, 5, 2, 5; 1999 FE₁₅ *, 6, 2, 5; 1999 FF₁₅ *, 6, 2, 5; 1999 FG₁₅ *, 6, 2, 5; 1999 FH₁₅ *, 5, 2, 4; 1999 FJ₁₅ *, 6, 2, 4; 1999 FK₁₅ *, 6, 2, 4; 1999 FL₁₅ *, 6, 2, 4; 1999 FM₁₅ *, 6, 2, 4; 1999 FN₁₅ *, 6, 2, 4; 1999 FO₁₅ *, 6, 2, 4; 1999 FP₁₅ *, 6, 2, 4; 1999 FQ₁₅ *, 6, 2, 4; 1999 FR₁₅ *, 6, 2, 2; 1999 FS₁₅ *, 5, 2, 2; 1999 FT₁₅ *, 6, 2, 2; 1999 FU₁₅ *, 6, 2, 2; 1999 FV₁₅ *, 6, 2, 2; 1999 FW₁₅ *, 6, 2, 2; 1999 FX₁₅ *, 6, 2, 2; 1999 FY₁₅ *, 6, 2, 1; 1999 FZ₁₅ *, 6, 2, 2; 1999 FA₁₆ *, 6, 2, 1; 1999 FB₁₆ *, 6, 2, 1; 1999 FC₁₆ *, 6, 2, 1; 1999 FD₁₆ *, 5, 2, 1; 1999 FE₁₆ *, 6, 2, 1; 1999 FF₁₆ *, 5, 2, 3; 1999 FG₁₆ *, 6, 2, 1; 1999 FH₁₆ *, 6, 2, 1; 1999 FJ₁₆ *, 6, 2, 1; 1999 FK₁₆ *, 6, 2, 1; 1999 FL₁₆ *, 6, 2, 1; 1999 FM₁₆ *, 6, 2, 1; 1999 FN₁₆ *, 5, 2, 1; 1999 FO₁₆ *, 6, 2, 1; 1999 FP₁₆ *, 6, 2, 1; 1999 FQ₁₆ *, 6, 2, 1; 1999 FR₁₆ *, 6, 2, 1; 1999 FS₁₆ *, 6, 2, 1; 1999 FT₁₆ *, 6, 2, 1; 1999 FU₁₆ *, 6, 2, 1; 1999 FV₁₆ *, 6, 2, 1; 1999 FW₁₆ *, 6, 2, 1; 1999 FX₁₆ *, 6, 2, 1; 1999 FY₁₆ *, 6, 2, 1; 1999 FZ₁₆ *, 6, 2, 1; 1999 FA₁₇ *, 6, 2, 1; 1999 FB₁₇ *, 6, 2, 1; 1999 FC₁₇ *, 6, 2, 1; 1999 FD₁₇ *, 6, 2, 1; 1999 FE₁₇ *, 6, 2, 1; 1999 FJ₁₇ *, 8, 2, 1; 1999 FG₁₇ *, 6, 2, 1; 1999 FH₁₇ *, 6, 2, 1; 1999 FJ₁₇ *, 6, 2, 1; 1999 FK₁₇ *, 6, 2, 1; 1999 FL₁₇ *, 5, 2, 1; 1999 FM₁₇ *, 6, 2, 1; 1999 FN₁₇ *, 6, 2, 1; 1999 FO₁₇ *, 6, 2, 1; 1999 FP₁₇ *, 6, 2, 1; 1999 FQ₁₇ *, 6, 2, 1; 1999 FR₁₇ *, 6, 2, 1; 1999 FS₁₇ *, 6, 2, 1; 1999 FT₁₇ *, 6, 2, 1; 1999 FU₁₇ *, 6, 2, 1; 1999 FV₁₇ *, 6, 2, 1; 1999 FW₁₇ *, 6, 2, 1; 1999 FX₁₇ *, 5, 2, 1; 1999 FY₁₇ *, 6, 2, 1; 1999 FZ₁₇ *, 6, 2, 1; 1999 FA₁₈ *, 6, 2, 1;

1999 FB₁₈ *, 6, 2, 1; 1999 FC₁₈ *, 6, 2, 1; 1999 FD₁₈ *, 6, 2, 1; 1999 FY₁₉ *, 6, 2, 6; 1999 FZ₁₉ *, 6, 2, 6; 1999 FA₂₀ *, 6, 2, 6; 1999 FB₂₀ *, 6, 2, 6; 1999 FC₂₀ *, 6, 2, 6; 1999 FD₂₀ *, 6, 2, 6; 1999 FE₂₀ *, 6, 2, 6; 1999 FF₂₀ *, 6, 2, 6; 1999 FG₂₀ *, 6, 2, 6; 1999 FH₂₀ *, 6, 2, 6; 1999 FJ₂₀ *, 6, 2, 6; 1999 FK₂₀ *, 6, 2, 6; 1999 FL₂₀ *, 6, 2, 6; 1999 FM₂₀ *, 6, 2, 6; 1999 FN₂₀ *, 6, 2, 6; 1999 FO₂₀ *, 6, 2, 6; 1999 FP₂₀ *, 6, 2, 6; 1999 FQ₂₀ *, 6, 2, 6; 1999 FR₂₀ *, 6, 2, 6; 1999 FS₂₀ *, 6, 2, 6; 1999 FT₂₀ *, 6, 2, 6; 1999 FU₂₀ *, 6, 2, 6; 1999 FV₂₀ *, 6, 2, 6; 1999 FW₂₀ *, 6, 2, 6; 1999 FJ₂₁ *, 8, 3, 2; 2647 P-L, 3, 1, 0; 2743 P-L, 3, 1, 0; 4042 P-L, 6, 2, 17; 4555 P-L, 3, 1, 0; 4595 P-L, 5, 2, 22; 4642 P-L, 3, 1, 0; 4812 P-L, 3, 1, 0; 6085 P-L, 11, 4, 22; 6097 P-L, 3, 1, 0; 6180 P-L, 6, 2, 5; 6618 P-L, 2, 1, 0; 6676 P-L, 9, 3, 15; 3075 T-1, 3, 1, 0; 3266 T-1, 3, 1, 0; 4166 T-1, 12, 4, 7; 1227 T-2, 3, 1, 0; 1317 T-2, 3, 1, 0; 1353 T-2, 9, 3, 8; 2056 T-2, 3, 1, 0; 2112 T-2, 3, 1, 0; 2216 T-2, 2, 1, 0; 4311 T-2, 9, 3, 9; 3019 T-3, 9, 3, 6; (177), 9, 3, 24; (190), 6, 2, 1; (271), 3, 1, 0; (294), 3, 1, 0; (357), 3, 1, 0; (465), 3, 1, 0; (547), 3, 1, 0; (974), 3, 1, 0; (1005), 3, 1, 0; (1066), 5, 2, 5; (1242), 9, 3, 8; (1268), 9, 3, 14; (1289), 3, 1, 0; (1350), 6, 2, 9; (1381), 6, 2, 1; (1486), 3, 1, 0; (1539), 3, 1, 0; (1541), 6, 2, 4; (1542), 3, 1, 0; (1661), 3, 1, 0; (1672), 12, 4, 14; (1691), 5, 2, 5; (1913), 6, 2, 5; (1928), 6, 2, 13; (1955), 9, 3, 25; (2119), 3, 1, 0; (2190), 5, 2, 4; (2281), 3, 1, 0; (2300), 12, 4, 13; (2342), 6, 2, 4; (2395), 9, 3, 15; (2505), 3, 1, 0; (2506), 3, 1, 0; (2509), 5, 2, 10; (2540), 9, 3, 9; (2597), 3, 1, 0; (2630), 9, 3, 5; (2718), 3, 1, 0; (2721), 3, 1, 0; (2732), 3, 1, 0; (2811), 6, 2, 2; (2921), 3, 1, 0; (3013), 5, 2, 5; (3295), 5, 2, 15; (3386), 9, 3, 18; (3409), 3, 1, 0; (3516), 3, 1, 0; (3591), 8, 3, 12; (3654), 5, 2, 8; (3734), 6, 2, 11; (3762), 3, 1, 0; (3781), 9, 3, 14; (3832), 6, 1, 0; (3946), 12, 4, 15; (4016), 6, 2, 5; (4109), 3, 1, 0; (4110), 3, 1, 0; (4130), 3, 1, 0; (4172), 6, 2, 25; (4187), 6, 2, 17; (4192), 3, 1, 0; (4195), 6, 2, 6; (4206), 3, 1, 0; (4426), 3, 1, 0; (4456), 3, 1, 0; (4466), 6, 2, 18; (4594), 9, 3, 19; (4622), 6, 2, 8; (4659), 3, 1, 0; (4789), 3, 1, 0; (4898), 3, 1, 0; (5092), 6, 2, 6; (5157), 6, 2, 4; (5205), 3, 1, 0; (5248), 6, 2, 1; (5400), 3, 1, 0; (5451), 3, 1, 0; (5555), 6, 2, 16; (5575), 3, 1, 0; (5667), 9, 3, 25; (5767), 15, 5, 14; (5796), 3, 1, 0; (5821), 6, 2, 1; (5876), 3, 1, 0; (5941), 3, 1, 0; (6151), 3, 1, 0; (6373), 6, 2, 13; (6426), 3, 1, 0; (6429), 2, 1, 0; (6622), 3, 1, 0; (6935), 3, 1, 0; (6969), 6, 2, 3; (7053), 3, 1, 0; (7115), 3, 1, 0; (7183), 3, 1, 0; (7199), 3, 1, 0; (7328), 3, 1, 0; (7373), 3, 1, 0; (7414), 9, 3, 12; (7458), 6, 2, 7; (7501), 5, 2, 7; (7860), 3, 1, 0; (7876), 3, 1, 0; (7891), 3, 1, 0; (7948), 3, 1, 0; (7967), 3, 1, 0; (7974), 3, 1, 0; (7983), 3, 1, 0; (7994), 3, 1, 0; (8002), 3, 1, 0; (8056), 6, 2, 15; (8063), 3, 1, 0; (8067), 3, 1, 0; (8088), 6, 2, 1; (8105), 3, 1, 0; (8221), 6, 2, 25; (8225), 3, 1, 0; (8261), 3, 1, 0; (8429), 3, 1, 0; (9766), 6, 1, 0; (9775), 3, 1, 0; (9776), 2, 1, 0; (9788), 3, 1, 0; (9941), 6, 2, 1; (10000), 2, 1, 0; (10015), 3, 1, 0; (10047), 3, 1, 0; (10072), 6, 2, 5; (10104), 3, 1, 0; (10106), 1, 1, 0; (10126), 3, 1, 0; (10137), 3, 1, 0; (10138), 3, 1, 0; (10139), 3, 1, 0; (10255), 3, 1, 0; (10257), 2, 1, 0; [9385, 1580, 1006*, 1994/05/13–1999/03/25]

695 Kitt Peak

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Observers R. L. Millis, M. W. Buie, R. M. Wagner, J. L. Elliot, D. W. Willmarth,
P. S. Smith, D. L. Harmer, A. Saha

Measurers M. W. Buie, R. L. Millis, J. L. Elliot

4-m reflector + CCD, 3.6-m WIYN telescope + CCD

USNO-A2.0

1998 WA₂₃, 6, 2, 2; [6, 1, 0*, 1995/04/08–1995/04/10]

696 F. L. Whipple Observatory, Mount Hopkins

M. J. Holman, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street,
Cambridge, MA 02138, U.S.A. [mholman@cfa.harvard.edu]

Observers O. Naranjo, M. J. Holman

1.2-m f/8 reflector + CCD

USNO-A1.0

1995 DW₂, 2, 1, 0; 1997 AP₁₀, 2, 1, 0; 1999 CF₉, 2, 1, 0; 1999 CZ₁₃, 2, 1, 0; 1999 CE₁₀₇, 2, 1, 0; 1999 CX₁₃₁, 3, 1, 0; 1999 FB₅, 1, 0; 1999 FW₁₉ *, 4, 2, 1; 1999 FX₁₉ *, 4, 2, 1; (8405), 5, 1, 0; [31, 10, 2*, 1999/02/16–1999/03/19]

699 Lowell Observatory–LONEOS

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Observers S. M. Hermann, B. W. Koehn, W. D. Ferris, B. A. Skiff, M. E. Van
Ness, A. U. Tomatic, P. Kelleher

Measurer B. W. Koehn

0.59-m LONEOS Schmidt + CCD
USNO-A1.0, USNO-A2.0

1969 TY₁, 3, 1, 0; 1973 SP₄, 8, 3, 31; 1974 OU₁, 6, 2, 26; 1974 QF₁, 3, 1, 0; 1974 SE, 6, 2, 29;
1975 TJ₃, 3, 1, 0; 1975 TQ₃, 3, 1, 0; 1976 SD₅, 3, 1, 0; 1976 UZ₇, 3, 1, 0; 1977 AC₂, 6, 2, 118;
1977 EL₅, 3, 1, 0; 1977 EM₅, 3, 1, 0; 1977 TU₃, 3, 1, 0; 1977 XZ₂, 3, 1, 0; 1978 NX₇, 6, 1, 0;
1978 PS₂, 3, 1, 0; 1978 SP₅, 3, 1, 0; 1978 SJ₇, 2, 1, 0; 1978 VO₄, 3, 1, 0; 1978 VY₅, 3, 1, 0;
1978 VD₇, 3, 1, 0; 1978 XU, 3, 1, 0; 1979 HN₅, 3, 1, 0; 1979 HW₆, 3, 1, 0; 1979 KD, 3, 1, 0;
1979 MM₁, 3, 1, 0; 1979 ML₂, 3, 1, 0; 1979 MB₉, 2, 1, 0; 1979 SC, 3, 1, 0; 1979 SU₁₁, 3, 1, 0;
1980 FX₃, 3, 1, 0; 1980 TV₂, 6, 2, 30; 1981 EX₃, 3, 1, 0; 1981 EU₇, 3, 1, 0; 1981 EG₁₀, 6, 2, 7;
1981 EO₁₁, 3, 1, 0; 1981 ED₁₄, 3, 1, 0; 1981 ET₁₅, 9, 3, 59; 1981 EC₁₆, 3, 1, 0; 1981 EL₂₁, 3,
1, 0; 1981 EG₂₆, 3, 1, 0; 1981 EW₃₀, 3, 1, 0; 1981 ES₄₀, 3, 1, 0; 1981 EO₄₁, 3, 1, 0; 1981 EE₄₅,
4, 2, 30; 1981 EQ₄₇, 3, 1, 0; 1981 JE₂, 6, 2, 30; 1981 QY₂, 6, 2, 1; 1981 RQ₁, 2, 1, 0; 1981 VN,
3, 1, 0; 1982 QX₁, 6, 2, 30; 1982 US₆, 3, 1, 0; 1982 UF₇, 3, 1, 0; 1982 UK₇, 6, 2, 5; 1982 VB₄,
3, 1, 0; 1982 YR₁, 5, 1, 0; 1983 RP₂, 3, 1, 0; 1984 QS, 2, 1, 0; 1984 SM₅, 3, 1, 0; 1984 SN₆, 6,
2, 2; 1985 CM₁, 3, 1, 0; 1985 CF₂, 3, 1, 0; 1985 DA₂, 3, 1, 0; 1985 SR, 3, 1, 0; 1986 CZ₁, 6, 2,
2; 1986 EA₅, 3, 1, 0; 1986 PM, 9, 3, 31; 1986 PE₁, 3, 1, 0; 1986 QG₁, 6, 2, 25; 1986 QN₁, 3, 1,
0; 1986 QO₃, 3, 1, 0; 1986 RQ, 3, 1, 0; 1986 TU₆, 3, 1, 0; 1986 VA, 6, 2, 37; 1987 DN₆, 3, 1,
0; 1987 KG₅, 3, 1, 0; 1987 PM, 6, 2, 30; 1987 QG₁₀, 3, 1, 0; 1987 SZ₂, 3, 1, 0; 1987 SM₃, 6, 2,
30; 1987 SG₁₃, 6, 2, 2; 1987 UX, 3, 1, 0; 1987 WP, 3, 1, 0; 1988 AA₂, 6, 2, 2; 1988 BN₄, 3, 1, 0;
1988 CQ₁, 3, 1, 0; 1988 CA₂, 9, 3, 56; 1988 CZ₂, 3, 1, 0; 1988 CV₄, 3, 1, 0; 1988 CF₆, 6, 2, 2;
1988 DK, 3, 1, 0; 1988 FE, 3, 1, 0; 1988 FM, 3, 1, 0; 1988 FN, 6, 2, 31; 1988 GF, 2, 1, 0; 1988 GZ,
3, 1, 0; 1988 MH, 2, 1, 0; 1988 RX₂, 3, 1, 0; 1988 RM₅, 3, 1, 0; 1988 RL₉, 6, 2, 81; 1988 RJ₁₃,
6, 2, 10; 1988 SV₁, 3, 1, 0; 1988 SL₂, 3, 1, 0; 1988 SU₂, 3, 1, 0; 1988 SF₃, 6, 2, 4; 1988 VE₁,
3, 1, 0; 1988 VJ₁, 3, 1, 0; 1988 VR₂, 3, 1, 0; 1988 VT₃, 3, 1, 0; 1988 XH₁, 3, 1, 0; 1989 AV₆,
3, 1, 0; 1989 CD₆, 3, 1, 0; 1989 EE₁, 3, 1, 0; 1989 EG₁, 3, 1, 0; 1989 FH, 9, 3, 31; 1989 GV₁,
5, 2, 31; 1989 GQ₆, 3, 1, 0; 1989 RX, 3, 1, 0; 1989 SA₂, 3, 1, 0; 1989 SK₃, 3, 1, 0; 1989 SV₅,
3, 1, 0; 1989 TP₁₁, 6, 2, 1; 1989 TD₁₆, 3, 1, 0; 1989 UA, 6, 2, 10; 1989 US₄, 3, 1, 0; 1989 VP₁,
3, 1, 0; 1989 VS₁, 3, 1, 0; 1989 WH, 3, 1, 0; 1989 WH₃, 3, 1, 0; 1989 YP₅, 6, 2, 29; 1990 BH₁,
3, 1, 0; 1990 CD, 3, 1, 0; 1990 MC, 3, 1, 0; 1990 OM₂, 3, 1, 0; 1990 QY, 6, 2, 2; 1990 QC₆, 2,
1, 0; 1990 QN₉, 3, 1, 0; 1990 QT₉, 6, 2, 1; 1990 QU₉, 3, 1, 0; 1990 RF, 9, 3, 37; 1990 RD₁, 3,
1, 0; 1990 RO₂, 3, 1, 0; 1990 RV₂, 3, 1, 0; 1990 RJ₃, 3, 1, 0; 1990 RF₅, 3, 1, 0; 1990 RF₁₇, 2,
1, 0; 1990 RN₁₇, 3, 1, 0; 1990 SB₂, 3, 1, 0; 1990 SF₃, 3, 1, 0; 1990 SC₄, 3, 1, 0; 1990 SE₆, 3,
1, 0; 1990 SM₆, 3, 1, 0; 1990 SZ₇, 3, 1, 0; 1990 SU₈, 6, 2, 27; 1990 SF₉, 3, 1, 0; 1990 SL₁₀, 3,
1, 0; 1990 SN₂₈, 3, 1, 0; 1990 TD, 3, 1, 0; 1990 TX, 3, 1, 0; 1990 TB₁, 3, 1, 0; 1990 TR₁, 3, 1,
0; 1990 TY₇, 6, 2, 126; 1990 TG₁₃, 5, 1, 0; 1990 UN₁, 5, 2, 2; 1990 UQ₂, 3, 1, 0; 1990 UR₄, 6,
2, 3; 1990 VL₁, 3, 1, 0; 1990 VX₄, 3, 1, 0; 1990 VB₆, 3, 1, 0; 1990 VP₆, 3, 1, 0; 1990 VW₆, 3,
1, 0; 1990 VW₈, 2, 1, 0; 1990 WD, 3, 1, 0; 1990 WV₁, 3, 1, 0; 1990 WB₂, 3, 1, 0; 1990 WR₂,
3, 1, 0; 1990 WS₂, 3, 1, 0; 1990 WJ₄, 3, 1, 0; 1990 XN, 6, 2, 127; 1991 AQ₂, 3, 1, 0; 1991 DW,
3, 1, 0; 1991 EG₁, 3, 1, 0; 1991 FK, 6, 2, 25; 1991 FZ, 3, 1, 0; 1991 FY₃, 6, 2, 44; 1991 GV, 6,
2, 3; 1991 GC₂, 3, 1, 0; 1991 GH₃, 3, 1, 0; 1991 GQ₃, 3, 1, 0; 1991 GF₈, 3, 1, 0; 1991 JT₁, 6,
2, 2; 1991 LY, 3, 1, 0; 1991 NZ₆, 3, 1, 0; 1991 PU₂, 3, 1, 0; 1991 PO₄, 3, 1, 0; 1991 PC₇, 3, 1,
0; 1991 PG₉, 3, 1, 0; 1991 PD₁₁, 3, 1, 0; 1991 PG₁₁, 3, 1, 0; 1991 PF₁₃, 3, 1, 0; 1991 PV₁₆, 6,
2, 1; 1991 PO₁₈, 3, 1, 0; 1991 RL₁, 3, 1, 0; 1991 RE₂, 3, 1, 0; 1991 RF₂, 6, 2, 24; 1991 RT₃, 3,
1, 0; 1991 RC₅, 3, 1, 0; 1991 RL₇, 3, 1, 0; 1991 RL₈, 3, 1, 0; 1991 RC₁₀, 3, 1, 0; 1991 RZ₁₄, 3,
1, 0; 1991 RY₁₆, 3, 1, 0; 1991 RT₄₀, 3, 1, 0; 1991 RJ₄₁, 3, 1, 0; 1991 SN, 6, 2, 1; 1991 UO₂, 3,
1, 0; 1991 VT₁, 3, 1, 0; 1991 VX₂, 3, 1, 0; 1991 VD₅, 3, 1, 0; 1991 VM₅, 3, 1, 0; 1991 YX, 3,
1, 0; 1992 AM, 3, 1, 0; 1992 AQ, 3, 1, 0; 1992 BM, 3, 1, 0; 1992 CK, 3, 1, 0; 1992 CA₂, 6, 2,
31; 1992 CJ₃, 6, 2, 31; 1992 DC₁, 6, 2, 3; 1992 DL₄, 3, 1, 0; 1992 DF₁₀, 3, 1, 0; 1992 DL₁₁, 3,
1, 0; 1992 EE, 3, 1, 0; 1992 EO₇, 3, 1, 0; 1992 EL₈, 3, 1, 0; 1992 EC₉, 3, 1, 0; 1992 EB₁₃, 3,
1, 0; 1992 EG₁₄, 3, 1, 0; 1992 EK₁₄, 3, 1, 0; 1992 EM₁₇, 3, 1, 0; 1992 FT₁, 3, 1, 0; 1992 GW₄,
3, 1, 0; 1992 HL₄, 3, 1, 0; 1992 HH₅, 6, 2, 2; 1992 JQ, 3, 1, 0; 1992 JF₃, 6, 2, 2; 1992 LN, 3,
1, 0; 1992 MD, 3, 1, 0; 1992 OG₂, 6, 2, 31; 1992 PC₂, 6, 2, 2; 1992 PJ₂, 3, 1, 0; 1992 RK₇, 3,
1, 0; 1992 SH, 3, 1, 0; 1992 SA₂₂, 3, 1, 0; 1992 TV, 6, 2, 99; 1992 UP₆, 3, 1, 0; 1992 VQ, 3, 1,
0; 1992 WF₁, 6, 2, 1; 1992 WN₁, 3, 1, 0; 1992 WR₅, 3, 1, 0; 1992 YS₂, 9, 3, 31; 1993 BU₅, 3,
1, 0; 1993 EQ, 3, 1, 0; 1993 FS₆, 3, 1, 0; 1993 FL₈, 3, 1, 0; 1993 FW₉, 3, 1, 0; 1993 FE₃₁, 6,
2, 4; 1993 FL₃₄, 6, 2, 5; 1993 FE₇₆, 3, 1, 0; 1993 JK, 3, 1, 0; 1993 NB, 3, 1, 0; 1993 OQ₅, 3, 1,
0; 1993 OV₃, 3, 1, 0; 1993 OY₆, 3, 1, 0; 1993 OA₇, 3, 1, 0; 1993 QN₃, 3, 1, 0; 1993 QS₄, 3, 1,
0; 1993 RZ₃, 3, 1, 0; 1993 RK₄, 3, 1, 0; 1993 SH₁, 3, 1, 0; 1993 SJ₁, 3, 1, 0; 1993 TN, 2, 1, 0;
1993 TL₁₇, 2, 1, 0; 1993 TH₃₂, 6, 2, 3; 1993 TS₃₆, 3, 1, 0; 1993 TZ₃₆, 3, 1, 0; 1993 TZ₃₈, 3, 1,
0; 1993 UC₃, 3, 1, 0; 1993 UM₈, 3, 1, 0; 1993 VU₁, 3, 1, 0; 1993 VA₃, 3, 1, 0; 1993 XW₂, 3, 1,
0; 1994 AD₁₁, 9, 3, 29; 1994 BM₄, 6, 2, 3; 1994 BP₄, 3, 1, 0; 1994 CW, 3, 1, 0; 1994 CV₁₆, 3,
1, 0; 1994 GQ, 3, 1, 0; 1994 GT, 6, 2, 4; 1994 GD₁, 6, 2, 4; 1994 PF₁, 3, 1, 0; 1994 PF₂, 3, 1,
0; 1994 PM₁₄, 3, 1, 0; 1994 PQ₁₅, 3, 1, 0; 1994 PD₁₈, 3, 1, 0; 1994 PL₂₆, 3, 1, 0; 1994 PE₃₅, 3,
1, 0; 1994 QA, 3, 1, 0; 1994 RL₁, 3, 1, 0; 1994 TG₁, 3, 1, 0; 1994 TM₂, 3, 1, 0; 1994 TN₁₆, 3,
1, 0; 1994 UP₁, 3, 1, 0; 1994 UX₁, 3, 1, 0; 1994 UC₂, 3, 1, 0; 1994 UP₁₁, 3, 1, 0; 1994 VL, 3,
1, 0; 1994 VH₁, 2, 1, 0; 1994 VF₂, 3, 1, 0; 1994 VO₆, 3, 1, 0; 1994 VO₇, 6, 2, 2; 1994 WF₂, 3,
1, 0; 1994 WW₂, 3, 1, 0; 1994 WL₃, 3, 1, 0; 1994 WN₃, 3, 1, 0; 1994 WR₃, 3, 1, 0; 1994 WD₄,

3, 1, 0; 1994 XJ, 3, 1, 0; 1994 XL, 3, 1, 0; 1994 XP, 3, 1, 0; 1994 YL₁, 3, 1, 0; 1994 YP₁, 3,
1, 0; 1994 YT₁, 3, 1, 0; 1994 YV₁, 3, 1, 0; 1994 YF₂, 3, 1, 0; 1995 AV₂, 3, 1, 0; 1995 BA, 9,
3, 29; 1995 BJ, 2, 1, 0; 1995 BY, 3, 1, 0; 1995 BP₁, 3, 1, 0; 1995 BY₂, 3, 1, 0; 1995 BL₄, 9, 3,
126; 1995 CX, 3, 1, 0; 1995 CB₁, 3, 1, 0; 1995 CM₁, 6, 2, 2; 1995 DE, 2, 1, 0; 1995 EL₈, 3, 1,
0; 1995 FM, 3, 1, 0; 1995 FQ₄, 3, 1, 0; 1995 FM₈, 3, 1, 0; 1995 FO₁₀, 3, 1, 0; 1995 GF, 6, 2,
2; 1995 GS₅, 3, 1, 0; 1995 GJ₇, 3, 1, 0; 1995 HY₂, 3, 1, 0; 1995 JC, 3, 1, 0; 1995 MC, 3, 1, 0;
1995 SX₄₈, 3, 1, 0; 1995 XH₁, 3, 1, 0; 1995 YH₁, 3, 1, 0; 1996 AA, 3, 1, 0; 1996 AB₄, 3, 1, 0;
1996 BS₂, 3, 1, 0; 1996 CY, 3, 1, 0; 1996 CR₈, 3, 1, 0; 1996 DM₂, 3, 1, 0; 1996 ES₂, 3, 1, 0;
1996 EK₆, 3, 1, 0; 1996 GF₁, 3, 1, 0; 1996 GP₂, 3, 1, 0; 1996 GB₇, 6, 2, 30; 1996 GR₁₇, 3, 1, 0;
1996 GB₁₈, 3, 1, 0; 1996 GV₁₈, 3, 1, 0; 1996 GA₁₉, 3, 1, 0; 1996 GN₁₉, 3, 1, 0; 1996 HR₁₀, 3, 1,
0; 1996 HT₁₅, 3, 1, 0; 1996 HX₁₆, 3, 1, 0; 1996 HV₂₁, 6, 2, 30; 1996 HM₂₂, 3, 1, 0; 1996 HC₂₄,
3, 1, 0; 1996 JJ₁, 2, 1, 0; 1996 KN₁, 6, 2, 26; 1996 KX₂, 3, 1, 0; 1996 LL, 3, 1, 0; 1996 NF₃, 3,
1, 0; 1996 NE₅, 3, 1, 0; 1996 NR₅, 3, 1, 0; 1996 OH, 3, 1, 0; 1996 PF₅, 3, 1, 0; 1996 PN₅, 3, 1,
0; 1996 PY₇, 3, 1, 0; 1996 PO₉, 3, 1, 0; 1996 QL, 3, 1, 0; 1996 RJ₃, 6, 2, 1; 1996 RJ₄, 3, 1, 0;
1996 RO₅, 3, 1, 0; 1996 TQ₁₀, 3, 1, 0; 1996 TR₁₀, 6, 2, 4; 1996 TL₁₂, 3, 1, 0; 1996 TS₁₅, 3, 1,
0; 1996 UQ, 5, 2, 2; 1996 VS, 3, 1, 0; 1996 YH₃, 3, 1, 0; 1997 ES₁₇, 3, 1, 0; 1997 FN₃, 3, 1, 0;
1997 GJ₁₃, 3, 1, 0; 1997 GA₁₄, 3, 1, 0; 1997 GZ₁₆, 3, 1, 0; 1997 GR₂₄, 3, 1, 0; 1997 GR₂₅, 3, 1,
0; 1997 GA₃₈, 3, 1, 0; 1997 JH₆, 3, 1, 0; 1997 JD₁₂, 3, 1, 0; 1997 JC₁₄, 3, 1, 0; 1997 MR₁, 3, 1,
0; 1997 MS₃, 3, 1, 0; 1997 MB₉, 3, 1, 0; 1997 OJ, 3, 1, 0; 1997 PD₅, 6, 2, 29; 1997 PN₅, 6, 2,
1; 1997 QH₁, 3, 1, 0; 1997 QZ₂, 9, 3, 125; 1997 RC, 3, 1, 0; 1997 RV₂, 3, 1, 0; 1997 RK₃, 3, 1,
0; 1997 RR₃, 6, 2, 37; 1997 RZ₇, 3, 1, 0; 1997 SX, 3, 1, 0; 1997 SM₁, 3, 1, 0; 1997 SX₁, 3, 1, 0;
1997 SZ₁, 3, 1, 0; 1997 SF₃, 3, 1, 0; 1997 SD₁₁, 6, 2, 4; 1997 SX₁₅, 3, 1, 0; 1997 SE₁₆, 3, 1, 0;
1997 SX₂₁, 3, 1, 0; 1997 SE₃₀, 3, 1, 0; 1997 SW₃₃, 6, 2, 29; 1997 TE, 3, 1, 0; 1997 TK₁₁, 3, 1, 0;
1997 TM₁₇, 3, 1, 0; 1997 TU₁₇, 3, 1, 0; 1997 TY₁₇, 3, 1, 0; 1997 TU₁₈, 3, 1, 0; 1997 TW₁₈, 3,
1, 0; 1997 TF₂₆, 3, 1, 0; 1997 TR₂₆, 3, 1, 0; 1997 TV₂₆, 6, 2, 1; 1997 UG₁, 3, 1, 0; 1997 UU₂, 3,
1, 0; 1997 UR₃, 3, 1, 0; 1997 UA₄, 3, 1, 0; 1997 UK₇, 3, 1, 0; 1997 UL₇, 3, 1, 0; 1997 UP₈, 9, 3,
33; 1997 UZ₈, 6, 2, 37; 1997 UE₂₁, 2, 1, 0; 1997 UM₂₁, 6, 2, 1; 1997 UD₂₅, 6, 2, 93; 1997 VQ, 3,
1, 0; 1997 VX, 3, 1, 0; 1997 VN₃, 2, 1, 0; 1997 VG₄, 8, 3, 31; 1997 VW₄, 3, 1, 0; 1997 VM₇, 6,
2, 4; 1997 VX₇, 2, 1, 0; 1997 WK, 3, 1, 0; 1997 WL, 3, 1, 0; 1997 WX, 3, 1, 0; 1997 WD₂, 2, 1,
0; 1997 WD₃, 3, 1, 0; 1997 WZ₇, 3, 1, 0; 1997 WO₁₃, 6, 2, 4; 1997 WD₁₅, 3, 1, 0; 1997 WM₁₆,
6, 2, 35; 1997 WK₂₁, 6, 2, 37; 1997 WQ₂₈, 3, 1, 0; 1997 WZ₃₀, 3, 1, 0; 1997 WQ₃₁, 3, 1, 0;
1997 WS₃₂, 5, 2, 4; 1997 WT₃₄, 3, 1, 0; 1997 WC₃₅, 3, 1, 0; 1997 WK₃₅, 3, 1, 0; 1997 WD₃₆, 3,
1, 0; 1997 WB₃₇, 3, 1, 0; 1997 WD₄₁, 6, 2, 36; 1997 WP₄₄, 3, 1, 0; 1997 WO₅₁, 3, 1, 0; 1997 XV,
5, 2, 30; 1997 XF₂, 3, 1, 0; 1997 XY₉, 3, 1, 0; 1997 XA₁₀, 3, 1, 0; 1997 XC₁₀, 3, 1, 0; 1997 XL₁₀,
3, 1, 0; 1997 XR₁₁, 3, 1, 0; 1997 YA, 3, 1, 0; 1997 YG₁, 3, 1, 0; 1997 YO₄, 3, 1, 0; 1997 YP₇, 6,
2, 2; 1998 AC₈, 6, 2, 2; 1998 BB₂, 3, 1, 0; 1998 BD₅, 3, 1, 0; 1998 BT₂₆, 3, 1, 0; 1998 BC₃₅, 3,
1, 0; 1998 CS₁₂, 3, 1, 0; 1998 EG₉, 6, 2, 4; 1998 HH₇₇, 3, 1, 0; 1998 NA, 6, 2,
82; 1998 OX₁₄, 3, 1, 0; 1998 PU, 3, 1, 0; 1998 PP₁, 3, 1, 0; 1998 QS₅, 3, 1, 0; 1998 QZ₅, 3, 1, 0;
1998 QK₆, 3, 1, 0; 1998 QL₆, 3, 1, 0; 1998 QO₆, 3, 1, 0; 1998 QR₆, 3, 1, 0; 1998 QZ₂₅, 3, 1, 0;
1998 QR₃₈, 3, 1, 0; 1998 QH₄₀, 3, 1, 0; 1998 QP₄₀, 3, 1, 0; 1998 QV₄₀, 3, 1, 0; 1998 QH₄₂, 3, 1, 0;
1998 QN₄₂, 3, 1, 0; 1998 QS₄₄, 3, 1, 0; 1998 QC₄₅, 3, 1, 0; 1998 QD₄₅, 3, 1, 0; 1998 QV₄₅, 3, 1, 0;
1998 QU₄₆, 3, 1, 0; 1998 QT₅₁, 3, 1, 0; 1998 QV₅₁, 3, 1, 0; 1998 QM₅₄, 6, 2, 82; 1998 QO₅₄, 2, 1,
0; 1998 QL₅₅, 3, 1, 0; 1998 QM₅₅, 3, 1, 0; 1998 QF₅₅, 3, 1, 0; 1998 QC₇₁, 3, 1, 0; 1998 QE₇₁, 3, 1,
0; 1998 QE₇₃, 3, 1, 0; 1998 QN₇₅, 3, 1, 0; 1998 QK₇₆, 3, 1, 0; 1998 QW₈₅, 3, 1, 0; 1998 QR₈₆, 3, 1,
0; 1998 QL₈₉, 3, 1, 0; 1998 QT₉₀, 3, 1, 0; 1998 QJ₉₁, 3, 1, 0; 1998 QR₉₁, 3, 1, 0; 1998 QV₉₁, 3, 1,
0; 1998 QC₉₂, 3, 1, 0; 1998 QF₉₂, 3, 1, 0; 1998 QL₉₂, 3, 1, 0; 1998 QP₉₂, 3, 1, 0; 1998 QF₉₃, 6, 2,
16; 1998 QH₉₃, 3, 1, 0; 1998 QN₉₃, 3, 1, 0; 1998 QO₉₃, 6, 2, 11; 1998 QF₉₃, 3, 1,

0; 1998 SV₁₃₁, 3, 1, 0; 1998 SD₁₃₂, 3, 1, 0; 1998 SV₁₃₂, 3, 1, 0; 1998 SA₁₃₃, 3, 1, 0; 1998 SE₁₃₅, 3, 1, 0; 1998 SH₁₃₅, 2, 1, 0; 1998 SM₁₃₅, 3, 1, 0; 1998 SS₁₃₈, 3, 1, 0; 1998 SV₁₃₈, 3, 1, 0; 1998 SA₁₃₉, 3, 1, 0; 1998 SE₁₃₉, 3, 1, 0; 1998 SY₁₃₉, 3, 1, 0; 1998 SM₁₄₀, 3, 1, 0; 1998 SU₁₄₀, 3, 1, 0; 1998 SV₁₄₀, 3, 1, 0; 1998 SC₁₄₁, 3, 1, 0; 1998 SG₁₄₁, 3, 1, 0; 1998 SJ₁₄₁, 3, 1, 0; 1998 SE₁₄₄, 3, 1, 0; 1998 SQ₁₄₄, 3, 1, 0; 1998 ST₁₄₄, 3, 1, 0; 1998 SA₁₄₅, 3, 1, 0; 1998 SH₁₄₅, 6, 2, 35; 1998 SE₁₄₆, 3, 1, 0; 1998 SH₁₄₆, 3, 1, 0; 1998 ST₁₄₆, 3, 1, 0; 1998 SS₁₄₇, 3, 1, 0; 1998 SS₁₆₁, 3, 1, 0; 1998 SX₁₆₁, 3, 1, 0; 1998 SQ₁₆₂, 3, 1, 0; 1998 SR₁₆₂, 3, 1, 0; 1998 SE₁₆₃, 3, 1, 0; 1998 SX₁₆₃, 3, 1, 0; 1998 SE₁₆₄, 3, 1, 0; 1998 SF₁₆₄, 3, 1, 0; 1998 TC₃, 3, 1, 0; 1998 TK₃, 3, 1, 0; 1998 TQ₂, 3, 1, 0; 1998 TN₃, 3, 1, 0; 1998 TC₅, 3, 1, 0; 1998 TD₅, 3, 1, 0; 1998 TH₅, 3, 1, 0; 1998 TK₅, 3, 1, 0; 1998 TN₅, 3, 1, 0; 1998 TO₅, 3, 1, 0; 1998 TS₅, 3, 1, 0; 1998 TU₅, 3, 1, 0; 1998 TX₅, 3, 1, 0; 1998 TY₅, 3, 1, 0; 1998 TC₆, 3, 1, 0; 1998 TF₆, 3, 1, 0; 1998 TQ₆, 3, 1, 0; 1998 TU₆, 3, 1, 0; 1998 TY₆, 3, 1, 0; 1998 TE₈, 3, 1, 0; 1998 TQ₉, 3, 1, 0; 1998 TC₁₀, 3, 1, 0; 1998 TJ₁₀, 3, 1, 0; 1998 TL₁₀, 3, 1, 0; 1998 TD₁₅, 3, 1, 0; 1998 TB₁₆, 3, 1, 0; 1998 TG₁₇, 3, 1, 0; 1998 TW₁₇, 3, 1, 0; 1998 TA₁₈, 3, 1, 0; 1998 TD₁₈, 3, 1, 0; 1998 TF₁₈, 3, 1, 0; 1998 TO₁₉, 3, 1, 0; 1998 TE₂₉, 3, 1, 0; 1998 TK₃₀, 3, 1, 0; 1998 TM₃₀, 3, 1, 0; 1998 TN₃₀, 3, 1, 0; 1998 TO₃₀, 3, 1, 0; 1998 TQ₃₀, 3, 1, 0; 1998 TR₃₀, 3, 1, 0; 1998 TU₃₀, 3, 1, 0; 1998 TV₃₀, 3, 1, 0; 1998 TW₃₀, 3, 1, 0; 1998 TD₃₂, 3, 1, 0; 1998 TF₃₂, 3, 1, 0; 1998 TH₃₂, 3, 1, 0; 1998 TJ₃₂, 3, 1, 0; 1998 TL₃₂, 3, 1, 0; 1998 TM₃₂, 3, 1, 0; 1998 TN₃₂, 3, 1, 0; 1998 TY₃₂, 3, 1, 0; 1998 TH₃₃, 3, 1, 0; 1998 TJ₃₃, 3, 1, 0; 1998 TL₃₃, 6, 2, 5; 1998 TN₃₃, 3, 1, 0; 1998 TP₃₃, 3, 1, 0; 1998 TQ₃₃, 3, 1, 0; 1998 TR₃₃, 3, 1, 0; 1998 TT₃₃, 3, 1, 0; 1998 TU₃₃, 3, 1, 0; 1998 TZ₃₃, 3, 1, 0; 1998 TN₃₄, 3, 1, 0; 1998 TY₃₄, 3, 1, 0; 1998 UG₃, 3, 1, 0; 1998 UQ₃, 3, 1, 0; 1998 UZ₃, 3, 1, 0; 1998 UA₁, 3, 1, 0; 1998 UX₂, 3, 1, 0; 1998 UL₆, 3, 1, 0; 1998 UA₇, 3, 1, 0; 1998 UE₇, 3, 1, 0; 1998 UW₇, 3, 1, 0; 1998 UX₇, 3, 1, 0; 1998 UY₇, 3, 1, 0; 1998 UZ₇, 3, 1, 0; 1998 UP₈, 3, 1, 0; 1998 UF₁₁, 3, 1, 0; 1998 UK₁₁, 3, 1, 0; 1998 US₁₃, 3, 1, 0; 1998 UF₁₄, 3, 1, 0; 1998 UC₁₅, 3, 1, 0; 1998 UE₁₅, 2, 1, 0; 1998 UH₁₅, 3, 1, 0; 1998 UT₁₅, 6, 2, 16; 1998 UY₁₅, 2, 1, 0; 1998 UJ₁₆, 3, 1, 0; 1998 UO₁₆, 3, 1, 0; 1998 UP₁₆, 3, 1, 0; 1998 US₁₆, 3, 1, 0; 1998 UF₁₈, 3, 1, 0; 1998 UO₁₉, 3, 1, 0; 1998 UB₂₀, 3, 1, 0; 1998 UC₂₀, 3, 1, 0; 1998 UD₂₀, 3, 1, 0; 1998 UM₂₀, 3, 1, 0; 1998 UZ₂₁, 2, 1, 0; 1998 UT₂₂, 3, 1, 0; 1998 UO₂₃, 3, 1, 0; 1998 UX₂₃, 3, 1, 0; 1998 UE₂₄, 3, 1, 0; 1998 UV₂₄, 3, 1, 0; 1998 UW₂₄, 3, 1, 0; 1998 UP₂₆, 3, 1, 0; 1998 UD₂₈, 3, 1, 0; 1998 UG₂₉, 3, 1, 0; 1998 UM₂₉, 3, 1, 0; 1998 UC₃₀, 6, 2, 5; 1998 UP₃₀, 3, 1, 0; 1998 UT₃₀, 3, 1, 0; 1998 UN₃₂, 3, 1, 0; 1998 UQ₃₂, 3, 1, 0; 1998 UW₃₄, 3, 1, 0; 1998 UV₃₆, 6, 2, 37; 1998 UA₃₇, 3, 1, 0; 1998 UU₃₇, 3, 1, 0; 1998 UC₃₈, 3, 1, 0; 1998 UD₃₈, 3, 1, 0; 1998 UB₃₉, 3, 1, 0; 1998 UP₃₉, 3, 1, 0; 1998 UB₄₀, 3, 1, 0; 1998 UF₄₀, 3, 1, 0; 1998 UG₄₀, 3, 1, 0; 1998 UC₄₁, 3, 1, 0; 1998 UK₄₁, 3, 1, 0; 1998 UF₄₂, 3, 1, 0; 1998 UL₄₂, 3, 1, 0; 1998 UJ₄₃, 3, 1, 0; 1998 VG₃, 3, 1, 0; 1998 VK₃, 3, 1, 0; 1998 VU₃, 3, 1, 0; 1998 VS₄, 3, 1, 0; 1998 VB₆, 3, 1, 0; 1998 VH₆, 3, 1, 0; 1998 VF₇, 3, 1, 0; 1998 VM₇, 3, 1, 0; 1998 VQ₇, 3, 1, 0; 1998 VS₇, 3, 1, 0; 1998 VX₇, 3, 1, 0; 1998 VC₈, 3, 1, 0; 1998 VJ₈, 3, 1, 0; 1998 VN₈, 6, 2, 27; 1998 VX₈, 3, 1, 0; 1998 VD₉, 3, 1, 0; 1998 VM₉, 3, 1, 0; 1998 VS₁₀, 3, 1, 0; 1998 VT₁₀, 3, 1, 0; 1998 VW₁₀, 3, 1, 0; 1998 VE₁₁, 3, 1, 0; 1998 VK₁₁, 3, 1, 0; 1998 VN₁₁, 3, 1, 0; 1998 VQ₁₂, 3, 1, 0; 1998 VR₁₂, 3, 1, 0; 1998 VS₁₂, 3, 1, 0; 1998 VW₁₂, 3, 1, 0; 1998 VX₁₂, 3, 1, 0; 1998 VY₁₂, 3, 1, 0; 1998 VZ₁₂, 3, 1, 0; 1998 VA₁₃, 3, 1, 0; 1998 VB₁₃, 3, 1, 0; 1998 VF₁₃, 3, 1, 0; 1998 VH₁₃, 3, 1, 0; 1998 VS₁₃, 3, 1, 0; 1998 VT₁₃, 3, 1, 0; 1998 VU₁₃, 3, 1, 0; 1998 VY₁₃, 3, 1, 0; 1998 VZ₁₃, 3, 1, 0; 1998 VA₁₄, 3, 1, 0; 1998 VB₁₄, 3, 1, 0; 1998 VF₁₄, 3, 1, 0; 1998 VH₁₄, 3, 1, 0; 1998 VK₁₄, 3, 1, 0; 1998 VL₁₄, 3, 1, 0; 1998 VM₁₄, 3, 1, 0; 1998 VN₁₄, 3, 1, 0; 1998 VR₁₄, 3, 1, 0; 1998 VS₁₅, 3, 1, 0; 1998 VO₁₅, 3, 1, 0; 1998 VQ₁₅, 3, 1, 0; 1998 VR₁₅, 3, 1, 0; 1998 VT₁₅, 3, 1, 0; 1998 VW₁₅, 3, 1, 0; 1998 VB₁₆, 3, 1, 0; 1998 VY₁₆, 3, 1, 0; 1998 VD₁₇, 3, 1, 0; 1998 VK₁₇, 3, 1, 0; 1998 VL₁₇, 3, 1, 0; 1998 VM₁₇, 3, 1, 0; 1998 VO₁₇, 3, 1, 0; 1998 VY₁₇, 3, 1, 0; 1998 VZ₁₇, 3, 1, 0; 1998 VE₁₈, 3, 1, 0; 1998 VF₁₈, 3, 1, 0; 1998 VH₁₈, 3, 1, 0; 1998 VM₁₈, 3, 1, 0; 1998 VN₁₈, 3, 1, 0; 1998 VQ₁₈, 3, 1, 0; 1998 VT₁₈, 3, 1, 0; 1998 VW₁₈, 3, 1, 0; 1998 VX₁₈, 3, 1, 0; 1998 VH₁₉, 3, 1, 0; 1998 VJ₁₉, 3, 1, 0; 1998 VA₂₀, 3, 1, 0; 1998 VB₂₀, 3, 1, 0; 1998 VF₂₀, 3, 1, 0; 1998 VG₂₀, 3, 1, 0; 1998 VF₂₁, 3, 1, 0; 1998 VM₂₁, 3, 1, 0; 1998 VN₂₁, 3, 1, 0; 1998 VQ₂₁, 3, 1, 0; 1998 VR₂₁, 3, 1, 0; 1998 VS₂₁, 3, 1, 0; 1998 VU₂₁, 3, 1, 0; 1998 VX₂₁, 3, 1, 0; 1998 VY₂₁, 3, 1, 0; 1998 VE₂₂, 3, 1, 0; 1998 VG₂₂, 3, 1, 0; 1998 VH₂₂, 3, 1, 0; 1998 VN₂₆, 3, 1, 0; 1998 VL₂₈, 3, 1, 0; 1998 VC₂₉, 3, 1, 0; 1998 VE₂₉, 3, 1, 0; 1998 VH₂₉, 3, 1, 0; 1998 VQ₂₉, 3, 1, 0; 1998 VS₂₉, 3, 1, 0; 1998 VE₃₀, 3, 1, 0; 1998 VF₃₀, 6, 2, 16; 1998 VJ₃₀, 3, 1, 0; 1998 VQ₃₁, 6, 2, 11; 1998 UV₃₁, 3, 1, 0; 1998 VS₃₂, 3, 1, 0; 1998 VW₃₂, 3, 1, 0; 1998 VY₃₄, 6, 2, 82; 1998 VC₃₅, 3, 1, 0; 1998 VF₃₅, 3, 1, 0; 1998 VL₃₅, 3, 1, 0; 1998 VQ₃₆, 3, 1, 0; 1998 VR₃₆, 3, 1, 0; 1998 VZ₃₆, 3, 1, 0; 1998 VE₃₇, 3, 1, 0; 1998 VG₃₇, 3, 1, 0; 1998 VJ₃₇, 3, 1, 0; 1998 VL₃₇, 3, 1, 0; 1998 VN₃₇, 3, 1, 0; 1998 VO₃₇, 3, 1, 0; 1998 VU₃₇, 3, 1, 0; 1998 VJ₃₈, 3, 1, 0; 1998 VK₃₈, 3, 1, 0; 1998 VO₃₈, 3, 1, 0; 1998 VV₄₁, 3, 1, 0; 1998 VJ₄₂, 3, 1, 0; 1998 VC₄₄, 6, 2, 12; 1998 VH₄₄ *, 6, 2, 4; 1998 VJ₄₄ *, 6, 2, 3; 1998 VK₄₄ *, 6, 2, 10; 1998 VL₄₄ *, 6, 2, 5; 1998 VM₄₄ *, 6, 2, 5; 1998 WN₂, 3, 1, 0; 1998 WU₅, 3, 1, 0; 1998 WZ₅, 3, 1, 0; 1998 WB₇, 3, 1, 0; 1998 WM₇, 9, 3, 140; 1998 WC₈, 1, 1, 0; 1998 WJ₈, 3, 1, 0; 1998 WU₈, 3, 1, 0; 1998 WE₉, 3, 1, 0; 1998 WR₉, 3, 1, 0; 1998 WN₁₁, 3, 1, 0; 1998 WP₁₁, 6, 2, 44; 1998 WZ₁₄, 3, 1, 0; 1998 WB₁₅, 3, 1, 0; 1998 WL₁₅, 3, 1, 0; 1998 WM₁₅, 3, 1, 0; 1998 WO₁₅, 3, 1, 0; 1998 WC₁₆, 3, 1, 0; 1998 WE₁₆, 3, 1, 0; 1998 WN₁₆, 3, 1, 0; 1998 WO₁₆, 3, 1, 0; 1998 WJ₁₇, 6, 2, 41; 1998 WA₁₈, 3, 1, 0; 1998 WV₁₈, 6, 2, 41; 1998 WK₁₉, 6, 2, 1; 1998 WN₁₉, 3, 1, 0; 1998 WS₁₉, 3, 1, 0; 1998 WU₁₉, 6, 2, 4; 1998 WR₂₀, 3, 1, 0; 1998 WA₂₃, 3, 1, 0; 1998 WC₂₄, 9, 3, 29; 1998 WD₂₄, 9, 3, 114; 1998 WW₃₀, 3, 1, 0; 1998 WA₃₂, 3, 1, 0; 1998 XW₉, 3, 1, 0; 1998 XN₁₀, 3, 1, 0; 1998 XN₁₃, 3, 1, 0; 1998 XU₁₆, 3, 1, 0; 1998 XH₂₀, 3, 1, 0; 1998 XS₂₀, 3, 1, 0;

1998 XF₂₃, 3, 1, 0; 1998 XG₂₄, 3, 1, 0; 1998 XC₂₆, 6, 2, 29; 1998 XD₂₆, 3, 1, 0; 1998 XO₂₈, 3, 1, 0; 1998 XD₂₉, 3, 1, 0; 1998 XG₆₁, 3, 1, 0; 1998 XL₇₇, 12, 4, 91; 1998 XN₇₇, 3, 1, 0; 1998 XO₇₇, 6, 2, 13; 1998 XQ₇₇, 6, 2, 13; 1998 XY₇₇, 6, 2, 13; 1998 XZ₇₇, 3, 1, 0; 1998 XG₇₉, 6, 2, 12; 1998 XG₈₀, 6, 2, 12; 1998 XQ₈₃, 3, 1, 0; 1998 XD₉₆, 3, 1, 0; 1998 XH₉₆, 3, 1, 0; 1998 XN₉₆, 6, 2, 92; 1998 YC₃, 3, 1, 0; 1998 YE₃, 3, 1, 0; 1998 YU₁, 3, 1, 0; 1998 YF₂, 3, 1, 0; 1998 YL₂, 3, 1, 0; 1998 YS₂, 3, 1, 0; 1998 YT₂, 3, 1, 0; 1998 YF₃, 3, 1, 0; 1998 YG₃, 3, 1, 0; 1998 YL₄, 3, 1, 0; 1998 YD₅, 3, 1, 0; 1998 YE₅, 3, 1, 0; 1998 YS₅, 3, 1, 0; 1998 YA₆, 3, 1, 0; 1998 YN₆, 3, 1, 0; 1998 YZ₆, 3, 1, 0; 1998 YA₇, 3, 1, 0; 1998 YF₈, 3, 1, 0; 1998 YK₈, 3, 1, 0; 1998 YM₈, 3, 1, 0; 1998 YM₉, 6, 2, 31; 1998 YN₉, 3, 1, 0; 1998 YU₉, 3, 1, 0; 1998 YP₁₀, 6, 2, 2; 1998 YB₁₂, 6, 2, 1; 1998 YC₁₂, 3, 1, 0; 1998 YL₁₃, 3, 1, 0; 1998 YQ₁₅, 3, 1, 0; 1998 YM₁₆, 3, 1, 0; 1998 YU₁₆, 3, 1, 0; 1998 YV₁₆, 3, 1, 0; 1998 YT₂₀, 3, 1, 0; 1998 YN₂₂, 3, 1, 0; 1998 YO₂₂, 3, 1, 0; 1998 YR₂₉, 3, 1, 0; 1998 YS₂₉, 3, 1, 0; 1998 YT₂₉, 3, 1, 0; 1998 YZ₂₉, 3, 1, 0; 1999 AK₃, 1, 0; 1999 AW₃, 3, 1, 0; 1999 AG₂, 3, 1, 0; 1999 AL₂, 3, 1, 0; 1999 AQ₂, 3, 1, 0; 1999 AR₂, 3, 1, 0; 1999 AT₂, 3, 1, 0; 1999 AU₂, 3, 1, 0; 1999 AN₃, 3, 1, 0; 1999 AP₃, 3, 1, 0; 1999 AS₃, 3, 1, 0; 1999 AU₃, 3, 1, 0; 1999 AZ₃, 3, 1, 0; 1999 AN₄, 3, 1, 0; 1999 AQ₄, 3, 1, 0; 1999 AA₅, 3, 1, 0; 1999 AH₅, 3, 1, 0; 1999 AJ₅, 3, 1, 0; 1999 AO₅, 3, 1, 0; 1999 AS₅, 3, 1, 0; 1999 AV₅, 3, 1, 0; 1999 AX₅, 3, 1, 0; 1999 AS₆, 3, 1, 0; 1999 AW₆, 3, 1, 0; 1999 AC₇, 3, 1, 0; 1999 AC₇, 3, 1, 0; 1999 AG₇, 2, 1, 0; 1999 AU₇, 3, 1, 0; 1999 AW₇, 3, 1, 0; 1999 AY₇, 3, 1, 0; 1999 AA₈, 3, 1, 0; 1999 AE₈, 3, 1, 0; 1999 AF₈, 3, 1, 0; 1999 AL₈, 9, 3, 96; 1999 AR₉, 3, 1, 0; 1999 AS₉, 3, 1, 0; 1999 AU₉, 3, 1, 0; 1999 AS₂₁, 3, 1, 0; 1999 AY₂₁, 3, 1, 0; 1999 AZ₂₁, 3, 1, 0; 1999 AY₂₂, 3, 1, 0; 1999 AQ₂₃, 3, 1, 0; 1999 AR₂₃, 6, 2, 5; 1999 AM₂₄, 3, 1, 0; 1999 AP₂₄, 3, 1, 0; 1999 AX₂₄, 3, 1, 0; 1999 AY₂₄, 3, 1, 0; 1999 AA₂₅, 6, 2, 27; 1999 AF₂₅, 6, 2, 439; 1999 AN₂₅, 6, 2, 26; 1999 AQ₂₅, 3, 1, 0; 1999 AE₂₈, 3, 1, 0; 1999 AU₃₀, 3, 1, 0; 1999 AD₃₃, 3, 1, 0; 1999 AR₃₄, 6, 2, 26; 1999 AE₃₅ *, 6, 2, 10; 1999 BF₃, 3, 1, 0; 1999 BO₁, 3, 1, 0; 1999 BW₁, 3, 1, 0; 1999 BB₂, 3, 1, 0; 1999 BM₂, 3, 1, 0; 1999 BP₂, 3, 1, 0; 1999 BR₂, 3, 1, 0; 1999 BS₂, 3, 1, 0; 1999 BT₂, 3, 1, 0; 1999 BW₂, 3, 1, 0; 1999 BZ₂, 3, 1, 0; 1999 BD₃, 6, 2, 1; 1999 BW₃, 6, 2, 95; 1999 BA₄, 3, 1, 0; 1999 BR₄, 3, 1, 0; 1999 BE₅, 3, 1, 0; 1999 BN₅, 6, 2, 38; 1999 BO₅, 3, 1, 0; 1999 BP₅, 6, 2, 1; 1999 BE₆, 6, 2, 1; 1999 BG₆, 6, 2, 4; 1999 BW₆, 6, 2, 2; 1999 BE₇, 6, 2, 7; 1999 BF₇, 6, 2, 5; 1999 BF₈, 6, 2, 30; 1999 BK₈, 9, 3, 123; 1999 BZ₈, 3, 1, 0; 1999 BK₉, 6, 2, 89; 1999 BF₁₀, 3, 1, 0; 1999 BK₁₀, 3, 1, 0; 1999 BP₁₀, 3, 1, 0; 1999 BW₁₀, 3, 1, 0; 1999 BC₁₁, 3, 1, 0; 1999 BE₁₁, 3, 1, 0; 1999 BG₁₁, 3, 1, 0; 1999 BF₁₂, 3, 1, 0; 1999 BK₁₂, 3, 1, 0; 1999 BL₁₂, 6, 2, 1; 1999 BN₁₂, 6, 2, 126; 1999 BQ₁₂, 3, 1, 0; 1999 BK₁₃, 3, 1, 0; 1999 BM₁₃, 2, 1, 0; 1999 BN₁₃, 6, 2, 31; 1999 BP₁₃, 3, 1, 0; 1999 BQ₁₃, 6, 2, 37; 1999 BN₁₄, 3, 1, 0; 1999 BZ₁₄, 3, 1, 0; 1999 BK₁₅, 3, 1, 0; 1999 BN₁₅, 3, 1, 0; 1999 BP₁₅, 6, 2, 7; 1999 BW₂₄, 3, 1, 0; 1999 BC₂₅, 9, 3, 22; 1999 BP₂₅, 3, 1, 0; 1999 BE₂₆, 3, 1, 0; 1999 BB₂₇, 9, 3, 124; 1999 CB₃, 3, 1, 0; 1999 CC₃, 3, 1, 0; 1999 CD₆, 1, 0; 1999 CF₃, 3, 1, 0; 1999 CG₃, 3, 1, 0; 1999 CM₃, 3, 1, 0; 1999 CO₃, 3, 1, 0; 1999 CQ₃, 3, 1, 0; 1999 CR₃, 3, 1, 0; 1999 CS₃, 3, 1, 0; 1999 CW₆, 6, 2, 82; 1999 CY₃, 3, 1, 0; 1999 CZ₃, 3, 1, 0; 1999 CA₁, 3, 1, 0; 1999 CG₁, 3, 1, 0; 1999 CH₁, 3, 1, 0; 1999 CL₁, 3, 1, 0; 1999 CM₁, 3, 1, 0; 1999 CR₁, 3, 1, 0; 1999 CT₁, 3, 1, 0; 1999 CU₁, 3, 1, 0; 1999 CX₁, 3, 1, 0; 1999 CY₁, 3, 1, 0; 1999 CC₂, 3, 1, 0; 1999 CD₂, 6, 2, 26; 1999 CA₃, 3, 1, 0; 1999 CL₃, 3, 1, 0; 1999 CV₃, 2, 1, 0; 1999 CA₄, 3, 1, 0; 1999 CG₄, 6, 2, 4; 1999 CJ₄, 3, 1, 0; 1999 CR₄, 3, 1, 0; 1999 CS₄, 3, 1, 0; 1999 CU₄, 3, 1, 0;

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0; 1999 CH₃₇, 6, 2, 35; 1999 CM₃₇, 3, 1, 0; 1999 CQ₃₇, 3, 1, 0; 1999 CL₃₈, 3, 1, 0; 1999 CN₃₈, 3, 1, 0; 1999 CO₃₈, 3, 1, 0; 1999 CP₃₈, 3, 1, 0; 1999 CS₃₈, 3, 1, 0; 1999 CX₃₈, 3, 1, 0; 1999 CA₃₉, 3, 1, 0; 1999 CB₃₉, 6, 2, 32; 1999 CO₃₉, 3, 1, 0; 1999 CP₃₉, 3, 1, 0; 1999 CT₃₉, 3, 1, 0; 1999 CU₃₉, 3, 1, 0; 1999 CW₃₉, 3, 1, 0; 1999 CA₄₀, 3, 1, 0; 1999 CB₄₀, 3, 1, 0; 1999 CC₄₀, 3, 1, 0; 1999 CD₄₀, 3, 1, 0; 1999 CF₄₀, 3, 1, 0; 1999 CH₄₀, 3, 1, 0; 1999 CJ₄₀, 3, 1, 0; 1999 CK₄₀, 3, 1, 0; 1999 CL₄₀, 3, 1, 0; 1999 CM₄₀, 3, 1, 0; 1999 CN₄₀, 3, 1, 0; 1999 CO₄₀, 3, 1, 0; 1999 CP₄₀, 3, 1, 0; 1999 CQ₄₀, 3, 1, 0; 1999 CV₄₀, 3, 1, 0; 1999 CW₄₀, 3, 1, 0; 1999 CZ₄₀, 3, 1, 0; 1999 CB₄₁, 3, 1, 0; 1999 CF₄₁, 3, 1, 0; 1999 CH₄₁, 3, 1, 0; 1999 CN₄₁, 3, 1, 0; 1999 CO₄₁, 3, 1, 0; 1999 CP₄₁, 3, 1, 0; 1999 CS₄₁, 3, 1, 0; 1999 CX₄₁, 3, 1, 0; 1999 CE₄₂, 3, 1, 0; 1999 CF₄₂, 3, 1, 0; 1999 CG₄₂, 3, 1, 0; 1999 CH₄₂, 3, 1, 0; 1999 CM₄₂, 3, 1, 0; 1999 CB₄₃, 3, 1, 0; 1999 CC₄₃, 3, 1, 0; 1999 CG₄₃, 3, 1, 0; 1999 CH₄₃, 3, 1, 0; 1999 CQ₄₃, 3, 1, 0; 1999 CR₄₃, 3, 1, 0; 1999 CS₄₃, 3, 1, 0; 1999 CU₄₃, 3, 1, 0; 1999 CW₄₃, 3, 1, 0; 1999 CY₄₃, 3, 1, 0; 1999 CB₄₄, 3, 1, 0; 1999 CD₄₄, 3, 1, 0; 1999 CL₄₄, 3, 1, 0; 1999 CP₄₄, 3, 1, 0; 1999 CR₄₄, 3, 1, 0; 1999 CX₄₄, 3, 1, 0; 1999 CY₄₄, 3, 1, 0; 1999 CA₄₅, 3, 1, 0; 1999 CB₄₅, 3, 1, 0; 1999 CC₄₅, 3, 1, 0; 1999 CH₄₅, 3, 1, 0; 1999 CT₄₅, 3, 1, 0; 1999 CZ₄₅, 3, 1, 0; 1999 CG₄₆, 3, 1, 0; 1999 CK₄₆, 3, 1, 0; 1999 CL₄₆, 3, 1, 0; 1999 CR₄₆, 6, 2, 25; 1999 CV₄₆, 3, 1, 0; 1999 CX₄₆, 3, 1, 0; 1999 CZ₄₆, 3, 1, 0; 1999 CA₄₇, 3, 1, 0; 1999 CB₄₇, 3, 1, 0; 1999 CD₄₇, 3, 1, 0; 1999 CE₄₇, 9, 3, 29; 1999 CK₄₇, 3, 1, 0; 1999 CN₄₇, 6, 2, 26; 1999 CS₄₇, 3, 1, 0; 1999 CG₄₈, 3, 1, 0; 1999 CK₄₈, 6, 2, 5; 1999 CL₄₈, 3, 1, 0; 1999 CO₄₈, 3, 1, 0; 1999 CP₄₈, 3, 1, 0; 1999 CS₄₈, 3, 1, 0; 1999 CU₄₈, 3, 1, 0; 1999 CV₄₈, 3, 1, 0; 1999 CY₄₈, 3, 1, 0; 1999 CA₄₉, 3, 1, 0; 1999 CB₄₉, 3, 1, 0; 1999 CL₄₉, 3, 1, 0; 1999 CM₄₉, 3, 1, 0; 1999 CN₄₉, 3, 1, 0; 1999 CX₄₉, 3, 1, 0; 1999 CY₄₉, 3, 1, 0; 1999 CB₅₀, 6, 2, 5; 1999 CC₅₀, 6, 2, 5; 1999 CD₅₀, 3, 1, 0; 1999 CF₅₀, 3, 1, 0; 1999 CG₅₀, 3, 1, 0; 1999 CP₅₁, 3, 1, 0; 1999 CQ₅₁, 3, 1, 0; 1999 CR₅₁, 3, 1, 0; 1999 CT₅₁, 3, 1, 0; 1999 CU₅₁, 3, 1, 0; 1999 CV₅₁, 6, 2, 5; 1999 CW₅₁, 3, 1, 0; 1999 CY₅₁, 3, 1, 0; 1999 CJ₅₂, 3, 1, 0; 1999 CK₅₂, 3, 1, 0; 1999 CN₅₂, 3, 1, 0; 1999 CS₅₂, 3, 1, 0; 1999 CC₅₃, 3, 1, 0; 1999 CF₅₃, 3, 1, 0; 1999 CH₅₃, 12, 4, 39; 1999 CJ₅₃, 3, 1, 0; 1999 CM₅₃, 3, 1, 0; 1999 CN₅₃, 3, 1, 0; 1999 CP₅₃, 3, 1, 0; 1999 CS₅₃, 3, 1, 0; 1999 CZ₅₃, 6, 2, 4; 1999 CO₅₄, 3, 1, 0; 1999 CC₅₄, 3, 1, 0; 1999 CT₅₄, 3, 1, 0; 1999 CV₅₄, 3, 1, 0; 1999 CZ₅₄, 3, 1, 0; 1999 CA₅₅, 3, 1, 0; 1999 CB₅₅, 3, 1, 0; 1999 CE₅₅, 6, 2, 34; 1999 CF₅₅, 3, 1, 0; 1999 CH₅₅, 3, 1, 0; 1999 CJ₅₅, 3, 1, 0; 1999 CK₅₅, 3, 1, 0; 1999 CL₅₅, 3, 1, 0; 1999 CR₅₅, 3, 1, 0; 1999 CY₅₅, 3, 1, 0; 1999 CA₅₆, 3, 1, 0; 1999 CB₅₆, 3, 1, 0; 1999 CN₅₆, 3, 1, 0; 1999 CQ₅₆, 9, 3, 65; 1999 CU₅₆, 3, 1, 0; 1999 CV₅₆, 9, 3, 64; 1999 CY₅₆, 3, 1, 0; 1999 CD₅₇, 6, 2, 29; 1999 CM₅₇, 3, 1, 0; 1999 CN₅₇, 6, 2, 29; 1999 CO₅₇, 3, 1, 0; 1999 CQ₅₇, 3, 1, 0; 1999 CS₅₇, 3, 1, 0; 1999 CV₅₇, 3, 1, 0; 1999 CW₅₇, 3, 1, 0; 1999 CX₅₈, 3, 1, 0; 1999 CB₅₈, 3, 1, 0; 1999 CC₅₈, 3, 1, 0; 1999 CH₅₈, 3, 1, 0; 1999 CO₅₈, 3, 1, 0; 1999 CQ₅₈, 3, 1, 0; 1999 CU₅₈, 3, 1, 0; 1999 CV₅₈, 3, 1, 0; 1999 CX₅₈, 3, 1, 0; 1999 CS₅₉, 3, 1, 0; 1999 CX₅₉, 3, 1, 0; 1999 CD₆₀, 3, 1, 0; 1999 CF₆₀, 3, 1, 0; 1999 CG₆₀, 3, 1, 0; 1999 CP₆₀, 3, 1, 0; 1999 CR₆₀, 3, 1, 0; 1999 CU₆₀, 6, 2, 29; 1999 CZ₆₀, 3, 1, 0; 1999 CB₆₁, 3, 1, 0; 1999 CF₆₁, 3, 1, 0; 1999 CV₆₁, 3, 1, 0; 1999 CW₆₁, 3, 1, 0; 1999 CX₆₁, 6, 2, 30; 1999 CG₆₂, 3, 1, 0; 1999 CB₆₂, 3, 1, 0; 1999 CJ₆₂, 6, 2, 8; 1999 CC₆₃, 3, 1, 0; 1999 CD₆₃, 6, 2, 30; 1999 CN₆₃, 3, 1, 0; 1999 CP₆₃, 6, 2, 57; 1999 CQ₆₃, 3, 1, 0; 1999 CR₆₃, 3, 1, 0; 1999 CU₆₃, 3, 1, 0; 1999 CZ₆₃, 3, 1, 0; 1999 CD₆₄, 3, 1, 0; 1999 CF₆₄, 3, 1, 0; 1999 CL₆₄, 3, 1, 0; 1999 CM₆₄, 3, 1, 0; 1999 CR₆₄, 3, 1, 0; 1999 CS₆₄, 3, 1, 0; 1999 CA₆₅, 3, 1, 0; 1999 CG₆₅, 3, 1, 0; 1999 CH₆₅, 3, 1, 0; 1999 CK₆₅, 3, 1, 0; 1999 CQ₆₅, 3, 1, 0; 1999 CF₆₆, 6, 2, 36; 1999 CH₆₆, 3, 1, 0; 1999 CJ₆₆, 3, 1, 0; 1999 CK₆₆, 3, 1, 0; 1999 CL₆₆, 3, 1, 0; 1999 CO₆₆, 3, 1, 0; 1999 CR₆₆, 3, 1, 0; 1999 CS₆₆, 3, 1, 0; 1999 CY₆₆, 3, 1, 0; 1999 CB₆₇, 3, 1, 0; 1999 CC₆₇, 3, 1, 0; 1999 CD₆₇, 3, 1, 0; 1999 CE₆₇, 3, 1, 0; 1999 CJ₆₇, 3, 1, 0; 1999 CN₆₇, 3, 1, 0; 1999 CF₆₇, 3, 1, 0; 1999 CG₆₇, 3, 1, 0; 1999 CE₆₈, 3, 1, 0; 1999 CG₆₈, 3, 1, 0; 1999 CZ₆₈, 3, 1, 0; 1999 CC₆₉, 3, 1, 0; 1999 CL₆₉, 3, 1, 0; 1999 CP₆₉, 3, 1, 0; 1999 CD₇₀, 3, 1, 0; 1999 CG₇₀, 3, 1, 0; 1999 CH₇₀, 3, 1, 0; 1999 CR₇₀, 9, 3, 32; 1999 CT₇₀, 3, 1, 0; 1999 CU₇₀, 3, 1, 0; 1999 CW₇₀, 3, 1, 0; 1999 CE₇₁, 3, 1, 0; 1999 CL₇₁, 3, 1, 0; 1999 CM₇₁, 3, 1, 0; 1999 CN₇₁, 3, 1, 0; 1999 CC₇₂, 3, 1, 0; 1999 CE₇₂, 3, 1, 0; 1999 CH₇₂, 6, 2, 29; 1999 CJ₇₂, 3, 1, 0; 1999 CP₇₂, 3, 1, 0; 1999 CY₇₂, 3, 1, 0; 1999 CD₇₃, 3, 1, 0; 1999 CF₇₃, 3, 1, 0; 1999 CH₇₃, 3, 1, 0; 1999 CW₇₃, 3, 1, 0; 1999 CR₇₄, 3, 1, 0; 1999 CT₇₄, 3, 1, 0; 1999 CY₇₄, 3, 1, 0; 1999 CZ₇₄, 3, 1, 0; 1999 CA₇₅, 3, 1, 0; 1999 CB₇₅, 3, 1, 0; 1999 CE₇₅, 3, 1, 0; 1999 CQ₇₅, 3, 1, 0; 1999 CW₇₆, 3, 1, 0; 1999 CZ₇₆, 3, 1, 0; 1999 CD₇₇, 3, 1, 0; 1999 CG₇₇, 3, 1, 0; 1999 CJ₇₇, 3, 1, 0; 1999 CP₇₇, 3, 1, 0; 1999 CX₇₇, 3, 1, 0; 1999 CZ₇₇, 3, 1, 0; 1999 CC₇₈, 3, 1, 0; 1999 CD₇₈, 3, 1, 0; 1999 CE₇₈, 6, 2, 29; 1999 CF₇₈, 3, 1, 0; 1999 CJ₇₈, 3, 1, 0; 1999 CT₇₉, 3, 1, 0; 1999 CA₈₀, 3, 1, 0; 1999 CB₈₀, 3, 1, 0; 1999 CF₈₀, 3, 1, 0; 1999 CH₈₀, 3, 1, 0; 1999 CM₈₀, 9, 3, 38; 1999 CO₈₀, 3, 1, 0; 1999 CV₈₀, 3, 1, 0; 1999 CS₈₀, 3, 1, 0; 1999 CA₈₁, 6, 2, 26; 1999 CB₈₁, 9, 3, 30; 1999 CC₈₁, 3, 1, 0; 1999 CF₈₁, 3, 1, 0; 1999 CG₈₁, 3, 1, 0; 1999 CJ₈₁, 3, 1, 0; 1999 CK₈₁, 3, 1, 0; 1999 CL₈₁, 3, 1, 0; 1999 CM₈₁, 3, 1, 0; 1999 CV₈₁, 3, 1, 0; 1999 CX₈₁, 3, 1, 0; 1999 CA₈₂, 6, 2, 2; 1999 CC₈₄, 3, 1, 0; 1999 CP₈₄, 6, 2, 37; 1999 CV₈₄, 6, 2, 27; 1999 CX₈₄, 6, 2, 27; 1999 CW₈₅, 3, 1, 0; 1999 CO₈₆, 3, 1, 0; 1999 CU₈₇, 3, 1, 0; 1999 CK₈₈, 3, 1, 0; 1999 CC₈₉, 3, 1, 0; 1999 CG₈₉, 3, 1, 0; 1999 CX₈₉, 3, 1, 0; 1999 CB₉₀, 6, 2, 40; 1999 CK₉₁, 3, 1, 0; 1999 CN₉₂, 3, 1, 0; 1999 CO₉₂, 3, 1, 0; 1999 CP₉₂, 6, 2, 2; 1999 CZ₉₂, 3, 1, 0; 1999 CX₉₂, 3, 1, 0; 1999 CD₉₄, 3, 1, 0; 1999 CG₉₄, 3, 1, 0; 1999 CX₉₄, 3, 1, 0; 1999 CU₉₅, 3, 1, 0; 1999 CY₉₅, 3, 1, 0; 1999 CZ₉₅, 3, 1, 0; 1999 CC₉₆, 3, 1, 0; 1999 CE₉₆, 3, 1, 0; 1999 CF₉₆, 3, 1, 0; 1999 CG₉₆, 3, 1, 0; 1999 CK₉₆, 3, 1, 0; 1999 CL₉₆, 3, 1, 0; 1999 CO₉₆, 6, 1, 0; 1999 CP₉₆, 3, 1, 0; 1999 CQ₉₆, 3, 1, 0; 1999 CY₉₆, 3, 1, 0; 1999 CA₉₇, 3, 1, 0; 1999 CG₉₇, 3, 1, 0; 1999 CN₉₇, 3, 1, 0; 1999 CO₉₇, 3, 1, 0; 1999 CU₉₇, 3, 1, 0; 1999 CX₉₇, 3, 1, 0; 1999 CZ₉₇, 3, 1, 0; 1999 CA₉₈, 3, 1, 0; 1999 CC₉₈, 3, 1, 0; 1999 CG₉₈, 3, 1, 0; 1999 CH₉₈, 3,

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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 T. B. Spahr, J. W. Brownlee

Measurer T. B. Spahr

0.41-m $f/3$ Schmidt + CCD

USNO-SA2.0

1999 FN₃, 4, 1, 0; [4, 1, 0*, 1999/03/23]

704 Lincoln Laboratory Experimental Test System, New Mexico

H. Viggh, MIT Lincoln Laboratory, 244 Wood Street, Lexington, MA 02173,

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

Observers M. Blythe, F. Shelly, M. Bezpalko

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

1.0-m $f/2.15$ reflector + CCD

USNO-SA1.0

1936 UD, 3, 1, 0; 1951 RX, 8, 2, 3; 1968 OK, 5, 1, 0; 1972 HL, 13, 3, 4; 1972 TC, 5, 1, 0; 1972 TE, 4, 1, 0; 1973 SP₄, 10, 2, 3; 1974 OU₁, 10, 2, 3; 1974 QF₁, 10, 2, 3; 1975 TQ₃, 16, 4, 25; 1975 XD, 4, 1, 0; 1976 SQ₇, 13, 3, 4; 1976 UY, 5, 1, 0; 1977 DY₃, 4, 1, 0; 1977 FN, 2, 1, 0; 1977 RD, 3,

1, 0; 1978 NY₅, 5, 1, 0; 1978 NU₃, 8, 2, 3; 1978 NX₇, 8, 2, 3; 1978 PH₃, 5, 1, 0; 1978 QE₂, 9, 2, 3; 1978 RY₆, 14, 3, 28; 1978 RM₇, 5, 1, 0; 1978 SC₅, 3, 1, 0; 1978 SJ₅, 4, 1, 0; 1978 SP₅, 10, 2, 3; 1978 SS₆, 12, 3, 4; 1978 SA₇, 9, 2, 3; 1978 SA₈, 9, 2, 3; 1978 TT₇, 4, 1, 0; 1978 UK₇, 10, 2, 3; 1978 VO₄, 13, 3, 4; 1978 VD₇, 8, 2, 3; 1978 VK₈, 9, 2, 3; 1978 XU₁₀, 2, 3; 1979 HW₆, 10, 2, 3; 1979 KJ₄, 4, 1, 0; 1979 MW₁₁, 5, 1, 0; 1979 MF₂, 3, 1, 0; 1979 MK₅, 7, 2, 4; 1979 MG₆, 7, 2, 3; 1979 MB₉, 7, 2, 3; 1979 SC₁₅, 3, 4; 1979 SU₁₁, 9, 2, 3; 1980 FX₃, 10, 2, 1; 1980 PY₂, 3, 1, 0; 1980 PE₃, 3, 1, 0; 1980 TV₂, 10, 2, 3; 1980 WE₅, 4, 1, 0; 1981 CH₅, 5, 1, 0; 1981 DM₃, 3, 1, 0; 1981 DA₁, 8, 2, 27; 1981 DJ₂, 5, 1, 0; 1981 DD₃, 4, 1, 0; 1981 EQ₂, 3, 1, 0; 1981 EA₅, 4, 1, 0; 1981 ET₇, 4, 1, 0; 1981 EU₇, 4, 1, 0; 1981 EV₇, 4, 1, 0; 1981 EZ₇, 4, 1, 0; 1981 EA₉, 3, 1, 0; 1981 EH₉, 13, 3, 4; 1981 EB₁₀, 13, 3, 4; 1981 EG₁₀, 4, 1, 0; 1981 EL₁₀, 10, 2, 3; 1981 EX₁₀, 5, 1, 0; 1981 EK₁₁, 3, 1, 0; 1981 EO₁₁, 10, 2, 3; 1981 EF₁₃, 4, 1, 0; 1981 ED₁₄, 10, 2, 3; 1981 EE₁₄, 7, 2, 3; 1981 ER₁₅, 7, 2, 3; 1981 ET₁₅, 8, 2, 3; 1981 EC₁₆, 9, 2, 1; 1981 EW₁₈, 7, 2, 3; 1981 EN₁₉, 3, 1, 0; 1981 EH₂₀, 6, 2, 3; 1981 EO₂₀, 10, 2, 3; 1981 EL₂₁, 9, 2, 3; 1981 EA₂₂, 8, 2, 3; 1981 EJ₂₃, 10, 2, 3; 1981 EK₂₃, 7, 2, 3; 1981 EG₂₆, 15, 1, 0; 1981 EC₂₇, 10, 2, 3; 1981 ED₂₈, 8, 2, 3; 1981 EG₂₉, 4, 1, 0; 1981 EU₃₃, 7, 2, 3; 1981 EA₃₄, 3, 1, 0; 1981 EW₃₈, 5, 1, 0; 1981 EK₄₀, 8, 2, 3; 1981 EO₄₁, 4, 1, 0; 1981 ET₄₁, 4, 1, 0; 1981 EV₄₁, 3, 1, 0; 1981 EA₄₂, 3, 1, 0; 1981 EE₄₅, 8, 2, 3; 1981 EK₄₅, 4, 1, 0; 1981 EM₄₅, 3, 1, 0; 1981 ET₄₆, 5, 1, 0; 1981 JE₂₈, 8, 2, 3; 1981 QD₇, 2, 3; 1981 QY₂, 13, 3, 25; 1981 RQ₁, 8, 2, 3; 1981 SN₁₀, 10, 2, 3; 1981 SC₇, 4, 1, 0; 1981 WO₁₀, 2, 3; 1982 HJ₉, 2, 3; 1982 QX₁, 10, 2, 3; 1982 QK₃, 9, 2, 3; 1982 SW₆, 11, 3, 25; 1982 UF₇, 3, 1, 0; 1982 UK₇, 8, 2, 3; 1982 YR₁, 9, 2, 3; 1983 RG₂, 5, 1, 0; 1983 RP₂, 10, 2, 3; 1983 RZ₄, 4, 1, 0; 1983 VQ₁, 3, 1, 0; 1983 WM₁₂, 3, 4; 1983 WN₄, 4, 1, 0; 1984 QS₃, 3, 1, 0; 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1999 APR. 2

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3, 1, 0; 1997 WP₄₄, 13, 3, 4; 1997 XA₄, 4, 1, 0; 1997 XN₄, 4, 1, 0; 1997 XV₄, 10, 2, 3; 1997 XL₅, 14, 3, 4; 1997 XY₉, 10, 2, 3; 1997 XA₁₀, 8, 2, 1; 1997 XO₁₁, 5, 1, 0; 1997 XS₁₁, 4, 1, 0; 1997 XA₁₂, 7, 2, 3; 1997 YQ₃, 3, 1, 0; 1997 YT₇, 7, 2, 3; 1997 YC₁, 3, 1, 0; 1997 YG₁, 9, 2, 3; 1997 YY₁, 4, 1, 0; 1997 YR₂, 9, 2, 3; 1997 YR₃, 5, 1, 0; 1997 YW₃, 7, 2, 1; 1997 YH₄, 4, 1, 0; 1997 YO₄, 5, 1, 0; 1997 YY₅, 5, 1, 0; 1997 YL₇, 4, 1, 0; 1997 YP₇, 5, 1, 0; 1997 YN₈, 13, 3, 25; 1997 YY₈, 7, 2, 19; 1997 YT₁₀, 3, 1, 0; 1997 YX₁₃, 8, 2, 3; 1997 YX₁₅, 4, 1, 0; 1997 YG₂₀, 10, 2, 3; 1998 AJ₁₃, 3, 4; 1998 AU₃, 3, 1, 0; 1998 AC₈, 8, 2, 3; 1998 AN₈, 10, 2, 7; 1998 AM₁₀, 4, 1, 0; 1998 BA₂, 7, 2, 4; 1998 BB₂, 7, 2, 19; 1998 BW₂, 4, 1, 0; 1998 BD₅, 13, 3, 4; 1998 BA₉, 4, 1, 0; 1998 BK₁₀, 7, 2, 3; 1998 BK₁₁, 15, 3, 4; 1998 BC₁₂, 4, 1, 0; 1998 BV₁₂, 5, 1, 0; 1998 BM₁₅, 10, 2, 3; 1998 CH₄, 1, 0; 1998 CV₁, 3, 1, 0; 1998 CM₂, 4, 1, 0; 1998 CS₂, 6, 2, 1; 1998 EG₉, 10, 2, 3; 1998 FT₁₄₄ *, 19, 4, 52; 1998 QT₆₀, 5, 1, 0; 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1999 CA₃, 5, 1, 0; 1999 CQ₃, 5, 1, 0; 1999 CR₃, 5, 1, 0; 1999 CV₃, 5, 1, 0; 1999 CG₄, 14, 2, 1; 1999 CM₄, 5, 1, 0; 1999 CL₅, 10, 2, 3; 1999 CO₅, 10, 2, 7; 1999 CQ₇, 8, 2, 1; 1999 CW₇, 9, 2, 1; 1999 CY₇, 15, 3, 4; 1999 CM₈, 10, 2, 7; 1999 CN₈, 10, 2, 7; 1999 CO₈, 9, 2, 1; 1999 CC₁₀, 4, 1, 0; 1999 CG₁₂, 9, 2, 1; 1999 CJ₁₂, 10, 2, 3; 1999 CE₁₄, 4, 1, 0; 1999 CF₁₄, 19, 4, 31; 1999 CH₁₄, 5, 1, 0; 1999 CJ₁₄, 20, 4, 25; 1999 CN₁₄, 10, 2, 1; 1999 CP₁₄, 7, 2, 1; 1999 CG₂₇, 4, 1, 0; 1999 CH₂₇, 7, 1, 0; 1999 CG₂₈, 17, 1, 0; 1999 CH₂₈, 17, 1, 0; 1999 CK₂₈, 15, 1, 0; 1999 CM₃₁, 5, 1, 0; 1999 CQ₃₁, 4, 1, 0; 1999 CR₃₁, 3, 1, 0; 1999 CK₃₇, 8, 1, 0; 1999 CS₃₇, 3, 1, 0; 1999 CX₃₈, 15, 1, 0; 1999 CO₄₅, 9, 2, 1; 1999 CF₄₆, 9, 2, 1; 1999 CG₄₆, 10, 2, 1; 1999 CK₄₆, 9, 2, 1; 1999 CL₄₆, 8, 2, 1; 1999 CU₄₆, 9, 2, 1; 1999 CE₄₇, 9, 2, 1; 1999 CN₄₇, 10, 2, 1; 1999 CS₄₇, 9, 2, 1; 1999 CA₄₈, 9, 1, 0; 1999 CG₄₈, 8, 2, 1; 1999 CO₄₈, 3, 1, 0; 1999 CQ₄₈, 9, 2, 1; 1999 CR₄₈, 9, 2, 1; 1999 CV₄₈, 9, 2, 1; 1999 CY₄₈, 8, 2, 1; 1999 CU₄₉, 4, 1, 0; 1999 CH₅₀, 9, 2, 1; 1999 CJ₅₀, 10, 2, 1; 1999 CL₅₀, 9, 2, 1; 1999 CM₅₀, 8, 2, 1; 1999 CN₅₀, 9, 2, 1; 1999 CT₅₀, 9, 2, 1; 1999 CV₅₀, 9, 2, 1; 1999 CZ₅₀, 9, 2, 1; 1999 CA₅₁, 8, 2, 1; 1999 CD₅₁, 9, 2, 1; 1999 CJ₅₁, 9, 2, 1; 1999 CM₅₁, 8, 2, 1; 1999 CN₅₁, 9, 2, 1; 1999 CP₅₁, 9, 2, 1; 1999 CQ₅₁, 10, 2, 1; 1999 CT₅₁, 9, 2, 1; 1999 CV₅₁, 9, 2, 1; 1999 CW₅₁, 10, 2, 1; 1999 CY₅₁, 9, 2, 1; 1999 CR₅₂, 5, 1, 0; 1999 CH₅₃, 10, 2, 1; 1999 CB₅₄, 10, 2, 1; 1999 CE₅₄, 9, 2, 1; 1999 CN₅₄, 9, 2, 1; 1999 CR₅₄, 9, 2, 1; 1999 CT₅₄, 9, 2, 1; 1999 CX₅₄, 9, 2, 1; 1999 CF₅₅, 8, 2, 1; 1999 CB₅₇, 9, 2, 1; 1999 CF₅₇, 6, 2, 1; 1999 CN₅₇, 9, 2, 1; 1999 CW₅₇, 9, 2, 1; 1999 CG₅₈, 8, 2, 1; 1999 CD₇₉, 7, 2, 1; 1999 CE₇₉, 8, 2, 1; 1999 CG₇₉, 9, 1, 0; 1999 CJ₇₉, 7, 2, 1; 1999 CN₇₉, 8, 2, 1; 1999 CP₇₉, 10, 2, 1; 1999 CV₇₉, 9, 2, 1; 1999 CD₈₀, 8, 2, 1; 1999 CM₈₀, 9, 2, 1; 1999 CX₈₀, 10, 2, 1; 1999 CA₈₁, 8, 2, 1; 1999 CB₈₁, 9, 2, 1; 1999 CC₈₁, 9, 2, 1; 1999 CG₈₁, 8, 2, 1; 1999 CJ₈₁, 9, 2, 1; 1999 CL₈₁, 9, 2, 1; 1999 CM₈₁, 9, 2, 1; 1999 CV₈₁, 9, 2, 1; 1999 CX₈₁, 9, 2, 1; 1999 CF₉₂, 15, 1, 0; 1999 CG₉₂, 4, 1, 0; 1999 CJ₉₄, 9, 1, 0; 1999 CM₉₈, 9, 1, 0; 1999 CG₉₉, 9, 2, 1; 1999 CM₉₉, 8, 2, 1; 1999 CO₉₉, 10, 2, 1; 1999 CP₉₉, 8, 2, 1; 1999 CH₁₀₀, 8, 2, 1; 1999 CJ₁₀₀, 9, 2, 1; 1999 CL₁₀₀, 9, 2, 1; 1999 CL₁₀₁, 9, 2, 1; 1999 CL₁₁₅, 5, 1, 0; 1999 CL₁₁₆, 8, 2, 1; 1999 CF₁₁₆, 22, 3, 2; 1999 CC₁₁₇, 21, 2, 1; 1999 CH₁₁₇, 8, 2, 1; 1999 CL₁₁₇, 5, 1, 0; 1999 CM₁₁₇, 9, 2, 1; 1999 CN₁₁₇, 10, 2, 1; 1999 CO₁₁₇, 9, 2, 1; 1999 CS₁₁₈, 10, 2, 7; 1999 CU₁₁₈, 9, 2, 2; 1999 CO₁₁₉ *, 15, 2, 7; 1999 CP₁₁₉ *, 10, 2, 7; 1999 CQ₁₁₉ *, 10, 2, 7; 1999 CR₁₁₉ *, 10, 2, 7; 1999 CS₁₁₉ *, 10, 2, 7; 1999 CT₁₁₉ *, 10, 2, 7; 1999 CU₁₁₉ *, 10, 2, 7; 1999 CV₁₁₉ *, 10, 2, 7; 1999 CW₁₁₉ *, 10, 2, 7; 1999 CX₁₁₉ *, 10, 2, 7; 1999 CY₁₁₉ *, 10, 2, 7; 1999 CZ₁₁₉ *, 9, 2, 7; 1999 CA₁₂₀ *, 10, 2, 7; 1999 CB₁₂₀ *, 10, 2, 7; 1999 CD₁₂₀ *, 9, 2, 7; 1999 CE₁₂₀ *, 9, 2, 7; 1999 CF₁₂₀ *, 10, 2, 7; 1999 CG₁₂₀ *, 10, 2, 7; 1999 CH₁₂₀ *, 9, 2, 7; 1999 CJ₁₂₀ *, 10, 2, 7; 1999 CK₁₂₀ *, 10, 2, 7; 1999 CL₁₂₀ *, 10, 2, 7; 1999 CM₁₂₀ *, 10, 2, 7; 1999 CN₁₂₀ *, 10, 2, 7; 1999 CO₁₂₀ *, 10, 2, 7; 1999 CP₁₂₀ *, 9, 2, 7; 1999 CQ₁₂₀ *, 9, 2, 7; 1999 CR₁₂₀ *, 9, 2, 7; 1999 CS₁₂₀ *, 10, 2, 7; 1999 CT₁₂₀ *, 10, 2, 7; 1999 CV₁₂₀ *, 10, 2, 7; 1999 CW₁₂₀ *, 9, 2, 7; 1999 CX₁₂₀ *, 10, 2, 7; 1999 CY₁₂₀ *, 10, 2, 7; 1999 CZ₁₂₀ *, 10, 2, 7; 1999 CA₁₂₁ *, 10, 2, 7; 1999 CB₁₂₁ *, 10, 2, 7; 1999 CC₁₂₁ *, 9, 2, 7; 1999 CD₁₂₁ *, 10, 2, 7; 1999 CE₁₂₁ *, 10, 2, 7; 1999 CF₁₂₁ *, 10, 2, 7; 1999 CG₁₂₁ *, 9, 2, 7; 1999 CH₁₂₁ *, 9,

2, 7; 1999 CJ₁₂₁ *, 9, 2, 7; 1999 CK₁₂₁ *, 8, 2, 7; 1999 CL₁₂₁ *, 8, 2, 7; 1999 CM₁₂₁ *, 10, 2, 7; 1999 CN₁₂₁ *, 10, 2, 7; 1999 CO₁₂₁ *, 9, 2, 7; 1999 CP₁₂₁ *, 10, 2, 7; 1999 CQ₁₂₁ *, 10, 2, 7; 1999 CR₁₂₁ *, 9, 2, 7; 1999 CS₁₂₁ *, 8, 2, 7; 1999 CT₁₂₁ *, 9, 2, 7; 1999 CU₁₂₁ *, 10, 2, 7; 1999 CV₁₂₁ *, 10, 2, 7; 1999 CW₁₂₁ *, 10, 2, 7; 1999 CX₁₂₁ *, 10, 2, 7; 1999 CY₁₂₁ *, 10, 2, 7; 1999 CZ₁₂₁ *, 9, 2, 7; 1999 CA₁₂₂ *, 10, 2, 7; 1999 CB₁₂₂ *, 10, 2, 7; 1999 CC₁₂₂ *, 10, 2, 7; 1999 CD₁₂₂ *, 9, 2, 7; 1999 CE₁₂₂ *, 10, 2, 7; 1999 CF₁₂₂ *, 9, 2, 7; 1999 CG₁₂₂ *, 10, 2, 7; 1999 CH₁₂₂ *, 9, 2, 7; 1999 CJ₁₂₂ *, 10, 2, 7; 1999 CK₁₂₂ *, 9, 2, 7; 1999 CL₁₂₂ *, 10, 2, 7; 1999 CM₁₂₂ *, 10, 2, 7; 1999 CN₁₂₂ *, 10, 2, 7; 1999 CO₁₂₂ *, 9, 2, 7; 1999 CP₁₂₂ *, 10, 2, 7; 1999 CQ₁₂₂ *, 10, 2, 7; 1999 CR₁₂₂ *, 10, 2, 7; 1999 CS₁₂₂ *, 10, 2, 7; 1999 CT₁₂₂ *, 10, 2, 7; 1999 CU₁₂₂ *, 10, 2, 7; 1999 CV₁₂₂ *, 10, 2, 7; 1999 CW₁₂₂ *, 10, 2, 7; 1999 CX₁₂₂ *, 9, 2, 7; 1999 CY₁₂₂ *, 10, 2, 7; 1999 CZ₁₂₂ *, 10, 2, 7; 1999 CA₁₂₃ *, 10, 2, 7; 1999 CB₁₂₃ *, 10, 2, 7; 1999 CC₁₂₃ *, 10, 2, 7; 1999 CD₁₂₃ *, 10, 2, 7; 1999 CE₁₂₃ *, 10, 2, 7; 1999 CF₁₂₃ *, 10, 2, 7; 1999 CG₁₂₃ *, 9, 2, 7; 1999 CH₁₂₃ *, 10, 2, 7; 1999 CJ₁₂₃ *, 10, 2, 7; 1999 CK₁₂₃ *, 10, 2, 7; 1999 CL₁₂₃ *, 10, 2, 7; 1999 CM₁₂₃ *, 10, 2, 7; 1999 CN₁₂₃ *, 10, 2, 7; 1999 CO₁₂₃ *, 9, 2, 7; 1999 CP₁₂₃ *, 10, 2, 7; 1999 CQ₁₂₃ *, 10, 2, 7; 1999 CR₁₂₃ *, 10, 2, 7; 1999 CS₁₂₃ *, 9, 2, 7; 1999 CT₁₂₃ *, 10, 2, 7; 1999 CU₁₂₃ *, 9, 2, 7; 1999 CV₁₂₃ *, 10, 2, 7; 1999 CW₁₂₃ *, 10, 2, 7; 1999 CX₁₂₃ *, 10, 2, 7; 1999 CY₁₂₃ *, 9, 2, 7; 1999 CZ₁₂₃ *, 10, 2, 7; 1999 CA₁₂₄ *, 10, 2, 7; 1999 CB₁₂₄ *, 9, 2, 7; 1999 CC₁₂₄ *, 10, 2, 7; 1999 CD₁₂₄ *, 10, 2, 7; 1999 CE₁₂₄ *, 9, 2, 7; 1999 CF₁₂₄ *, 9, 2, 7; 1999 CG₁₂₄ *, 10, 2, 7; 1999 CH₁₂₄ *, 10, 2, 7; 1999 CI₁₂₄ *, 10, 2, 7; 1999 CJ₁₂₄ *, 10, 2, 7; 1999 CK₁₂₄ *, 10, 2, 7; 1999 CL₁₂₄ *, 10, 2, 7; 1999 CM₁₂₄ *, 10, 2, 7; 1999 CN₁₂₄ *, 9, 2, 7; 1999 CO₁₂₄ *, 10, 2, 7; 1999 CP₁₂₄ *, 10, 2, 7; 1999 CQ₁₂₄ *, 9, 2, 7; 1999 CR₁₂₄ *, 9, 2, 7; 1999 CS₁₂₄ *, 9, 2, 7; 1999 CT₁₂₄ *, 10, 2, 7; 1999 CU₁₂₄ *, 8, 2, 7; 1999 CV₁₂₄ *, 10, 2, 7; 1999 CW₁₂₄ *, 10, 2, 7; 1999 CX₁₂₄ *, 10, 2, 7; 1999 CY₁₂₄ *, 10, 2, 7; 1999 CZ₁₂₄ *, 10, 2, 7; 1999 CA₁₂₅ *, 10, 2, 7; 1999 CB₁₂₅ *, 9, 2, 7; 1999 CC₁₂₅ *, 9, 2, 7; 1999 CD₁₂₅ *, 10, 2, 7; 1999 CE₁₂₅ *, 10, 2, 7; 1999 CF₁₂₅ *, 10, 2, 7; 1999 CG₁₂₅ *, 10, 2, 7; 1999 CH₁₂₅ *, 9, 2, 7; 1999 CJ₁₂₅ *, 10, 2, 7; 1999 CK₁₂₅ *, 10, 2, 7; 1999 CL₁₂₅ *, 10, 2, 7; 1999 CM₁₂₅ *, 8, 2, 7; 1999 CN₁₂₅ *, 10, 2, 7; 1999 CO₁₂₅ *, 9, 2, 7; 1999 CP₁₂₅ *, 10, 2, 7; 1999 CQ₁₂₅ *, 10, 2, 7; 1999 CR₁₂₅ *, 10, 2, 7; 1999 CS₁₂₅ *, 10, 2, 7; 1999 CT₁₂₅ *, 9, 2, 7; 1999 CU₁₂₅ *, 10, 2, 7; 1999 CV₁₂₅ *, 10, 2, 7; 1999 CW₁₂₅ *, 8, 2, 7; 1999 CX₁₂₅ *, 10, 2, 7; 1999 CA₁₂₆ *, 10, 2, 7; 1999 CB₁₂₆ *, 10, 2, 7; 1999 CC₁₂₆ *, 10, 2, 7; 1999 CD₁₂₆ *, 9, 2, 7; 1999 CE₁₂₆ *, 9, 2, 7; 1999 CF₁₂₆ *, 9, 2, 7; 1999 CG₁₂₆ *, 9, 2, 7; 1999 CH₁₂₆ *, 9, 2, 7; 1999 CJ₁₂₆ *, 10, 2, 7; 1999 CK₁₂₆ *, 10, 2, 7; 1999 CL₁₂₆ *, 10, 2, 7; 1999 CM₁₂₆ *, 10, 2, 7; 1999 CN₁₂₆ *, 10, 2, 7; 1999 CO₁₂₆ *, 10, 2, 7; 1999 CP₁₂₆ *, 10, 2, 7; 1999 CQ₁₂₆ *, 10, 2, 7; 1999 CR₁₂₆ *, 9, 2, 7; 1999 CS₁₂₆ *, 8, 2, 7; 1999 CT₁₂₆ *, 10, 2, 7; 1999 CU₁₂₆ *, 9, 2, 7; 1999 CV₁₂₆ *, 9, 2, 7; 1999 CX₁₂₆ *, 9, 2, 7; 1999 CY₁₂₆ *, 8, 2, 7; 1999 CZ₁₂₆ *, 10, 2, 7; 1999 CA₁₂₇ *, 10, 2, 7; 1999 CB₁₂₇ *, 9, 2, 7; 1999 CC₁₂₇ *, 10, 2, 7; 1999 CD₁₂₇ *, 10, 2, 7; 1999 CE₁₂₇ *, 9, 2, 7; 1999 CF₁₂₇ *, 10, 2, 7; 1999 CG₁₂₇ *, 10, 2, 7; 1999 CH₁₂₇ *, 10, 2, 7; 1999 CJ₁₂₇ *, 9, 2, 7; 1999 CK₁₂₇ *, 8, 2, 7; 1999 CL₁₂₇ *, 10, 2, 7; 1999 CM₁₂₇ *, 9, 2, 7; 1999 CN₁₂₇ *, 9, 2, 7; 1999 CO₁₂₇ *, 10, 2, 7; 1999 CP₁₂₇ *, 10, 2, 7; 1999 CQ₁₂₇ *, 9, 2, 7; 1999 CR₁₂₇ *, 9, 2, 7; 1999 CS₁₂₇ *, 10, 2, 7; 1999 CT₁₂₇ *, 9, 2, 7; 1999 CU₁₂₇ *, 9, 2, 7; 1999 CV₁₂₇ *, 9, 2, 7; 1999 CW₁₂₇ *, 10, 2, 7; 1999 CX₁₂₇ *, 10, 2, 7; 1999 CY₁₂₇ *, 10, 2, 7; 1999 CZ₁₂₇ *, 10, 2, 7; 1999 CA₁₂₈ *, 9, 2, 7; 1999 CB₁₂₈ *, 10, 2, 7; 1999 CC₁₂₈ *, 10, 2, 7; 1999 CD₁₂₈ *, 10, 2, 7; 1999 CE₁₂₈ *, 8, 2, 7; 1999 CF₁₂₈ *, 8, 2, 7; 1999 CG₁₂₈ *, 10, 2, 7; 1999 CH₁₂₈ *, 10, 2, 7; 1999 CJ₁₂₈ *, 9, 2, 7; 1999 CK₁₂₈ *, 10, 2, 7; 1999 CL₁₂₈ *, 10, 2, 7; 1999 CM₁₂₈ *, 10, 2, 7; 1999 CN₁₂₈ *, 10, 2, 7; 1999 CO₁₂₈ *, 10, 2, 7; 1999 CP₁₂₈ *, 9, 2, 7; 1999 CQ₁₂₈ *, 10, 2, 7; 1999 CR₁₂₈ *, 9, 2, 7; 1999 CS

1; 1999 EE₅ *, 15, 3, 5; 1999 EF₅ *, 9, 2, 8; 1999 EH₅, 10, 2, 1; 1999 EJ₅, 9, 2, 1; 1999 ED₆, 8, 2, 1; 1999 EE₆, 8, 2, 1; 1999 ED₇ *, 14, 3, 8; 1999 EE₇ *, 13, 3, 8; 1999 EK₉ *, 9, 2, 8; 1999 EL₉ *, 8, 2, 8; 1999 FA *, 9, 1, 0; 1999 FB *, 5, 1, 0; 1999 FH₅, 5, 1, 0; 1999 FN₁₀, 10, 2, 1; 1999 FO₁₀, 10, 2, 1; 1999 FP₈, 8, 2, 1; 1999 FZ₂, 8, 2, 1; 1999 FD₃, 10, 2, 1; 1999 FJ₃ *, 15, 3, 4; 1999 FK₃ *, 13, 3, 4; 1999 FL₃ *, 14, 3, 4; 1999 FM₃ *, 13, 3, 4; 1999 FN₃ *, 14, 3, 4; 1999 FO₃ *, 15, 3, 4; 1999 FP₃ *, 14, 3, 4; 1999 FQ₅, 8, 2, 3; 1999 FR₅ *, 35, 3, 3; 1999 FH₆, 8, 2, 1; 1999 FH₇ *, 9, 2, 4; 1999 FJ₇ *, 10, 2, 3; 1999 FK₇ *, 7, 2, 3; 1999 FL₇ *, 10, 2, 3; 1999 FM₇ *, 7, 2, 3; 1999 FN₇ *, 10, 2, 3; 1999 FO₇ *, 19, 3, 4; 1999 FP₇ *, 10, 2, 3; 1999 FQ₇ *, 10, 2, 3; 1999 FR₇ *, 10, 2, 3; 1999 FS₇ *, 10, 2, 3; 1999 FT₇ *, 9, 2, 3; 1999 FU₇ *, 9, 2, 3; 1999 FV₇ *, 8, 2, 3; 1999 FW₇ *, 12, 2, 3; 1999 FX₇ *, 8, 2, 3; 1999 FY₇ *, 9, 2, 3; 1999 FZ₇ *, 7, 2, 3; 1999 FA₈ *, 8, 2, 3; 1999 FB₈ *, 8, 2, 3; 1999 FC₈ *, 8, 2, 3; 1999 FD₈ *, 7, 2, 3; 1999 FE₈ *, 7, 2, 3; 1999 FF₈ *, 10, 2, 3; 1999 FG₈ *, 9, 2, 3; 1999 FH₈ *, 10, 2, 3; 1999 FJ₈ *, 10, 2, 3; 1999 FK₈ *, 10, 2, 3; 1999 FL₈ *, 10, 2, 3; 1999 FM₈ *, 7, 2, 3; 1999 FN₈ *, 10, 2, 3; 1999 FO₈ *, 10, 2, 3; 1999 FP₈ *, 8, 2, 3; 1999 FQ₈ *, 8, 2, 3; 1999 FR₈ *, 8, 2, 3; 1999 FS₈ *, 10, 2, 3; 1999 FT₈, 9, 2, 1; 1999 FJ₉, 10, 2, 1; 1999 FP₁₀, 10, 2, 1; 1999 FQ₁₀ *, 10, 3, 3; 1999 FN₁₄, 10, 2, 1; 1999 FJ₁₇, 9, 2, 1; 1999 FU₁₇, 8, 2, 1; 1999 FH₁₈, 9, 2, 1; 1999 FA₁₉, 10, 2, 1; 1999 FK₁₉, 10, 2, 1; 1999 FL₁₉, 10, 2, 1; 1999 FM₁₉, 10, 2, 1; 1999 FN₁₉ *, 29, 4, 5; 1999 FO₁₉, 5, 9, 1, 0; 1999 FP₁₉ *, 9, 2, 1; 1999 FQ₁₉ *, 15, 4, 3; 1999 FR₁₉ *, 19, 2, 1; 1999 FK₂₁ *, 15, 2, 2; 1999 FW₂₁ *, 9, 2, 1; 1999 FX₂₁ *, 10, 2, 1; 1999 FY₂₁ *, 9, 2, 1; 1999 FZ₂₁ *, 9, 2, 1; 1999 FA₂₂ *, 9, 2, 1; 1999 FB₂₂ *, 9, 2, 1; 1999 FC₂₂ *, 9, 2, 1; 1999 FD₂₂ *, 9, 2, 1; 1999 FE₂₂ *, 9, 2, 1; 1999 FF₂₂ *, 9, 2, 1; 1999 FG₂₂ *, 9, 2, 1; 1999 FH₂₂ *, 9, 2, 1; 1999 FJ₂₂ *, 9, 2, 1; 1999 FK₂₂ *, 9, 2, 1; 1999 FL₂₂ *, 8, 2, 1; 1999 FM₂₂ *, 8, 2, 1; 1999 FN₂₂ *, 9, 2, 1; 1999 FO₂₂ *, 10, 2, 1; 1999 FP₂₂ *, 9, 2, 1; 1999 FQ₂₂ *, 8, 2, 1; 1999 FR₂₂ *, 10, 2, 1; 1999 FS₂₂ *, 8, 2, 1; 1999 FT₂₂ *, 8, 2, 1; 1999 FU₂₂ *, 9, 2, 1; 1999 FV₂₂ *, 8, 2, 1; 1999 FW₂₂ *, 9, 2, 1; 1999 FX₂₂ *, 9, 2, 1; 1999 FY₂₂ *, 9, 2, 1; 1999 FZ₂₂ *, 9, 2, 1; 1999 FA₂₃ *, 9, 2, 1; 1999 FB₂₃ *, 7, 2, 1; 1999 FC₂₃ *, 9, 2, 1; 1999 FD₂₃ *, 8, 2, 1; 1999 FE₂₃ *, 9, 2, 1; 1999 FF₂₃ *, 9, 2, 1; 1999 FG₂₃ *, 8, 2, 1; 1999 FH₂₃ *, 8, 2, 1; 1999 FJ₂₃ *, 9, 2, 1; 1999 FK₂₃ *, 9, 2, 1; 1999 FL₂₃ *, 9, 2, 1; 1999 FM₂₃ *, 9, 2, 1; 1999 FN₂₃ *, 9, 2, 1; 1999 FO₂₃ *, 9, 2, 1; 1999 FP₂₃ *, 9, 2, 1; 1999 FQ₂₃ *, 9, 2, 1; 1999 FR₂₃ *, 9, 2, 1; 1999 FS₂₃ *, 9, 2, 1; 1999 FT₂₃ *, 9, 2, 1; 1999 FU₂₃ *, 9, 2, 1; 1999 FV₂₃ *, 9, 2, 1; 1999 FW₂₃ *, 9, 2, 1; 1999 FX₂₃ *, 9, 2, 1; 1999 FY₂₃ *, 9, 2, 1; 1999 FZ₂₃ *, 9, 2, 1; 1999 FA₂₄ *, 9, 2, 1; 1999 FB₂₄ *, 9, 2, 1; 1999 FC₂₄ *, 8, 2, 1; 1999 FD₂₄ *, 8, 2, 1; 1999 FE₂₄ *, 6, 2, 1; 1999 FF₂₄ *, 8, 2, 1; 1999 FG₂₄ *, 8, 2, 1; 1999 FH₂₄ *, 9, 2, 1; 1999 FJ₂₄ *, 10, 2, 1; 1999 FK₂₄ *, 9, 2, 1; 1999 FL₂₄ *, 10, 2, 1; 1999 FM₂₄ *, 9, 2, 1; 1999 FN₂₄ *, 7, 2, 1; 1999 FO₂₄ *, 10, 2, 1; 1999 FP₂₄ *, 8, 2, 1; 1999 FQ₂₄ *, 8, 2, 1; 1999 FR₂₄ *, 9, 2, 1; 1999 FS₂₄ *, 8, 2, 1; 1999 FT₂₄ *, 9, 2, 1; 1999 FU₂₄ *, 8, 2, 1; 1999 FV₂₄ *, 8, 2, 1; 1999 FW₂₄ *, 9, 2, 1; 1999 FX₂₄ *, 10, 2, 1; 1999 FY₂₄ *, 8, 2, 1; 1999 FZ₂₄ *, 10, 2, 1; 1999 FA₂₅ *, 10, 2, 1; 1999 FB₂₅ *, 10, 2, 1; 1999 FC₂₅ *, 10, 2, 1; 1999 FD₂₅ *, 8, 2, 1; 1999 FE₂₅ *, 7, 2, 1; 1999 FF₂₅ *, 9, 2, 1; 1999 FG₂₅ *, 7, 2, 1; 1999 FH₂₅ *, 9, 2, 1; 1999 FJ₂₅ *, 9, 2, 1; 1999 FK₂₅ *, 8, 2, 1; 1999 FL₂₅ *, 10, 2, 1; 1999 FM₂₅ *, 9, 2, 1; 1999 FN₂₅ *, 9, 2, 1; 1999 FO₂₅ *, 10, 2, 1; 1999 FP₂₅ *, 8, 2, 1; 1999 FQ₂₅ *, 9, 2, 1; 1999 FR₂₅ *, 10, 2, 1; 1999 FS₂₅ *, 9, 2, 1; 1999 FT₂₅ *, 10, 2, 1; 1999 FU₂₅ *, 9, 2, 1; 1999 FV₂₅ *, 9, 2, 1; 1999 FW₂₅ *, 8, 2, 1; 1999 FX₂₅ *, 9, 2, 1; 1999 FY₂₅ *, 9, 2, 1; 1999 FZ₂₅ *, 8, 2, 1; 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709 W & B Observatory, Cloudcroft

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

[offutt@galileo.apo.nmsu.edu]

Observer W. Offutt

Measurers W. Offutt, B. Ford

0.60-m $f/7$ Ritchey-Chrétien + CCD

USNO-SA1.0

1996 OB₁, 5, 1, 0; 1999 CN₁₀, 6, 1, 0; 1999 CW₁₂₉, 5, 1, 0; 1999 CA₁₃₀, 9, 1, 0; [25, 4, 0*, 1999/02/12–1999/03/15]

711 McDonald Observatory

P. J. Shelus, McDonald Observatory, University of Texas, Austin, TX 78712-1013,

U.S.A. [pjs@astro.as.utexas.edu]

0.76-m $f/3.0$ reflector + CCD

GSC

1993 DQ₁, 4, 2, 1; 1997 DF, 4, 2, 2; 1998 ST₄₉, 2, 1, 0; 1998 UT₁₈, 2, 1, 0; 1998 XC₉, 3, 2, 2; 1998 YW₃, 2, 2, 1; 1998 YO₄, 4, 2, 1; 1998 YB₈, 2, 1, 0; 1999 AP₁₀, 4, 2, 2; 1999 CU₃, 2, 1, 0; 1999 CV₈, 4, 2, 2; 1999 CL₁₅₃, 6, 2, 20; 1999 DJ₄, 2, 1, 0; 1999 EY₂, 3, 1, 0; 1999 EN₃, 6, 2, 2; 1999 EO₃, 3, 1, 0; 1999 ED₅, 3, 1, 0; (6489), 2, 1, 0; (10150), 4, 3, 2; (10165), 2, 1, 0; [64, 20, 0*, 1999/02/20–1999/03/14]

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 FB, 2, 1, 0; (730), 5, 2, 1; [7, 2, 0*, 1999/03/09–1999/03/18]

714 Bagdad

J. R. Bruton, Bagdad Observatory, P.O. Box 1191, Bagdad, AZ 86321, U.S.A.
[jbruton1@juno.com]

0.30-m $f/10$ Schmidt-Cassegrain + CCD
GSC-1.1

1999 FA, 5, 2, 1; (7947), 6, 2, 1; [11, 2, 0*, 1999/03/23–1999/03/24]

716 Palmer Divide Observatory

B. D. Warner, 17995 Bakers Farm Rd., Colorado Springs, CO 80908, U.S.A.
[brianw_mpo@compuserve.com]

0.25-m $f/6.3$ Schmidt-Cassegrain + CCD
GSC, USNO-A2.0

1999 CZ₁, 4, 2, 1; [4, 1, 0*, 1999/03/09–1999/03/10]

719 Etscorn Observatory

D. A. Klinglesmith III, 1215 Vista Drive, Socorro, NM 87801, U.S.A.
[TheKs@aol.com]

Observers D. A. Klinglesmith III, R. Huber, M. Hagler, B. Huber
0.355-m Schmidt-Cassegrain + CCD
GSC

1998 YP₁₁, 2, 1, 0; 1999 BE₈, 4, 2, 3; 1999 CV₃, 6, 3, 4; 1999 CF₉, 6, 3, 5; 1999 DJ₄, 2, 1, 0; 1999 EO₃, 4, 1, 0; 1999 FR₅, 5, 2, 1; 1999 FQ₁₉, 2, 1, 0; (587), 3, 2, 1; (730), 5, 3, 8; (815), 3, 2, 1; (1036), 4, 2, 10; (1373), 4, 2, 2; (1508), 2, 1, 0; (1627), 6, 2, 10; (1863), 2, 1, 0; (1866), 2, 1, 0; (1981), 4, 2, 5; (2791), 2, 1, 0; (2938), 4, 2, 5; (3040), 4, 1, 0; (3122), 2, 1, 0; (3199), 4, 2, 5; (3352), 2, 1, 0; (4008), 2, 1, 0; (4217), 2, 1, 0; (4868), 3, 2, 1; (4898), 2, 1, 0; (5131), 4, 2, 2; (5159), 2, 1, 0; (5164), 2, 1, 0; (5349), 2, 1, 0; (5382), 2, 1, 0; (5488), 2, 1, 0; (5732), 2, 1, 0; (6033), 1, 1, 0; (6047), 4, 2, 5; (6322), 4, 2, 5; (6376), 2, 1, 0; (6411), 6, 2, 5; (6450), 2, 1, 0; (6553), 2, 1, 0; (6635), 2, 1, 0; (7213), 2, 1, 0; (7262), 4, 2, 1; (7927), 4, 2, 2; (8011), 4, 2, 2; (8073), 2, 1, 0; (8226), 2, 1, 0; (8278), 2, 1, 0; (8660), 2, 1, 0; (9671), 3, 2, 3; [157, 52, 0*, 1999/03/03–1999/03/24]

721 Lime Creek

R. Linderholm, R2 Box 79, Cambridge, NE 69022, U.S.A. [lindh@swnebr.net]
0.25-m $f/3.3$ Schmidt-Cassegrain + CCD
GSC

1999 CN₁₀, 5, 1, 0; 1999 FT₅, 3, 1, 0; [8, 2, 0*, 1999/03/14–1999/03/24]

725 Fair Oaks Ranch

J. V. McClusky, McClusky Observatory, 31789 Sunland, Fair Oaks Ranch,
TX 78015, U.S.A. [mcclusky@lonestar.utsa.edu]

0.46-m $f/4.5$ Newtonian reflector + CCD
USNO-SA2.0

1989 AV₆, 4, 2, 1; 1992 ER₁₈, 2, 1, 0; 1994 UD₂, 8, 3, 28; 1995 BB₁₄, 6, 3, 28; 1995 EA₉, 4, 1, 0; 1996 GP₂, 4, 2, 1; 1998 VX₃₂, 2, 1, 0; 1999 AW₆, 2, 1, 0; 1999 AT₈, 3, 1, 0; 1999 AU₈, 5, 3, 28; 1999 AG₂₄, 6, 3, 28; 1999 AJ₂₄, 8, 4, 29; 1999 AK₂₄, 7, 4, 29; 1999 BV, 7, 3, 28; 1999 CU₁₇, 2, 1, 0; 1999 CA₁₉, 4, 1, 0; 4716 P-L, 2, 1, 0; (580), 4, 2, 1; (3812), 4, 2, 1; (7598), 4, 2, 1; [88, 20, 0*, 1999/01/17–1999/02/22]

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 CV₃, 61, 7, 17; 1999 CF₉, 6, 1, 0; 1999 EE₅, 9, 1, 0; 1999 FA, 4, 1, 0; [80, 4, 0*, 1999/03/03–1999/03/21]

727 Zeno Observatory, Edmond

T. Stafford, 2947 Village Circle, Edmond, OK 73013, U.S.A.
[tstaffor@aignetplex.com]

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

1997 SD₁₁, 3, 1, 0; 1997 VA₃, 6, 2, 1; 1999 DS₂, 6, 2, 1; 1999 EK *, 12, 4, 17; 1999 EL *, 11, 4, 17; 1999 EU₄ *, 6, 2, 1; (492), 3, 1, 0; (3938), 3, 1, 0; (4898), 3, 1, 0; (5291), 3, 1, 0; (5570), 3, 1, 0; (7927), 6, 2, 1; [65, 12, 3*, 1999/03/09–1999/03/26]

732 Oaxaca

J. Roe, Apdo. No. 221, MX-68000 Oaxaca, Mexico [jamesroe@antequera.com]
0.25-m $f/3.4$ reflector + CCD
GSC

1993 FO₃₄, 4, 2, 2; 1993 HH, 5, 2, 2; 1994 AZ₂, 6, 2, 2; [15, 3, 0*, 1999/03/24–1999/03/26]

734 Farpoint Observatory, Eskridge

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

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

1994 LA₁, 3, 1, 0; 1996 JU, 3, 1, 0; 1998 YL₄, 6, 2, 16; 1999 CD₈, 3, 1, 0; 1999 CE₈, 2, 1, 0; 1999 CD₉, 4, 1, 0; 1999 CG₇₆, 8, 2, 1; 1999 DP₃, 10, 3, 15; 1999 DB₇, 3, 1, 0; 1999 EL₃ *, 16, 3, 7; 1999 FB, 3, 1, 0; 1999 FQ₅, 2, 1, 0; 1999 FR₅, 3, 1, 0; [66, 13, 1*, 1999/02/28–1999/03/22]

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. Rapp, K. Rivich
Measurers W. G. Dillon, K. Rivich

0.46-m reflector + CCD
USNO-A2.0

1999 FA, 3, 1, 0; 1999 FO₁₀ *, 6, 2, 1; [9, 2, 1*, 1999/03/21–1999/03/23]

739 Sunflower Observatory, Olathe

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

0.25-m $f/4.1$ Schmidt-Cassegrain + CCD
GSC-1.1

1992 YS₂, 2, 1, 0; 1997 UA₉, 6, 2, 2; 1999 CZ₁, 5, 1, 0; 1999 CV₃, 16, 3, 5; 1999 CF₉, 2, 1, 0; 1999 EE₅, 4, 1, 0; (80), 2, 1, 0; (86), 2, 1, 0; (101), 3, 1, 0; (171), 3, 1, 0; (177), 2, 1, 0; (191), 2, 1, 0; (241), 2, 1, 0; (291), 2, 1, 0; (306), 3, 1, 0; (323), 4, 2, 1; (336), 2, 1, 0; (338), 2, 1, 0; (344), 4, 2, 1; (357), 2, 1, 0; (407), 2, 1, 0; (449), 2, 1, 0; (504), 4, 2, 1; (540), 2, 1, 0; (593), 4, 2, 1; (618), 3, 1, 0; (914), 2, 1, 0; (931), 1, 1, 0; (949), 2, 1, 0; (994), 4, 2, 1; (1330), 2, 1, 0; (1341), 4, 2, 1; (1503), 2, 1, 0; (1628), 2, 1, 0; (2293), 2, 1, 0; (2378), 2, 1, 0; (3754), 2, 1, 0; [112, 37, 0*, 1999/02/27–1999/03/21]

744 Doyan Rose Observatory, Indianapolis

J. Ruthroff, 5221 Graceland Ave., Indianapolis, IN 46254, U.S.A.
[jruthroff@sprintmail.com]

0.25-m $f/7.5$ Schmidt-Cassegrain + CCD
GSC-1.1

1992 LN, 5, 2, 2; 1993 TW₁, 2, 1, 0; 1993 XQ₂, 4, 2, 3; 1995 FO₁₀, 5, 2, 2; 1997 SX₁₅, 4, 2, 4; 1997 UA₉, 6, 2, 1; 1998 WC₂₄, 3, 1, 0; 1998 XF, 2, 1, 0; 1999 EE₅, 3, 1, 0; [34, 9, 0*, 1999/03/11–1999/03/22]

746 Brooks Observatory, Mt. Pleasant

W. Osborn, Physics Department, Central Michigan University, Mt. Pleasant, MI 48859, U.S.A. [email: osborn@dune.phy.cmich.edu]

Observers J. Helmboldt, W. Osborn, D. Ferrer
Measurer W. Osborn

0.40-m $f/12$ Cassegrain reflector + CCD

USNO-A2.0

(1036), 3, 1, 0; (1866), 3, 1, 0; (3352), 3, 1, 0; [9, 3, 0*, 1999/02/09–1999/02/10]

747 Baton Rouge Observatory

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

[walt@sprintmail.com]

Observers W. R. Cooney, K. Wefel, P. Wefel, E. Kandler, R. Pitre

Measurer W. R. Cooney

0.51-m $f/8.4$ reflector + CCD

USNO-A2.0

1980 TV₂, 6, 2, 6; 1999 CF₈, 4, 1, 0; 1999 CA₁₀, 9, 3, 7; 1999 EX₄ *, 8, 3, 13; 1999 FC *, 6, 2, 1; 1999 FD *, 13, 4, 11; 1999 FE *, 9, 3, 7; 1999 FF *, 8, 2, 2; 4109 T-1, 7, 2, 6; (4097), 9, 3, 7; [79, 10, 5*, 1999/03/10–1999/03/27]

749 Oakwood

J. A. Howell, 4046 Lyman Way, Gainesville, GA 30507, U.S.A.

[andyho@mindspring.com]

0.46-m $f/4.4$ Newtonian reflector + CCD

GSC

1982 SW₃, 6, 2, 2; 1989 HC, 5, 2, 2; 1999 BO₃, 7, 2, 7; [18, 3, 0*, 1999/02/13–1999/03/01]

750 Hobbs Observatory, Fall Creek

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

[elliottb@uwec.edu]

0.60-m $f/5$ reflector + CCD

GSC

1996 QL, 8, 2, 4; 1998 QT₆₀, 2, 1, 0; 1999 CV₃, 8, 1, 0; (167), 5, 2, 2; (1036), 4, 2, 4; (1289), 9, 3, 7; (4503), 2, 1, 0; (4958), 2, 1, 0; (6411), 2, 1, 0; (9780), 4, 1, 0; (10115), 15, 3, 10; [61, 11, 0*, 1999/03/12–1999/03/27]

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

USNO-SA2.0

1998 XH₅, 2, 1, 0; 1999 BE₅, 2, 1, 0; 1999 BN₁₄, 2, 1, 0; 1999 BO₁₄, 2, 1, 0; 1999 BP₁₅, 2, 1, 0; 1999 CY₁, 2, 1, 0; 1999 CO₈, 2, 1, 0; 1999 CC₁₀, 4, 2, 15; 1999 CD₁₀, 2, 1, 0; 1999 EX₂ *, 8, 4, 8; 1999 EA₃ *, 8, 4, 10; 1999 EA₅ *, 6, 3, 7; 1999 FS₃ *, 6, 3, 3; [48, 13, 4*, 1999/03/01–1999/03/23]

758 BCC Observatory, Cocoa

I. P. Griffin, BCC Observatory, 1519 Clearlake Road, Cocoa, FL 32922, U.S.A.

[griffini@brevard.cc.fl.us]

0.30-m $f/5$ Maksutov + CCD

USNO-A2.0

1994 UP₁₁, 5, 2, 2; 1994 XL, 3, 1, 0; 1996 VQ₆, 9, 2, 1; 1997 VR₇, 3, 1, 0; 1998 BU₂₅, 7, 3, 17; 1998 XN₉₆, 3, 1, 0; 1999 AD₅, 14, 5, 18; 1999 CW, 2, 1, 0; 1999 CP₁₅, 7, 2, 1; 1999 DH₄, 13, 5, 19; 1999 DB₇, 15, 3, 4; 1999 EY₂, 3, 1, 0; 1999 EE₅, 4, 1, 0; 1999 FA, 4, 1, 0; 1999 FB, 3, 1, 0; [95, 15, 0*, 1999/03/01–1999/03/24]

761 Zephyrhills

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

[bitnik@bitnik.com]

0.18-m $f/9.45$ reflector + CCD

USNO-A2.0

1993 XG, 2, 1, 0; 1994 WJ₁₂, 2, 1, 0; 1997 PJ₄, 2, 1, 0; 1999 CZ₁₃, 2, 1, 0; 1999 EE₅, 4, 1, 0; 1999 FA, 3, 1, 0; 1999 FB, 2, 1, 0; (2617), 2, 2, 2; (3346), 2, 1, 0; (4384), 6, 2, 1; (4594), 6, 2, 1; (4851), 1, 1, 0; (5027), 2, 1, 0; (6388), 6, 2, 1; (7018), 5, 2, 1; (7331), 2, 1, 0; (10189), 1, 1, 0; [50, 17, 0*, 1999/01/13–1999/03/17]

763 King City

R. Sandness, 263 Burns Boulevard, King City, ON L7B 1E3, Canada

[75443.2030@compuserve.com]

0.35-m reflector + CCD

GSC

1996 QQ₁, 11, 4, 8; 1999 EA₃, 2, 1, 0; 1999 EK₅ *, 14, 5, 11; 1999 FJ₁₀ *, 7, 3, 6; (2360), 10, 5, 8; (7226), 2, 1, 0; [46, 6, 2*, 1999/03/15–1999/03/26]

809 European Southern Observatory

C.-I. Lagerkvist, Uppsala Observatory, Box 515, S-75120 Uppsala, Sweden

[classe@laban.uu.se] (8)

Observers G. Pizarro, O. Pizarro

Measurers M. Lundström, C.-I. Lagerkvist, O. Hernius, J. Lagerros

1.0-m Schmidt

1973 SZ, 1, 1, 0; 1973 SS₁, 1, 1, 0; 1985 RF₃, 1, 1, 0; 1988 RQ₁₂, 1, 1, 0; 1990 DD₁, 7, 7, 11; 1990 QL₉, 6, 6, 28; 1990 RS, 1, 1, 0; 1990 SE₆, 1, 1, 0; 1990 UE₄, 3, 3, 1243; 1991 RK₁₇, 5, 5, 32; 1992 DX₈, 1, 1, 0; 1992 EC₁₅, 1, 1, 0; 1992 EB₁₆, 1, 1, 0; 1992 EB₂₆, 1, 1, 0; 1992 ET₂₉, 1, 1, 0; 1992 EQ₃₁, 1, 1, 0; 1992 EP₃₂, 1, 1, 0; 1992 EN₃₄, 1, 1, 0; 1993 FD₂₈, 8, 7, 30; 1993 FR₈₄ *, 3, 3, 5; 1993 QP₂, 1, 1, 0; 1994 PU₁, 3, 3, 5; 1994 TJ₁, 1, 1, 0; 1994 TW₁₅, 1, 1, 0; 1994 VE₂, 1, 1, 0; 1995 SE₁₇, 1, 1, 0; 1995 YL₃, 1, 1, 0; 1996 BR₁, 1, 1, 0; 1996 BT₁, 1, 1, 0; 1996 GP₂, 1, 1, 0; 1996 HM₁, 1, 1, 0; 1996 HC₁₆, 1, 1, 0; 1996 HW₂₃, 1, 1, 0; 1997 GU₆, 1, 1, 0; 1997 HP₈, 3, 3, 36; 1997 PX, 2, 2, 3; 1998 FN₁₂, 2, 2, 6; 1998 NA, 1, 1, 0; 1998 QX, 2, 2, 6; 1998 QL₂₄, 1, 1, 0; 1998 QW₃₄, 1, 1, 0; 1998 QT₃₉, 1, 1, 0; 1998 QB₅₂, 1, 1, 0; 1998 QR₅₈, 3, 3, 5; 1998 RD₅₁, 1, 1, 0; 1998 RS₇₃, 2, 2, 5; 1998 SR₁₁₈, 1, 1, 0; 1998 SL₁₂₉, 1, 1, 0; 1998 SE₁₄₀, 1, 1, 0; 1998 SW₁₄₃, 1, 1, 0; 1998 TM₅, 1, 1, 0; 1998 VX₃, 1, 1, 0; 1998 VU₉, 1, 1, 0; 1998 WL₁, 1, 1, 0; 1998 WG₁₇, 1, 1, 0; 1998 XC, 1, 1, 0; 1998 XD₅₁, 1, 1, 0; 1999 AY₆, 2, 2, 32; 1999 AL₇, 1, 1, 0; 1999 AA₂₃, 1, 1, 0; 1999 BS, 2, 2, 3; 1999 BS₁₂, 2, 2, 5; 1999 BO₁₄, 1, 1, 0; 1999 CA₁₄, 2, 2, 30; 1999 CR₁₀₉, 1, 1, 0; 4792 P-L, 12, 11, 30; 4406 T-1, 1, 1, 0; 3161 T-2, 2, 2, 7; 4205 T-3, 1, 1, 0; (9801), 1, 1, 0; (9831), 2, 2, 3; (10236), 1, 1, 0; [125, 72, 1*, 1992/02/29–1996/09/16]

817 Sudbury

D. di Cicco, Sky & Telescope, Cambridge, MA 02138, U.S.A.

[dicicco@skypub.com]

0.41-m Schmidt-Cassegrain + CCD

GSC

1995 BZ₁, 15, 6, 20; 1996 ER, 10, 5, 20; (9983), 4, 1, 0; [29, 3, 0*, 1999/02/06–1999/03/26]

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

1999 CE₅₇, 28, 2, 1; 1999 DS₂, 20, 2, 1; 1999 DN₄ *, 45, 8, 29; [93, 3, 1*, 1999/02/23–1999/03/24]

836 Furnace Brook Observatory, Cranston

D. P. Pray, 40 Hillcrest Dr., Cranston, RI 02921, U.S.A.

[DPPRAY@worldnet.att.net]

0.25-m $f/6$ Newtonian reflector + CCD

GSC-1.1

(1981), 6, 2, 5; [6, 1, 0*, 1999/03/21–1999/03/26]

837 Jupiter

B. A. Segal, 3084 NW 63 Street, Boca Raton, FL 33496, U.S.A.

[astrobas@gate.net]

0.3-m $f/6.3$ SCT + CCD

USNO-SA2.0

(1837), 4, 2, 1; [4, 1, 0*, 1999/02/19–1999/02/20]

838 Dayton

J. Chumack, 3118 Mesmer Avenue, Dayton, Ohio 45410, U.S.A.

[galactic@infinet.com]

0.25-m Schmidt-Cassegrain + CCD

GSC

(109), 4, 2, 1; (291), 6, 3, 2; (349), 4, 2, 1; (504), 6, 3, 2; (996), 2, 1, 0; (1058), 4, 2, 2; (1240), 2, 1, 0; (1814), 3, 2, 2; (2828), 6, 3, 2; (2850), 6, 3, 2; (2886), 4, 2, 1; (4503), 6, 3, 2; [53, 12, 0*, 1999/02/22–1999/03/13]

840 Flint

C. Bayus, 2002 Cartier St., Flint, MI 48504, U.S.A. [cbayus@usol.com]

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

GSC

(421), 3, 2, 2; (537), 6, 3, 2; [9, 2, 0*, 1999/03/11–1999/03/13]

844 Los Molinos

T. Gallardo, Departamento de Astronomia, Facultad de Ciencias, Montevideo,

Uruguay [gallardo@fisica.edu.uy]

Observer J. C. Tulic

0.35-m $f/6.4$ reflector + CCD

USNO-A2.0

1997 TU₁₈, 3, 1, 0; 1999 FR₅, 6, 2, 1; (5732), 3, 1, 0; [12, 3, 0*, 1999/02/25–1999/03/23]

859 Serra da Piedade

C. Jacques, P.O. Box 1084, Belo Horizonte, Minas Gerais, BR-30000 Brazil

[cjacques@unix.horizontes.com.br]

Observers C. Jacques, J. Amancio

0.30-m $f/3.3$ reflector + CCD

GSC

1999 DW₆, 3, 1, 0; 1999 EJ₉ *, 9, 3, 8; 1999 FQ₅, 6, 2, 1; 1999 FR₅, 7, 2, 1; 1999 FE₂₁ *, 10, 3, 6; 1999 FP₂₁ *, 9, 3, 7; 1999 FV₂₁, 3, 1, 0; (5820), 6, 2, 7; [53, 8, 3*, 1999/03/14–1999/03/28]

860 Valinhos

P. R. Holvorcem, Departamento de Matematica/IMECC, Universidade Estadual de

Campiñas SP, BR-13081-970, Brazil [canis@mpc.com.br]

0.20-m $f/3.3$ reflector + CCD

GSC

1998 QK₅₆, 2, 1, 0; 1998 WA₁₂, 3, 1, 0; 1998 YP₁₁, 9, 3, 12; 1999 BE₈, 6, 2, 4; 1999 CF₉, 3, 1, 0; 1999 DB₂, 2, 1, 0; 1999 DW₆, 8, 3, 12; 1999 EE₅, 6, 2, 3; 1999 EF₅, 3, 1, 0; 1999 EM₉ *, 5, 2, 7; 1999 FB₃, 3, 1, 0; 1999 FR₅, 4, 1, 0; 1999 FN₁₉, 5, 1, 0; 1999 FE₂₁, 2, 1, 0; 1999 FV₂₁ *, 2, 1, 0; (3655), 3, 1, 0; (8019), 3, 1, 0; [69, 17, 2*, 1998/11/23–1999/03/26]

886 Susono

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

0.25-m $f/6.3$ reflector + CCD

GSC

1991 VT₁, 2, 1, 0; 1997 RR₃, 4, 2, 28; 1997 RZ₇, 2, 1, 0; 1997 TJ₁₉, 2, 1, 0; 1997 UV₂, 2, 1, 0; 1997 VW₄, 2, 1, 0; 1997 WO₇, 4, 2, 6; 1997 YO₄, 2, 1, 0; 1999 CP₂, 2, 1, 0; 1999 CH₃, 2, 1, 0; 1999 CO₅, 2, 1, 0; 1999 DP₁, 2, 1, 0; 1999 DR₃, 4, 2, 25; [32, 13, 0*, 1999/02/19–1999/03/22]

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

1990 BB₃, 3, 1, 0; 1990 SE₆, 2, 1, 0; 1990 VX₄, 3, 1, 0; 1992 WN₃, 2, 1, 0; 1997 SF₂₅, 3, 1, 0; 1997 VW₄, 2, 1, 0; 1997 WO₁₃, 2, 1, 0; 1997 YO₄, 2, 1, 0; 1998 TB₂, 2, 1, 0; 1998 YY₃, 2, 1, 0; 1999 AM₃, 2, 1, 0; 1999 AA₂₁, 2, 1, 0; 1999 BW₂, 2, 1, 0; 1999 BZ₁₄, 1, 1, 0; 1999 BY₂₅, 2, 1, 0; 1999 BA₂₆, 2, 1, 0; 1999 CP₅, 5, 2, 17; 1999 CH₃, 2, 1, 0; 1999 CK₃, 2, 1, 0; 1999 CH₅, 4, 2, 16; 1999 CO₅, 4, 2, 16; 1999 DV₂, 2, 1, 0; 1999 DX₂, 2, 1, 0; 1999 DQ₃, 2, 1, 0; 1999 DR₃, 6, 3, 26; 1999 DS₃, 2, 1, 0; [65, 26, 0*, 1999/02/14–1999/03/23]

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

1999 CV₃, 2, 1, 0; 1999 EE₅, 2, 1, 0; 1999 EG₅, 2, 1, 0; 1999 FA₂, 2, 1, 0; 1999 FB₂, 2, 1, 0; (4503), 2, 1, 0; (5732), 2, 1, 0; [14, 7, 0*, 1999/02/28–1999/03/23]

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

1998 WT₂₃, 2, 1, 0; [2, 1, 0*, 1999/02/08]

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

1972 TR₈, 3, 1, 0; 1977 XZ₂, 9, 3, 4; 1981 EC₃₃, 3, 1, 0; 1985 RS₁, 6, 2, 1; 1986 EA₅, 3, 1, 0; 1990 SF₉, 3, 1, 0; 1991 VM₁₂, 3, 1, 0; 1992 CR₂, 6, 2, 2; 1992 PV₃, 3, 1, 0; 1992 SC₂, 3, 1, 0; 1992 WZ₁, 3, 1, 0; 1993 FN₂₂, 3, 1, 0; 1993 OL₅, 3, 1, 0; 1993 TM₆, 2, 1, 0; 1993 TT₁₂, 3, 1, 0; 1993 TM₂₅, 3, 1, 0; 1993 TT₄₁, 3, 1, 0; 1994 BP₄, 9, 3, 4; 1994 GD₁₀, 3, 1, 0; 1996 HY₁₂, 6, 2, 2; 1996 NP₄, 3, 1, 0; 1996 WC₃, 6, 2, 4; 1997 PD₅, 3, 1, 0; 1997 QU₄, 6, 1, 0; 1997 TS₁₉, 3, 1, 0; 1997 UZ₃, 3, 1, 0; 1997 UM₅, 3, 1, 0; 1997 UK₇, 3, 1, 0; 1997 UN₉, 3, 1, 0; 1997 UJ₂₅, 3, 1, 0; 1997 WC₂₄, 3, 1, 0; 1997 YH₃, 3, 1, 0; 1998 AQ₁₀, 6, 2, 4; 1998 BC₃₅, 3, 1, 0; 1998 HO₃, 3, 1, 0; 1998 HN₆₄, 3, 1, 0; 1998 RP₁₉, 3, 1, 0; 1998 RN₃₅, 3, 1, 0; 1998 RB₅₃, 3, 1, 0; 1998 SC₅₈, 3, 1, 0; 1998 TL₃₃, 3, 1, 0; 1998 UV₃₆, 3, 1, 0; 1998 VZ₂, 3, 1, 0; 1998 VK₁₃, 3, 1, 0; 1998 VQ₃₁, 3, 1, 0; 1998 VR₃₄, 3, 1, 0; 1998 XX₁, 3, 1, 0; 1998 XF₂₆, 3, 1, 0; 1998 XD₉₆, 3, 1, 0; 1998 YE₂, 6, 1, 0; 1998 YY₁₅, 3, 1, 0; 1999 AZ₅, 3, 1, 0; 1999 AB₇, 3, 1, 0; 1999 AU₂₁, 3, 1, 0; 1999 AY₂₁, 3, 1, 0; 1999 AE₂₈, 3, 1, 0; 1999 BB₃, 3, 1, 0; 1999 BG₃, 3, 1, 0; 1999 BX₂, 3, 1, 0; 1999 BR₅, 3, 1, 0; 1999 BF₈, 3, 1, 0; 1999 BJ₉, 3, 1, 0; 1999 BP₁₅, 3, 1, 0; 1999 CW₃, 3, 1, 0; 1999 CY₃, 3, 1, 0; 1999 CE₂, 3, 1, 0; 1999 CA₃, 3, 1, 0; 1999 CY₁₁, 3, 1, 0; 1999 CU₁₉, 3, 1, 0; 1999 CV₁₉, 6, 2, 3; 1999 CY₂₀, 6, 2, 1; 1999 CC₂₃, 3, 1, 0; 1999 CY₂₅, 3, 1, 0; 1999 CQ₂₈, 3, 1, 0; 1999 CE₃₁, 3, 1, 0; 1999 CM₃₇, 3, 1, 0; 1999 CD₄₆, 3, 1, 0; 1999 CN₄₇, 3, 1, 0; 1999 CD₄₈, 3, 1, 0; 1999 CE₄₈, 6, 1, 0; 1999 CK₄₈, 3, 1, 0; 1999 CN₅₇, 3, 1, 0; 1999 CJ₆₀, 3, 1, 0; 1999 CP₇₄, 3, 1, 0; 1999 CC₇₆, 6, 1, 0; 1999 CP₇₆, 3, 1, 0; 1999 CR₇₆, 3, 1, 0; 1999 CS₇₆, 3, 1, 0; 1999 CY₇₆, 3, 1, 0; 1999 CS₇₈, 3, 1, 0; 1999 CH₇₉, 3, 1, 0; 1999 CX₈₅, 6, 2, 4; 1999 CO₈₆, 6, 2, 4; 1999 CC₈₉, 6, 2, 54; 1999 CV₉₃, 3, 1, 0; 1999 CC₉₇, 3, 1, 0; 1999 CZ₉₇, 3, 1, 0; 1999 CP₉₈, 3, 1, 0; 1999 CA₁₁₃, 3, 1, 0; 1999 CC₁₁₄, 3, 1, 0; 1999 CR₁₁₄, 3, 1, 0; 1999 CT₁₁₄, 3, 1, 0; 1999 CH₁₄₁, 6, 2, 4; 1999 CQ₁₄₉, 3, 1, 0; 1999 CD₁₅₀, 3, 1, 0; 1999 DQ₂, 3, 1, 0; 1999 DD₇, 3, 1, 0; 1999 EB₅, 3, 1, 0; 1999 ED₅, 3, 1, 0;

1999 EG₆ *, 3, 1, 0; 1999 EG₇ *, 3, 1, 0; 1999 FN *, 6, 2, 2; 1999 FO *, 6, 2, 2; 1999 FP *, 6, 2, 2; 1999 FQ *, 9, 3, 4; 1999 FR *, 6, 2, 2; 1999 FS *, 6, 2, 2; 1999 FT *, 6, 2, 2; 1999 FU *, 6, 2, 2; 1999 FV *, 6, 2, 2; 1999 FW *, 6, 2, 2; 1999 FX *, 6, 2, 2; 1999 FY *, 6, 2, 2; 1999 FZ *, 6, 2, 2; 1999 FA₁ *, 6, 2, 2; 1999 FB₁ *, 6, 2, 2; 1999 FC₁ *, 6, 2, 2; 1999 FD₁ *, 6, 2, 2; 1999 FE₁ *, 9, 3, 4; 1999 FF₁ *, 6, 2, 2; 1999 FG₁ *, 6, 2, 2; 1999 FH₁ *, 9, 3, 4; 1999 FU₅ *, 6, 2, 3; 1999 FV₅ *, 6, 2, 3; 1999 FW₅ *, 6, 2, 3; 1999 FX₅ *, 6, 2, 3; 1999 FY₅ *, 6, 2, 3; 1999 FZ₅ *, 6, 2, 4; 1999 FA₆ *, 6, 2, 4; 1999 FB₆ *, 6, 2, 4; 1999 FC₆ *, 6, 2, 4; 1999 FD₆ *, 6, 2, 4; 1999 FE₆ *, 6, 2, 4; 1999 FF₆ *, 6, 2, 4; 1999 FG₆ *, 6, 2, 4; 1999 FH₆ *, 6, 2, 4; 1999 FJ₆ *, 6, 2, 4; 1999 FK₆ *, 6, 2, 4; 1999 FL₆ *, 6, 2, 4; 1999 FM₆ *, 6, 2, 4; 1999 FN₆ *, 6, 2, 4; 1999 FO₆ *, 6, 2, 4; 1999 FP₆ *, 6, 2, 4; 1999 FQ₆ *, 6, 2, 2; 1999 FR₆ *, 6, 2, 2; 1999 FS₆ *, 6, 2, 1; 1999 FT₆ *, 6, 2, 1; 1999 FU₆ *, 6, 2, 1; 1999 FV₆ *, 6, 2, 1; 1999 FX₆ *, 6, 2, 1; 1999 FY₆ *, 6, 2, 1; 1999 FZ₆ *, 6, 2, 1; 1999 FA₇ *, 6, 2, 1; 1999 FB₇ *, 6, 2, 1; 1999 FC₇ *, 6, 2, 1; 1999 FD₇ *, 6, 2, 1; 4089 P-L, 3, 1, 0; 6349 P-L, 3, 1, 0; 1176 T-1, 3, 1, 0; 3300 T-1, 3, 1, 0; 4408 T-1, 3, 1, 0; 2231 T-2, 3, 1, 0; 4093 T-2, 3, 1, 0; (79), 9, 3, 4; (206), 3, 1, 0; (302), 6, 2, 1; (1074), 9, 3, 4; (1408), 6, 2, 2; (1612), 9, 3, 4; (1777), 3, 1, 0; (1788), 6, 2, 3; (1808), 6, 2, 1; (1822), 3, 1, 0; (1848), 3, 1, 0; (1896), 6, 2, 1; (2267), 3, 1, 0; (2701), 6, 2, 1; (3069), 6, 2, 1; (3840), 3, 1, 0; (4189), 3, 1, 0; (4281), 6, 2, 2; (4960), 3, 1, 0; (5088), 6, 2, 2; (5344), 3, 1, 0; (5950), 6, 2, 3; (6291), 3, 1, 0; (6313), 3, 1, 0; (6360), 6, 2, 1; (6432), 3, 1, 0; (6613), 3, 1, 0; (7033), 3, 1, 0; (7461), 3, 1, 0; (7551), 3, 1, 0; (7948), 3, 1, 0; (8232), 3, 1, 0; (8320), 3, 1, 0; (9765), 9, 3, 4; (9921), 3, 1, 0; (10234), 3, 1, 0; (10253), 6, 2, 1; [924, 210, 55*, 1997/05/02–1999/03/24]

952 Marxuquera

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

GSC

(113), 4, 1, 0; [4, 1, 0*, 1999/03/22]

958 Observatoire de Dax

P. Dupouy, Observatoire de Dax, F-40100 Dax, France

[Dupouy_Philippe@compuserve.com]

Observers P. Dupouy, F. Marechal

Measurer J.-F. Lahitte, F. Marechal

0.318-m $f/5.6$ reflector + CCD

USNO-SA1.0, GSC

1993 OB, 3, 1, 0; 1998 DS₈, 7, 2, 38; 1998 YP₁₁, 3, 1, 0; 1999 CA, 3, 1, 0; 1999 CV₃, 2, 1, 0; 1999 FA, 4, 1, 0; [22, 6, 0*, 1999/02/10–1999/03/21]

960 Rolvenden

M. Armstrong, Butterfly Cottage, Hastings Road, Rolvenden, Kent TN17 4PN,

England [fw04@dial.pipex.com]

Observers M. Armstrong, C. Armstrong

Measurer M. Armstrong

0.25-m Schmidt-Cassegrain + CCD

GSC

1997 WQ₂₈, 4, 2, 1; [4, 1, 0*, 1999/02/22–1999/02/23]

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C/1996 O2 (SOHO)

<i>T</i>	1996 July 24.46 TT		Marsden	
<i>q</i>	0.0076	(2000.0)	P	Q
	ω	68.35	+0.22831	−0.96866
	Ω	349.92	−0.96211	−0.20909
<i>e</i>	1.0	<i>i</i>	146.02	+0.14909
From 10 observations 1996 July 23–24.				

C/1996 O3 (SOHO)

<i>T</i>	1996 July 26.02 TT		Marsden	
<i>q</i>	0.0067	(2000.0)	P	Q
	ω	68.34	+0.21095	−0.97144
	Ω	348.73	−0.96683	−0.19097
<i>e</i>	1.0	<i>i</i>	146.22	+0.14401
From 6 observations 1996 July 25.				

C/1996 O4 (SOHO)

<i>T</i>	1996 July 28.27 TT		Marsden	
<i>q</i>	0.0070	(2000.0)	P	Q
	ω	69.38	+0.21899	−0.97080
	Ω	350.31	−0.95946	−0.19601
<i>e</i>	1.0	<i>i</i>	144.43	+0.17742
From 9 observations 1996 July 27–28.				

C/1997 Q2 (SOHO)

<i>T</i>	1997 Aug. 24.12 TT		Marsden	
<i>q</i>	0.0048	(2000.0)	P	Q
	ω	88.38	+0.16032	−0.98241
	Ω	9.41	−0.96204	−0.17722
<i>e</i>	1.0	<i>i</i>	144.16	+0.22085
From 24 observations 1997 Aug. 22–24.				

C/1998 M3 (Larsen)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>T</i>	1998 July 17.2158 TT		Nakano	
<i>q</i>	5.768225	(2000.0)	P	Q
<i>z</i>	−0.000363	ω	20.8484	−0.3705525
	± 0.000008	Ω	255.5258	−0.9276596
<i>e</i>	1.002096	<i>i</i>	113.4210	−0.0462432
From 95 observations 1998 May 26–1999 Mar. 17, mean residual 0″.7.				

C/1998 M5 (LINEAR)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

T 1999 Jan. 24.5721 TT		Nakano	
q	(2000.0)	P	Q
z	ω 101.2851	−0.1155209	−0.8885460
	Ω 333.3768	−0.1972865	+0.4586173
e	i 82.2289	+0.9735158	−0.0124976

From 903 observations 1998 June 30–1999 Mar. 28, mean residual 0 $''$.6.**P/1998 X1 (ODAS)**

Epoch 1998 Aug. 15.0 TT = JDT 2451040.5

T 1998 July 20.9362 TT		Nakano	
q	(2000.0)	P	Q
n	ω 68.8016	+0.3803977	−0.9248229
a	Ω 358.8398	+0.8395173	+0.3455265
e	i 1.3521	+0.3879540	+0.1591040

From 146 observations 1998 Dec. 15–1999 Mar. 16, mean residual 0 $''$.5.**C/1999 C1 (SOHO)** T 1999 Feb. 7.87 TT

q 0.0062		Marsden	
	(2000.0)	P	Q
	ω 81.72	+0.19489	−0.98015
	Ω 3.63	−0.95899	−0.19823
e	i 144.81	+0.20578	+0.00448

From 46 observations 1999 Feb. 6–7.

P/1999 D1 (Hermann) T 1999 Feb. 18.0010 TT

q 1.654377		Nakano	
n	(2000.0)	P	Q
n	ω 173.0809	−0.9550264	−0.2887049
a	Ω 349.3737	+0.2514406	−0.6675934
e	i 21.5159	+0.1571692	−0.6862715

 P 13.8

From 98 observations 1999 Feb. 15–Mar. 26.

D/1999 E1 (Li) T 1999 Jan. 31.527 TT

q 3.91960		Marsden	
n	(2000.0)	P	Q
n	ω 329.727	−0.257630	−0.775408
a	Ω 127.835	+0.966080	−0.217679
e	i 46.884	+0.017760	+0.592755

 P 65.8

From 93 observations 1999 Jan. 22–Mar. 27.

135P/Shoemaker-Levy 8

Epoch 1999 Dec. 8.0 TT = JDT 2451520.5

T 1999 Dec. 10.5169 TT		Marsden	
q	(2000.0)	P	Q
n	ω 22.5876	−0.5617399	+0.8252856
a	Ω 213.3175	−0.7742403	−0.5490758
e	i 6.0504	−0.2915480	−0.1319826

 P 7.49From 80 observations 1992–1999, mean residual 0 $''$.8.**140P/Bowell-Skiff**

Epoch 1999 May 22.0 TT = JDT 2451320.5

T 1999 May 14.8099 TT		Nakano	
q	(2000.0)	P	Q
n	ω 173.0828	−0.9174307	−0.3974397
a	Ω 343.4595	+0.3617826	−0.8132842
e	i 3.8357	+0.1656331	−0.4249830

 P 16.2From 85 observations 1983–1999, mean residual 1 $''$.0.**(10258)* 1940 AB = 1988 RZ₄ = 1989 WL₆ = 1989 WK₇ = 1998 KD₅₃**

Discovered 1940 Jan. 6 by G. Kulin at Konkoly Observatory, Budapest.

Id. A. Doppler (*MPC* 33472), G. V. Williams (d, *MPC* 18264; *ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M 220.47464		Williams	
n	(2000.0)	P	Q
n	ω 296.92217	+0.38507231	−0.90312251
a	Ω 129.11591	+0.90953983	+0.33649526
e	i 14.17290	+0.15638611	+0.26672208

 P 5.61

Residuals in seconds of arc (or two decimals in units of degrees)

1940 01 06	053	2.2+	0.5−	1988 09 10	809	0.2+	0.7+	1989 12 04	808(0.00−	0.03+)	
1940 01 11	053	2.2−	0.6+	1988 09 11	675	1.2+	0.3+	1998 05 23	704	0.1−	0.1−
1940 01 12	053	0.0	0.9+	1988 09 11	675	0.3−	0.4+	1998 05 23	704	0.2+	0.1−
1940 01 30	053	(7.8+	1.0+)	1988 09 13	809	0.1+	0.9+	1998 05 23	704	0.6+	0.3−
1988 09 02	809	2.0−	0.7−	1988 09 13	809	0.0	0.6+	1998 05 23	704	0.5−	1.6−
1988 09 02	809	1.8−	0.5−	1988 09 13	809	0.1+	0.4+	1998 05 23	704	0.7−	1.2−
1988 09 02	809	1.5−	0.2−	1988 09 15	809	0.2−	0.5−	1998 05 26	704	0.4+	1.1+
1988 09 05	809	0.8+	0.1+	1988 09 15	809	0.2−	0.6−	1998 05 26	704	0.3+	0.3+
1988 09 05	809	0.9+	0.2+	1988 09 15	809	0.2−	0.7−	1998 05 26	704	0.1−	0.0
1988 09 05	809	0.9+	0.2+	1989 11 22	808	2.4+	0.3−	1998 05 26	704	0.2+	0.3+
1988 09 07	809	0.6+	0.0	1989 11 22	808	1.3+	0.7+	1998 05 26	704	0.3−	0.0
1988 09 07	809	0.6+	0.4−	1989 11 27	808	0.3−	1.8−	1998 07 15	699	0.2+	0.3+
1988 09 07	809	0.6+	0.8−	1989 11 27	808	0.9−	0.8−	1998 07 15	699	0.1+	0.6+
1988 09 10	809	0.1+	0.8+	1989 11 30	095	2.4−	1.7+	1998 07 15	699	0.2−	1.0+
1988 09 10	809	0.2+	0.7+	1989 12 04	808(0.00−	0.03+)					

(10259)* 1972 HL = 5059 T-2

Discovered 1972 Apr. 18 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Id. T. Kobayashi (*MPC* 15239)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M 298.53717		Williams	
n	(2000.0)	P	Q
n	ω 57.55441	+0.00005715	+0.98725144
a	Ω 213.58023	−0.98661671	−0.02589780
e	i 16.72468	−0.16305663	+0.15704745

 P 5.46

Residuals in seconds of arc

1972 04 18	095	(1.0−	4.0+)	1973 10 05	675	0.5−	1.6−	1999 01 23	561	0.5+	0.4+
1972 05 09	095	0.7−	0.5+	1989 09 04	095	(3.4−	6.7+)	1999 01 23	561	0.7+	0.4+
1972 05 12	095	0.4+	0.8+	1989 09 04	095	2.1−	2.1+	1999 03 19	704	1.0+	0.3−
1973 09 19	675	(6.0+	3.2+)	1994 04 12	801	1.0−	0.8+	1999 03 19	704	0.3−	0.2+
1973 09 20	675	0.2+	0.9+	1994 04 12	801	0.6−	0.7−	1999 03 19	704	0.3−	0.2−
1973 09 20	675	1.2+	1.6+	1994 04 14	801	0.8−	0.4+	1999 03 19	704	1.2+	1.1+
1973 09 24	675	1.3−	1.7+	1994 04 14	801	0.1+	0.7+	1999 03 20	704	0.4+	0.7+
1973 09 24	675	0.3−	2.2+	1994 05 01	596	0.7+	1.2−	1999 03 20	704	0.1−	0.8+
1973 09 25	675	0.8−	0.4+	1994 05 01	596	1.1+	1.9−	1999 03 20	704	0.3+	1.3+
1973 09 25	675	0.1+	0.4−	1994 05 01	596	(0.4+	2.3−)	1999 03 20	704	0.0	0.4+
1973 09 29	675	0.9+	0.5+	1994 05 07	801	0.2+	0.0	1999 03 20	704	0.8−	0.4+
1973 09 29	675	0.5+	1.2+	1994 05 07	801	0.2+	0.2−	1999 03 23	704	0.1−	0.4+
1973 09 30	675	0.2−	1.1+	1994 05 11	801	0.9+	0.3+	1999 03 23	704	0.7−	0.5+

1973 09 30	675	0.6−	1.2+	1994 05 11	801	1.3+	0.5+	1999 03 23	704	0.6−	1.0+
1973 10 04	675	0.8−	0.2−	1994 07 05	801	0.0	0.7−	1999 03 23	704	1.2−	0.8+
1973 10 04	675	0.3−	1.8−	1994 07 05	801	0.0	0.8−				
1973 10 05	675	1.8+	1.1−	1999 01 23	561	0.3+	0.3+				

(10260)* 1972 TC = 1993 VQ₃

Discovered 1972 Oct. 4 by L. Kohoutek at Hamburg.

Id. S. Nakano (*MPC* 22807)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i>	97.71754		(2000.0)	P	Q
<i>n</i>	0.23787602	ω	159.24641	+0.67846021	−0.70646475
<i>a</i>	2.5796984	Ω	247.41203	+0.63951135	+0.70294262
<i>e</i>	0.1701871	<i>i</i>	12.60528	+0.36154803	+0.08233607
<i>P</i>	4.14	<i>H</i>	13.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1972 10 04	029	0.0	0.0	1997 10 29	566	0.3−	0.1−	1998 12 23	704	0.9−	0.2+
1972 10 04	029	1.3+	0.7−	1997 10 29	566	0.5−	0.2−	1998 12 23	704	(1.6+	2.4+)
1972 10 06	029	0.7−	0.3−	1997 10 29	566	0.5−	0.1−	1998 12 23	704	0.6+	0.7+
1972 10 08	029	0.2+	0.9+	1997 10 29	900	0.5−	0.1−	1998 12 23	704	(0.5+	2.7+)
1972 10 12	029	0.1−	0.5+	1997 10 29	900	0.3−	0.2−	1999 01 23	561	(0.2−	3.7+)
1972 10 12	029	0.6−	0.3+	1997 11 16	631	0.2−	0.4−	1999 01 23	561	(0.0	3.9+)
1993 11 11	399	1.0−	1.0−	1997 11 16	631	0.4−	0.4−	1999 01 23	561	(0.2−	3.7+)
1993 11 11	399	0.5−	0.6−	1997 11 18	631	0.9−	0.4−	1999 02 16	704	0.1−	0.2+
1993 11 16	399	0.2+	0.0	1997 11 18	631	0.3−	0.7−	1999 02 16	704	0.5−	0.1+
1993 11 16	399	0.1−	0.5+	1997 12 25	566	1.1+	1.3+	1999 02 16	704	0.5+	0.1−
1993 12 17	691	0.0	0.5+	1997 12 25	566	1.2+	1.3+	1999 02 16	704	1.0−	1.4−
1993 12 17	691	0.0	0.1+	1997 12 25	566	1.3+	1.0+	1999 02 16	704	(2.3−	0.8−)
1993 12 17	691	0.0	0.3+	1998 01 24	566	0.4+	0.9−	1999 03 22	704	0.8+	0.5+
1997 10 23	367	0.0	0.2+	1998 01 24	566	0.6+	0.9−	1999 03 22	704	0.0	0.1+
1997 10 23	367	0.3−	0.4−	1998 01 24	566	0.5+	0.9−	1999 03 22	704	0.6+	0.2+
1997 10 25	610	0.3+	1.1+	1998 01 28	566	0.1+	0.5−	1999 03 22	704	1.1+	0.4+
1997 10 25	610	0.4+	1.0+	1998 01 28	566	0.1+	0.0	1999 03 22	704	0.4−	0.6+
1997 10 25	610	0.6+	0.8+	1998 01 28	566	0.5+	0.2−				

(10261)* 1974 QF₁ = 1974 SJ₂ = 1981 KT₁ = 1995 DZ₁₃

Discovered 1974 Aug. 22 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. T. Urata (d, *NOC* 995), T. B. Spahr (*MPC* 30647), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	188.08847		(2000.0)	P	Q
<i>n</i>	0.26297982	ω	5.84627	+0.92731027	+0.36676069
<i>a</i>	2.4127987	Ω	332.26740	−0.34958502	+0.77734023
<i>e</i>	0.2524755	<i>i</i>	9.23923	−0.13373848	+0.51110542
<i>P</i>	3.75	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1974 08 22	095	(1.6+	2.8+)	1998 02 26	561	0.4−	0.2−	1999 03 20	704	0.0	0.3−
1974 08 23	095	(2.4−	6.8+)	1998 02 26	561	0.1−	0.3+	1999 03 20	704	0.9−	0.5−
1974 08 25	095	(5.2+	1.4−)	1998 03 02	561	0.2−	0.2−	1999 03 20	704	1.1−	0.1−
1974 09 20	095	1.0+	1.2−	1998 03 02	561	0.1−	0.3−	1999 03 20	704	0.9−	0.2+
1974 09 22	095	1.1+	0.5−	1998 03 02	561	0.2+	0.2−	1999 03 20	704	0.9−	0.4+
1974 10 10	095	0.7−	0.0	1999 01 22	561	0.9+	0.7−	1999 03 23	704	0.3−	0.1−
1981 05 28	808	0.3−	0.8+	1999 01 22	561	0.9+	0.6−	1999 03 23	704	0.8+	0.5−
1981 05 28	808	0.4−	0.3−	1999 01 22	561	0.9+	0.6−	1999 03 23	704	0.2+	0.2−
1995 02 24	098	0.5−	0.5+	1999 02 16	704	0.3−	0.5−	1999 03 23	699	1.2+	0.7+
1995 02 24	098	0.4+	1.2+	1999 02 16	704	0.1+	0.7−	1999 03 23	704	0.2−	0.7−
1998 01 04	561	0.2−	0.3+	1999 02 16	704	1.2−	0.9−	1999 03 23	704	0.3+	0.8−
1998 01 05	561	0.1+	0.0	1999 02 16	704	(0.2−	2.3−)	1999 03 23	699	0.1+	1.7+
1998 01 05	561	0.1+	0.4+	1999 02 16	704	1.0−	1.6−	1999 03 23	699	0.8+	0.3+

(10262)* 1975 TQ₃ = 1988 VO₆

Discovered 1975 Oct. 3 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. C. M. Bardwell (*MPC* 14184)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	209.06285		(2000.0)	P	Q
<i>n</i>	0.23252024	ω	303.24478	+0.91863833	+0.37240993
<i>a</i>	2.6191611	Ω	35.40541	−0.24180378	+0.79407274
<i>e</i>	0.1817093	<i>i</i>	13.16617	−0.31246528	+0.48037416
<i>P</i>	4.24	<i>H</i>	12.6	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1954 11 23	675	0.3+	0.0	1992 10 23	010	0.6−	0.7−	1999 01 22	561	0.0	0.7+
1954 11 23	675	0.7−	0.3−	1992 10 25	691	0.6+	0.3+	1999 01 22	561	0.1−	0.7+
1975 10 03	095	0.9+	0.9−	1992 10 25	691	0.4+	0.3+	1999 01 22	561	0.0	0.7+
1975 10 13	095	0.7−	1.9+	1992 10 25	691	0.0	0.1+	1999 02 26	704	0.0	0.7+
1975 11 01	095	(2.3+	3.3+)	1992 10 28	801	0.3+	0.2−	1999 02 26	704	(2.2−	0.4+)
1975 11 06	095	0.7−	0.8+	1992 10 28	801	0.3+	0.2−	1999 03 19	704	0.0	0.3−
1988 11 03	033	0.3+	0.3−	1992 11 02	010	1.3−	0.4−	1999 03 19	704	0.4−	0.2+
1988 11 04	033	0.6+	0.0	1992 11 02	010	1.4−	0.1−	1999 03 19	704	0.0	0.4−
1988 11 04	033	0.7+	0.2+	1992 11 02	010	1.3−	0.1−	1999 03 19	704	0.0	0.3+
1988 11 09	675	0.5−	0.6+	1992 11 03	010	0.1−	0.7+	1999 03 19	704	0.3−	0.6−
1988 11 09	675	0.7−	1.0+	1992 11 03	010	0.4−	1.2+	1999 03 20	699	0.8+	0.9+
1992 09 30	095	0.2+	0.6−	1992 11 03	010	0.8−	1.3+	1999 03 20	704	0.4−	0.1+
1992 09 30	095	(0.1−	3.5−)	1992 11 21	801	0.2+	0.3−	1999 03 20	699	0.4+	0.5+
1992 10 20	675	0.8+	0.3+	1992 11 21	801	0.2+	0.4−	1999 03 20	704	0.1−	0.6−
1992 10 20	675	0.6+	0.5−	1992 11 29	801	0.1+	0.2−	1999 03 20	699	0.3+	0.5+
1992 10 21	894	0.3+	1.0−	1992 11 29	801	0.1+	0.1−	1999 03 20	704	0.2+	0.3+
1992 10 21	894	0.2−	1.7−	1998 01 26	566	0.3+	0.4−	1999 03 20	704	0.2+	0.1+
1992 10 22	801	0.3+	0.1−	1998 01 26	566	0.2+	0.3+	1999 03 20	704	0.1+	0.7−
1992 10 22	801	0.1+	0.1−	1998 01 26	566	0.1+	0.4+	1999 03 23	704	1.7+	0.4−
1992 10 22	675	0.7+	1.2+	1998 03 27	566	0.4−	1.2−	1999 03 23	704	0.1−	0.6−
1992 10 22	675	0.9+	0.3+	1998 03 27	566	0.3−	1.4−	1999 03 23	704	0.7−	0.1+
1992 10 23	010	0.1+	0.7−	1998 03 27	566	0.7−	1.6−	1999 03 23	704	0.2+	0.7+

**(10263)* 1976 SE₅ = 1976 UF₆ = 1952 FA₁ = 1965 DB = 1972 XZ₁
= 1987 HS₂ = 1998 UQ₂₄**

Discovered 1976 Sept. 24 by N. S. Chernykh at the Crimean Astrophysical

Observatory.

Id. H. Oishi (d, *JAM* 1663), G. V. Williams (*MPC* 33218)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	307.37230		(2000.0)	P	Q
<i>n</i>	0.22706705	ω	291.35703	−0.76640806	−0.63628938
<i>a</i>	2.6609291	Ω	209.34272	+0.63556595	−0.73127252
<i>e</i>	0.1708567	<i>i</i>	10.35239	+0.09313761	−0.24571595
<i>P</i>	4.34	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1952 03 24	711	0.3−	0.3+	Y	1998 10 20	699	0.3+	0.0	1998 11 18	704	0.3+	0.1+
1965 02 23	330	(5.2+	2.0+)		1998 10 20	699	0.7+	0.6−	1998 11 18	704	0.2+	0.7−
1972 12 01	095	(1.0+	5.4−)		1998 10 20	699	0.7+	0.4−	1998 11 18	704	1.5+	1.7−
1976 09 24	095	0.8−	1.1+		1998 11 10	704	0.6−	0.3+	1998 11 18	704	0.2−	1.4−
1976 10 22	381	0.8+	0.4−		1998 11 10	704	0.4−	0.4−	1998 11 21	704	0.1−	0.1+
1976 10 22	381	0.4+	0.4−		1998 11 10	704	0.3−	0.8−	1998 11 21	704	0.4−	0.4+
1976 10 24	381	0.5+	0.3−		1998 11 10	704	0.2+	0.3−	1998 11 21	704	0.3−	0.6+
1987 04 24	046	0.4+	1.8−		1998 11 10	704	0.4−	0.4−	1998 11 21	704	0.9−	1.2+
1987 04 24	046	0.4−	0.4−		1998 11 11	699	0.2−	0.6+	1998 11 21	704	(2.6−	0.2−)
1997 09 02	566	0.0	0.1−		1998 11 11	704	0.1+	0.1−	1999 02 04	704	0.7+	0.7+
1997 09 02	566	0.4−	0.1+		1998 11 11	704	0.5−	0.3−	1999 02 04	704	0.6+	0.4−
1997 09 02	566	0.3−	0.4+		1998 11 11	699	0.4−	0.1+	1999 02 04	704	0.3−	1.4+
1998 10 18	699	0.4+	0.4−		1998 11 11	704	1.1−	0.3+	1999 02 04	704	0.0	1.4+
1998 10 18	699	0.1+	0.1+		1998 11 11	699	0.0	0.6+	1999 02 04	704	0.2+	0.2+
1998 10 18	699	0.3+	0.5−		1998 11 18	704	0.2+	0.4−				

(10264)* 1978 PH₃ = 1995 OS₃

Discovered 1978 Aug. 8 by N. S. Chernykh

Id. G. V. Williams (*MPC* 25635)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17248634	ω	30.45160	+0.33818100	+0.94106435		
<i>a</i>	3.1961924	Ω	259.31499	−0.86457236	+0.30832632		
<i>e</i>	0.1869149	<i>i</i>	0.32725	−0.37168298	+0.13904233		
<i>P</i>	5.71	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1978 08 08	095	0.9+	1.5+	1995 08 03	691	0.5+	0.4−
1978 09 02	809	0.5+	0.5−	1996 11 09	691	0.2+	0.1−
1978 09 02	809	0.5+	0.7−	1996 11 09	691	0.3+	0.2−
1978 09 02	809	0.3+	0.9−	1996 11 09	691	0.2+	0.2−
1978 09 02	809	0.5+	0.6−	1996 11 17	817	0.6−	0.3+
1978 09 02	809	0.7−	0.3−	1996 11 17	817	0.9−	0.6+
1978 09 03	095	1.4−	0.8+	1996 11 18	817	0.3−	0.2+
1978 09 28	095	0.7−	1.1+	1996 11 18	817	0.2+	0.2+
1995 07 22	691	0.5+	0.3−	1996 11 20	817	0.5+	0.1+
1995 07 22	691	0.3+	0.1−	1996 11 20	817	0.6+	0.2+
1995 07 22	691	0.1−	0.0	1996 11 20	817	0.5+	0.0
1995 07 27	691	0.6−	0.2−	1997 12 26	566	0.5−	0.0
1995 07 27	691	0.3−	0.3−	1997 12 26	566	0.5−	0.7−
1995 07 27	691	0.6−	0.1−	1997 12 26	566	0.5−	0.8−
1995 08 03	691	0.4+	0.2−	1998 01 02	704	0.5+	0.3−
1995 08 03	691	0.2+	0.2−	1998 01 02	704	0.5+	0.1−
				1999 03 20	704	0.9+	2.0−

(10265)* 1978 RY₆ = 1979 WY₂ = 1987 ED₁ = 1990 SO₁₁

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

Id. H. Kaneda (*MPC* 17815)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.16956761	ω	118.08951	−0.00839250	−0.99700453		
<i>a</i>	3.2327648	Ω	332.07018	+0.85017336	+0.03336449		
<i>e</i>	0.0744715	<i>i</i>	9.44791	+0.52643596	−0.06977669		
<i>P</i>	5.81	<i>H</i>	12.4	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1978 09 02	809	0.9−	0.2−	1987 03 03	809	0.7+	0.3−
1978 09 02	809	1.3−	0.1−	1987 03 03	809	0.6+	0.5−
1978 09 02	809	0.0	1.1+	1987 03 04	809	0.5−	0.2+
1978 09 02	809	1.0−	0.2−	1987 03 04	809	0.4−	0.2+
1978 09 06	809	0.5+	0.1−	1987 03 04	809	0.4−	0.4+
1978 09 10	809	0.2+	1.8+	1987 03 05	809	0.8−	0.2−
1978 09 10	809	0.4+	1.4−	1987 03 05	809	0.7−	0.2−
1978 09 10	809	0.7+	0.2−	1987 03 05	809	0.6−	0.2−
1978 09 10	809	0.1+	1.2−	1987 03 07	809	0.6−	0.6−
1979 11 16	095	1.1−	0.3+	1987 03 07	809	0.5−	0.9−
1987 03 01	809	1.6+	0.9+	1987 03 07	809	0.4−	0.8−
1987 03 01	809	1.5+	0.8+	1988 05 15	675	0.4+	0.5+
1987 03 01	809	1.7+	0.7+	1990 09 16	675	0.2+	1.4−
1987 03 02	809	0.6+	0.3+	1990 09 16	675	0.2+	1.1−
1987 03 02	809	0.7+	0.3+	1990 09 19	675	1.2+	0.8+
1987 03 02	809	0.5+	0.2+	1990 09 19	675	(0.3+	2.5−)
1987 03 03	809	0.9+	0.3−	1996 12 14	327	0.6+	0.7+

(10266)* 1978 SA₇ = 1964 UR = 1992 SA₁

Discovered 1978 Sept. 26 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. S. Nakano (*MPC* 21099)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21084242	ω	36.84352	+0.90849595	−0.41701782		
<i>a</i>	2.7957439	Ω	347.71592	+0.34666444	+0.78820024		
<i>e</i>	0.2338917	<i>i</i>	7.30196	+0.23336424	+0.45258868		
<i>P</i>	4.67	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1964 10 30	760	0.5+	0.7+	1992 10 04	675	0.7−	1.7−
1964 10 30	760	(2.0+	5.3+)	1992 10 04	675	0.6+	0.5−
1978 09 26	095	0.9−	0.7+	1992 10 19	400	0.2−	1.3−
1978 10 02	095	0.4−	1.3+	1992 10 19	400	0.4+	0.2−
1978 10 08	095	2.0−	0.7+	1992 12 20	801	0.6+	0.1+
1992 09 23	400	0.3+	1.0+	1992 12 20	801	0.1−	0.3+
1992 09 23	400	0.2+	0.4+	1992 12 22	801	0.4+	0.0
1992 09 28	400	0.1−	0.4+	1992 12 22	801	0.4+	0.1+
1992 09 28	400	0.2+	0.4−	1997 11 23	900	0.0	0.1+
1992 10 01	675	0.4+	0.4−	1997 11 23	900	0.2+	0.5+
1992 10 01	400	0.2−	0.9+	1997 12 04	355	0.7−	0.4−
1992 10 01	400	(2.7+	1.2+)	1997 12 04	355	0.8−	0.1−
1992 10 02	675	0.0	0.4−	1997 12 04	355	0.1+	0.0
1992 10 02	675	0.7+	0.2−	1997 12 06	704	0.2−	0.1−
1992 10 02	400	0.2+	0.2−	1997 12 06	704	1.0+	0.8−
1992 10 02	400	0.1−	0.4−	1997 12 06	704	0.6−	0.6−

(10267)* 1978 VD₇ = 1987 SZ₉

Discovered 1978 Nov. 7 by E. F. Helin and S. J. Bus at Palomar.

Id. S. Nakano (*MPC* 12696)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20620827	ω	334.15377	+0.65911323	−0.75020601		
<i>a</i>	2.8374747	Ω	74.56634	+0.69909450	+0.58545800		
<i>e</i>	0.0721620	<i>i</i>	3.12462	+0.27719420	+0.30729444		
<i>P</i>	4.78	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1949 11 23	675	0.2+	0.3+	1992 10 25	675	0.9+	1.0+
1949 11 23	675	0.5+	0.7+	1992 10 25	675	0.9+	0.4−
1978 11 05	675	0.2−	0.5+	1992 11 03	010	1.0+	0.3+
1978 11 06	675	0.1−	0.6−	1992 11 03	010	(0.5−	2.6−)
1978 11 07	675	0.3−	1.4+	1996 08 10	566	0.9−	0.8+
1978 11 08	675	1.3−	0.0	1996 08 10	566	0.5−	0.6+
1978 11 29	675	0.9−	0.3−	1996 08 10	566	0.5−	0.8+
1978 11 30	675	0.5−	0.6−	1997 11 29	704	0.7−	0.3−
1987 09 29	033	0.1−	0.8+	1997 11 29	704	0.6−	1.6−
1987 09 29	033	0.9−	0.3+	1997 11 29	704	0.3+	0.3+
1987 09 30	033	0.0	0.4−	1997 11 29	704	1.7+	0.4−
1987 09 30	033	0.5+	0.2−	1997 11 29	704	1.4−	0.2+
1992 10 20	675	0.1+	0.3+	1999 02 10	704	0.4+	0.2−
1992 10 20	675	0.4+	1.0−	1999 02 10	704	0.3+	1.1−
1992 10 22	675	0.4+	1.1+	1999 02 10	704	1.5−	0.1−
1992 10 22	675	0.7−	1.2+	1999 02 10	704	0.5+	0.1+

(10268)* 1979 HW₆ = 1982 DZ₄ = 1989 GS₃

Discovered 1979 Apr. 26 at the Perth Observatory.

Id. T. Kobayashi (*MPC* 14780)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29177048	ω	344.59567	−0.30143926	+0.95346457		
<i>a</i>	2.2513438	Ω	267.85994	−0.87413826	−0.27898692		
<i>e</i>	0.1290477	<i>i</i>	0.36121	−0.38081054	−0.11433116		
<i>P</i>	3.38	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1979 04 26	323	0.7−	0.4−	1995 01 07	104	0.3−	1.2+	1999 02 19	120	0.5−	0.3−
1979 04 27	323	0.4−	2.2+	1997 11 29	704	0.4+	0.8−	1999 03 10	691	0.1−	0.0
1979 05 03	323	1.5+	1.4+	1997 11 29	704	1.4+	0.7−	1999 03 10	691	0.2−	0.1−
1979 05 04	323	0.6−	1.0+	1997 11 29	704	0.3+	0.6−	1999 03 10	691	0.0	0.0
1979 05 17	323	1.0+	0.1−	1997 11 29	704	0.4+	1.4−	1999 03 20	704	0.3−	0.6+
1979 05 18	323	1.4−	0.2+	1997 12 04	704	0.1−	0.2+	1999 03 20	704	0.6−	0.4−
1982 02 22	010	0.1−	1.4−	1997 12 04	704	0.0	0.6+	1999 03 20	704	0.5+	0.2−
1989 04 02	809	2.1−	0.6−	1997 12 04	704	0.5+	0.9+	1999 03 20	704	0.7−	0.3+
1989 04 02	809	0.3−	0.0	1997 12 04	704	(2.7−	1.2+)	1999 03 20	704	0.1+	0.5+
1989 04 02	809	0.2+	0.1−	1998 01 17	910	0.9−	0.7+	1999 03 23	704	0.3−	0.2+
1989 04 05	809	0.4+	1.8−	1998 01 17	910	1.0−	0.6+	1999 03 23	704	0.4−	0.3+
1989 04 05	809	1.3+	1.8−	1998 01 17	910	0.8−	0.6+	1999 03 23	699	0.7+	0.7+
1989 04 11	809	0.2+	0.1+	1998 12 23	704	(0.8+	2.7−)	1999 03 23	704	0.2−	0.1−
1989 04 11	809	0.6+	0.1−	1998 12 23	704	0.5+	1.2+	1999 03 23	704	1.0−	0.0
1989 04 11	809	1.0+	0.1+	1999 01 21	120	0.2+	0.2−	1999 03 23	699	1.2+	0.5+
1995 01 07	104	0.4−	1.2+	1999 01 22	120	0.5−	0.9−	1999 03 23	704	0.2−	1.0−
1995 01 07	104	0.2−	1.1+	1999 02 18	120	0.4−	0.4−	1999 03 23	699	0.7+	0.5+

(10269)* 1979 SU₁₁ = 1984 QW = 1985 YY₁

Discovered 1979 Sept. 24 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. B. G. Marsden (*MPC* 11739)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		185.73263		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>		0.17632728	ω	268.24353		+0.99777866		+0.05029089	
<i>a</i>		3.1496071	Ω	88.87212		−0.02877766		+0.91685302	
<i>e</i>		0.1605138	<i>i</i>	2.50437		−0.06007984		+0.39604464	
<i>P</i>		5.59	<i>H</i>	12.7		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1955 04 16	675	0.1+	0.3+	1990 09 20	675	(1.1+	3.5−)	1996 12 16	732	0.8−	0.8+
1971 03 24	675	1.7−	1.8−	1990 09 20	675	(2.4+	2.5−)	1996 12 16	732	0.2+	0.1+
1971 03 25	675	0.6−	0.1−	1990 09 21	801	0.4+	0.1+	1996 12 16	732	0.2+	0.0
1971 03 25	675	1.2−	0.1−	1990 09 21	801	0.4+	0.0	1998 12 18	910	0.8−	0.1+
1971 03 26	675	0.3−	1.0−	1990 09 22	095	1.2−	1.3−	1998 12 18	910	0.8−	0.1+
1971 03 27	675	1.0−	0.9−	1990 09 22	095	(0.6−	2.4−)	1998 12 18	910	0.5−	0.3+
1971 04 02	675	(2.9+	2.1−)	1990 09 28	675	1.1+	0.2+	1999 03 20	704	0.4+	0.4−
1971 04 16	675	2.2+	1.4−	1990 09 29	095	0.7+	0.1+	1999 03 20	704	0.8+	0.3+
1971 04 16	675	0.7+	0.7+	1990 10 23	095	0.5−	1.1−	1999 03 20	704	0.0	0.9−
1971 05 13	675	0.4+	2.1−	1990 11 16	801	0.4+	0.1+	1999 03 20	704	0.8+	0.1−
1971 05 14	675	1.3+	0.2−	1990 11 16	801	0.5+	0.0	1999 03 23	704	0.7+	0.7−
1979 09 24	095	0.1−	1.3−	1993 03 24	033	0.7−	0.3−	1999 03 23	704	0.1+	0.0
1979 10 14	095	0.5+	1.0−	1993 03 26	033	(2.2−	0.4+)	1999 03 23	699	0.8−	0.1+
1979 11 16	095	0.7−	0.3−	1993 03 26	033	0.7−	0.3+	1999 03 23	704	0.5−	0.1−
1979 11 22	095	0.6−	0.1−	1994 05 14	691	0.8−	0.6+	1999 03 23	704	0.4−	0.3+
1984 08 24	801	0.5+	0.4−	1994 05 14	691	0.1−	0.2+	1999 03 23	699	1.3+	1.4+
1985 12 17	010	(7.3+	7.0−)	1994 05 14	691	0.2−	0.3+	1999 03 23	704	1.1−	0.2+
1985 12 17	010	(10.8+	4.8−)	1996 12 15	732	0.0	0.3+	1999 03 23	699	0.5+	0.5−
1990 09 18	675	(0.6+	4.0−)	1996 12 15	732	0.8+	0.8+				
1990 09 18	675	0.8+	1.5−	1996 12 15	732	0.2−	0.5+				

(10270)* 1980 FX₃ = 1993 QH₆

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

Id. T. Kobayashi (*MPC* 23969)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		28.91516		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>		0.25719668	ω	112.71785		−0.32727844		−0.94490639	
<i>a</i>		2.4488328	Ω	356.36780		+0.82578897		−0.28272487	
<i>e</i>		0.0830337	<i>i</i>	5.78179		+0.45930534		−0.16498048	
<i>P</i>		3.83	<i>H</i>	14.4		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1980 03 16	809	0.1−	0.0	1997 10 10	327	0.1+	0.4+	1999 02 13	704	0.6−	0.0
1980 03 16	809	0.1+	0.2−	1997 10 10	327	0.2+	0.2+	1999 02 13	704	0.5−	0.3−
1980 03 16	809	0.1+	0.2+	1997 10 10	327	0.1+	0.2−	1999 02 13	704	(2.2+	0.5+)
1980 03 16	809	0.3+	0.2−	1998 11 25	704	0.4+	0.4−	1999 02 19	566	0.4−	0.8+
1980 03 17	809	0.4+	0.2−	1998 11 25	704	(1.9+	2.2−)	1999 02 19	566	0.4−	0.6+
1980 03 17	809	0.7−	0.0	1998 11 25	704	(3.3−	1.7−)	1999 02 19	566	0.6−	1.0+
1980 03 17	809	0.3+	0.1+	1998 11 25	704	0.2−	0.5−	1999 03 19	704	1.2+	0.1−
1980 03 17	809	0.1+	0.4+	1998 12 01	704	(2.1+	0.4+)	1999 03 19	704	0.2−	0.2+
1980 03 23	809	0.6−	0.1−	1998 12 01	704	0.2−	0.2+	1999 03 19	704	0.4−	0.2+
1993 08 15	809	1.3+	0.1−	1998 12 01	704	1.3−	1.2−	1999 03 19	704	1.1+	1.3−
1993 08 15	809	1.5+	0.5+	1998 12 01	704	0.9+	1.1−	1999 03 19	704	(2.5−	2.7−)
1993 08 15	809	1.5+	0.5−	1998 12 30	327	0.5+	0.3−	1999 03 20	704	0.3+	0.0
1993 08 20	809	0.0	1.6+	1998 12 30	327	0.0	0.0	1999 03 20	704	0.3−	0.7+
1993 08 20	809	(1.1−	2.1+)	1998 12 30	327	0.9+	0.2−	1999 03 20	704	1.3−	0.8+
1993 08 20	809	1.5−	1.3+	1999 01 10	327	0.1−	0.1−	1999 03 20	704	0.4−	0.7+
1993 08 24	809	(3.5−	0.5−)	1999 01 10	327	0.2+	0.4−	1999 03 20	704	0.6−	0.3+
1993 08 24	809	1.4−	0.4−	1999 01 10	327	0.1−	0.3−	1999 03 21	699	0.4+	0.2−
1993 08 24	809	1.2−	0.3−	1999 02 10	704	0.5+	0.1+	1999 03 21	699	0.5+	0.5+
1997 10 09	327	0.2+	0.3+	1999 02 10	704	0.5+	0.3−	1999 03 21	699	0.1+	1.1+
1997 10 09	327	0.1−	0.2+	1999 02 10	704	0.7+	0.6−	1999 03 24	691	0.1+	0.0
1997 10 09	327	0.0	0.2+	1999 02 10	704	1.0+	1.1+	1999 03 24	691	0.3+	0.3+
1997 10 10	691	0.7−	0.0	1999 02 10	704	0.1+	0.3−	1999 03 24	691	0.3+	0.1+
1997 10 10	691	0.7−	0.1−	1999 02 13	704	0.3−	0.3+				
1997 10 10	691	0.8−	0.0	1999 02 13	704	0.5−	0.1−				

(10271)* 1980 TV₂ = 1987 WG = 1989 GH₁

Discovered 1980 Oct. 14 by H. Debehogne and L. Houziaux at Haute Provence.

Id. T. Kobayashi (*MPC* 14946)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		98.79342		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>		0.28630581	ω	32.41603		+0.77432202		−0.63265878	
<i>a</i>		2.2799007	Ω	6.87457		+0.55501382		+0.66915884	
<i>e</i>		0.2473544	<i>i</i>	6.22167		+0.30394913		+0.38983241	
<i>P</i>		3.44	<i>H</i>	14.6		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1980 10 10	095	(1.0+ 3.0+)	1989 04 10	809	1.1+ 0.6+	1999 03 16	747	0.4+ 0.4+
1980 10 14	511	0.1+ 0.1+	1989 04 10	809	0.6+ 0.2+	1999 03 16	747	0.5+ 0.4+
1980 10 14	511	0.7− 0.6+	1992 02 29	809	0.5− 0.7+	1999 03 20	704	0.5+ 0.1+
1980 10 14	511	1.7− 0.1+	1992 03 03	809	1.4− 1.6+	1999 03 20	704	0.3+ 0.9−
1980 10 15	095	(6.1+ 0.8+)	1992 04 06	809	1.0− 0.9+	1999 03 20	704	1.7− 0.6−
1987 10 28	095	(0.5+ 3.4+)	1994 11 04	801	0.1+ 0.2−	1999 03 20	704	0.6− 0.7−
1987 11 19	688	0.8+ 0.4−	1994 11 07	801	0.7+ 0.6+	1999 03 20	704	0.2− 0.1−
1987 11 19	688	1.5+ 0.7−	1994 11 07	801	0.7+ 0.3+	1999 03 22	699	(2.2+ 1.3+)
1989 04 03	809	0.8+ 1.4−	1997 12 03	910	0.3− 0.3−	1999 03 22	699	0.1+ 0.2+
1989 04 03	809	0.2+ 1.4−	1997 12 03	910	0.5− 0.0	1999 03 22	699	0.4− 0.3+
1989 04 03	809	0.4− 1.1−	1997 12 03	910	0.4− 0.3−	1999 03 23	704	0.3+ 0.7−
1989 04 05	809	(5.6+ 3.0−)	1999 02 20	699	0.7+ 0.9+	1999 03 23	704	0.2+ 0.9−
1989 04 05	809	(6.0+ 2.8−)	1999 02 20	699	0.3− 0.3+	1999 03 23	704	0.7− 0.3+
1989 04 05	809	(5.8+ 3.9−)	1999 02 20	699	0.3+ 0.7+	1999 03 23	704	1.0− 0.6−
1989 04 08	809	0.6+ 0.6−	1999 03 10	747	0.2− 0.3+	1999 03 23	704	0.4− 1.0−
1989 04 08	809	0.6+ 0.5+	1999 03 10	747	0.1− 0.6+	1999 03 24	691	0.1+ 0.3+
1989 04 08	809	0.3+ 0.6+	1999 03 10	747	0.6− 0.3+	1999 03 24	691	0.2+ 0.0
1989 04 10	809	1.6+ 0.3−	1999 03 16	747	0.2− 1.2+	1999 03 24	691	0.2+ 0.3+

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	85.89675		(2000.0)	P	Q
<i>n</i>	0.21588964	ω	76.28831	+0.58368275	-0.80810132
<i>a</i>	2.7519984	Ω	337.43206	+0.64202146	+0.51908606
<i>e</i>	0.1083725	<i>i</i>	11.92319	+0.49711456	+0.27842760
<i>P</i>	4.57	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1981 02 12	413	0.6-	1.4-	1981 05 03	413	0.6-	0.7-	1999 02 10	704	0.7+	0.7+
1981 02 12	413	1.8+	1.5-	1992 09 02	809	0.5+	1.5-	1999 02 10	704	(2.1-	0.9+)
1981 03 01	413	0.7-	1.1-	1992 09 02	809	0.7+	1.1-	1999 02 13	704	0.1+	1.4+
1981 03 01	413	0.8+	1.3-	1992 09 02	809	1.2+	1.0-	1999 02 13	704	1.4-	0.6+
1981 03 06	413	(2.7-	1.5+)	1992 09 03	809	1.2+	2.0-	1999 02 13	704	0.0	0.1-
1981 03 06	413	1.7+	1.2-	1997 10 30	688	0.4+	0.6-	1999 02 13	704	0.1-	1.0-
1981 03 08	413	2.4-	0.3+	1997 10 30	688	0.1+	0.2-	1999 03 20	704	0.6-	0.4+
1981 03 08	413	0.0	0.4-	1997 10 31	688	0.2+	0.3-	1999 03 20	704	(2.2+	0.4-)
1981 03 12	413	0.7-	0.5+	1997 10 31	688	0.1+	0.3-	1999 03 20	704	1.6+	1.2-
1981 04 09	413	2.0-	1.0+	1999 02 10	704	0.0	0.8-	1999 03 20	704	(0.9+	2.1-)
1981 04 09	413	0.8-	0.2+	1999 02 10	704	1.6-	1.7-				

(10273)* 1981 ED₁₄ = 1978 NA₅

Discovered 1981 Mar. 1 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Id. C. M. Bardwell (*MPC* 22398)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	305.92374		(2000.0)	P	Q
<i>n</i>	0.27319536	ω	260.05894	-0.68249419	+0.73008572
<i>a</i>	2.3522700	Ω	326.81907	-0.64362723	-0.62258405
<i>e</i>	0.1452421	<i>i</i>	3.59331	-0.34633173	-0.28171606
<i>P</i>	3.61	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1978 07 10	675	(3.9+	1.3-)	Y	1981 03 12	413	1.0-	0.9+	1999 01 26	120	0.7-	0.4+
1978 07 11	675	(4.7+	2.6-)	Y	1981 03 12	413	1.7+	0.4+	1999 03 20	704	0.2-	0.6-
1978 07 13	675	1.0-	0.1+	Y	1981 04 06	413	0.5-	0.1+	1999 03 20	704	0.9+	0.1+
1979 11 26	675	1.2-	0.1+		1981 04 06	413	1.3+	0.4-	1999 03 20	704	1.0-	1.2-
1979 11 27	675	1.5+	0.3+		1981 04 08	413	1.6-	0.5-	1999 03 20	704	0.1-	0.9-
1981 02 12	413	0.8-	0.2+		1981 04 08	413	1.2+	1.5-	1999 03 20	704	0.6-	0.5-
1981 02 12	413	0.7-	0.4-		1981 04 09	413	1.4-	0.2+	1999 03 23	704	0.3-	0.4-
1981 02 13	413	0.7+	1.7+		1981 04 09	413	0.7+	0.6-	1999 03 23	704	1.0-	0.2+
1981 03 01	413	0.8-	1.3+		1981 05 01	413	0.2+	1.1-	1999 03 23	699	0.9+	0.2-
1981 03 01	413	1.1+	1.0+		1981 05 03	413	0.5+	1.6-	1999 03 23	704	0.8-	0.0
1981 03 02	413	0.1-	0.5+		1996 07 14	566	0.5+	0.9+	1999 03 23	704	0.1-	0.0
1981 03 02	413	0.6+	0.3+		1996 07 14	566	0.1-	0.5+	1999 03 23	699	0.7+	0.4+
1981 03 06	413	0.8-	0.9+		1996 07 14	566	0.2-	0.6+	1999 03 23	704	0.1-	0.4-
1981 03 06	413	0.5+	0.7+		1999 01 26	120	0.5-	0.1-	1999 03 23	699	0.1+	1.0+
1981 03 08	413	0.9+	0.4+		1999 01 26	120	1.6+	1.1+				

(10274)* 1981 ET₁₅ = 1992 SN₂₅

Discovered 1981 Mar. 1 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Id. E. Bowell (*MPC* 22948)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	110.09597		(2000.0)	P	Q
<i>n</i>	0.21666382	ω	50.68266	+0.74855993	-0.66152600
<i>a</i>	2.7454389	Ω	350.43145	+0.49330380	+0.60114575
<i>e</i>	0.0692322	<i>i</i>	15.77175	+0.44306815	+0.44833819
<i>P</i>	4.55	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1981 02 12	413	0.7+	2.4-	1992 09 30	675	1.0+	1.7-	1999 03 13	691	0.1+	0.3-
1981 03 01	413	1.5-	0.9-	1992 09 30	675	0.0	1.3-	1999 03 13	691	0.1+	0.4-
1981 03 01	413	1.2+	1.3-	1992 10 03	675	0.1+	0.3-	1999 03 13	691	0.2+	0.3-
1981 03 06	413	2.3-	0.2+	1992 10 03	675	(0.5+	2.4-)	1999 03 20	704	0.0	0.0

1981 03 06	413	2.1+	0.6-	1992 10 29	801	1.0+	0.3-	1999 03 20	704	0.9-	0.9+
1981 03 08	413	0.1+	1.0-	1992 10 29	801	0.4+	0.3+	1999 03 20	704	0.0	0.2+
1981 03 08	413	0.8+	0.3-	1997 11 29	688	0.3-	0.1-	1999 03 20	704	0.2-	0.4-
1981 03 12	413	0.9-	0.4+	1997 11 29	688	0.1-	0.2-	1999 03 23	704	0.0	0.4+
1981 04 06	413	0.8-	0.3+	1997 12 27	688	0.4+	0.0	1999 03 23	699	0.4+	0.1-
1981 04 06	413	0.4-	0.1-	1997 12 27	688	0.8+	0.4-	1999 03 23	704	0.1+	0.5+
1981 04 08	413	0.9-	0.2+	1999 01 23	699	0.3+	0.3+	1999 03 23	704	0.3+	0.0
1981 04 08	413	0.7-	0.4-	1999 01 23	699	0.5+	0.5+	1999 03 23	699	(2.5+	0.2-)
1981 04 09	413	0.7-	0.0	1999 01 23	699	0.2+	0.3-	1999 03 23	704	0.5+	0.0
1981 04 09	413	1.3+	0.0	1999 02 18	699	1.0-	0.6+	1999 03 23	699	1.1+	0.5+
1981 05 01	413	1.5-	0.7-	1999 02 18	699	0.5+	0.3+				
1981 05 03	413	2.1-	0.4-	1999 02 18	699	0.2+	0.7+				

(10275)* 1981 EC₁₆ = 1978 QP

Discovered 1981 Mar. 1 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Id. L. D. Schmadel (*MPC* 7768), K. Hurukawa (*JAM* 1373)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	270.78273		(2000.0)	P	Q
<i>n</i>	0.27102050	ω	350.80567	-0.13485649	+0.98881522
<i>a</i>	2.3648374	Ω	271.42524	-0.90500284	-0.14909417
<i>e</i>	0.2052794	<i>i</i>	3.65357	-0.40346449	+0.00392227
<i>P</i>	3.64	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1978 08 31	095	0.3-	0.2+	1981 05 01	413	0.0	0.6-	1999 02 16	704	1.0-	0.4+
1978 09 05	095	0.2-	1.5+	1981 05 03	413	1.0-	0.1-	1999 02 21	699	1.3+	0.2+
1981 02 09	413	0.0	0.5-	1993 10 08	691	0.1-	0.1-	1999 02 21	699	1.7+	0.8+
1981 02 12	413	1.5-	0.1-	1993 10 08	691	0.1-	0.0	1999 02 21	699	0.6+	0.6+
1981 03 01	413	0.9-	0.1+	1993 10 08	691	0.1-	0.1+	1999 02 22	758	(2.2-	1.5+)
1981 03 01	413	2.0+	0.2-	1993 11 06	691	0.1-	0.6+	1999 02 22	758	0.6-	0.8+
1981 03 06	413	1.1-	0.7+	1993 11 06	691	0.3-	0.4+	1999 03 19	704	0.7+	0.5+
1981 03 06	413	0.5+	0.2-	1993 11 06	691	0.1+	0.3+	1999 03 19	704	(2.2+	0.1+)
1981 03 12	413	1.2-	0.8+	1996 07 18	816	0.1-	0.1-	1999 03 19	704	0.1+	1.6-
1981 03 12	413	0.4+	0.3-	1996 07 18	816	0.1+	0.0	1999 03 19	704	0.9-	0.2-
1981 04 06	413	0.4+	0.3+	1996 07 18	816	0.0	0.1+	1999 03 20	704	0.1+	0.9-
1981 04 06	413	1.2+	0.8-	1996 07 18	816	0.0	0.0	1999 03 20	704	0.1+	1.1-
1981 04 08	413	0.2-	2.2+	1999 02 16	704	0.0	0.7-	1999 03 20	704	0.6-	0.1-
1981 04 08	413	1.5+	1.2+	1999 02 16	704	0.3-	0.1-	1999 03 20	704	0.8-	0.6+
1981 04 09	413	0.3-	0.3-	1999 02 16	704	0.1+	0.0	1999 03 20	704	0.1+	0.3-
1981 04 09	413	0.7+	0.2-	1999 02 16	704	0.5-	1.5+				

(10276)* 1981 EK₂₃ = 1964 TY = 1974 HU₁ = 1982 SK₅

Discovered 1981 Mar. 3 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Id. L. D. Schmadel (*MPC* 10515), K. Hurukawa (*ibid.*), H. Oishi (*MPC* 21931)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	209.57140		(2000.0)	P	Q
<i>n</i>	0.27180881	ω	129.29954	+0.70395422	+0.71022719
<i>a</i>	2.3602628	Ω	185.45406	-0.66698057	+0.65859806
<i>e</i>	0.1837819	<i>i</i>	3.06312	-0.24410117	+0.24864821
<i>P</i>	3.63	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1964 10 08	330	0.7-	0.4+	1993 10 09	809	1.3-	0.3+	1997 12 04	704	0.1-	0.4+
1974 04 24	805	(2.9-	2.6-)	1993 10 10	809	(2.1+	0.0)	1997 12 04	704	1.0-	0.3-
1974 04 25	805	0.3-	0.0	1993 10 10	809	1.3+	0.8-	1997 12 05	704	0.4-	1.1-
1977 02 11	675	0.3+	0.6+	1993 10 10	809	0.2-	1.4-	1997 12 05	704	0.5-	0.4-
1977 02 12	675	0.6-	1.0+	1993 10 11	809	0.9+	1.4+	1997 12 05	704	0.1+	1.6+
1978 06 10	675	0.6-	0.2-	1993 10 11	809	0.2+	1.8+	1997 12 05	704	0.4+	0.4+
1978 06 11	675	2.2+	0.1-	1993 10 11	809	0.6-	1.7+	1999 02 16	704	0.3+	0.7+
1981 02 09	413	0.8-	0.5-	1993 10 20	809	1.3+	1.0-	1999 02 16	704	0.7+	1.4-
1981 02 13	413	1.0-	0.6+	1993 10 20	809	1.2+	1.3-	1999 02 16	704	1.4+	1.4-
1981 03 03	413	0.4-	1.3-	1993 10 20	809	0.2+	1.8-	1999 02 16	704	0.8+	1.0+
1981 03 03	413	1.9+	1.3-	1993 10 22	809	0.2+	0.6-	1999 02 16	704	(3.3-	0.7-)

19810307	413	1.6−	0.8+	19931022	809	0.1+	0.5−	19990312	691	0.5+	0.4−
19810311	413	0.3−	1.1−	19931022	809	(2.4−	0.0)	19990312	691	0.0	0.5−
19810316	413	(3.6−	1.8+)	19960520	566	0.3−	0.1+	19990312	691	0.6+	0.3−
19810316	413	1.5+	0.8−	19960520	566	0.2−	0.1−	19990320	704	0.6−	1.1+
19810329	413	2.1−	0.5−	19960520	566	0.7−	0.1−	19990320	704	0.4−	1.3−
19810329	413	0.9−	1.1+	19960521	566	1.1−	0.3+	19990320	704	0.2+	1.1+
19810502	413	1.2+	0.9−	19960521	566	0.8−	0.1+	19990320	704	0.7+	0.9−
19810503	413	0.4+	0.7−	19960521	566	0.1+	0.1+	19990323	704	0.1+	2.1+
19820916	095	(5.3−	1.0−)	19971204	704	0.7+	0.9−	19990323	704	1.7+	1.3+
19931009	809	0.3−	0.5+	19971204	704	1.9−	0.6−	19990323	704	1.1−	0.1+
19931009	809	0.8−	0.4+	19971204	704	0.5+	0.1−				

(10277)* 1981 EC₂₇ = 1987 QN₅ = 1992 UT₇

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

Id. B. G. Marsden (*MPC* 21253)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	150.00290				<i>P</i>		<i>Q</i>				
		<i>ω</i>									
<i>n</i>	0.22025993		253.76489		+0.92177856		−0.38722203				
<i>a</i>	2.7154744	<i>Ω</i>	129.01258		+0.36465395		+0.84868382				
<i>e</i>	0.0901514	<i>i</i>	1.44398		+0.13172615		+0.36027055				
<i>P</i>	4.47	<i>H</i>	14.2		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
19810209	413	1.1+	1.1−	19921022	675	0.6+	1.6+	19980102	704	0.2+	0.4+
19810212	413	0.3+	1.0−	19921022	675	0.5−	1.1+	19980102	704	0.9−	0.1+
19810213	413	0.1−	0.6−	19921023	010	0.8+	0.8−	19980102	704	0.3−	0.1+
19810302	413	(1.3+	2.6−)	19921023	010	0.8+	0.4−	19980106	704	0.5−	0.7+
19810306	413	1.6−	0.2−	19921025	675	1.1+	2.0+	19980106	704	0.1−	0.4+
19810311	413	0.8+	0.6−	19921025	675	0.5−	0.0	19980106	704	(3.2−	0.9−)
19810315	413	0.7−	1.3−	19921102	010	0.8+	1.1−	19990224	120	0.0	0.5+
19810405	413	1.9−	0.2+	19921102	010	0.4+	0.7−	19990320	704	0.4+	1.1+
19810406	413	1.6−	0.8+	19921102	010	0.2+	1.5−	19990320	704	0.1−	0.9+
19810406	413	0.4+	0.6−	19921103	010	0.1−	1.2−	19990320	704	0.4−	0.1−
19810410	413	(3.9+	1.0−)	19921103	010	0.3+	1.7−	19990320	704	0.6+	0.7+
19810426	413	(3.8+	1.4−)	19921103	010	0.8+	0.4−	19990320	704	0.2−	1.1+
19810501	413	1.4+	0.2−	19960910	566	0.2−	0.5−	19990323	704	0.5−	0.9−
19870825	809	1.3−	0.4+	19960910	566	0.2−	0.2−	19990323	704	0.4+	0.6−
19870825	809	0.5+	0.3−	19960910	566	0.5−	0.1−	19990323	704	0.1+	0.0
19870825	809	0.3−	0.1+	19980102	704	0.7−	0.5+	19990323	704	0.6+	1.6−
19921020	675	0.5−	0.9+	19980102	704	0.4−	0.6+	19990323	704	1.4+	0.4−

(10278)* 1981 EW₃₀ = 1982 SF₁₂ = 1982 SS₁₂ = 1997 GP₁₅

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), N. S. Chernykh (d, *ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	65.52706				<i>P</i>		<i>Q</i>				
		<i>ω</i>									
<i>n</i>	0.31102117		174.74730		+0.96997734		+0.24318272				
<i>a</i>	2.1574600	<i>Ω</i>	171.17707		−0.22371099		+0.89621075				
<i>e</i>	0.1735616	<i>i</i>	0.92480		−0.09538008		+0.37103700				
<i>P</i>	3.17	<i>H</i>	15.2		<i>G</i>	0.15	<i>U</i>	2			
Residuals in seconds of arc											
19810209	413	0.3+	0.4−	19970509	691	0.8−	0.3+	19981029	704	0.8−	1.2−
19810213	413	0.6+	0.0	19970509	691	0.5−	0.1+	19981110	704	0.4+	0.3+
19810302	413	0.1+	0.2+	19970509	691	0.5−	0.4+	19981110	704	0.7+	0.6−
19810302	413	1.5−	1.2−	19980831	704	1.0−	0.5+	19981110	704	1.0+	0.4+
19810306	413	0.5−	1.2−	19980831	704	0.1−	1.4−	19981110	704	0.3+	0.4+
19810311	413	0.9+	0.7−	19980831	704	(1.2+	3.3−)	19981110	704	0.7−	1.2+
19810315	413	1.9−	0.8+	19980831	704	0.4+	1.0−	19981111	704	0.5−	0.8−
19810315	413	0.5+	0.1+	19980831	704	(0.6−	2.7−)	19981111	704	0.4−	0.4−
19810405	413	(6.8+	3.7−)	19981012	691	0.8−	0.1+	19981111	704	0.3−	0.8−
19810426	413	0.6−	0.4+	19981012	691	0.6−	0.1+	19981111	704	0.5+	0.6−
19810502	413	1.3+	0.5−	19981012	691	0.8−	0.2+	19981111	704	0.5+	1.0−

19820916	095	1.1−	0.5+	19981014	704	1.4+	0.4+	19981111	699	0.5−	0.5−
19820926	095	1.0+	0.2−	19981014	704	1.0+	0.1−	19981111	699	0.0	0.0
19970311	809	1.2−	1.0−	19981014	704	0.5+	0.3+	19981111	699	0.3+	0.0
19970311	809	(1.7−	2.1−)	19981014	704	0.7−	1.0+	19981114	699	0.1+	0.5+
19970311	809	(2.4−	2.4−)	19981015	704	1.5+	0.3−	19981114	699	0.7+	0.6+
19970313	809	(3.5−	1.6−)	19981015	704	0.8−	0.0	19981114	699	0.0	0.6+
19970313	809	(4.4−	1.9−)	19981015	704	0.9−	0.7+	19981119	691	0.3−	0.0
19970313	809	(3.2−	2.1−)	19981015	704	0.4+	0.8+	19981119	691	0.2−	0.2+
19970403	704	(2.6+	0.3−)	19981018	699	0.3+	0.5+	19981119	691	0.2−	0.0
19970403	704	1.2+	0.4−	19981018	699	0.6+	0.7+	19981124	699	0.3−	0.6−
19970405	704	0.8+	1.1+	19981018	699	0.4+	0.9+	19981124	699	0.3−	0.2+
19970405	704	1.3+	0.1+	19981020	689	0.3−	0.4−	19981124	699	0.4−	0.4+
19970406	704	0.2+	1.7+	19981029	704	0.3+	0.3−	19981208	699	0.0	0.4+
19970406	704	0.3+	0.2+	19981029	704	0.2−	0.3−	19981208	699	0.5−	0.3+
19970407	704	0.6+	0.5+	19981029	704	0.3+	0.8−	19981208	699	1.3−	1.2+
19970407	704	0.1−	0.9+	19981029	704	0.0	0.7−				

(10279)* 1981 ET₄₂ = 1978 NP₇

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

Id. D. W. E. Green (*MPC* 11044)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	214.72998				<i>P</i>		<i>Q</i>				
		<i>ω</i>									
<i>n</i>	0.26860306		327.31855		+0.51025381		+0.85990733				
<i>a</i>	2.3790053	<i>Ω</i>	333.35415		−0.78212129		+0.45712526				
<i>e</i>	0.2047831	<i>i</i>	1.80896		−0.35766931		+0.22714725				
<i>P</i>	3.67	<i>H</i>	15.0		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
19770213	675	0.9−	1.3−	19890729	675	0.2+	1.8−	19990210	704	1.0+	0.8+
19770213	675	0.9+	1.9−	19931010	675	0.4−	1.1−	19990210	704	1.1+	0.5−
19780710	675	(1.2−	5.1−)Y	19931010	675	0.7+	1.3−	19990210	704	1.2+	0.7−
19780711	675(66.2−	2.7+)Y	19931013	675	0.4−	1.2−	19990210	704	0.3−	0.0	
19780713	675	(0.9−	3.3−)Y	19931013	675	0.0	0.8−	19990306	691	0.5−	0.2−
19791220	675	(5.3−	0.0)	19950206	691	0.9−	0.6−	19990306	691	0.2−	0.4−
19791220	675	1.6−	0.4−	19950206	691	0.4−	0.8−	19990306	691	0.4−	0.5−
19810212	413	1.6−	1.0+	19950206	691	0.4−	0.2−	19990309	691	1.0−	0.1−
19810212	413	1.0+	0.9+	19971129	704	0.3−	0.3−	19990309	691	1.2−	0.2−
19810213	413	0.1−	0.0	19971129	704	0.8+	1.3+	19990309	691	1.1−	0.2−
19810302	413	0.0	1.9+	19971129	704	0.4−	0.7+	19990314	691	0.0	0.2−
19810311	413	(4.0−	0.7+)Y	19971129	704	1.0−	0.0	19990314	691	0.2−	0.4−
19810311	413	(2.9+	0.9−)	19971204	327	0.2+	0.7+	19990314	691	0.3+	0.4−
19810315	413	1.0+	1.5−	19971204	327	1.4+	1.1+	19990320	691	0.7−	0.6−
19810315	413	1.0+	0.3−	19971204	327	0.7+	0.7+	19990320	691	0.4−	0.2−
19810501	413	0.2−	0.2−	19971207	327	0.2+	0.2−	19990320	691	0.6−	0.4−
19810503	413	(3.1−	0.3+)Y	19971207	327	0.7+	0.3−				
19890729	675	1.1+	1.5−	19971207	327	0.8+	0.1+				

(10280)* 1981 EA₄₃

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

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	85.07888							P		Q		
n	0.27120756	ω	77.47756		+0.67306521		-0.73946954					
a	2.3637499	Ω	330.20557		+0.66802199		+0.61536806					
e	0.1967671	i	1.49483		+0.31737965		+0.27295962					
P	3.63	H	15.8		G	0.15	U			2		
Residuals in seconds of arc												
1977 02 11	675	1.4-	0.0	1997 07 27	910	0.0	0.4-	1999 02 16	704	0.6+	1.1+	
1977 02 12	675	0.9+	1.2-	1997 07 29	910	0.4+	0.1-	1999 02 23	691	0.4+	0.2-	
1977 02 14	675	0.0	0.5-	1997 07 29	910	0.5+	0.0	1999 02 23	691	0.2+	0.4-	
1981 03 02	413	0.5+	1.4+	1997 07 29	910	0.4+	0.0	1999 02 23	691	0.2+	0.4-	
1981 03 11	413	(5.6+	2.5-)	1997 08 10	691	0.1-	0.0	1999 03 12	691	0.3+	0.4-	
1981 03 15	413	1.7-	0.1-	1997 08 10	691	0.2-	0.1+	1999 03 12	691	0.2-	0.5-	

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1981 05 01	413	1.3+	1.4-	1997 08 10	691	0.4-	0.0	1999 03 12	691	0.3+	0.5-
1981 05 03	413	(2.5-	1.0-)	1999 02 16	704	1.1+	0.7+	1999 03 20	704	2.1-	1.2-
1997 07 27	910	0.2-	0.2-	1999 02 16	704	0.7-	0.3-	1999 03 20	704	0.2-	1.8+
1997 07 27	910	0.1-	0.1-	1999 02 16	704	0.6-	1.6+	1999 03 20	704	1.1+	0.5-

(10281)* 1981 EE₄₅

Discovered 1981 Mar. 11 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21864047	ω	248.73123	-0.17306042	+0.98423884		
<i>a</i>	2.7288669	Ω	11.48469	-0.82228463	-0.12405131		
<i>e</i>	0.0379127	<i>i</i>	10.52998	-0.54212368	-0.12603638		
<i>P</i>	4.51	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1981 02 12	413	0.3-	0.8-	1981 04 10	413	0.8-	0.4-	1999 03 20	704	0.5+	0.7+
1981 02 13	413	1.5+	0.5-	1981 05 01	413	0.4+	0.6+	1999 03 20	704	0.6+	1.0+
1981 03 11	413	1.8-	1.9-	1981 05 01	413	(4.2-	2.4-)	1999 03 20	704	0.6+	0.1+
1981 03 11	413	0.7-	1.0-	1981 05 03	413	0.2-	1.3-	1999 03 22	699	0.4+	0.2+
1981 03 15	413	1.1-	1.0-	1992 10 22	675	0.4-	0.1-	1999 03 22	699	1.1+	0.4+
1981 03 15	413	0.7-	0.3+	1992 10 22	675	0.5+	0.1-	1999 03 22	699	0.7+	0.3+
1981 04 05	413	0.9-	0.2-	1997 12 27	688	1.1+	0.3-	1999 03 23	704	0.1-	1.0+
1981 04 05	413	(3.4+	0.4-)	1997 12 27	688	0.2-	0.2+	1999 03 23	704	0.2+	0.4-
1981 04 06	413	0.7-	0.3+	1997 12 29	688	0.6-	0.2+	1999 03 23	704	0.4+	0.7+
1981 04 06	413	(2.7+	0.0)	1997 12 29	688	0.3-	0.3-	1999 03 23	704	0.0	0.2-
1981 04 07	413	0.4-	0.4-	1999 02 20	699	0.4-	0.5+				
1981 04 07	413	1.6+	0.3-	1999 03 20	704	0.3+	1.8+				

(10282)* 1981 ET₄₆ = 1994 AH₁₇

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* 32214)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21787137	ω	34.57135	+0.98196955	-0.18847404		
<i>a</i>	2.7352852	Ω	336.27966	+0.16421155	+0.88872895		
<i>e</i>	0.0859973	<i>i</i>	2.08080	+0.09365024	+0.41789758		
<i>P</i>	4.52	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1981 02 09	413	0.3+	0.9-	1994 02 10	691	0.2-	0.2-	1999 03 14	691	0.2-	0.2-
1981 02 13	413	2.0-	0.8+	1994 02 10	691	0.4-	0.1+	1999 03 18	691	0.1-	0.3-
1981 03 02	413	(5.7-	1.2+)	1996 08 12	566	0.1-	0.5-	1999 03 18	691	0.6-	0.6-
1981 03 07	413	1.7+	0.3-	1996 08 12	566	0.1+	0.2-	1999 03 18	691	0.6-	0.2-
1981 03 11	413	0.9+	0.0	1996 08 12	566	0.2+	0.1-	1999 03 20	704	0.3-	1.4+
1981 04 30	413	0.8-	1.4-	1999 02 16	704	1.4-	0.6-	1999 03 20	704	1.2+	1.1+
1981 05 02	413	1.4-	0.3-	1999 02 16	704	0.9+	0.3-	1999 03 20	704	(2.9-	1.1+)
1994 01 11	691	0.0	0.5-	1999 02 16	704	(2.1+	0.8+)	1999 03 20	704	1.4+	0.9+
1994 01 11	691	0.4+	0.2-	1999 02 16	704	0.7-	0.4+	1999 03 20	704	1.4+	0.8+
1994 01 11	691	0.0	0.0	1999 03 14	691	0.0	0.1-				
1994 02 10	691	0.3-	0.4-	1999 03 14	691	0.2-	0.2-				

(10283)* 1981 JE₂ = 1980 CH = 1989 TL₁₄

Discovered 1981 May 5 by C. S. Shoemaker at Palomar.

Id. S. Nakano (*MPC* 16230)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26642278	ω	244.11240	+0.59640581	+0.80132263		
<i>a</i>	2.3919668	Ω	62.57955	-0.71633235	+0.55760221		
<i>e</i>	0.2076528	<i>i</i>	3.01664	-0.36217132	+0.21670676		
<i>P</i>	3.70	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

1999 APR. 2

Residuals in seconds of arc

1980 02 09	801	(0.4-	2.9+)	1989 10 04	809	0.7-	0.6-	1999 02 18	699	0.1-	0.4+
1981 04 11	675	(3.0-	0.3+)	1989 10 04	809	0.2-	0.6-	1999 02 18	699	0.0	1.3+
1981 04 11	675	0.6-	0.0	1997 12 04	704	1.1+	0.2+	1999 03 20	704	0.3-	0.2-
1981 05 05	675	0.1+	0.2-	1997 12 04	704	1.7-	0.9-	1999 03 20	704	0.4-	0.1-
1981 05 06	675	0.6-	0.7-	1997 12 04	704	1.2+	1.6-	1999 03 20	704	0.3-	0.1-
1981 05 10	675	(0.8+	0.2+)	1997 12 04	704	(1.0-	2.7-)	1999 03 20	704	0.6-	0.2+
1989 09 02	675	0.5+	0.2-	1997 12 21	369	0.5-	0.2-	1999 03 20	699	1.1+	0.7+
1989 09 02	675	0.8+	0.0	1997 12 21	369	0.4+	0.2+	1999 03 20	699	0.2-	0.2+
1989 10 02	809	1.2-	0.5+	1997 12 24	369	0.5+	0.6-	1999 03 20	699	0.2+	0.2+
1989 10 02	809	0.5-	1.0+	1997 12 27	369	0.0	0.8+	1999 03 23	704	0.4-	0.9-
1989 10 02	809	0.1+	1.2+	1997 12 27	369	0.4+	0.7-	1999 03 23	704	1.8+	0.2-
1989 10 03	809	0.1+	0.1+	1998 01 07	699	0.7-	1.0+	1999 03 23	704	0.2+	0.9-
1989 10 03	809	0.6+	0.1+	1998 01 07	699	0.2-	0.3+	1999 03 23	704	0.8-	0.1-
1989 10 03	809	1.0+	0.2-	1998 01 07	699	0.3-	0.2+				
1989 10 04	809	1.0-	0.6-	1999 02 18	699	0.4+	0.9+				

(10284)* 1981 QY₂ = 1991 PK₁₆

Discovered 1981 Aug. 24 by H. Debehogne at the European Southern Observatory.

Id. G. V. Williams (*MPC* 19496)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20176892	ω	106.38761	-0.49438710	+0.86848671		
<i>a</i>	2.8789439	Ω	133.92539	-0.81547760	-0.44897647		
<i>e</i>	0.0157084	<i>i</i>	2.88291	-0.30096125	-0.21012130		
<i>P</i>	4.88	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1981 08 24	809	2.2+	0.4+	1981 08 28	809	1.0-	0.1+	1999 02 13	747	0.2-	0.3-
1981 08 24	809	(2.9+	0.1+)	1981 08 28	809	0.9-	0.3-	1999 02 13	747	0.1-	0.2-
1981 08 24	809	(3.3+	0.1-)	1981 08 28	809	0.9-	0.7-	1999 02 13	747	0.1-	0.3-
1981 08 25	809	(0.4-	2.9-)	1981 08 28	809	0.0	0.2+	1999 02 15	747	0.5+	0.2+
1981 08 25	809	(0.9-	3.2-)	1981 08 28	809	0.3+	0.2+	1999 02 15	747	0.0	0.4+
1981 08 25	809	(0.9-	3.5-)	1981 08 28	809	0.2+	0.0	1999 02 15	747	0.2+	0.6+
1981 08 25	809	(1.4+	3.0-)	1981 09 01	809	1.5-	1.2+	1999 02 15	747	0.0	0.9+
1981 08 25	809	(1.2+	2.8-)	1981 09 01	809	0.8-	1.2+	1999 02 26	704	1.4-	0.2+
1981 08 25	809	1.2+	2.3-	1981 09 01	809	1.6-	1.1+	1999 02 26	704	0.7-	1.8-
1981 08 25	809	0.6+	1.2+	1981 09 01	809	0.5-	0.8+	1999 02 26	704	1.0-	0.3+
1981 08 25	809	0.6+	0.7+	1981 09 01	809	0.3+	0.8+	1999 03 20	704	0.7-	0.4-
1981 08 25	809	0.8+	0.8+	1981 09 01	809	0.9+	1.1+	1999 03 20	704	0.6+	0.4-
1981 08 26	809	0.4-	0.2+	1981 09 01	809	0.5+	0.4+	1999 03 20	704	0.0	0.3+
1981 08 26	809	0.2-	0.3+	1981 09 01	809	0.4+	0.1+	1999 03 20	704	0.4-	0.4+
1981 08 26	809	0.0	0.4+	1981 09 05	809	(3.8-	0.1-)	1999 03 20	704	0.5-	0.7+
1981 08 26	809	0.2-	0.5-	1981 09 05	809	(3.4-	0.2-)	1999 03 22	699	0.3+	0.1-
1981 08 26	809	0.2+	1.3-	1981 09 05	809	(3.1-	0.4-)	1999 03 22	699	0.4+	1.8+
1981 08 26	809	0.5+	1.0-	1991 08 07	675	1.8+	0.7-	1999 03 22	699	1.3+	0.9+
1981 08 26	809	0.2-	1.2-	1991 08 08	675	1.3+	0.6-	1999 03 23	704	0.2-	0.8-
1981 08 26	809	0.1+	1.2-	1991 09 13	675	0.0	0.1-	1999 03 23	704	0.3+	0.8-
1981 08 26	809	0.4+	1.1-	1991 09 13	675	1.7-	0.9+	1999 03 23	704	0.2+	0.8-
1981 08 27	809	0.9-	0.1+	1991 09 16	675	0.9-	0.9-	1999 03 23	699	1.3+	1.4+
1981 08 27	809	0.5-	0.2+	1991 09 16	675	0.2+	1.2-	1999 03 23	704	0.2+	1.4-
1981 08 27	809	0.3-	0.1+	1991 09 16	675	0.1+	0.1-	1999 03 23	704	0.5-	1.7-
1981 08 27	809	0.5-	0.8+	1991 09 16	675	0.4+	0.0	1999 03 23	699	0.3+	0.4+
1981 08 27	809	0.0	0.9+	1998 01 08	688	0.1+	0.8+	1999 03 23	699	0.6+	1.9+
1981 08 27	809	0.2-	0.8+	1998 01 08	688	0.0	0.8+				

(10285)* 1982 QX₁ = 1996 JE₁

Discovered 1982 Aug. 17 by C.-I. Lagerkvist at the European Southern Observatory.

Id. S. Nakano (*MPC* 27305)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i>	229.12557		(2000.0)	P	Q
<i>n</i>	0.27286250	ω	161.47636	+0.41489050	+0.90477281
<i>a</i>	2.3541826	Ω	132.90922	-0.85050850	+0.42320801
<i>e</i>	0.1220525	<i>i</i>	7.54622	-0.32326640	+0.04776131
<i>P</i>	3.61	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1982 08 17	809	1.7+	1.6+	1996 05 14	358	0.5-	1.1+	1999 02 13	704	0.8-	0.5-
1982 08 17	809	0.3+	1.1+	1996 05 14	358	0.3+	0.1-	1999 02 18	699	0.7+	0.2-
1982 08 17	809	(3.1+	1.8-)	1996 05 14	360	0.2-	0.5-	1999 02 18	699	0.2+	0.5+
1982 08 19	809	0.1+	1.0-	1996 05 14	360	0.1-	0.3-	1999 02 18	699	0.6+	0.1-
1982 08 19	809	0.3+	0.2+	1996 05 14	360	0.1-	0.2-	1999 03 20	704	0.7-	0.1+
1982 08 21	809	2.1-	0.5-	1996 05 15	360	0.2+	0.1-	1999 03 20	704	1.1-	0.3+
1982 08 21	809	0.3+	0.6-	1996 05 15	360	0.1+	0.0	1999 03 20	704	0.9-	0.2+
1982 08 22	809	0.6-	0.5-	1996 05 15	360	0.2+	0.2-	1999 03 20	704	1.0-	0.4-
1982 08 22	809	0.0	0.5-	1996 05 19	358	1.2-	0.1+	1999 03 20	704	0.1-	0.6-
1993 09 18	675	0.2+	1.2-	1996 05 19	358	0.5+	0.3+	1999 03 20	699	0.0	0.3+
1993 09 18	675	0.2+	1.1-	1996 05 22	360	0.3+	0.2-	1999 03 20	699	0.5+	1.3+
1993 09 22	675	0.2+	0.8-	1996 05 22	360	0.3+	0.3-	1999 03 20	699	0.3+	0.8+
1993 09 22	675	0.0	0.3-	1996 05 22	360	0.4+	0.2-	1999 03 23	704	2.0+	1.1-
1993 10 10	675	0.8+	1.2+	1999 02 13	704	1.1-	0.7+	1999 03 23	704	1.1+	0.5-
1993 10 10	675	0.9-	1.4+	1999 02 13	704	0.1+	0.6-	1999 03 23	704	0.1+	1.2-
1996 05 13	358	0.5-	0.5-	1999 02 13	704	1.0-	0.4+	1999 03 23	704	1.0+	0.5-
1996 05 13	358	0.2+	1.1+	1999 02 13	704	1.1-	0.4+	1999 03 23	704	0.9+	0.7-

(10286)* 1982 SM₆ = 1971 TQ₁ = 1986 XS = 1993 RJ

Discovered 1982 Sept. 16 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. G. V. Williams (*MPC* 22589)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	140.19562		(2000.0)	P	Q
<i>n</i>	0.26669105	ω	15.92154	+0.92530448	-0.37898615
<i>a</i>	2.3903625	Ω	6.39793	+0.33342304	+0.79612833
<i>e</i>	0.1285385	<i>i</i>	6.93682	+0.18066739	+0.47175119
<i>P</i>	3.70	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1971 10 12	095	(4.3-	1.0+)	1993 09 14	691	0.3-	0.1-	1997 11 01	367	0.1-	0.1-
1982 09 16	095	1.2+	0.4-	1993 09 14	691	0.0	0.1+	1997 11 01	367	0.3-	0.1-
1982 09 19	095	1.5+	1.5-	1993 09 14	691	0.3-	0.3-	1999 02 26	704	(2.3-	0.5-)
1982 09 27	095	(1.2-	3.2+)	1993 09 14	894	1.1-	1.5-	1999 02 26	704	0.6+	0.5+
1982 09 28	095	1.3-	1.2-	1993 09 14	894	1.3-	0.1-	1999 02 26	704	(3.6-	0.1+)
1986 12 02	688	0.4+	0.6+	1993 09 19	675	0.5-	1.4+	1999 03 20	704	0.0	0.2-
1986 12 02	688	(3.7+	1.2+)	1993 09 19	675	1.3+	0.5+	1999 03 20	704	0.4-	0.1+
1993 07 26	675	0.2-	0.4+	1993 09 19	400	0.6-	1.0+	1999 03 20	704	0.3-	0.1-
1993 07 26	675	0.1-	0.2-	1993 09 19	400	(2.6-	1.6-)	1999 03 20	704	0.6-	0.0
1993 09 12	400	0.4+	1.2-	1993 09 21	675	0.1+	0.4+	1999 03 23	704	0.1+	0.5-
1993 09 12	400	0.4-	0.7-	1993 09 21	675	0.4+	0.3+	1999 03 23	704	0.4-	0.2-
1993 09 13	400	0.7-	1.2-	1993 10 10	675	1.2+	0.6+	1999 03 23	704	0.0	0.8-
1993 09 13	400	1.0+	1.8+	1993 10 10	675	1.1+	0.0	1999 03 23	704	0.3-	1.0-

(10287)* 1982 UK₇ = 1981 JS₆

Discovered 1982 Oct. 21 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Id. S. J. Bus (*MPC* 20812)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	114.53165		(2000.0)	P	Q
<i>n</i>	0.25831293	ω	280.46679	+0.97264496	-0.21775234
<i>a</i>	2.4417730	Ω	92.14524	+0.23188883	+0.88951400
<i>e</i>	0.2438512	<i>i</i>	4.64388	+0.01376051	+0.40168241
<i>P</i>	3.82	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1981 05 08	675	0.3+	0.5-	1999 02 10	704	0.5+	0.1-	1999 02 23	699	0.4+	0.3+
1981 05 09	675	0.6-	0.4-	1999 02 10	704	0.5+	0.0	1999 02 23	699	0.2-	0.4+
1982 10 21	095	1.4+	0.2+	1999 02 10	704	0.5+	0.0	1999 02 23	699	0.2+	1.0+
1982 10 23	095	1.8-	0.6-	1999 02 13	704	0.1-	0.2-	1999 03 20	704	0.8+	0.0
1982 10 25	095	0.7+	0.2-	1999 02 13	704	0.6-	0.1-	1999 03 20	704	0.1+	1.3-
1982 11 11	095	0.0	0.2-	1999 02 13	704	0.2+	0.9-	1999 03 20	704	0.3-	0.6-
1982 11 12	095	0.1-	0.2+	1999 02 13	704	0.0	0.1+	1999 03 20	704	0.8-	0.9-
1993 10 09	675	0.5+	0.1-	1999 02 13	704	1.8-	1.2-	1999 03 20	704	1.2-	1.4+
1993 10 09	675	0.6-	1.1+	1999 02 18	699	0.5+	0.1-	1999 03 23	704	0.5+	1.0+
1999 02 10	704	0.5+	0.4-	1999 02 18	699	0.5+	0.1+	1999 03 23	704	0.1-	0.6+
1999 02 10	704	0.4+	0.3+	1999 02 18	699	0.2+	0.1+	1999 03 23	704	0.7-	1.3+

(10288)* 1983 WN = 1976 YL₇ = 1990 VO₇

Discovered 1983 Nov. 28 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. H. Kaneda (*MPC* 17818)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	134.00337		(2000.0)	P	Q
<i>n</i>	0.27687453	ω	110.88365	+0.98719104	-0.04191719
<i>a</i>	2.3313853	Ω	251.77546	-0.01412229	+0.93812245
<i>e</i>	0.2489847	<i>i</i>	9.32691	+0.15891640	+0.34375750
<i>P</i>	3.56	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1951 11 08	675	0.1-	1.0+	1990 11 11	675	1.0+	0.2-	1997 10 29	566	0.3-	0.2+
1951 11 08	675	0.2+	1.0+	1990 11 11	675	0.2+	0.8-	1997 10 29	566	0.4-	0.0
1976 12 20	095	1.1-	0.7+	1990 11 13	675	0.4+	1.4-	1997 12 26	566	0.4-	0.7+
1983 11 28	688	0.9+	0.6-	1990 11 13	675	0.0	0.7-	1997 12 26	566	0.6-	0.3+
1983 11 28	688	0.8+	0.2-	1997 08 01	688	0.4+	0.1-	1997 12 26	566	1.6-	0.8+
1983 11 29	688	(3.1-	1.5-)	1997 08 01	688	0.4+	0.1-	1999 02 16	704	(2.4-	2.8+)
1983 11 29	688	(3.0-	1.8-)	1997 10 03	619	0.3+	0.3+	1999 02 16	704	0.5+	0.4+
1983 12 01	688	0.2+	1.5+	1997 10 03	619	0.0	0.0	1999 02 16	704	0.4+	0.5+
1983 12 01	688	1.2+	1.7-	1997 10 03	619	0.2+	0.0	1999 02 16	704	(0.6+	2.9+)
1983 12 01	688	(4.0-	1.1-)	1997 10 03	619	0.0	0.0	1999 02 16	704	0.0	0.3-
1983 12 06	688	0.6-	0.5-	1997 10 07	619	0.4-	0.3+	1999 03 22	704	1.0-	0.3-
1983 12 06	688	1.7-	0.8-	1997 10 07	619	0.1-	0.1+	1999 03 22	704	0.5-	0.0
1983 12 09	688	0.6+	0.8+	1997 10 07	619	0.1-	0.1+	1999 03 22	704	0.7+	0.6-
1983 12 09	688	(4.3-	4.4-)	1997 10 29	566	0.3-	0.0	1999 03 22	704	(0.1+	2.1+)

(10289)* 1984 QS = 1978 NB₈

Discovered 1984 Aug. 24 at the Oak Ridge Observatory.

Id. T. Kobayashi (*MPC* 12455)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	213.51210		(2000.0)	P	Q
<i>n</i>	0.17313685	ω	241.69461	+0.58354525	+0.81148633
<i>a</i>	3.1881816	Ω	64.03902	-0.73244703	+0.54245596
<i>e</i>	0.2059212	<i>i</i>	1.97989	-0.35070827	+0.21732804
<i>P</i>	5.69	<i>H</i>	13.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1978 07 07	675	0.5-	0.2-	1993 01 28	010	(2.0+	2.0-)	1999 02 13	704	(0.9+	2.2-)
1978 07 08	675	0.1-	0.2+	1993 01 28	010	(1.9+	3.3-)	1999 02 13	704	0.4-	1.2-
1978 07 09	675	0.4+	0.3+	1993 01 29	691	(3.6-	2.1-)	1999 02 13	704	1.0+	0.2-
1984 08 24	801	0.7-	0.6-	1993 01 29	691	0.1-	0.1-	1999 02 23	699	0.1+	1.2+
1984 08 27	801	1.1+	0.1-	1993 01 29	691	0.1-	0.2+	1999 02 23	699	0.8+	1.2+
1984 08 28	801	0.0	0.5-	1996 10 06	691	0.5-	0.6+	1999 03 20	704	(2.3+	0.5-)
1984 08 29	801	0.3-	1.3+	1996 10 06	691	0.2-	0.5+	1999 03 20	704	1.6-	1.0+
1990 09 18	675	(0.6+	3.0-)	1996 10 06	691	0.0	0.6+	1999 03 20	704	0.9-	0.5-
1990 09 18	675	0.7+	1.2-	1999 02 10	704	0.9+	0.9-	1999 03 24	691	0.5-	0.1+
1993 01 27	010	0.8-	0.7-	1999 02 10	704	0.5+	1.3+	1999 03 24	691	0.6-	0.0
1993 01 27	010	0.2+	0.5-	1999 02 10	704	(0.2+	2.2+)	1999 03 24	691	0.8-	0.2+
1993 01 27	010	0.5+	0.6-	1999 02 13	704	0.8+	0.2+				
1993 01 28	010	(0.0	2.3-)	1999 02 13	704	0.9+	1.0-				

(10290)* 1985 SR = 1977 HQ

Discovered 1985 Sept. 17 at the Oak Ridge Observatory.

Id. B. G. Marsden (*MPC* 14021), T. Vinogradova (unpublished)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	262.34962		(2000.0)		P		Q
<i>n</i>	0.26653459	ω	249.03096	+0.31419693			+0.94881389
<i>a</i>	2.3912978	Ω	39.32732	−0.85110257			+0.29651245
<i>e</i>	0.1937671	<i>i</i>	2.90625	−0.42060041			+0.10877760
<i>P</i>	3.70	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 04 24	675	0.5−	0.3−	1993 12 09	675	(0.2+	2.9+)	1999 03 20	704	0.2+	1.0−
1977 04 25	675	0.5−	0.3+	1996 11 07	327	1.0−	0.2−	1999 03 20	704	0.1−	0.2−
1985 08 15	095	0.2−	0.4+	1996 11 07	327	1.0−	0.1−	1999 03 23	704	0.2−	0.9−
1985 08 17	095	(3.4+	0.4+)	1996 11 07	327	0.1−	0.0	1999 03 23	704	0.3−	0.1−
1985 08 24	095	0.3+	1.3−	1999 02 13	747	0.8+	0.3+	1999 03 23	704	0.1−	0.1−
1985 09 17	801	0.8+	0.2−	1999 02 13	747	0.1+	1.2+	1999 03 23	699	0.1−	0.9+
1985 09 19	095	1.6−	1.8+	1999 02 15	747	0.4+	0.5+	1999 03 23	704	0.4−	0.1+
1985 09 20	095	2.4+	0.1+	1999 02 15	747	0.1+	0.6+	1999 03 23	704	0.3−	0.6−
1989 11 03	675	1.1−	0.8+	1999 02 15	747	0.3+	0.3+	1999 03 23	699	0.0	0.1+
1989 11 03	675	0.1−	0.0	1999 03 20	704	0.3−	0.4−	1999 03 23	699	0.1−	0.7+
1989 11 04	675	0.1+	0.7−	1999 03 20	704	0.7+	0.7−				
1989 11 04	675	1.0+	1.6−	1999 03 20	704	0.3+	1.1−				

(10291)* 1985 UT = 1975 XM₁ = 1998 BO₃₃

Discovered 1985 Oct. 20 by A. Mrkos at Klet.

Id. S. Nakano (*MPC* 31376)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i>	267.04713		(2000.0)		P		Q
<i>n</i>	0.19096545	ω	254.22714	+0.66498635			+0.73718625
<i>a</i>	2.9865252	Ω	58.08441	−0.61978013			+0.63419228
<i>e</i>	0.1032931	<i>i</i>	8.11288	−0.41673222			+0.23314497
<i>P</i>	5.16	<i>H</i>	11.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1975 12 01	095	0.1−	0.0	1998 02 23	411	0.6−	0.5+	1998 05 08	046	0.3−	1.0−
1985 10 18	095	1.4+	1.5+	1998 02 26	566	0.7+	0.8−	1998 05 08	046	0.0	0.5−
1985 10 20	046	1.4+	0.4−	1998 02 26	566	0.6+	0.9−	1998 05 09	046	0.1+	0.8+
1985 10 20	046	0.6+	1.8−	1998 02 26	566	0.7+	0.9−	1998 05 09	046	0.3+	0.5−
1985 10 21	046	0.3−	1.6−	1998 03 01	699	0.1+	0.2+	1998 05 09	046	0.1−	0.5−
1985 10 21	046	0.0	1.8−	1998 03 01	699	0.0	0.3−	1999 01 22	046	0.1+	0.7−
1985 10 24	046	0.9−	1.1−	1998 03 01	699	0.2−	0.0	1999 01 22	046	0.1+	0.5−
1985 10 24	046	1.4+	1.1−	1998 03 03	699	0.2−	0.9+	1999 01 22	046	0.6+	0.7−
1998 01 31	411	0.1−	0.2+	1998 03 03	699	0.2−	0.8+	1999 01 23	046	0.6−	0.7−
1998 01 31	411	0.3+	1.2+	1998 03 03	699	0.1−	0.3+	1999 01 23	046	0.1+	1.0−
1998 02 01	411	1.0+	1.1−	1998 03 23	046	0.1−	0.2+	1999 01 23	046	0.0	0.9−
1998 02 01	411	0.5−	1.7−	1998 03 23	046	0.0	0.2+	1999 02 25	046	0.2−	0.5−
1998 02 02	012	0.3+	0.1+	1998 03 23	046	0.2−	0.0	1999 02 25	046	0.3−	0.9−
1998 02 02	012	0.3−	0.0	1998 03 24	046	0.4−	0.3+	1999 02 27	046	1.2−	0.8−
1998 02 02	012	0.1+	0.1+	1998 03 24	046	0.4−	0.5+	1999 02 27	046	0.6−	0.7−
1998 02 04	411	0.2−	0.4+	1998 03 24	046	0.3−	0.3+	1999 02 27	046	1.1−	1.3−
1998 02 04	411	0.7−	0.5+	1998 03 24	046	0.3−	0.3+				
1998 02 23	411	0.0	0.6−	1998 05 08	046	0.2−	0.4−				

(10292)* 1986 PM = 1990 VZ₉ = 1994 XD₁

Discovered 1986 Aug. 2 by the International Near-Earth Asteroid Survey at Palomar.

Id. T. Kobayashi (*MPC* 24559)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	255.05563		(2000.0)		P		Q
<i>n</i>	0.28635872	ω	334.85859	+0.04424558			+0.99569849
<i>a</i>	2.2796199	Ω	297.58604	−0.90036221			+0.00443508
<i>e</i>	0.1727734	<i>i</i>	5.26987	−0.43288591			+0.09254649
<i>P</i>	3.44	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1986 08 02	675	0.3−	1.4+	1997 12 27	691	1.0+	0.5+	1999 02 21	699	0.7+	0.1+
1986 08 04	675	(2.1−	3.4+)	1997 12 27	691	0.6+	0.6+	1999 02 21	699	0.8+	0.2+
1986 08 06	675	(5.1−	4.7+)	1998 01 01	691	0.4−	0.3+	1999 03 19	704	0.0	0.3−
1986 08 08	095	(4.2−	1.7+)	1998 01 01	691	0.4−	0.3+	1999 03 19	704	0.0	0.0
1990 10 22	675	1.2−	0.1−	1998 01 01	691	1.0−	0.4+	1999 03 19	704	0.1−	0.1+
1990 10 22	675	0.6+	0.2−	1999 02 12	704	0.2−	0.3−	1999 03 19	704	0.8−	0.7+
1990 11 13	675	0.1−	1.5−	1999 02 12	704	0.6+	0.2−	1999 03 19	704	0.7−	0.5+
1990 11 13	675	(1.5−	2.7−)	1999 02 12	704	1.8−	1.1−	1999 03 20	704	0.3+	0.1−
1994 12 06	411	0.4+	0.3−	1999 02 12	704	0.3−	2.0−	1999 03 20	704	0.4+	0.1−
1994 12 06	411	0.7+	1.0−	1999 02 13	747	0.3+	0.0	1999 03 20	704	0.7+	0.6−
1994 12 07	411	0.6−	0.1−	1999 02 13	747	0.2+	0.0	1999 03 20	704	0.4+	0.6−
1994 12 07	411	(2.5−	0.5−)	1999 02 13	747	0.4+	0.3+	1999 03 20	704	0.9+	1.1−
1995 01 02	010	(0.9−	2.7+)	1999 02 15	747	0.2+	0.1+	1999 03 22	699	0.0	1.2+
1995 01 02	010	(1.5−	2.5+)	1999 02 15	747	0.3+	0.1+	1999 03 22	699	0.4+	0.8+
1995 01 03	010	(1.8−	2.1+)	1999 02 15	747	0.2+	0.1+	1999 03 22	699	1.3+	0.5+
1995 01 04	010	(0.9−	2.7+)	1999 02 16	704	0.6−	0.3−	1999 03 23	704	0.4−	1.5+
1997 10 29	566	0.2−	0.2+	1999 02 16	704	0.3−	0.1+	1999 03 23	704	0.1+	1.1+
1997 10 29	566	0.3−	0.3+	1999 02 16	704	0.1−	0.3+	1999 03 23	704	0.3−	0.2+
1997 10 29	566	0.6−	0.0	1999 02 16	704	0.3+	0.5+	1999 03 23	704	0.2−	0.7+
1997 12 06	704	0.2+	0.1+	1999 02 16	704	0.3−	0.1−	1999 03 23	704	0.9−	0.2+
1997 12 06	704	0.1+	0.7+	1999 02 18	566	1.1−	1.3−	1999 03 24	699	0.9+	1.2+
1997 12 06	704	0.1−	1.6+	1999 02 18	566	1.4−	1.6−	1999 03 24	699	0.1+	0.8+
1997 12 06	704	(2.2−	1.5+)	1999 02 18	566	0.2−	1.2−	1999 03 24	699	0.0	1.9+
1997 12 27	691	0.7+	0.1+	1999 02 21	699	0.7+	0.1+				

(10293)* 1986 TU₆ = 1978 ED₇ = 1990 OQ₄

Discovered 1986 Oct. 5 by M. Antal at Piwnice.

Id. R. Nagata (*MPC* 17018)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	242.61733		(2000.0)		P		Q
<i>n</i>	0.18926518	ω	357.60750	+0.24351004			+0.95831266
<i>a</i>	3.0043849	Ω	286.45740	−0.88725643			+0.15785451
<i>e</i>	0.0734836	<i>i</i>	8.96608	−0.39176381			+0.23815709
<i>P</i>	5.21	<i>H</i>	12.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1952 01 31	675	0.5−	0.3−	1990 07 28	675	0.3−	1.0+	1999 02 12	704	(1.2−	2.4−)
1952 01 31	675	1.2+	0.4+	1991 11 03	801	0.4+	0.2−	1999 02 12	704	0.5−	1.1−
1958 04 17	675	0.0	0.8−	1991 11 03	801	0.6+	0.2+	1999 02 12	704	(3.0−	2.2−)
1958 04 17	675	0.1+	0.7−	1991 11 06	801	0.5+	0.4−	1999 02 16	704	0.8−	0.6−
1978 03 05	095	0.7−	1.5+	1991 11 06	801	0.4+	0.4−	1999 02 16	704	0.3−	0.3−
1986 10 05	092	0.4+	0.4+	1992 01 08	801	0.7+	0.1−	1999 02 16	704	0.1+	0.1−
1986 10 05	092	2.0−	0.6−	1992 01 08	801	0.2−	0.0	1999 02 16	704	0.5+	1.3−
1986 10 09	092	0.6−	0.5+	1992 01 08	801	0.4+	0.3−	1999 02 16	704	0.3−	1.2−
1986 10 09	092	0.0	0.0	1992 01 09	801	0.2+	0.0	1999 02 21	423	0.6+	1.1+
1986 10 09	092	0.1+	0.2+	1993 01 20	801	0.1+	0.1+	1999 03 22	704	0.2+	0.3−
1986 10 10	092	1.1−	0.3−	1993 01 20	801	0.2−	0.6+	1999 03 22	704	0.1−	0.6−
1986 10 10	092	0.5−	0.4+	1994 04 08	801	0.1−	0.7+	1999 03 22	704	0.4−	0.3−
1986 10 11	092	0.6+	0.6−	1994 04 08	801	0.3+	0.7+	1999 03 22	704	0.3+	0.7+
1986 10 12	092	0.7+	0.6+	1994 04 15	801	0.3+	0.8+	1999 03 22	704	1.3−	0.5−
1990 07 25	675	0.5−	0.5−	1994 04 15	801	0.7+	1.1+	1999 03 25	699	0.7+	0.1−
1990 07 25	675	1.0−	0.4+	1994 05 15	801	0.6+	0.7−	1999 03 25	699	0.9+	0.3+
1990 07 27	675	0.6+	0.7−	1994 05 15	801	0.1−	0.2−	1999 03 25	699	0.8+	0.4+
1990 07 27	675	0.2+	0.3−	1998 02 19	689	0.4+	0.5+				
1990 07 28	675	0.1+	0.0	1999 02 12	704	1.8−	0.6−				

(10294)* 1988 AA₂ = 1995 AF₁

Discovered 1988 Jan. 14 by A. Mrkos at Kleř.

Id. G. V. Williams (*MPC* 24736)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28113690	ω	356.85941	+0.01240652	−0.99561514		
<i>a</i>	2.3077609	Ω	92.41620	+0.91942196	−0.02509223		
<i>e</i>	0.1678437	<i>i</i>	5.32472	+0.39307676	+0.09011591		
<i>P</i>	3.51	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1988 01 14	046 (2.2+ 4.0−)	1997 10 18	046	0.0	0.2+	1999 01 23	910	0.9−	0.4+
1988 01 14	046 (0.0 2.7−)	1997 10 19	046	0.2−	0.1+	1999 01 23	910	0.5−	0.1+
1988 01 15	046 0.9+ 1.4−	1997 10 19	046	0.3−	0.1−	1999 01 23	910	0.8−	0.0
1988 01 15	046 0.4− 0.3−	1997 10 19	046	0.2+	0.1−	1999 03 13	046	0.7+	0.3+
1988 01 16	046 1.2+ 1.3−	1997 12 18	046	0.5−	0.4+	1999 03 13	046	0.3+	0.2+
1988 01 16	046 0.4+ 0.8−	1997 12 18	046	0.0	0.1+	1999 03 13	046	0.1+	0.3+
1988 01 20	046 1.3− 0.7−	1997 12 18	046	1.0−	0.6+	1999 03 18	046	0.5+	0.1−
1988 01 20	046 1.6− 0.3+	1997 12 19	046	0.8−	0.3+	1999 03 18	046	0.8+	0.3−
1995 01 06	408 0.2− 1.2+	1997 12 19	046	0.9−	0.5+	1999 03 18	046	0.8+	0.2−
1995 01 06	408 0.5+ 0.1−	1997 12 19	046	0.3−	0.1−	1999 03 22	699	0.7+	0.6+
1995 01 07	408 0.1− 0.3+	1998 01 14	046	0.6+	0.5+	1999 03 22	699	0.2−	1.4+
1995 01 07	408 0.5− 0.3+	1998 01 14	046	0.3+	0.8+	1999 03 22	699	0.8+	0.0
1995 02 01	409 0.6+ 0.6+	1998 01 14	046	0.3+	0.8+	1999 03 23	704	0.5−	0.5−
1995 02 01	409 0.2+ 0.2−	1998 01 15	046	0.7−	1.1+	1999 03 23	704	0.2+	0.4−
1997 09 25	046 0.2+ 0.0	1998 01 15	046	0.2−	1.0+	1999 03 23	704	0.8−	0.4+
1997 09 25	046 0.1+ 0.1+	1998 01 15	046	0.2+	1.5+	1999 03 23	704	0.1+	0.1+
1997 09 25	046 0.0 0.1+	1999 01 22	046	0.7+	0.5+	1999 03 23	704	0.1−	1.1+
1997 09 26	046 0.1− 0.2+	1999 01 22	046	0.4+	0.4+	1999 03 24	699	0.3−	1.0+
1997 09 26	046 0.0 0.1+	1999 01 22	046	0.2−	0.4+	1999 03 24	699	0.3+	0.8+
1997 09 26	046 0.2− 0.1+	1999 01 23	046	0.3−	0.1+	1999 03 24	699	0.7+	0.3+
1997 10 18	046 0.1+ 0.2+	1999 01 23	046	0.2−	0.1−				
1997 10 18	046 0.1− 0.0	1999 01 23	046	0.3−	0.3+				

(10295)* 1988 GB

Discovered 1988 Apr. 12 by C. S. Shoemaker and E. M. Shoemaker at Palomar.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.35516918	ω	222.38618	−0.44848579	+0.88529028		
<i>a</i>	1.9747519	Ω	21.86633	−0.70566657	−0.26628439		
<i>e</i>	0.3327476	<i>i</i>	19.27920	−0.54853914	−0.38125285		
<i>P</i>	2.78	<i>H</i>	16.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1988 03 19	675 0.3+ 0.9+	1994 08 15	413	0.1+	0.0	1996 01 12	658	0.1+	1.1+
1988 03 19	675 1.4+ 0.2+	1994 08 27	413	0.2−	0.0	1996 01 12	658	0.2+	1.5+
1988 04 12	675 0.9− 1.3−	1994 08 27	413	0.3+	0.4−	1996 01 12	658	0.1−	0.8+
1988 04 12	675 0.4+ 0.9−	1994 09 17	413	0.8−	0.3−	1996 01 12	658	0.2+	0.7+
1988 04 14	675 0.3+ 0.3−	1994 09 17	413	0.9−	0.1+	1996 03 14	658	0.4−	0.4+
1988 04 18	801 1.8+ 0.3+	1994 10 03	658	0.1−	0.5+	1996 03 14	658	0.5−	0.1+
1988 04 18	675 1.4+ 1.2+	1994 10 03	658	0.2−	0.3−	1996 03 14	658	0.7−	0.4+
1988 05 09	675 0.1− 0.1−	1994 10 03	658	0.1+	0.2+	1997 11 02	711	0.8+	0.2+
1988 05 09	568 1.7− 0.3−	1994 10 04	658	0.2−	0.1−	1997 11 02	711	1.0+	0.1+
1988 05 10	675 0.1+ 0.9−	1994 10 04	658	0.4−	0.8+	1997 11 03	711	0.2−	0.5+
1988 05 13	675 1.4+ 0.8+	1994 10 04	658	0.5−	0.0	1997 11 03	711	1.2+	0.4+
1988 05 19	688 1.5− 0.7−	1994 10 05	658	0.2+	0.3−	1999 02 11	704	1.6−	0.4+
1988 05 19	688 1.6− 0.7−	1994 10 05	658	0.4+	0.2−	1999 02 11	704	0.7−	0.7−
1988 05 21	474 1.4− 1.6+	1994 10 05	658	0.4−	0.3−	1999 02 11	704	0.4−	0.3−
1988 05 21	474 1.0− 1.4+	1994 10 07	658	0.1−	0.4+	1999 02 11	704	1.2−	2.0+
1988 06 05	474 1.1+ 0.8−	1994 10 07	658	1.2−	0.9+	1999 02 18	704	0.5+	0.6+
1988 06 05	474 2.2+ 0.2+	1994 10 07	658	0.1−	0.6+	1999 02 18	704	0.2+	0.3+
1988 06 14	474 1.1+ 2.1+	1995 12 23	658	0.1−	0.4−	1999 02 18	704 (1.6+ 2.2+)		
1988 06 14	474 0.9+ 2.1+	1995 12 23	658	0.6+	0.2−	1999 02 18	704	1.2+	0.3−
1988 07 14	474 0.9− 0.6−	1995 12 23	658	0.2+	0.1+	1999 03 15	704	1.1+	0.5+

1988 07 14	474 1.2+ 1.8−	1995 12 24	658 0.9− 0.2−	1999 03 15	704 1.4+ 0.1+
1994 07 25	413 0.7− 1.4+	1995 12 24	658 0.1− 0.0	1999 03 15	704 1.2− 1.7−
1994 07 25	413 0.4+ 0.9+	1995 12 24	658 0.4− 0.1+	1999 03 15	704 0.1− 1.5−
1994 08 15	413 0.1+ 0.1+	1995 12 24	658 0.4− 0.2−	1999 03 15	704 (0.9+ 2.7+)

(10296)* 1988 RQ₁₂ = 1997 WO₄₀

Discovered 1988 Sept. 14 by S. J. Bus at Cerro Tololo.

Id. G. V. Williams (*MPC* 31098)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.12605457	ω	100.44848	−0.34090522	−0.94004325		
<i>a</i>	3.9394022	Ω	9.50214	+0.83678049	−0.30832590		
<i>e</i>	0.2117506	<i>i</i>	3.51286	+0.42846476	−0.14578690		
<i>P</i>	7.82	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1988 09 14	807 0.1− 0.1+	1997 12 04	704 0.5+ 0.5+	1999 02 18	610 0.5− 0.3−
1988 09 15	807 0.3+ 0.2−	1998 12 01	704 1.9− 1.1+	1999 02 18	610 0.4− 0.3−
1988 09 16	807 1.0+ 0.5−	1998 12 01	704 0.1− 0.7+	1999 02 18	610 0.3− 0.1−
1988 10 04	807 1.1− 0.2+	1998 12 01	704 0.0 0.4+	1999 02 18	610 0.3− 0.3+
1988 10 05	807 0.3+ 0.0	1999 02 10	704 0.2− 0.1−	1999 03 19	704 1.1+ 0.8−
1988 10 08	807 0.4+ 0.4−	1999 02 10	704 0.6− 0.0	1999 03 19	704 0.8+ 0.2−
1988 11 03	807 0.2+ 0.3−	1999 02 10	704 0.6+ 1.8+	1999 03 19	704 0.5+ 1.2−
1988 11 06	807 0.1− 0.5−	1999 02 10	704 1.5+ 0.1+	1999 03 19	704 (1.8+ 2.2−)
1988 11 08	807 0.0 0.4−	1999 02 10	704 0.3+ 1.0+	1999 03 20	704 0.7− 0.7−
1996 09 13	809 0.7− 1.0+	1999 02 12	699 1.6− 0.4+	1999 03 20	704 0.6+ 1.0−
1997 11 29	704 1.8− 0.1−	1999 02 12	699 0.2+ 0.4+	1999 03 20	704 1.0+ 0.0
1997 11 29	704 0.4+ 1.8−	1999 02 12	699 0.7+ 0.1+	1999 03 20	704 1.5− 1.7−
1997 11 29	704 0.4− 1.1−	1999 02 13	704 0.3+ 0.0	1999 03 20	704 0.4− 0.1−
1997 11 29	704 0.8− 0.3+	1999 02 13	704 0.7− 0.1−	1999 03 23	704 (3.0+ 1.7+)
1997 11 29	704 1.2− 0.4+	1999 02 13	704 0.3+ 1.2+	1999 03 23	704 0.5+ 0.5+
1997 12 04	704 0.6+ 0.8+	1999 02 13	704 (0.7+ 2.5+)	1999 03 23	704 0.3− 0.3−
1997 12 04	704 1.7+ 0.2+	1999 02 13	704 1.1+ 0.6−	1999 03 23	704 0.2− 0.0
1997 12 04	704 1.3+ 0.4+	1999 02 18	610 0.5− 0.6−		

(10297)* 1988 RJ₁₃ = 1971 NB = 1991 GT₁₀

Discovered 1988 Sept. 14 by S. J. Bus at Cerro Tololo.

Id. G. V. Williams (*MPC* 18630)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23754469	ω	241.62005	+0.14322622	+0.97792941		
<i>a</i>	2.5820967	Ω	37.59723	−0.79817761	+0.20501492		
<i>e</i>	0.0709200	<i>i</i>	14.43801	−0.58514849	−0.04028583		
<i>P</i>	4.15	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1971 07 01	821 (0.3− 3.2+)	1991 04 12	033 0.1+ 1.2−	1999 02 13	699 0.1+ 0.0
1971 07 01	821 1.5− 2.0+	1991 04 13	033 0.7+ 1.0+	1999 02 18	704 0.2− 0.1+
1971 07 01	821 (1.4+ 3.6+)	1991 04 19	675 0.7− 0.5−	1999 02 18	704 0.5+ 0.3+
1988 09 14	807 1.1+ 0.5−	1992 09 06	413 0.8− 0.8−	1999 02 18	704 0.1+ 0.3+
1988 09 15	807 1.0+ 0.4−	1992 09 06	413 0.8− 0.8−	1999 02 18	704 0.5− 0.7−
1988 09 19	807 0.9+ 0.3−	1997 11 26	704 1.2− 0.1−	1999 02 18	704 1.1− 0.7−
1988 10 05	807 0.3+ 0.5+	1997 11 26	704 0.7− 0.7+	1999 02 23	699 0.6+ 0.1−
1988 10 06	807 0.9+ 0.1−	1997 11 26	704 0.7− 0.3+	1999 02 23	699 0.1− 0.1+
1988 10 07	807 1.4+ 1.5−	1999 02 11	704 (2.1− 1.8−)	1999 02 23	699 0.1− 0.1+
1988 10 08	807 1.2+ 1.1−	1999 02 11	704 0.7− 1.4−	1999 03 15	704 0.9+ 0.5−
1988 11 04	807 0.3+ 0.1+	1999 02 11	704 0.1+ 1.0−	1999 03 15	704 0.4+ 0.5−
1991 04 09	033 1.0− 0.4−	1999 02 11	704 0.4+ 0.5−	1999 03 15	704 0.9− 0.7+
1991 04 09	033 0.4− 0.7−	1999 02 11	704 0.2− 0.0	1999 03 15	704 (0.9+ 2.4+)
1991 04 11	033 0.3− 0.2−	1999 02 13	699 0.5− 0.4+		
1991 04 11	033 0.6+ 0.3−	1999 02 13	699 0.3− 0.1−		

(10298)* 1988 SU₂ = 1996 PW₉

Discovered 1988 Sept. 16 by S. J. Bus at Cerro Tololo.

Id. G. V. Williams (*MPC* 30272)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	321.35336		(2000.0)		P		Q				
<i>n</i>	0.23599240	ω	87.93687		-0.88030174		+0.47268099				
<i>a</i>	2.5934072	Ω	120.26937		-0.45178433		-0.80918633				
<i>e</i>	0.0192381	<i>i</i>	2.68882		-0.14477490		-0.34898447				
<i>P</i>	4.18	<i>H</i>	14.2		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
1988 09 10	675	0.4+	0.1-	1996 08 09	566	0.5+	0.3-	1997 12 05	704	0.8-	0.5+
1988 09 10	675	0.9+	0.1+	1996 09 08	809	0.0	0.3+	1999 02 24	691	0.2+	0.9-
1988 09 12	675	(2.9-	1.9+)	1996 09 08	809	0.7-	0.9-	1999 02 24	691	0.2+	1.0-
1988 09 12	675	(2.9-	1.6-)	1996 09 08	809	0.6-	0.5+	1999 02 24	691	0.4+	1.0-
1988 09 15	675	0.2-	1.7-	1997 11 29	704	(2.6-	0.4+)	1999 03 20	704	0.2-	0.2-
1988 09 15	675	1.5-	1.0+	1997 11 29	704	(2.6-	0.3+)	1999 03 20	704	0.1-	0.1-
1988 09 16	807	1.1+	0.8+	1997 11 29	704	1.4-	0.2+	1999 03 20	704	0.1-	0.7+
1988 09 18	807	0.9+	0.0	1997 11 29	704	(2.6-	0.0)	1999 03 20	704	0.2-	0.1-
1988 10 04	807	0.6-	1.9-	1997 11 29	704	(3.1-	1.6+)	1999 03 20	704	0.9-	0.6+
1988 10 05	807	0.3+	0.7-	1997 12 04	704	0.5+	0.9-	1999 03 23	704	0.5-	0.3+
1988 11 05	807	0.6+	0.3+	1997 12 04	704	1.5+	0.8-	1999 03 23	704	0.7-	0.3-
1988 11 07	807	0.0	0.8+	1997 12 04	704	0.2+	0.9-	1999 03 23	704	0.2-	0.2+
1991 05 13	675	0.3+	0.6-	1997 12 04	704	0.5+	0.3-	1999 03 23	704	0.4-	0.8-
1991 05 13	675	0.4-	0.5-	1997 12 04	704	0.2+	0.4-	1999 03 23	699	0.6+	0.8+
1991 05 15	675	1.2-	0.6-	1997 12 05	704	0.2+	0.6-	1999 03 23	704	0.2-	1.2-
1991 05 15	675	0.3-	0.2+	1997 12 05	704	0.6-	0.2+	1999 03 23	699	0.8+	0.0
1996 08 09	566	0.6+	0.5-	1997 12 05	704	0.4-	0.1+	1999 03 23	699	1.7+	0.1+
1996 08 09	566	0.3+	0.4-	1997 12 05	704	0.6-	0.4+				

(10299)* 1988 VS₃ = 1979 WF₅ = 1994 AH₁₆

Discovered 1988 Nov. 13 by Y. Oshima at the Gekko Observatory.

Id. G. V. Williams (*MPC* 23670)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	158.69526		(2000.0)		P		Q				
<i>n</i>	0.22447233	ω	110.36091		+0.98443316		+0.06366878				
<i>a</i>	2.6813953	Ω	246.28377		-0.11484324		+0.93860146				
<i>e</i>	0.2168065	<i>i</i>	10.30762		+0.13305033		+0.33907754				
<i>P</i>	4.39	<i>H</i>	13.2		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
1979 11 17	095	1.5-	0.6+	1988 12 14	888	1.9+	1.9-	1996 07 22	108	0.3-	0.7-
1988 11 13	888	(2.6+	1.5-)	1988 12 14	888	1.2+	1.9-	1997 12 20	886	0.1-	0.3-
1988 11 13	888	1.5+	0.5-	1988 12 15	888	(3.7-	2.7+)	1997 12 20	886	0.2-	0.5-
1988 11 14	888	1.0+	0.0	1988 12 15	888	(2.9-	4.2+)	1998 01 02	888	0.1+	0.1+
1988 11 14	888	0.2+	1.2+	1994 01 14	033	0.6+	0.7-	1998 01 02	888	0.0	0.2+
1988 12 01	888	1.6-	0.6+	1994 01 15	033	0.3+	0.4-	1998 01 07	886	1.2-	0.3+
1988 12 01	888	1.3-	0.0	1994 01 15	033	0.1-	0.7-	1998 01 07	886	1.0-	0.8+
1988 12 05	381	0.4+	0.9-	1996 07 10	108	1.4+	0.0	1999 02 16	704	0.1-	0.7+
1988 12 06	381	0.6+	0.4+	1996 07 10	108	0.1-	0.5+	1999 02 16	704	0.5+	0.1-
1988 12 06	888	(2.8-	1.4-)	1996 07 10	108	0.5+	0.9-	1999 02 16	704	0.7-	0.9-
1988 12 06	888	(3.0-	1.0-)	1996 07 13	108	0.9-	0.5-	1999 02 16	704	1.1-	0.6-
1988 12 07	381	0.3+	0.3+	1996 07 13	108	1.3-	0.5+	1999 02 16	704	0.3-	0.2-
1988 12 08	381	1.2+	0.5+	1996 07 13	108	0.5-	0.2-	1999 03 22	704	0.5-	0.1-
1988 12 11	888	(0.7-	2.7-)	1996 07 21	108	(0.2-	2.4-)	1999 03 22	704	1.2+	0.4+
1988 12 11	888	1.0-	2.3-	1996 07 21	108	(1.1-	2.1-)	1999 03 22	704	0.2-	0.2+
1988 12 14	888	0.8-	1.5+	1996 07 22	108	1.0+	0.4-	1999 03 22	704	0.2+	0.1+
1988 12 14	888	0.9-	1.2+	1996 07 22	108	1.2+	0.4-	1999 03 22	704	0.1+	1.2+

(10300)* 1989 EG₁ = 1994 WV₇

Discovered 1989 Mar. 6 by T. Seki at Geisei.

Id. G. V. Williams (*MPC* 24561)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	356.55372		(2000.0)		P		Q				
n	0.29585193	ω	4.28300		-0.95796190		-0.28487374				
a	2.2305902	Ω	159.06902		+0.26031337		-0.91289628				
e	0.1028805	i	5.46117		+0.12060657		-0.29234796				
P	3.33	H	14.7		G	0.15	U	1			
Residuals in seconds of arc											
1989 03 06	372	1.2+	0.1+	1995 02 01	691	0.2+	0.1-	1998 12 23	704	0.9-	0.9-
1989 03 06	372	0.5+	0.8-	1996 04 14	691	0.1-	0.2+	1998 12 23	704	0.5+	0.2-
1989 03 08	372	1.5-	0.5+	1996 04 14	691	0.1-	0.7+	1998 12 23	704	0.3-	0.2+
1989 03 08	372	1.0-	1.8-	1996 04 14	691	0.1+	0.5+	1998 12 23	704	0.6-	0.9-
1989 03 10	372	0.3+	0.9-	1996 05 15	801	0.2-	0.7-	1999 02 24	691	0.1-	0.5-
1989 03 10	372	0.8+	0.3-	1996 05 15	801	0.3-	0.1-	1999 02 24	691	0.1-	0.5-
1989 03 15	372	1.4-	1.1+	1996 05 20	801	0.3-	0.5-	1999 02 24	691	0.1-	0.5-
1989 03 15	372	0.9-	0.7-	1996 05 20	801	0.3-	0.2+	1999 03 20	704	0.8+	0.2-
1989 04 12	372	0.7-	0.8-	1996 07 19	118	0.1+	0.0	1999 03 20	704	0.9-	0.5-
1989 04 12	372	2.0+	1.0-	1996 07 19	118	0.4+	0.8+	1999 03 20	704	0.1+	0.8+
1994 11 28	691	0.4-	0.2+	1996 07 19	118	0.3+	1.2+	1999 03 20	704	0.6-	0.7+
1994 11 28	691	0.8-	0.2+	1996 07 20	118	0.6-	0.4-	1999 03 20	704	0.4+	1.5+
1994 11 28	691	0.1-	0.2+	1996 07 20	118	0.0	0.3-	1999 03 22	699	0.6+	0.6+
1994 12 04	691	1.0-	0.4+	1997 10 30	704	1.2+	1.1-	1999 03 22	699	1.1+	0.7+
1994 12 04	691	0.7-	0.2+	1997 10 30	704	1.6+	0.9-	1999 03 22	699	0.8+	0.8+
1994 12 04	691	0.3-	0.1+	1997 10 30	704	0.9+	0.3-	1999 03 23	704	0.5+	0.5+
1994 12 10	691	0.9+	0.4+	1997 10 30	704	1.6+	1.7+	1999 03 23	704	0.3+	1.3+
1994 12 10	691	0.4+	0.3+	1997 10 30	704	1.3-	1.3+	1999 03 23	704	0.2+	1.0+
1994 12 10	691	0.0	0.1-	1997 10 30	566	1.0-	0.1-	1999 03 23	704	0.1+	0.1-
1995 02 01	691	0.0	0.0	1997 10 30	566	0.8-	0.0	1999 03 23	704	0.2-	0.1+
1995 02 01	691	0.1-	0.2+	1997 10 30	566	0.5-	0.0				

(10301)* 1989 FH = 1990 SJ₆

Discovered 1989 Mar. 30 by K. Endate and K. Watanabe at Kitami.

Id. G. V. Williams (*MPC* 17442)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	313.41076		(2000.0)		P		Q				
<i>n</i>	0.29228434	ω	132.18623		-0.82207630		+0.56741684				
<i>a</i>	2.2487043	Ω	82.43663		-0.53542574		-0.74219155				
<i>e</i>	0.0995533	<i>i</i>	2.72964		-0.19367454		-0.35663683				
<i>P</i>	3.37	<i>H</i>	14.7		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
1989 03 30	400	0.4-	0.1-	1990 09 22	809	(1.8+	3.0+)	1999 03 19	699	0.3+	0.3-
1989 03 30	400	2.1+	1.7-	1990 09 25	809	(0.3-	2.9+)	1999 03 19	699	0.6+	0.2-
1989 03 30	400	1.6+	0.8+	1990 09 25	809	(0.8+	2.3+)	1999 03 19	699	0.2+	0.2-
1989 04 06	400	(2.6+	1.1+)	1990 09 25	809	0.5+	1.9+	1999 03 20	704	0.2+	0.3+
1989 04 06	400	0.8+	0.1-	1992 01 01	691	1.7-	0.0	1999 03 20	704	0.2-	0.3-
1989 04 06	400	0.1-	0.1-	1992 01 01	691	1.4-	0.3+	1999 03 20	704	0.5-	0.6+
1989 04 12	400	1.5-	0.7-	1992 01 01	691	0.5-	0.4-	1999 03 20	704	0.0	0.1+
1989 04 12	400	(2.8+	1.9+)	1996 05 18	400	0.7+	0.7-	1999 03 23	699	0.7+	0.2+
1989 04 28	400	0.3-	1.3+	1996 05 18	400	0.9-	0.2+	1999 03 23	699	0.1+	0.1+
1989 04 28	400	0.4+	2.0+	1996 06 09	400	1.6-	0.4+	1999 03 23	699	0.1-	0.4+
1989 04 28	400	0.3-	0.0	1996 06 09	400	1.3+	0.1+	1999 03 23	704	0.6+	0.3+
1990 09 15	809	0.4-	1.4+	1996 06 10	400	1.2-	0.8-	1999 03 23	704	0.8+	0.4+
1990 09 15	809	1.2-	0.6+	1996 06 10	400	1.0-	0.0	1999 03 23	704	1.2+	0.9+
1990 09 15	809	0.4-	0.9+	1999 02 20	699	0.3+	0.4+	1999 03 23	704	0.2+	0.5+
1990 09 22	809	0.3-	1.1+	1999 02 20	699	0.1-	0.2+				
1990 09 22	809	0.5+	1.1+	1999 02 20	699	0.1-	0.5+				

(10302)* 1989 ML = 1992 WA

Discovered 1989 June 29 by E. F. Helin and J. Alu at Palomar.

Id. E. Bowell (*MPC* 21572)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	232.10799		(2000.0)		P		Q
<i>n</i>	0.68675631	ω	183.18751	+0.30283106			+0.95017395
<i>a</i>	1.2723335	Ω	104.44966	-0.87270418			+0.30763286
<i>e</i>	0.1364426	<i>i</i>	4.37737	-0.38298925			+0.05031395
<i>P</i>	1.44	<i>H</i>	19.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1989 06 06	675	0.5-	1.6-	1996 01 12	658	1.0-	1.0-	1996 01 24	360	0.2-	0.1+
1989 06 06	675	0.4-	2.3-	1996 01 12	658	1.1-	0.5-	1996 01 26	413	0.2-	0.2-
1989 06 29	675	0.8-	1.5+	1996 01 12	658	0.8-	0.8-	1996 01 26	413	0.0	0.1-
1989 06 29	675	0.6+	2.3-	1996 01 12	381	0.1+	0.1+	1996 02 12	711	1.2+	0.8-
1989 06 30	675	0.6-	0.6-	1996 01 12	381	0.5+	0.5-	1996 02 12	711	0.1+	0.4-
1989 06 30	675	0.9+	0.3-	1996 01 12	381	0.5+	0.5-	1996 03 09	711	0.1-	0.0
1989 07 03	675	(6.8-	9.5-)	1996 01 12	381	0.2-	0.3-	1996 03 09	711	0.0	0.0
1989 07 03	675	(5.6-	11.4-)	1996 01 12	381	0.1+	0.2-	1996 03 10	608	0.2+	0.5-
1992 11 19	691	0.2+	0.6-	1996 01 12	381	0.1+	0.5-	1996 03 10	608	0.5+	0.1-
1992 11 19	691	0.7+	0.7-	1996 01 13	381	0.1+	0.7-	1996 03 11	711	0.1-	0.3+
1992 11 19	691	0.6+	0.6-	1996 01 13	381	0.1+	0.6-	1996 03 11	711	0.2+	0.1+
1992 11 20	691	0.2+	0.2-	1996 01 13	381	0.0	0.6-	1996 03 14	658	1.0-	0.0
1992 11 20	691	0.4+	0.0	1996 01 13	381	0.0	0.6-	1996 03 14	658	0.8-	0.1-
1992 11 20	691	0.4+	0.1+	1996 01 13	381	0.1+	0.6-	1996 03 14	658	1.3-	0.1+
1992 11 20	691	0.3+	0.4-	1996 01 13	381	0.1+	0.7-	1996 03 14	658	0.6-	0.1-
1992 11 20	691	0.3+	0.1-	1996 01 13	381	0.0	0.8-	1999 02 14	691	0.5-	0.8-
1992 11 21	691	0.0	0.2+	1996 01 13	381	0.1-	0.6-	1999 02 14	691	0.3-	0.8-
1992 11 21	691	0.1-	0.2-	1996 01 13	381	0.3-	0.5-	1999 02 14	691	0.3-	0.8-
1992 11 24	691	0.5+	0.5-	1996 01 16	381	0.3+	0.2-	1999 03 10	568	0.1-	0.3+
1992 11 24	691	0.0	0.2-	1996 01 16	381	0.2+	0.1+	1999 03 10	568	0.3-	0.3+
1992 11 24	691	0.3+	0.1-	1996 01 16	381	0.7-	0.2-	1999 03 12	568	0.2+	0.4+
1992 11 29	691	0.0	0.1-	1996 01 16	381	0.2+	0.4-	1999 03 12	568	0.1-	0.6+
1992 11 29	691	0.0	0.5-	1996 01 16	381	0.3+	0.3-	1999 03 12	568	0.1-	0.7+
1992 12 02	691	0.4-	0.0	1996 01 16	381	0.6-	1.4+	1999 03 21	159	0.0	0.0
1992 12 02	691	0.5-	0.1-	1996 01 17	381	0.1+	0.4+	1999 03 21	159	0.8+	0.5+
1992 12 02	691	0.4-	0.1+	1996 01 17	381	0.3+	0.1+	1999 03 21	159	0.9+	0.3-
1992 12 16	691	0.8+	0.1+	1996 01 17	381	0.4+	0.1+	1999 03 21	159	0.6+	0.5+
1992 12 16	691	0.7+	1.1-	1996 01 23	711	0.2+	0.3-	1999 03 22	568	0.1+	0.5+
1992 12 16	691	0.5+	0.5-	1996 01 23	711	1.0-	0.1+	1999 03 22	568	0.3+	0.3+
1992 12 16	691	1.0+	0.7-	1996 01 23	658	1.1-	0.5-	1999 03 25	422	0.4+	0.6+
1995 12 24	658	0.4-	0.4+	1996 01 23	658	0.3-	0.2-	1999 03 25	422	0.3+	0.3+
1995 12 24	658	0.7-	0.2-	1996 01 23	658	0.8-	0.1-	1999 03 25	422	0.2+	0.4+
1995 12 24	658	0.7-	0.7-	1996 01 24	360	0.1-	0.1-				

(10303)* 1989 RD₂ = 1978 PD₄ = 1978 QC₁ = 1982 VU₄ = 1982 XE₂
= 1982 XL₂

Discovered 1989 Sept. 2 by E. W. Elst at Haute Provence.

Id. E. Goffin (*MPC* 15255), H. Oishi (d, *MPC* 12360), B. G. Marsden (d, *MPC* 15255)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	202.39263		(2000.0)		P		Q
<i>n</i>	0.26860048	ω	166.37210	+0.89423746			+0.44745566
<i>a</i>	2.3790205	Ω	167.03030	-0.41514706			+0.83841455
<i>e</i>	0.2427249	<i>i</i>	2.83003	-0.16730892			+0.31119844
<i>P</i>	3.67	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1978 08 09	095	2.1+	0.7+	1989 07 29	675	(3.1+	0.7-)	1999 02 23	691	0.1-	0.1+
1978 08 31	095	1.7-	0.8-	1989 09 02	511	0.4-	0.9-	1999 02 23	691	0.1-	0.1+
1982 11 14	381	2.1-	1.2+	1989 09 02	511	1.2+	1.8-	1999 03 20	704	0.1-	0.2-
1982 11 14	381	0.9-	0.1-	1989 09 06	511	0.9-	0.3-	1999 03 20	704	0.5-	0.6-
1982 12 13	381	0.7-	0.3-	1989 09 06	511	0.6-	0.2-	1999 03 20	704	0.5-	0.0
1982 12 13	381	1.7+	0.6-	1989 09 07	511	0.4-	0.6+	1999 03 20	704	0.7-	1.1-
1982 12 13	381	0.7-	0.2-	1989 09 07	511	1.2+	1.3+	1999 03 23	704	0.5-	0.2-
1982 12 14	381	0.1-	0.0	1993 11 13	801	0.1-	0.3-	1999 03 23	704	0.5+	0.2+
1982 12 14	381	2.2+	0.8-	1993 11 13	801	0.2-	0.4-	1999 03 23	704	0.2+	0.3-
1982 12 14	381	0.3-	0.2+	1993 11 17	801	0.5+	0.2-	1999 03 23	704	0.9+	0.1-

1982 12 14	381	0.8+	1.2+	1993 11 17	801	0.6+	0.3-
1989 07 29	675	(3.1+	0.1-)	1999 02 23	691	0.0	0.0

(10304)* 1989 SY = 1991 HL₄

Discovered 1989 Sept. 30 by K. Endate and K. Watanabe at Kitami.

Id. G. V. Williams (*MPC* 30869)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	69.27202		(2000.0)		P		Q
<i>n</i>	0.23972031	ω	45.91793	+0.31876897			-0.94290822
<i>a</i>	2.5664501	Ω	25.96047	+0.79441503			+0.21025629
<i>e</i>	0.2837445	<i>i</i>	12.73391	+0.51700204			+0.25829515
<i>P</i>	4.11	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1989 09 30	675	0.1-	1.1-	1989 10 24	026	0.6-	0.3+	1997 10 01	566	0.4+	0.6-
1989 09 30	675	1.0-	1.9-	1989 11 04	095	0.6+	0.3-	1997 10 01	566	0.1+	0.6-
1989 09 30	400	0.7+	0.5+	1989 11 04	095	0.0	0.9-	1999 02 26	704	1.4-	0.1+
1989 09 30	400	0.5+	2.1+	1989 11 08	026	(2.8+	0.5-)	1999 02 26	704	(2.2-	0.6+)
1989 09 30	400	1.2-	1.3+	1989 11 08	026	1.0-	1.0-	1999 02 26	704	(4.7-	0.8+)
1989 10 08	400	0.3-	2.0+	1989 11 17	026	0.4+	0.9-	1999 03 19	704	0.5+	0.0
1989 10 08	400	2.1+	0.5-	1989 11 18	026	2.3-	0.6-	1999 03 19	704	0.4+	0.5+
1989 10 08	400	0.1-	1.4+	1989 11 19	026	0.8-	0.5-	1999 03 19	704	0.1-	0.1+
1989 10 08	897	(3.2-	2.0+)	1991 04 19	809	0.1-	0.9+	1999 03 19	704	0.2+	0.2+
1989 10 08	897	1.5+	0.5+	1991 04 19	809	0.4+	0.5+	1999 03 20	704	0.7+	0.5+
1989 10 10	400	1.2+	0.4-	1991 04 19	809	0.2+	0.4+	1999 03 20	704	0.1+	0.2+
1989 10 10	400	0.8+	1.1-	1993 09 18	675	0.2+	0.3-	1999 03 20	704	0.7+	0.7-
1989 10 20	403	1.3+	2.2+	1993 09 18	675	0.4+	0.7-	1999 03 20	704	0.1+	0.3-
1989 10 20	403	(1.6+	2.7+)	1993 09 21	675	0.7-	0.7+	1999 03 20	704	0.3-	0.2+
1989 10 23	403	2.4-	0.2+	1993 09 21	675	1.1-	0.6+	1999 03 23	704	0.4-	0.1+
1989 10 23	403	1.5-	0.8-	1993 09 23	675	0.8-	0.6+	1999 03 23	704	0.6-	0.6-
1989 10 23	095	(3.1-	2.5+)	1993 10 12	675	0.4+	0.2+	1999 03 23	704	0.1+	0.7-
1989 10 23	095	2.2+	0.7+	1993 10 12	675	0.7+	0.4-	1999 03 23	704	0.2-	0.6-
1989 10 23	026	(2.6-	0.9+)	1997 10 01	566	0.3+	0.5-				

(10305)* 1989 YP₅ = 1982 BS₉

Discovered 1989 Dec. 29 by E. W. Elst at Haute Provence.

Id. H. Kaneda (*MPC* 16878)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	169.02055		(2000.0)		P		Q
<i>n</i>	0.24064260	ω	224.22482	+0.98583710			+0.14819796
<i>a</i>	2.5598884	Ω	127.09187	-0.11308435			+0.93309393
<i>e</i>	0.1269702	<i>i</i>	5.64786	-0.12384317			+0.32767833
<i>P</i>	4.10	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1982 01 19	095	0.6+	1.1-	1992 07 22	809	0.9+	0.1-	1999 02 22	699	0.3-	0.6+
1982 01 20	095	0.3+	0.8+	1992 07 22	809	1.2+	0.1-	1999 03 20	704	0.5+	0.3-
1989 12 29	511	0.6-	0.1-	1992 07 22	809	1.5+	0.1+	1999 03 20	704	0.2-	0.2+
1989 12 29	511	0.1-	2.4-	1992 07 23	809	0.2-	1.0+	1999 03 20	704	0.2+	0.5-
1989 12 30	511	0.9-	1.0+	1992 07 23	809	0.1-	0.9+	1999 03 20	704	0.8+	0.7-
1989 12 30	511	0.9+	0.1+	1992 07 23	809	0.3+	0.6+	1999 03 20	704	0.2-	0.1-
1990 01 04	511	0.8-	1.4+	1992 07 28	801	0.3+	0.7-	1999 03 23	699	0.9+	0.6-
1990 01 04	511	0.2-	0.2-	1992 07 28	801	0.3+	0.8-	1999 03 23	699	0.6-	1.8+
1992 06 30	801	0.7-	0.7-	1992 07 29	801	0.1-	0.9-	1999 03 23	699	0.5-	0.1+
1992 06 30	801	1.0-	0.7-	1997 12 29	566	0.2+	1.2-	1999 03 23	704	0.8-	0.2-
1992 07 03	801	0.4-	0.7-	1997 12 29	566	0.6+	1.0-	1999 03 23	704	0.2+	1.0-
1992 07 03	801	0.9-	0.9-	1997 12 29	566	0.7+	1.1-	1999 03 23	704	0.2-	0.6-
1992 07 09	894	0.2+	0.4+	1999 02 22	699	0.2-	0.6+	1999 03 23	704	1.0-	1.7-
1992 07 09	894	0.9-	1.5-	1999 02 22	699	0.4+	0.3+				

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	260.46275		(2000.0)	P	Q
<i>n</i>	0.18721781	ω	80.88748	+0.14757092	+0.98812349
<i>a</i>	3.0262487	Ω	197.77152	−0.95360608	+0.13065846
<i>e</i>	0.2077283	<i>i</i>	8.06745	−0.26240859	+0.08087234
<i>P</i>	5.26	<i>H</i>	12.5	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1964 10 08	330	0.7+	0.9+	1994 04 04	675	0.8−	1.0+	1999 02 16	704	0.5+	1.0−
1989 04 01	675	0.3+	1.0−	1994 04 04	675	0.7−	0.3+	1999 02 16	704	0.8+	0.8−
1989 04 01	675	0.6+	0.3+	1995 08 05	966	0.7+	0.3−	1999 02 16	704	0.3−	1.7−
1990 08 16	511	0.6+	0.1+	1995 08 05	966	0.1+	0.4−	1999 02 16	704	0.2−	1.0−
1990 08 17	511	0.3+	1.8+	1995 08 05	966	0.3+	0.5−	1999 03 19	704	1.2−	0.2+
1990 08 17	511	(2.7+	3.0+)	1995 08 06	966	1.5+	0.2−	1999 03 19	704	0.6−	0.1−
1990 08 21	511	(0.1+	2.6+)	1995 08 28	801	0.2−	0.3+	1999 03 19	704	0.6+	1.4−
1990 08 21	511	(2.3+	2.1+)	1995 08 28	801	0.2−	0.3+	1999 03 19	704	0.9−	0.6−
1990 08 28	511	0.9−	0.3+	1995 08 29	801	0.1−	0.3+	1999 03 20	704	0.2−	0.2+
1990 09 15	675	0.6−	1.2−	1995 08 29	801	0.0	0.1+	1999 03 20	704	0.2+	1.4−
1990 09 15	675	0.8−	1.9−	1996 11 04	610	0.3−	0.2+	1999 03 20	704	0.3−	0.9−
1990 09 16	675	0.8+	0.9−	1996 11 04	610	0.2+	0.4+	1999 03 20	704	0.4+	1.3−
1990 09 16	675	0.9+	1.9−	1996 11 04	610	0.9+	0.4+	1999 03 22	699	1.4+	1.1+
1990 09 18	095	(1.9−	2.8+)	1996 11 04	610	0.0	0.5+	1999 03 22	699	0.0	0.4+
1990 09 18	095	0.8−	1.0−	1996 11 04	610	0.0	0.3+	1999 03 22	699	0.2+	0.4+
1990 09 20	675	(1.4−	2.7−)	1996 11 05	610	0.1+	0.1+	1999 03 23	704	1.0+	0.1−
1990 09 20	675	0.9−	1.9−	1996 11 08	610	0.6+	0.1+	1999 03 23	704	0.7−	0.8−
1990 10 09	413	0.2−	1.1−	1996 11 08	610	0.2+	0.1−	1999 03 23	704	0.3−	0.1−
1990 10 09	413	0.3−	1.7+	1996 11 09	610	0.7−	0.6−	1999 03 23	704	0.4−	0.2−
1990 10 11	413	0.1+	0.9−	1999 02 12	704	1.2−	1.4−	1999 03 23	704	0.4−	0.6+
1994 03 14	675	1.1+	0.8+	1999 02 12	704	(3.1+	0.2−)	1999 03 24	699	1.1+	0.2+
1994 03 14	675	(2.5+	0.3+)	1999 02 12	704	0.9−	0.1−	1999 03 24	699	1.1+	0.3−
1994 04 03	675	1.0−	1.2+	1999 02 12	704	(0.3−	2.0−)	1999 03 24	699	0.2−	0.6+
1994 04 03	675	0.8−	1.0+	1999 02 16	704	0.1−	0.6−				

(10307)* 1990 QX₁ = 1995 AK₄

Discovered 1990 Aug. 22 by H. E. Holt at Palomar.

Id. B. G. Marsden (*MPC* 25062)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	81.31509		(2000.0)	P	Q
<i>n</i>	0.27734847	ω	5.97417	+0.56199136	−0.82705891
<i>a</i>	2.3287285	Ω	49.83286	+0.75824818	+0.50942864
<i>e</i>	0.2131526	<i>i</i>	0.88485	+0.33049268	+0.23760474
<i>P</i>	3.55	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1990 08 16	809	0.8−	1.8+	1990 09 24	809	1.3+	0.4+	1999 02 14	691	0.0	0.4−
1990 08 16	809	0.5−	0.9+	1995 01 02	010	0.8+	0.6+	1999 02 14	691	0.1+	0.5−
1990 08 16	809	2.0−	0.1+	1995 01 02	010	1.1+	0.8+	1999 02 14	691	0.0	0.3−
1990 08 20	809	0.5−	0.4−	1995 01 03	010	(3.2−	1.3+)	1999 03 19	691	0.5+	0.4+
1990 08 20	809	1.3−	0.4−	1995 01 04	010	1.3−	1.1+	1999 03 19	691	0.5+	0.3+
1990 08 20	809	1.2−	0.8−	1995 01 05	033	0.4+	0.4+	1999 03 19	691	0.5+	0.2+
1990 08 22	675	0.4+	0.4+	1995 01 05	033	0.1−	0.9−	1999 03 20	704	0.4−	1.3+
1990 08 22	675	0.3−	0.7−	1995 01 07	033	0.9−	0.5+	1999 03 20	704	0.4−	0.0
1990 08 28	675	0.2+	0.3−	1997 07 08	688	0.1−	0.4+	1999 03 20	704	0.5+	1.3+
1990 08 28	675	0.2+	0.1+	1997 07 08	688	0.1−	0.1+	1999 03 20	704	0.5−	0.4+
1990 09 14	675	0.4+	1.1−	1999 01 15	910	0.8−	1.1−	1999 03 23	704	1.3+	0.6+
1990 09 14	675	0.5+	0.6−	1999 01 15	910	1.2−	1.0−	1999 03 23	704	0.0	0.0
1990 09 19	675	0.0	1.2−	1999 01 15	910	0.7−	1.0−	1999 03 23	704	0.4−	0.3+
1990 09 19	675	0.7+	1.3−	1999 01 19	910	0.5−	1.3−	1999 03 23	704	0.5−	0.8+
1990 09 23	809	0.2+	0.0	1999 01 19	910	0.4−	1.1−	1999 03 23	704	1.4+	1.2−
1990 09 23	809	0.7+	0.4+	1999 01 19	910	0.4−	1.6−	1999 03 24	691	0.3+	0.3+
1990 09 23	809	1.4+	0.3+	1999 02 13	691	0.4−	0.6−	1999 03 24	691	0.5−	0.4+
1990 09 24	809	0.2+	0.2+	1999 02 13	691	0.2−	0.8−	1999 03 24	691	0.4+	0.5+
1990 09 24	809	0.7+	0.3+	1999 02 13	691	0.3−	0.6−				

(10308)* 1990 QC₃ = 1996 JV₅

Discovered 1990 Aug. 28 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 27444)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	114.06739		(2000.0)	P	Q
<i>n</i>	0.28256448	ω	227.55049	+0.86245042	−0.50582522
<i>a</i>	2.2999815	Ω	162.81136	+0.48033358	+0.80681911
<i>e</i>	0.1885265	<i>i</i>	3.47103	+0.15955851	+0.30526016
<i>P</i>	3.49	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1990 08 16	809	0.5−	0.9−	1990 09 25	809	0.1−	0.1+	1997 09 28	824	0.5−	1.1+
1990 08 16	809	0.1+	1.5−	1990 09 25	809	0.6+	0.0	1999 02 13	691	0.6−	1.0−
1990 08 16	809	0.4−	1.3−	1990 09 25	809	1.3+	0.1+	1999 02 13	691	0.6−	1.0−
1990 08 20	809	1.2−	0.1+	1990 09 26	809	0.7+	0.1+	1999 02 13	691	0.6−	0.9−
1990 08 20	809	1.4−	0.2−	1990 09 26	809	0.9+	0.2−	1999 03 09	691	0.2+	0.5−
1990 08 20	809	1.4−	0.2−	1990 09 26	809	1.0+	0.1−	1999 03 09	691	0.2+	0.6−
1990 08 22	675	0.9+	0.8−	1996 05 11	691	0.2−	0.4−	1999 03 09	691	0.1+	0.6−
1990 08 22	675	0.8−	0.5−	1996 05 11	691	0.0	0.1+	1999 03 16	691	0.4−	0.1−
1990 08 28	675	0.1+	1.1−	1996 05 11	691	0.1−	0.1−	1999 03 16	691	0.4−	0.1−
1990 08 28	675	0.2−	1.1−	1996 05 15	691	0.7+	0.0	1999 03 16	691	0.6−	0.3−
1990 09 14	809	0.9−	0.1+	1996 05 15	691	0.7+	0.5+	1999 03 18	691	0.7+	0.1+
1990 09 14	809	0.2−	0.1+	1996 05 15	691	0.6+	0.2+	1999 03 18	691	0.5+	0.1−
1990 09 14	809	0.5+	0.1+	1996 06 08	809	0.4+	0.9+	1999 03 18	691	0.8+	0.0
1990 09 16	809	0.1+	1.2+	1996 06 08	809	0.2−	0.2+	1999 03 20	704	0.2−	0.7+
1990 09 16	809	0.3+	1.2+	1996 06 08	809	0.3+	0.9+	1999 03 20	704	0.8−	0.1−
1990 09 16	809	0.7+	1.1+	1996 06 10	809	(2.5+	0.3+)	1999 03 20	704	0.2−	0.8−
1990 09 23	809	0.0	0.1−	1996 06 10	809	1.7−	0.2−	1999 03 20	704	0.0	0.6+
1990 09 23	809	0.6+	0.4−	1996 06 10	809	(1.7−	2.3+)	1999 03 20	704	0.1−	0.9+
1990 09 23	809	1.3+	0.8−	1997 07 08	688	0.4+	0.1−	1999 03 23	704	(2.3−	1.3−)
1990 09 24	809	0.9−	0.1+	1997 07 08	688	0.6+	0.5−	1999 03 23	704	0.4+	0.4+
1990 09 24	809	0.2−	0.3−	1997 09 28	824	0.4−	1.0+	1999 03 23	704	0.0	1.0−
1990 09 24	809	0.4+	0.1−	1997 09 28	824	0.5−	0.8+	1999 03 23	704	(0.1+	2.4−)

(10309)* 1990 QC₆ = 1996 HD₉

Discovered 1990 Aug. 23 by H. E. Holt at Palomar.

Id. B. G. Marsden (*MPC* 27307)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	81.95778		(2000.0)	P	Q
<i>n</i>	0.27734663	ω	316.50387	+0.66033177	−0.75087843
<i>a</i>	2.3287388	Ω	92.16718	+0.69224614	+0.60243015
<i>e</i>	0.1846570	<i>i</i>	0.68695	+0.29113096	+0.27066492
<i>P</i>	3.55	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1990 08 16	809	1.2+	1.0+	1990 09 14	675	0.3+	1.0−	1999 02 10	704	0.6−	1.1+
1990 08 16	809	0.0	0.7+	1990 09 18	675	0.6+	0.8−	1999 02 10	704	0.2−	0.9+
1990 08 16	809	0.4−	0.4+	1990 09 18	675	0.3−	0.4+	1999 02 10	704	0.2+	0.8+
1990 08 20	809	1.1+	0.3+	1996 04 17	809	0.2−	0.3−	1999 02 13	704	0.1−	0.9−
1990 08 20	809	0.1+	0.5+	1996 04 17	809	0.9−	0.7−	1999 02 13	704	0.4+	1.1−
1990 08 20	809	0.2−	0.0	1996 04 17	809	0.9−	0.2−	1999 02 13	704	0.6−	0.9−
1990 08 23	675	0.1+	0.8−	1996 04 18	809	0.7+	0.0	1999 02 13	704	0.4−	1.2−
1990 08 23	675	(0.2+	2.6−)	1996 04 18	809	0.4+	0.1+	1999 02 13	704	0.3+	1.3−
1990 08 26	809	1.6−	0.6+	1996 04 18	809	0.6+	0.1+	1999 02 18	699	0.1−	1.6+
1990 08 26	809	(2.2−	0.2+)	1997 09 01	566	0.1−	0.3+	1999 02 18	699	1.0+	0.0
1990 08 26	809	1.3−	0.2−	1997 09 01	566	0.1−	0.2+	1999 03 20	704	0.6+	1.7−
1990 09 13	809	0.3−	0.5−	1997 09 01	566	0.0	0.2−	1999 03 20	704	0.8−	0.2+
1990 09 13	809	0.2+	0.5−	1997 09 26	426	0.3−	0.1−	1999 03 20	704	0.2−	0.5−
1990 09 13	809	0.6+	0.8−	1997 09 26	426	0.2−	0.0	1999 03 20	704	0.1+	0.2+
1990 09 13	675	0.1+	0.5−	1997 09 26	426	0.0	0.7+	1999 03 20	704	0.4+	0.5−
1990 09 13	675	0.0	1.3−	1997 09 28	426	0.0	0.1+	1999 03 23	704	1.6−	0.8−
1990 09 14	809	0.1+	0.2−	1997 09 28	426	0.2+	0.5+	1999 03 23	704	1.5−	0.2+
1990 09 14	809	0.6+	0.2−	1997 09 28	426	0.2−	0.2+	1999 03 23	704	2.5+	0.9+
1990 09 14	809	1.1+	0.0	1999 02 10	704	0.3−	0.6+				
1990 09 14	675	0.3−	0.6−	1999 02 10	704	0.1+	0.3+				

(10310)* 1990 QZ₈ = 1976 UV₁₂ = 1996 JJ₁₄ = 1999 AA₁₁

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

Observatory.

Id. K. Ichikawa (*MPC* 18297), H. Kaneda (*ibid.*), G. V. Williams (*MPC* 33929)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	18.52196		(2000.0)		P		Q	
<i>n</i>	0.27531713	ω	329.26789	−0.11455729			−0.99235177	
<i>a</i>	2.3401690	Ω	127.27101	+0.92278551			−0.12344059	
<i>e</i>	0.1117395	<i>i</i>	3.31272	+0.36789066			+0.00061991	
<i>P</i>	3.58	<i>H</i>	14.7	<i>G</i>	0.15		<i>U</i>	1

Residuals in seconds of arc

1976 10 22	381	0.0	0.8+	1996 05 12	691	0.4+	0.1−	1999 01 18	704	0.8+	0.5−
1976 10 22	381	0.2+	0.4+	1996 05 12	691	0.4+	0.3−	1999 01 18	704	1.4+	0.0
1976 10 24	381	0.5−	0.4+	1996 05 19	691	0.8−	0.5−	1999 01 19	704	0.5+	0.4−
1976 10 24	381	0.0	0.6−	1996 05 19	691	0.7−	0.5−	1999 01 19	704	0.3+	0.9−
1990 08 16	809	(0.7+	2.1−)	1996 05 19	691	0.5−	0.5−	1999 01 19	704	0.2+	0.5+
1990 08 16	809	(0.4−	3.4−)	1998 12 16	699	0.0	0.1−	1999 01 19	704	0.4+	0.4−
1990 08 16	809	(0.1+	4.2−)	1998 12 16	699	0.1+	0.6+	1999 02 10	704	1.2−	0.5+
1990 08 18	809	(0.4−	2.5−)	1998 12 16	699	0.6−	0.4+	1999 02 10	704	0.3−	0.3+
1990 08 18	809	0.9−	1.6−	1999 01 07	691	0.4+	0.3−	1999 02 10	704	0.9−	0.7+
1990 08 18	809	0.9−	0.8−	1999 01 07	691	0.5+	0.2−	1999 02 10	704	1.0−	0.6−
1990 08 24	809	(3.0+	1.9−)	1999 01 07	691	0.5+	0.2−	1999 02 10	704	0.1−	0.4−
1990 08 24	809	(1.9+	2.0−)	1999 01 15	691	0.7−	0.1−	1999 02 13	704	0.5−	0.2−
1990 08 24	809	(2.1+	2.5−)	1999 01 15	691	1.0−	0.5−	1999 02 13	704	0.5+	0.0
1990 08 26	809	1.4+	0.3−	1999 01 15	691	0.5−	0.7−	1999 02 13	704	0.6−	0.5+
1990 08 26	809	1.0+	1.1−	1999 01 18	704	0.3+	0.4−	1999 02 13	704	0.3−	0.4−
1990 08 26	809	1.0+	0.8−	1999 01 18	704	1.1+	0.4−	1999 02 13	704	0.5−	0.1+
1996 05 12	691	0.5+	0.1−	1999 01 18	704	0.2+	0.6−				

(10311)* 1990 QL₉ = 1976 UM₈ = 1998 FZ₄₅

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

Observatory.

Id. A. Gnädig (*MPC* 32922)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	34.19126		(2000.0)		P		Q	
<i>n</i>	0.20392027	ω	157.16286	−0.87072614			+0.49032716	
<i>a</i>	2.8586597	Ω	52.25349	−0.45821533			−0.78116696	
<i>e</i>	0.0104094	<i>i</i>	2.72696	−0.17853488			−0.38646793	
<i>P</i>	4.83	<i>H</i>	13.8	<i>G</i>	0.15		<i>U</i>	2

Residuals in seconds of arc

1976 10 22	381	0.0	0.2+	1990 08 26	809	(4.5−	1.7+)	1998 03 20	704	0.2+	0.5+
1976 10 22	381	0.7+	0.0	1990 08 26	809	(3.4−	2.2+)	1998 03 20	704	0.3+	0.7+
1976 10 24	381	0.8−	0.2+	1990 08 26	809	(3.1−	2.6+)	1998 03 22	704	0.1+	0.1+
1990 08 16	809	0.2+	0.6+	1995 08 26	809	0.2+	0.8−	1998 03 22	704	0.4+	0.0
1990 08 16	809	0.9−	0.4+	1995 08 28	809	0.0	0.7−	1998 03 22	704	0.6+	0.5−
1990 08 16	809	0.6−	0.5+	1995 08 29	809	0.3+	0.8−	1998 03 22	704	1.3−	1.6−
1990 08 18	809	(5.7−	1.8−)	1995 09 19	809	0.3+	1.3+	1998 03 22	704	0.7−	0.6−
1990 08 18	809	1.1−	0.3+	1995 09 20	809	0.4−	0.3+	1998 04 24	699	0.4+	0.4+
1990 08 18	809	0.2−	1.0+	1995 09 23	809	(6.3+	1.5−)	1998 04 24	699	0.1+	0.2+
1990 08 24	809	(2.5+	0.2−)	1998 03 20	704	0.2−	0.1+	1998 04 24	699	0.5−	0.2−
1990 08 24	809	1.5+	0.6−	1998 03 20	704	0.2+	0.6+				
1990 08 24	809	0.8+	1.5−	1998 03 20	704	0.5+	0.5+				

(10312)* 1990 QT₉ = 1992 AQ₂

Discovered 1990 Aug. 23 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 20335)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	250.07046		(2000.0)		P		Q	
<i>n</i>	0.30190347	ω	167.63884	+0.25739243			+0.96600637	
<i>a</i>	2.2006821	Ω	117.27241	−0.88886219			+0.24647324	
<i>e</i>	0.1315320	<i>i</i>	1.55373	−0.37904240			+0.07799124	
<i>P</i>	3.26	<i>H</i>	14.9	<i>G</i>	0.15		<i>U</i>	2

Residuals in seconds of arc

1990 08 23	675	0.9−	1.0−	1992 01 10	691	0.3+	0.1+	1999 01 15	910	1.0−	1.4−
1990 08 23	675	(0.7−	2.2−)	1992 01 10	691	0.3+	0.1+	1999 01 15	910	0.7−	1.6−
1990 08 26	809	1.3−	0.3−	1992 02 04	675	0.1−	0.7+	1999 01 15	910	1.0−	1.3−
1990 08 26	809	0.4−	0.2−	1992 02 04	675	1.2−	0.7−	1999 01 19	910	0.7−	1.3−
1990 08 26	809	0.6−	0.7−	1996 04 18	809	1.3+	0.0	1999 01 19	910	0.7−	1.6−
1990 09 12	809	0.3+	0.1+	1996 04 18	809	0.9+	0.5+	1999 01 19	910	0.9−	1.5−
1990 09 12	809	0.9+	0.6+	1996 04 18	809	1.1+	0.2+	1999 03 14	120	0.1−	0.4−
1990 09 12	809	1.5+	0.5+	1996 04 20	809	(2.7+	0.9−)	1999 03 14	120	0.2+	0.2+
1990 09 13	675	0.9−	0.7−	1996 04 20	809	1.1+	0.8−	1999 03 14	120	1.7−	0.7−
1990 09 13	675	0.2−	0.9−	1996 04 20	809	(2.4+	1.4−)	1999 03 20	704	0.2−	0.3−
1990 09 14	809	0.2+	0.6−	1996 05 19	809	0.6−	0.8+	1999 03 20	704	0.4−	0.1−
1990 09 14	809	0.7+	0.3−	1996 05 19	809	0.9−	0.3+	1999 03 20	704	0.7−	0.2−
1990 09 14	809	1.2+	0.3−	1996 05 19	809	0.7−	0.3+	1999 03 20	704	0.3−	0.2+
1990 09 15	809	0.3−	0.7−	1996 05 22	809	1.5+	0.9+	1999 03 20	704	1.1−	0.3+
1990 09 15	809	0.2+	0.6−	1996 05 22	809	(1.0+	2.3+)	1999 03 22	699	0.5+	0.6+
1990 09 15	809	0.7+	0.3−	1996 05 22	809	0.4+	1.6+	1999 03 22	699	0.5+	0.2+
1990 09 18	675	0.4+	0.3−	1998 01 17	910	0.4+	1.0+	1999 03 22	699	0.2+	0.9+
1990 09 18	675	0.6−	0.0	1998 01 17	910	0.1+	0.9+	1999 03 23	704	0.5−	0.4−
1992 01 02	691	0.7+	0.2+	1998 01 17	910	0.4+	1.0+	1999 03 23	704	0.4−	0.6−
1992 01 02	691	0.8+	0.1−	1998 01 27	910	0.3−	1.2+	1999 03 23	699	1.0+	0.3+
1992 01 02	691	1.0+	0.1−	1998 01 27	910	0.0	0.9+	1999 03 23	704	0.3−	0.8+
1992 01 09	691	0.2−	0.3+	1998 01 27	910	0.3−	1.0+	1999 03 23	699	0.7+	0.2−
1992 01 09	691	0.2+	0.4+	1999 01 13	699	0.5−	0.4−	1999 03 23	704	0.7+	0.4−
1992 01 09	691	0.3−	0.5+	1999 01 13	699	1.2−	0.5−	1999 03 23	704	0.4−	0.4−
1992 01 10	691	0.3−	0.2+	1999 01 13	699	0.3−	1.8−	1999 03 23	699	0.4+	0.8+

(10313)* 1990 QW₁₇ = 1994 WV₁₂

Discovered 1990 Aug. 26 by L. V. Zhuravleva at the Crimean Astrophysical

Observatory.

Id. G. V. Williams (*MPC* 24563)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	151.71195		(2000.0)		P		Q	
<i>n</i>	0.28925427	ω	70.89599	+0.99702457			+0.00450208	
<i>a</i>	2.2643811	Ω	288.78732	−0.03654718			+0.90656606	
<i>e</i>	0.2113173	<i>i</i>	4.66235	+0.06786975			+0.42203994	
<i>P</i>	3.41	<i>H</i>	14.0	<i>G</i>	0.15		<i>U</i>	2

Residuals in seconds of arc

1990 08 26	095	1.1+	0.5+	1997 10 05	127	0.8−	0.2−	1999 02 16	704	0.7−	1.1−
1990 08 26	095	0.7+	0.4+	1997 10 27	127	0.3+	0.8−	1999 03 20	704	0.2+	1.0−
1990 08 30	095	0.3+	0.4−	1997 10 27	127	0.5+	0.6−	1999 03 20	704	0.6+	0.6+
1990 08 30	095	0.6−	0.6+	1997 10 27	127	0.2+	0.9−	1999 03 20	704	0.5+	0.9−
1990 09 15	095	0.6−	1.8+	1997 10 28	127	0.3+	0.2−	1999 03 20	704	(1.2−	2.2+)
1990 09 23	095	1.7−	1.5−	1997 10 28	127	0.2+	0.3−	1999 03 20	704	1.1−	0.3+
1994 11 28	691	0.2+	0.8+	1997 12 25	566	0.8+	0.1−	1999 03 23	704	1.4−	0.7+
1994 11 28	691	0.0	1.1+	1997 12 25	566	0.7+	0.2−	1999 03 23	704	1.0+	0.3+
1994 11 28	691	0.4+	0.8+	1997 12 25	566	0.5+	0.1−	1999 03 23	704	0.2+	0.0
1994 12 03	691	0.4+	1.0+	1999 02 16	704	1.2−	1.0−	1999 03 23	704	(2.6−	0.5−)
1994 12 03	691	0.3+	1.1+	1999 02 16	704	0.3+	0.9−				
1997 10 05	127	0.6−	0.4−	1999 02 16	704	0.2+	0.0				

(10314)* 1990 RF = 1994 JH₁

Discovered 1990 Sept. 14 by H. E. Holt at Palomar.

Id. B. G. Marsden (*MPC* 23671)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	140.03854		(2000.0)		P		Q				
<i>n</i>	0.17085254	ω	196.99619		+0.97828592		-0.20557584				
<i>a</i>	3.2165360	Ω	174.65386		+0.20725967		+0.97052238				
<i>e</i>	0.0587414	<i>i</i>	16.43905		-0.00030365		+0.12579701				
<i>P</i>	5.77	<i>H</i>	11.5		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
1990 08 16	511	0.7+	0.9+	1995 06 24	596	0.3+	0.2+	1999 02 16	704	0.7-	0.6+
1990 09 11	657	(0.6-	2.2-)	1995 06 24	596	0.1+	0.2+	1999 02 16	704	0.6-	0.1-
1990 09 11	657	0.2-	1.9-	1995 06 24	596	0.0	0.4-	1999 02 16	704	0.4+	0.0
1990 09 14	657	0.1-	1.3-	1995 06 28	801	0.1-	0.1+	1999 03 19	704	0.6+	1.0-
1990 09 14	657	0.1-	1.3-	1995 06 28	801	0.1+	0.0	1999 03 19	704	0.7-	0.3-
1990 09 14	675	(0.9+	2.4-)	1995 06 30	801	0.3+	0.1+	1999 03 19	704	0.3+	0.5-
1990 09 14	675	(0.2+	2.1-)	1995 06 30	801	0.0	0.1-	1999 03 19	704	0.1-	0.5-
1990 09 19	675	(1.0+	3.9-)	1995 08 24	801	0.4-	0.0	1999 03 20	704	0.5-	0.1-
1990 09 19	675	(0.6+	2.9-)	1995 08 24	801	0.4+	0.1-	1999 03 20	704	0.2-	0.1+
1990 09 20	675	0.3-	0.3-	1995 08 28	801	0.3-	0.1+	1999 03 20	704	0.1+	0.4+
1990 09 20	675	0.7-	0.5-	1995 08 28	801	0.4-	0.1+	1999 03 20	704	0.2-	0.0
1990 09 25	809	0.6-	0.1-	1998 02 06	688	0.1-	0.2-	1999 03 20	704	0.0	0.4-
1990 09 25	809	0.4-	0.0	1998 02 06	688	0.1+	0.2-	1999 03 22	699	0.8+	0.0
1990 09 25	809	0.2+	0.2+	1998 02 06	688	0.1-	0.2-	1999 03 22	699	0.4+	0.2+
1990 09 26	809	0.4+	0.1+	1999 02 12	704	0.2+	0.4-	1999 03 22	699	0.0	0.2+
1990 09 26	809	0.7+	0.0	1999 02 12	704	0.2-	0.7-	1999 03 23	699	0.5+	0.9-
1990 09 26	809	1.0+	0.0	1999 02 12	704	0.2-	0.9-	1999 03 23	699	0.5+	1.1+
1994 05 04	675	0.1+	0.9-	1999 02 12	704	0.3-	0.8-	1999 03 23	699	0.1+	0.5+
1994 05 04	675	0.0	0.3-	1999 02 14	699	0.2+	0.1+	1999 03 23	704	0.0	1.6-
1994 05 05	675	0.8+	0.3-	1999 02 14	699	0.3-	0.3+	1999 03 23	704	0.6+	0.1-
1994 05 05	675	1.2-	0.5-	1999 02 14	699	0.1+	0.4+	1999 03 23	704	0.5+	0.1+
1995 05 28	801	0.2-	0.2+	1999 02 16	704	0.7-	0.5-	1999 03 23	704	0.1+	0.4+
1995 06 24	596	0.1+	0.4+	1999 02 16	704	1.0-	0.6+	1999 03 23	704	0.1+	1.0+

(10315)* 1990 SC₄ = 1995 BO₂

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

Id. G. V. Williams (*MPC* 24738)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	47.79827		(2000.0)		P		Q				
<i>n</i>	0.26796548	ω	245.49173		+0.25491910		-0.96456706				
<i>a</i>	2.3827775	Ω	190.45187		+0.96582508		+0.25739924				
<i>e</i>	0.2809100	<i>i</i>	22.02121		+0.04688457		-0.05793123				
<i>P</i>	3.68	<i>H</i>	14.3		<i>G</i>	0.15	<i>U</i>	2			
Residuals in seconds of arc											
1990 09 18	675	0.2-	1.1-	1995 01 29	413	0.5-	0.9-	1999 02 16	704	0.6-	0.9-
1990 09 18	675	1.0+	1.0-	1995 02 01	413	0.2-	0.6+	1999 02 16	704	0.1+	0.6+
1990 09 23	675	0.8+	0.5+	1995 02 01	413	0.2-	0.5+	1999 02 16	704	0.8-	1.2-
1990 09 23	675	0.7-	0.5+	1995 02 02	413	0.2-	0.4+	1999 02 16	704	0.1+	0.9-
1990 09 25	675	0.9+	1.1+	1995 02 02	413	0.0	0.6+	1999 02 16	704	(2.1-	2.4-
1990 09 25	675	0.5+	0.0	1995 02 09	413	0.5+	0.9+	1999 03 22	704	0.0	1.1-
1990 10 14	675	1.0-	1.1-	1995 02 09	413	0.6+	0.8+	1999 03 22	704	0.4-	0.3-
1990 10 14	675	0.6+	0.6-	1997 08 08	608	0.8-	0.3+	1999 03 22	704	0.8-	0.2-
1990 10 17	675	1.0-	0.4-	1997 08 08	608	0.7-	0.7+	1999 03 22	704	0.3-	0.6-
1990 10 17	675	0.9-	0.8-	1997 08 09	608	0.4+	0.1-	1999 03 22	704	1.2-	0.0
1990 10 22	675	0.1-	0.7-	1997 08 09	608	1.1+	0.4+	1999 03 25	699	1.1+	0.1-
1990 10 22	675	0.2+	1.5-	1997 08 30	608	0.0	0.6+	1999 03 25	699	1.8+	0.4+
1995 01 29	413	0.3+	1.0+	1997 08 30	608	0.7-	0.4+	1999 03 25	699	1.5+	1.4-

(10316)* 1990 SF₉ = 1990 UA₇ = 1979 SJ₇ = 1979 TA₁ = 1996 TB₃₇

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

Observatory.

Id. S. Nakano (d, *MPC* 20913), K. Ichikawa (*MPC* 29097)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i>	204.06043		(2000.0)		P		Q				
<i>n</i>	0.17665162	ω	288.19811		+0.79067378		+0.60968697				
<i>a</i>	3.1457507	Ω	34.29758		-0.51760109		+0.71437293				
<i>e</i>	0.1638524	<i>i</i>	5.68593		-0.32699250		+0.34344303				
<i>P</i>	5.58	<i>H</i>	12.5		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
1979 09 23	095	0.5+	2.1-	1996 10 21	691	0.6-	0.7+	1999 03 17	621	0.4-	0.1-
1979 10 14	095	0.9+	0.7-	1996 10 21	691	0.5-	0.5+	1999 03 17	621	0.7-	0.1+
1990 09 22	809	0.4+	1.1+	1996 10 21	691	1.8-	0.2+	1999 03 17	621	0.8-	0.1-
1990 09 22	809	0.6-	0.9+	1997 12 27	566	0.4+	1.5-	1999 03 17	621	0.5-	0.2-
1990 09 22	809	0.3-	0.7+	1997 12 27	566	0.2+	1.4-	1999 03 17	621	0.7-	0.3-
1990 09 25	809	0.6+	0.5-	1997 12 27	566	0.0	1.0-	1999 03 20	704	0.3-	0.3+
1990 09 25	809	0.9+	0.7-	1998 02 23	327	0.5-	0.1-	1999 03 20	704	0.1-	1.4+
1990 09 25	809	0.5-	0.9-	1998 02 23	327	0.4-	0.1-	1999 03 20	704	0.2-	1.7+
1990 10 22	675	1.5-	1.4+	1998 02 23	327	0.1-	0.1-	1999 03 20	704	0.4+	0.3-
1990 10 22	675	(3.0-	1.8+)	1999 02 18	699	0.6+	0.6-	1999 03 20	704	2.0+	1.0+
1996 10 07	691	0.4+	0.2+	1999 02 18	699	0.0	0.9+	1999 03 20	910	1.3+	0.0
1996 10 07	691	0.3+	0.6+	1999 02 18	699	1.3+	0.3+	1999 03 21	910	1.3+	0.1+
1996 10 07	691	0.2+	0.5+	1999 03 16	621	0.6-	0.3-	1999 03 21	910	1.3+	0.1+
1996 10 12	691	0.1+	0.4+	1999 03 16	621	0.5-	0.3-	1999 03 23	704	1.1-	0.1-
1996 10 12	691	0.0	0.3+	1999 03 16	621	0.5-	0.3-	1999 03 23	704	1.5+	0.7-
1996 10 12	691	0.3+	0.3+	1999 03 17	621	0.2-	0.3-	1999 03 23	704	0.2-	0.3-
1996 10 18	691	0.2-	0.3+	1999 03 17	621	0.6-	0.0	1999 03 23	704	0.3+	0.1+
1996 10 18	691	0.2-	0.4+	1999 03 17	621	0.2+	0.9+	1999 03 23	704	0.2-	1.1+
1996 10 18	691	0.2-	0.2+	1999 03 17	621	0.6-	0.0				

(10317)* 1990 SA₁₅ = 1996 LL₁

Discovered 1990 Sept. 17 by H. E. Holt at Palomar.

Id. T. B. Spahr (*MPC* 30654)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	106.34600		(2000.0)		P		Q				
n	0.28599454	ω	158.71483		+0.62604396		-0.77620528				
a	2.2815547	Ω	252.44818		+0.70365846		+0.60359148				
e	0.1344389	i	4.49126		+0.33605614		+0.18216116				
P	3.45	H	14.2		G	0.15	U	2			
Residuals in seconds of arc											
1990 09 17	675	0.3+	0.8-	1996 06 15	566	0.4+	0.4-	1999 02 23	704	1.1+	1.4+
1990 09 17	675	0.4-	0.4-	1996 06 15	566	0.4+	0.3-	1999 02 23	704	0.9-	0.7+
1990 09 19	675	0.2+	0.3-	1996 06 15	566	0.5+	0.5-	1999 02 23	704	0.9-	0.0
1990 09 19	675	0.5+	0.3-	1997 10 26	688	0.1+	0.5+	1999 02 23	704	1.0-	0.8-
1990 09 22	095	(2.7-	3.8-)	1997 10 26	688	0.1+	0.6+	1999 03 20	704	0.9+	0.6-
1990 09 22	095	(1.7-	2.9-)	1997 10 27	688	0.2+	0.3+	1999 03 20	704	0.2+	0.1+
1990 09 24	046	0.1+	1.9+	1997 10 27	688	0.0	0.5+	1999 03 20	704	0.2+	0.0
1990 09 24	046	1.0-	1.0+	1997 12 30	566	0.2-	0.3-	1999 03 20	704	0.1+	0.7+
1996 05 15	566	0.9-	0.4+	1997 12 30	566	0.1-	0.1-	1999 03 20	704	0.6+	0.6+
1996 05 15	566	0.9-	0.5+	1997 12 30	566	0.0	0.4-	1999 03 23	704	0.6+	0.4+
1996 05 15	566	1.3-	0.8+	1998 01 28	566	0.6-	0.2-	1999 03 23	704	0.9+	0.1-
1996 06 12	566	0.3+	0.2+	1998 01 28	566	0.5-	0.1-	1999 03 23	704	0.0	0.5+
1996 06 12	566	0.9+	0.1-	1998 01 28	566	0.3-	0.3-	1999 03 23	704	0.7+	0.3-
1996 06 12	566	0.2+	0.5-	1999 02 23	704	1.0-	1.0+	1999 03 23	704	0.4-	1.1-

(10318)* 1990 TX = 1965 UE₂ = 1965 WS = 1982 JF₁

Discovered 1990 Oct. 15 by T. Nomura and K. Kawanishi at Minami-Oda.

Id. R. Nagata (*MPC* 17451), S. Nakano (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

M	116.51519		(2000.0)		P		Q
n	0.27510065	ω	298.69141		+0.96469018		-0.25230573
a	2.3413966	Ω	76.00644		+0.26056142		+0.87225784
e	0.2666144	i	4.46830		+0.03847863		+0.41893684
P	3.58	H	14.0		G 0.15		U 2

Residuals in seconds of arc

1965 10 24	330	2.0+	2.1+	1997 08 27	423	0.3+	0.6+	1997 12 28	566	0.8-	1.2-
1965 11 26	330	(1.8+	5.4+)	1997 08 27	423	1.0+	0.2+	1997 12 28	566	1.7-	1.4-
1982 05 15	675	2.4-	0.1+	1997 08 27	423	0.3+	0.5+	1997 12 28	566	1.7-	0.9-
1982 05 16	675	(3.9-	0.7-)	1997 08 27	423	0.3+	0.2+	1999 02 10	704	0.0	0.1+
1982 05 16	675	2.4-	1.5+	1997 08 28	423	0.3+	0.2-	1999 02 10	704	0.8-	0.6+
1982 05 17	675	2.3-	0.2+	1997 08 28	423	0.2+	0.3-	1999 02 10	704	0.5-	0.6+
1982 05 18	675	1.1-	1.3-	1997 08 28	423	0.1-	0.3-	1999 02 10	704	1.6+	1.0-
1989 05 07	675	(6.4-	0.9+)	1997 08 28	423	0.5+	0.4+	1999 02 10	704	0.8-	0.1+
1990 10 15	675	0.2+	0.3-	1997 08 30	566	0.3-	0.6+	1999 02 13	704	0.6+	0.6+
1990 10 15	675	1.1-	0.0	1997 08 30	566	0.4-	0.3+	1999 02 13	704	0.1-	0.1+
1990 10 15	374	0.6+	1.3-	1997 08 30	566	0.1+	0.6+	1999 02 13	704	1.7+	0.5+
1990 10 15	374	0.4-	1.0-	1997 08 31	952	0.0	0.3+	1999 02 13	704	0.6+	0.3-
1990 10 17	675	0.9-	0.8+	1997 08 31	952	0.1-	0.5+	1999 02 13	704	1.3-	0.9-
1990 10 17	675	1.0-	0.2-	1997 09 01	566	0.1+	0.1+	1999 02 18	699	1.2+	1.0+
1990 10 18	871	(3.7-	1.8+)	1997 09 01	566	0.3+	0.2+	1999 02 18	699	0.1+	0.4+
1990 10 18	871	(4.5-	0.6+)	1997 09 01	566	0.1-	0.3+	1999 02 18	699	1.6+	0.7+
1990 10 20	374	1.2-	0.5-	1997 09 02	566	0.1+	0.3+	1999 03 20	704	0.6+	0.2-
1990 10 20	374	0.2-	1.2-	1997 09 02	566	0.2-	0.4+	1999 03 20	704	0.1+	1.4-
1990 10 26	871	(2.4-	2.8+)	1997 09 02	566	0.2-	0.2+	1999 03 20	704	0.1-	0.7+
1990 10 26	871	(4.5-	3.3+)	1997 09 03	952	0.2-	1.6+	1999 03 20	704	0.1-	0.9+
1990 11 10	871	(4.2-	4.2-)	1997 09 05	952	0.7+	1.3+	1999 03 23	704	2.1+	1.5+
1990 11 10	871	(1.0-	5.1-)	1997 10 25	124	(3.1-	0.0)	1999 03 23	704	1.7+	0.6+
1990 11 11	374	(1.9-	3.1-)	1997 10 25	124	0.3-	1.8+	1999 03 23	704	1.9+	2.2+
1997 08 23	367	0.2+	0.1-	1997 10 26	124	0.4+	0.2+	1999 03 23	704	1.1-	0.4-
1997 08 23	367	0.1+	0.2+	1997 10 26	124	0.6+	0.3-				
1997 08 27	423	0.6+	0.6+	1997 10 26	124	0.2+	0.6-				

(10319)* 1990 TB₁ = 1992 CX₃ = 1992 DK₄

Discovered 1990 Oct. 11 by A. Takahashi and K. Watanabe at Kitami.
Id. G. V. Williams (*MPC* 20336)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	211.78335	(2000.0)	
<i>n</i>	0.28592713	ω	301.37796
<i>a</i>	2.2819133	Ω	0.08336
<i>e</i>	0.1428426	<i>i</i>	7.80128
<i>P</i>	3.45	<i>H</i>	14.2
Residuals in seconds of arc			
1990 10 11	400	0.1+	0.6-
1990 10 11	400	(3.5-	1.8-)
1990 10 11	400	(2.4+	0.7+)
1990 10 15	400	0.2+	1.0+
1990 10 15	400	1.1+	0.0
1990 10 15	400	0.6-	0.5-
1990 10 22	400	0.2+	0.7-
1990 10 22	400	1.8+	0.8-
1990 11 21	400	0.2+	1.2+
1990 11 21	400	(2.8+	0.7-)
1992 02 08	033	0.3+	0.4-
1992 02 08	033	0.1+	0.0
1992 02 09	033	1.9-	0.6+
1992 02 27	033	0.1-	0.4+
1992 02 27	033	0.0	0.6+

Residuals in seconds of arc

1990 10 11	400	0.1+	0.6-	1992 02 28	033	1.0-	0.3+	1999 02 10	704	0.2-	0.1+
1990 10 11	400	(3.5-	1.8-)	1992 02 29	033	0.1-	0.7+	1999 02 10	704	0.5+	0.6-
1990 10 11	400	(2.4+	0.7+)	1996 04 19	801	0.3-	0.3-	1999 02 13	704	1.0-	0.2-
1990 10 15	400	0.2+	1.0+	1996 04 19	801	0.8-	0.3-	1999 02 13	704	0.2+	1.3+
1990 10 15	400	1.1+	0.0	1996 04 22	801	0.1+	0.0	1999 02 13	704	1.0-	0.4-
1990 10 15	400	0.6-	0.5-	1996 04 22	801	0.5-	0.2-	1999 02 13	704	1.2-	0.3-
1990 10 22	400	0.2+	0.7-	1996 05 14	566	0.0	0.2+	1999 02 13	704	1.2-	0.2+
1990 10 22	400	1.8+	0.8-	1996 05 14	566	0.2+	0.3+	1999 02 23	699	0.8+	0.4-
1990 11 21	400	0.2+	1.2+	1996 05 14	566	0.0	0.2+	1999 02 23	699	0.6+	0.2-
1990 11 21	400	(2.8+	0.7-)	1997 10 29	566	1.0-	0.1+	1999 02 23	699	0.7+	0.3+
1992 02 08	033	0.3+	0.4-	1997 10 29	566	1.1-	0.1+	1999 03 20	704	0.6+	0.7-
1992 02 08	033	0.1+	0.0	1997 10 29	566	0.7-	0.1-	1999 03 20	704	0.6+	0.6-
1992 02 09	033	1.9-	0.6+	1999 02 10	704	0.7-	0.3-	1999 03 20	704	0.5-	0.1+
1992 02 27	033	0.1-	0.4+	1999 02 10	704	0.7+	0.5-	1999 03 20	704	1.7+	0.1-
1992 02 27	033	0.0	0.6+	1999 02 10	704	0.9+	0.4-	1999 03 20	704	2.0+	0.6-

(10320)* 1990 TR₁ = 1996 FC

Discovered 1990 Oct. 14 by E. F. Helin at Palomar.

Id. G. V. Williams (*MPC* 26901)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	202.99595	(2000.0)	
<i>n</i>	0.28475076	ω	126.24502
<i>a</i>	2.2881937	Ω	184.19999
<i>e</i>	0.1332007	<i>i</i>	6.33752
<i>P</i>	3.46	<i>H</i>	14.0
Residuals in seconds of arc			
1990 10 11	400	0.1+	0.6-
1990 10 11	400	(3.5-	1.8-)
1990 10 11	400	(2.4+	0.7+)
1990 10 15	400	0.2+	1.0+
1990 10 15	400	1.1+	0.0
1990 10 15	400	0.6-	0.5-
1990 10 22	400	0.2+	0.7-
1990 10 22	400	1.8+	0.8-
1990 11 21	400	0.2+	1.2+
1990 11 21	400	(2.8+	0.7-)
1992 02 08	033	0.3+	0.4-
1992 02 08	033	0.1+	0.0
1992 02 09	033	1.9-	0.6+
1992 02 27	033	0.1-	0.4+
1992 02 27	033	0.0	0.6+

Residuals in seconds of arc

1990 10 14	675	1.3-	0.8+	1996 03 16	566	1.8-	0.3-	1996 05 18	691	0.5+	0.3-
1990 10 14	675	0.4-	0.1+	1996 03 16	566	1.6-	0.2+	1996 05 18	691	0.9+	0.1-
1990 10 16	675	0.1-	0.9+	1996 03 17	566	0.2-	0.4+	1999 02 13	747	0.3-	1.1+
1990 10 16	675	1.0+	0.7+	1996 03 17	566	0.5-	0.4+	1999 02 13	747	0.1-	0.9+
1990 11 18	675	0.1-	0.9+	1996 03 17	566	0.2-	0.4+	1999 02 13	747	0.0	0.5+
1990 11 18	675	(3.1-	0.6-)	1996 03 21	566	0.4+	0.2+	1999 02 13	747	0.0	0.5+
1993 06 22	675	(2.3-	0.2-)	1996 03 21	566	0.3+	0.1-	1999 02 15	747	0.2-	0.9+
1993 06 22	675	1.0+	0.3-	1996 03 21	566	0.4+	0.5+	1999 02 15	747	0.0	0.9+
1993 06 25	675	(1.3-	2.4-)	1996 03 24	809	0.3-	0.3-	1999 02 16	704	0.3+	0.7+
1993 06 25	675	(0.6-	2.8-)	1996 03 24	809	0.3-	0.8+	1999 02 16	704	0.1+	1.8+
1993 07 16	675	0.4-	1.7+	1996 03 24	809	0.7-	0.2-	1999 02 16	704	0.6+	1.5+
1993 07 16	675	1.4-	1.3+	1996 03 25	608	1.5+	1.1-	1999 02 16	704	0.1+	0.9+
1993 07 20	675	0.4+	1.8+	1996 03 25	608	1.3+	0.9-	1999 02 16	704	0.7+	0.8+
1993 07 20	675	(0.7+	2.2+)	1996 03 26	809	(2.4+	1.5+)	1999 02 21	699	0.5+	0.4-
1993 08 20	675	0.8-	1.4+	1996 03 26	809	(2.5+	2.9+)	1999 02 21	699	0.5+	0.7+
1993 08 20	675	(2.7-	1.2-)	1996 03 26	809	(2.1+	1.7+)	1999 02 21	699	0.2-	0.0
1993 08 22	675	(0.0	2.8+)	1996 04 09	608	0.1+	0.3-	1999 03 20	704	(1.0-	2.4-)
1993 08 22	675	0.1+	1.1+	1996 04 09	608	0.1+	0.4-	1999 03 20	704	0.1+	1.0+
1996 03 16	566	0.7-	0.2-	1996 05 18	691	0.9+	0.2-	1999 03 20	704	0.3+	1.7-

(10321)* 1990 UN₂ = 1996 HU₁₄

Discovered 1990 Oct. 26 by T. Seki at Geisei.

Id. B. G. Marsden (*MPC* 27307)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden			
<i>M</i>	174.81244	(2000.0)	
<i>n</i>	0.27722531	ω	278.23594
<i>a</i>	2.3294182	Ω	54.07609
<i>e</i>	0.0942090	<i>i</i>	6.06509
<i>P</i>	3.56	<i>H</i>	14.4
Residuals in seconds of arc			
1990 10 26	372	0.8+	1.2+
1990 10 26	372	1.3+	0.3-
1990 10 27	372	(5.2-	1.9+)
1990 10 27	372	0.8-	0.1+
1990 11 11	372	0.9-	1.4+
1990 11 13	372	0.4-	0.3-
1990 11 15	372	0.2+	0.2-
1990 11 15	372	0.5+	0.5-
1990 11 17	372	0.2+	1.7-
1990 11 17	372	0.8-	0.9-
1990 11 21	372	(1.6+	2.7+)
1990 11 21	372	(2.5+	2.8+)
1990 11 23	372	0.3-	0.0
1990 11 23	372	0.6+	0.6+
1996 04 17	809	0.6-	1.7-
1996 04 17	809	1.2-	1.1-
1996 04 17	809	0.7-	1.5-

Residuals in seconds of arc

1990 10 26	372	0.8+	1.2+	1996 04 18	809	1.3+	0.3-	1997 12 27	426	0.6+	0.5-
1990 10 26	372	1.3+	0.3-	1996 04 18	809	1.4+	0.8-	1997 12 29	688	0.9+	0.5-
1990 10 27	372	(5.2-	1.9+)	1996 04 18	809	1.6+	1.1-	1997 12 29	688	0.3-	0.4+
1990 10 27	372	0.8-	0.1+	1996 05 14	566	0.3+	0.1+	1999 02 10	704	0.2-	0.5+
1990 11 11	372	0.9-	1.4+	1996 05 14	566	0.9-	1.2+	1999 02 10	704	0.5+	0.5+
1990 11 13	372	0.4-	0.3-	1996 05 14	566	0.6+	0.4+	1999 02 10	704	1.2+	0.6+
1990 11 15	372	0.2+	0.2-	1996 05 14	566	1.1-	1.1+	1999 02 10	704	0.9-	0.9+
1990 11 15	372	0.5+	0.5-	1996 05 14	566	0.1+	0.0	1999 02 10	704	1.3+	0.9+
1990 11 17	372	0.2+	1.7-	1996 05 14	566	1.5-	1.5+	1999 02 13	704	0.4-	0.3-
1990 11 17	372	0.8-	0.9-	1997 12 25	426	1.5+	0.3-	1999 02 13	704	0.2-	0.5+
1990 11 21	372	(1.6+	2.7+)	1997 12 25	426	0.6+	0.0	1999 02 13	704	0.7-	0.2+
1990 11 21	372	(2.5+	2.8+)	1997 12 25	426	0.1+	0.7+	1999 02 13	704	0.2+	0.0
1990 11 23	372	0.3-	0.0	1997 12 26	566	1.5-	0.4-	1999 03 15	704	1.6+	0.3+
1990 11 23	372	0.6+	0.6+	1997 12 26	566	0.7-	0.1+	1999 03 15	704	1.3-	2.0-
1996 04 17	809	0.6-	1.7-	1997 12 26	566	1.2-	0.2-	1999 03 15	704	0.2+	0.3-
1996 04 17	809	1.2-	1.1-	1997 12 27	426	0.4+	0.2-	1999 03 15	704	0.9-	1.0-
1996 04 17	809	0.7-	1.5-	1997 12 27	426	0.6+	0.8-				

M.P.C. 34142

1990 11 11	400	0.2−	1.6+	1997 12 06	910	1.4−	0.2−	1999 03 21	691	0.6+	0.5−
1990 11 11	400	1.2+	1.3+	1997 12 06	910	1.2−	0.1−	1999 03 21	691	0.6+	0.4−
1990 11 13	400	0.3+	0.1+	1997 12 06	910	1.2−	0.2−	1999 03 21	691	0.8+	0.5−
1990 11 13	400	0.6+	0.9−	1999 02 16	704	0.3+	0.1−	1999 03 23	704	0.6+	1.1+
1990 12 08	400	0.4+	0.2+	1999 02 16	704	0.3+	0.8+	1999 03 23	704	1.9−	0.6+
1990 12 08	400	(1.1−	2.6+)	1999 02 16	704	1.1+	0.9−	1999 03 23	704	0.2+	0.0
1996 04 18	809	(1.4+	3.1+)	1999 02 16	704	(1.4−	2.4−)	1999 03 23	704	(2.3+	0.5−)
1996 04 18	809	(1.0+	3.3+)	1999 03 20	704	0.6+	0.1−				

(10323)* 1990 VW₆ = 1992 EZ₄

Discovered 1990 Nov. 14 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 23781)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	196.24495		(2000.0)		P		Q	
n	0.28678917	ω	235.55374		+0.81176288		+0.57981118	
a	2.2773383	Ω	88.91214		−0.51032187		+0.76233117	
e	0.1773205	i	3.99828		−0.28392362		+0.28752423	
P	3.44	H	14.4		G	0.15	U	2

Residuals in seconds of arc

1990 11 11	809	(2.3+	2.9−)	1992 02 26	691	0.3+	0.3−	1997 12 04	704	0.6−	1.7+
1990 11 11	809	(2.5+	2.6−)	1992 03 01	809	0.7−	2.0+	1999 02 22	699	1.3+	0.6+
1990 11 11	809	(2.7+	2.5−)	1992 03 04	809	0.2−	0.2+	1999 02 22	699	0.7+	0.2−
1990 11 11	385	(5.0+	1.0+)	1992 03 06	809	0.8+	1.0−	1999 02 22	699	0.7+	0.2−
1990 11 11	385	(3.7+	1.9+)	1992 04 04	809	0.0	0.6+	1999 02 25	012	0.3+	0.7−
1990 11 14	809	(1.0+	3.0−)	1995 01 07	104	0.4−	0.1+	1999 02 25	012	0.1−	0.1−
1990 11 14	809	(3.9+	2.9−)	1995 01 07	104	0.3−	0.2+	1999 02 25	012	0.6+	1.1−
1990 11 14	809	(4.1+	3.3−)	1995 01 07	104	0.4+	0.0	1999 02 25	012	0.3−	0.3+
1990 11 16	385	0.2−	0.3+	1997 11 26	566	0.1−	0.1−	1999 02 25	012	1.0−	0.4−
1990 11 17	809	1.0−	0.3+	1997 11 26	566	0.8−	0.0	1999 03 20	704	0.2+	0.4−
1990 11 17	809	1.0−	0.7−	1997 11 26	566	0.1−	0.3+	1999 03 20	704	0.5−	0.1−
1990 11 17	809	0.5−	0.9−	1997 11 29	704	0.2−	0.5−	1999 03 20	704	0.6−	0.3+
1990 11 20	809	1.6+	1.4−	1997 11 29	704	0.2−	0.6−	1999 03 20	704	0.0	0.5+
1990 11 20	809	1.2+	0.3−	1997 11 29	704	0.1+	0.4+	1999 03 20	704	0.3−	0.2+
1990 11 20	809	0.4+	0.5+	1997 11 29	704	1.1−	0.1−	1999 03 23	704	0.3+	0.9+
1990 11 22	385	0.1−	0.1+	1997 12 04	704	0.6+	0.4+	1999 03 23	704	0.2+	0.3−
1990 11 22	385	0.5+	0.2−	1997 12 04	704	1.3+	0.4+	1999 03 23	704	0.1−	0.1+
1992 02 26	691	0.5+	0.2−	1997 12 04	704	0.9+	0.1−	1999 03 23	704	2.4−	1.3−
1992 02 26	691	0.1+	0.2−	1997 12 04	704	(0.2−	2.1+)				

(10324)* 1990 VB₁₄ = 1993 OY₈

Discovered 1990 Nov. 14 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Id. B. G. Marsden (*MPC* 22686)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	64.84410		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$
n	0.26123284	ω	123.83369		+0.53768466		−0.84275151
a	2.4235438	Ω	293.61965		+0.76397343		+0.49990781
e	0.1987152	i	1.61295		+0.35670690		+0.19965488
P	3.77	H	14.5	G	0.15	U	1

Residuals in seconds of arc

1990 11 14	095	1.0−	0.7−	1995 02 02	691	0.2+	0.3−	1997 08 14	118	0.8−	0.3−
1990 11 14	095	1.6−	0.8−	1995 02 02	691	0.1+	0.3+	1997 08 14	118	0.6−	0.0
1990 11 18	049	0.3−	0.1−	1995 02 02	691	0.1−	0.3+	1997 08 14	118	0.7−	0.0
1990 11 18	049	0.6−	0.1−	1997 07 30	816	0.3+	0.6+	1999 02 12	699	1.5+	0.4+
1990 11 20	095	1.5+	0.9+	1997 07 30	816	0.1+	0.2+	1999 02 12	704	0.6+	0.1−
1990 11 20	095	1.1+	0.7−	1997 07 30	816	0.1+	0.5+	1999 02 12	704	0.2−	0.7+
1990 12 20	049	0.1+	0.8−	1997 07 31	816	0.3−	0.8+	1999 02 12	699	0.3+	0.7+
1990 12 20	049	0.0	0.8+	1997 07 31	816	0.1−	0.8+	1999 02 12	704	0.5−	0.4+
1993 07 13	809	0.5+	0.5−	1997 07 31	816	0.1+	0.9+	1999 02 12	704	0.3−	0.1+
1993 07 13	809	0.6+	0.3+	1997 08 01	816	0.1+	0.9+	1999 02 12	704	0.7−	0.9−
1993 07 13	809	0.1−	0.5−	1997 08 01	816	0.1−	0.5+	1999 02 16	704	0.2−	1.1−
1993 07 19	809	0.4+	1.3−	1997 08 01	816	0.1+	0.4+	1999 02 16	704	0.0	0.8−

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1993 07 19	809	0.4+	1.6−	1997 08 01	816	0.1−	0.8+	1999 02 16	704	0.8+	0.3−
1993 07 19	809	0.3−	1.2−	1997 08 04	118	0.4+	0.0	1999 02 16	704	0.5+	0.1−
1993 07 20	809	0.5+	0.8−	1997 08 04	118	0.0	0.1+	1999 02 16	704	0.5+	0.4+
1993 07 20	809	0.7−	0.7−	1997 08 04	118	0.1−	0.3−	1999 03 20	704	0.2+	1.2+
1993 07 20	809	1.4−	0.6−	1997 08 05	118	0.5+	1.0−	1999 03 20	704	0.5+	1.8−
1993 07 24	809	1.5+	1.9+	1997 08 05	118	0.6−	0.4−	1999 03 20	704	1.2−	0.4−
1994 12 28	411	1.6+	0.9−	1997 08 06	118	0.0	0.3−	1999 03 20	704	0.6−	0.8+
1994 12 28	411	(2.6+	1.1+)	1997 08 06	118	0.1+	0.2+	1999 03 20	704	2.6−	1.9+

(10325)* 1990 WB₂ = 1977 EQ = 1978 NG₇

Discovered 1990 Nov. 18 by E. W. Elst at the European Southern Observatory.

Id. H. Kaneda (*MPC* 18435)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	350.12451		(2000.0)		P		Q
n	0.27103904	ω	61.30135		−0.98238283		−0.14408563
a	2.3647296	Ω	110.20360		+0.09353140		−0.93041052
e	0.1457970	i	7.28542		+0.16178953		−0.33700980
P	3.64	H	14.2	G	0.15	U	1

Residuals in seconds of arc

1977 03 09	095	0.9−	1.5−	1992 04 29	801	0.2−	0.9+	1997 10 30	566	1.2−	0.3−
1977 03 13	095	0.3−	0.6+	1992 04 29	801	0.2+	0.7+	1997 10 30	566	1.4−	0.2−
1978 07 10	675	(9.6+	3.7−)Y	1992 05 06	801	0.5−	1.1+	1999 02 23	699	0.2−	0.5+
1978 07 11	675	(2.0−	7.7+)	1992 05 06	801	0.1−	1.0+	1999 02 23	699	0.3−	0.5+
1978 07 13	675	(0.8−	6.9+)	1992 05 29	801	0.7+	0.6−	1999 02 23	699	0.3+	0.5+
1990 11 11	809	0.6+	0.2+	1992 05 29	801	0.4+	1.1−	1999 03 15	704	0.3+	0.3−
1990 11 11	809	0.5+	0.0	1992 06 03	801	0.6+	0.1−	1999 03 15	704	0.7+	0.7−
1990 11 11	809	0.6+	0.8+	1992 06 03	801	0.4+	0.2−	1999 03 15	704	0.6+	0.7−
1990 11 18	809	0.1−	0.7−	1993 07 26	675	0.3−	0.4−	1999 03 15	704	0.1−	0.6−
1990 11 18	809	0.4+	1.2+	1993 09 18	675	0.2+	0.3−	1999 03 15	704	0.2+	0.0
1990 11 18	809	0.2−	0.1−	1993 09 18	675	0.5+	0.6+	1999 03 16	367	1.3−	0.3−
1990 11 20	809	1.1+	0.8+	1993 10 09	675	0.4+	1.2−	1999 03 16	367	0.9−	0.4−
1990 11 20	809	0.4−	0.5+	1993 10 09	675	0.8+	1.7−				
1990 11 20	809	0.4+	0.2+	1997 10 30	566	1.3−	0.5−				

(10326)* 1990 WS₂ = 1975 VQ₉ = 1979 XW

Discovered 1990 Nov. 21 by K. Endate and K. Watanabe at Kitami.

Id. H. Kaneda (*MPC* 17647)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

$\dot{M}$	74.01035		(2000.0)		P		Q
n	0.26635006	ω	279.46401		+0.35040151		−0.93631370
a	2.3924022	Ω	149.99179		+0.87644614		+0.31908556
e	0.1796662	i	2.65187		+0.33024375		+0.14663239
P	3.70	H	14.0	G	0.15	U	1

Residuals in seconds of arc

1975 11 09	381	0.2+	0.4−	1995 01 31	691	0.1+	0.6−	1998 12 23	704	0.2+	0.5−
1975 11 09	381	0.2+	1.5−	1995 01 31	691	0.2+	0.8−	1998 12 23	704	0.4−	0.6−
1979 12 14	095	0.2−	1.3+	1995 02 03	399	2.0−	1.2+	1999 02 24	691	0.5+	1.0−
1990 11 14	675	0.6+	0.3+	1995 02 03	399	1.7−	1.3+	1999 02 24	691	0.0	0.5−
1990 11 14	675	0.8+	0.8+	1995 02 06	399	1.9−	1.7+	1999 02 24	691	0.1−	0.6−
1990 11 21	400	0.3−	0.3+	1995 02 06	399	(4.0−	1.8+)	1999 03 20	704	0.5+	0.3+
1990 11 21	400	1.7+	1.0+	1997 09 26	118	0.2+	1.5+	1999 03 20	704	0.6+	1.3+
1990 11 24	400	(3.4+	1.4+)	1997 09 26	118	0.2+	1.4+	1999 03 20	704	0.9+	0.6+
1990 11 24	400	(4.2+	2.5−)	1997 09 27	118	0.3+	0.9+	1999 03 20	704	0.7+	0.2+
1990 12 13	400	(4.9+	1.9+)	1997 09 27	118	0.2−	0.2+	1999 03 22	699	0.0	0.4+
1990 12 13	400	(5.7+	0.5+)	1997 09 27	118	0.1+	0.0	1999 03 22	699	0.6+	0.7+
1990 12 20	400	(2.9+	0.1−)	1997 09 28	118	1.0−	0.3−	1999 03 22	699	0.4+	0.2+
1990 12 20	400	(3.7+	0.5+)	1997 09 28	118	1.1−	0.2−	1999 03 23	704	0.5+	0.6+
1993 08 13	675	0.3+	0.4+	1997 09 28	118	1.1−	0.5−	1999 03 23	704	0.4−	0.8+
1993 08 13	675	0.8−	2.1+	1998 12 23	704	0.4−	0.1−	1999 03 23	704	0.6+	0.6+
1995 01 31	691	1.3+	1.0−	1998 12 23	704	0.4−	1.4−	1999 03 23	704	0.2+	0.6+

(10327)* 1990 WQ₆ = 1993 PX₂ = 1996 KE₄

Discovered 1990 Nov. 21 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 27912)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		<i>P</i>		<i>Q</i>	
164.11449		(2000.0)			
<i>n</i>	0.27547280	ω	173.84618	+0.98503864	+0.17226215
<i>a</i>	2.3392873	Ω	176.22361	−0.16115257	+0.93095186
<i>e</i>	0.1314217	<i>i</i>	4.32183	−0.06106334	+0.32195403
<i>P</i>	3.58	<i>H</i>	14.9	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1990 11 14	675	2.0−	0.5+	1996 05 24	809	(4.6+	2.3+)	1997 12 27	688	1.7−	1.0+
1990 11 14	675	1.7−	0.0	1997 10 29	704	1.4+	0.3+	1999 02 16	704	0.5−	0.2+
1990 11 16	809	0.1+	1.4−	1997 10 29	704	0.6+	0.1+	1999 02 16	704	0.1−	0.0
1990 11 21	809	1.0+	0.2+	1997 10 29	704	0.2+	0.3−	1999 02 16	704	0.7+	1.8+
1990 11 21	809	0.1−	0.3+	1997 10 29	704	0.0	0.6+	1999 02 16	704	(0.1−	3.1+)
1990 11 21	809	0.6+	0.3+	1997 10 30	704	1.0+	0.0	1999 03 16	691	0.6+	0.0
1990 11 22	809	0.9+	1.2−	1997 10 30	704	1.7+	1.9−	1999 03 16	691	0.9+	0.2−
1990 11 22	809	1.1+	0.9−	1997 10 30	704	0.5+	0.2−	1999 03 16	691	0.6+	0.3−
1990 11 22	809	(2.9+	0.0)	1997 10 30	704	1.7+	1.9−	1999 03 19	691	0.1−	0.4−
1993 08 13	691	0.4+	0.2+	1997 10 30	704	0.3+	0.1−	1999 03 19	691	0.2+	0.3−
1993 08 13	691	0.6+	0.1+	1997 10 30	704	(2.3+	1.9−)	1999 03 19	691	0.1+	0.5−
1993 08 13	691	0.3+	0.2+	1997 10 30	704	0.7+	0.1+	1999 03 20	704	0.5+	1.6−
1993 08 14	010	(2.2+	0.1−)	1997 10 30	704	(2.7+	1.2−)	1999 03 20	704	1.2+	0.2−
1993 08 14	010	0.6+	0.7−	1997 10 30	704	0.1−	1.0−	1999 03 20	704	0.1+	1.3+
1993 08 14	010	0.2−	0.4+	1997 10 31	704	2.0−	0.4+	1999 03 20	704	0.1−	1.6−
1993 08 15	010	(3.0+	1.4−)	1997 10 31	704	2.0−	1.0+	1999 03 20	704	1.5−	0.1+
1996 05 22	809	0.9−	0.7−	1997 10 31	704	(2.5−	0.7+)	1999 03 23	704	0.2+	1.7−
1996 05 22	809	1.4−	0.3−	1997 10 31	704	2.0−	0.9+	1999 03 23	704	0.0	2.9+
1996 05 22	809	1.2−	0.4+	1997 10 31	704	(2.2−	0.2−)	1999 03 23	704	0.9−	0.1+
1996 05 24	809	(2.9+	2.4+)	1997 12 27	688	1.4−	0.4+	1999 03 23	704	1.1+	1.3−
1996 05 24	809	(3.7+	2.4+)	1997 12 27	688	1.2−	1.0+				

(10328)* 1991 GC₁ = 1983 GL₂ = 1995 HN

Discovered 1991 Apr. 10 by E. F. Helin at Palomar.

Id. S. Nakano (*MPC* 25214), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		<i>P</i>		<i>Q</i>	
310.50251		(2000.0)			
<i>n</i>	0.24421917	ω	222.22097	−0.54688384	+0.83492664
<i>a</i>	2.5348342	Ω	14.96953	−0.68991896	−0.40764642
<i>e</i>	0.2084569	<i>i</i>	13.83562	−0.47426775	−0.36975925
<i>P</i>	4.04	<i>H</i>	14.1	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1983 04 10	095	(4.8+	14.0+)	1991 05 08	675	(3.2−	0.6−)	1996 10 15	292	(4.1−	1.6−)
1991 03 16	809	1.6+	0.3−	1991 05 12	675	(2.5−	0.1+)	1997 12 06	704	0.2−	0.2−
1991 03 16	809	1.5+	0.1−	1991 05 12	675	(3.2−	0.7+)	1997 12 06	704	1.2+	1.0−
1991 03 16	809	1.6+	0.2−	1995 04 20	399	0.8−	0.5−	1997 12 06	704	1.0−	1.0−
1991 03 18	809	0.3−	1.3+	1995 04 20	399	(3.0−	1.7+)	1997 12 06	704	0.5+	1.8+
1991 03 18	809	0.3+	0.9+	1995 04 27	399	(3.8−	1.2−)	1997 12 06	704	(1.9−	2.6+)
1991 03 18	809	1.0+	0.9+	1995 04 27	399	(4.3−	1.4−)	1999 02 26	704	(1.3+	2.3+)
1991 04 08	809	0.1−	0.6−	1996 08 07	608	0.2+	1.5+	1999 02 26	704	1.3+	1.5+
1991 04 08	809	0.5−	0.1+	1996 08 07	608	0.1+	1.2+	1999 02 26	704	0.8+	0.0
1991 04 08	809	1.4−	1.0−	1996 08 16	608	0.3−	0.0	1999 03 19	704	0.5+	0.7−
1991 04 10	809	1.6+	0.7+	1996 08 16	608	0.2−	0.9−	1999 03 19	704	0.1+	0.1−
1991 04 10	809	1.5+	0.7+	1996 10 07	809	0.5+	0.2+	1999 03 19	704	0.8+	0.2−
1991 04 10	809	0.9+	1.7+	1996 10 07	809	1.7+	0.7+	1999 03 19	704	0.1−	0.5+
1991 04 10	675	0.3−	0.2−	1996 10 07	809	0.6+	0.3+	1999 03 20	704	0.0	0.7+
1991 04 10	675	0.6+	1.1−	1996 10 08	809	0.4−	0.6−	1999 03 20	704	0.3−	0.9−
1991 04 12	675	1.5−	1.8−	1996 10 08	809	0.4−	0.7−	1999 03 20	704	0.6−	0.4−
1991 04 12	675	1.9−	1.0−	1996 10 08	809	1.4+	1.2−	1999 03 20	704	1.2−	0.3−
1991 04 15	675	0.9−	0.4+	1996 10 10	809	0.0	1.4+	1999 03 23	704	0.1+	0.1+
1991 04 15	675	0.7−	0.4−	1996 10 10	809	0.5−	1.8+	1999 03 23	704	0.0	0.1−
1991 04 16	400	1.6−	1.0+	1996 10 10	809	0.9−	1.9+	1999 03 23	704	0.1+	0.5+

1991 04 16	400	1.6+	0.8+	1996 10 13	566	1.3−	1.1−	1999 03 23	704	0.2−	0.0
1991 04 18	400	(4.0−	0.7−)	1996 10 13	566	1.5−	0.8−	1999 03 23	704	0.1+	1.1+
1991 04 18	400	1.1−	0.2−	1996 10 13	566	1.7−	0.5−				
1991 05 08	675	(2.8−	0.7−)	1996 10 15	292	(2.3−	1.6−)				

(10329)* 1991 GJ₁ = 1989 WW₃

Discovered 1991 Apr. 11 by S. Ueda and H. Kaneda at Kushiro.

Id. E. Bowell (*MPC* 27912), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		<i>P</i>		<i>Q</i>	
11.95708		(2000.0)			
<i>n</i>	0.23778973	ω	97.04912	−0.65649893	−0.74173259
<i>a</i>	2.5803225	Ω	35.24502	+0.56341557	−0.60315675
<i>e</i>	0.1363372	<i>i</i>	13.76058	+0.50156957	−0.29331672
<i>P</i>	4.14	<i>H</i>	13.3	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1989 11 05	675	0.2+	1.5−	1993 10 14	675	0.2−	0.7−	1998 11 25	704	0.7−	1.0−
1989 11 05	675	0.5−	0.1−	1997 09 26	327	0.6−	0.2+	1998 11 25	704	0.2+	0.2+
1989 11 26	372	1.3+	0.6+	1997 09 26	327	0.3−	0.2+	1998 12 21	704	0.5+	1.1+
1989 11 28	372	(0.9−	4.0−)	1997 09 26	327	0.4−	0.2+	1998 12 21	704	0.1−	0.3+
1989 11 30	372	(3.2−	12.5−)	1997 09 26	327	0.4−	0.0	1998 12 21	704	0.1−	0.7+
1991 04 09	675	0.3−	0.4−	1997 09 28	327	0.2−	0.3+	1998 12 21	704	0.2−	0.1−
1991 04 09	675	1.1+	0.6+	1997 09 28	327	0.5−	0.2+	1998 12 21	704	0.0	0.6+
1991 04 11	399	1.5+	1.3−	1997 09 28	327	0.7−	0.1+	1999 02 11	704	0.7+	0.6+
1991 04 11	399	(2.3+	1.4−)	1997 09 28	327	1.0−	0.2−	1999 02 11	704	1.5+	0.1−
1991 04 12	675	1.3−	0.2+	1997 10 30	704	0.2+	0.3+	1999 02 11	704	0.9+	0.6−
1991 04 12	675	(2.5−	1.1−)	1997 10 30	704	0.1−	0.5+	1999 02 11	704	1.2+	0.0
1991 04 14	675	0.1−	0.3−	1997 10 30	704	0.3+	0.6+	1999 02 11	704	0.1−	0.7+
1991 04 14	675	0.1−	0.5+	1997 10 30	704	0.2+	0.1−	1999 02 18	704	1.0−	0.1+
1991 04 14	399	0.5+	0.1−	1997 10 30	704	0.4−	0.3+	1999 02 18	704	0.9−	0.3−
1991 04 14	399	(2.4−	1.3−)	1997 11 01	540	0.8+	0.7+	1999 02 18	704	0.0	0.8−
1991 04 16	675	0.6−	1.1+	1997 11 01	540	0.4+	0.2+	1999 02 18	704	0.9−	0.2+
1991 04 16	675	0.1+	0.9+	1997 11 01	540	0.1+	0.2+	1999 02 18	704	0.2−	0.7−
1991 04 18	399	(3.9+	0.7−)	1997 11 02	540	0.0	0.4+	1999 03 15	704	0.0	0.2−
1991 04 18	399	0.1+	1.3−	1997 11 02	540	0.1−	0.4+	1999 03 15	704	0.3−	0.7−
1991 05 17	675	0.3−	0.7+	1997 11 02	540	0.3−	0.0	1999 03 15	704	0.6+	0.9+
1991 05 17	675	0.5+	1.1+	1998 11 25	704	0.4−	0.2+	1999 03 15	704	0.0	1.2+
1993 10 14	675	0.3+	0.2−	1998 11 25	704	0.3+	0.8−				

(10330)* 1991 GH₃ = 1989 VQ₂ = 1993 TD₂

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

Id. K. Kinoshita (*MPC* 23516)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		<i>P</i>		<i>Q</i>	
61.81125		(2000.0)			
<i>n</i>	0.23996813	ω	189.47446	+0.09573191	−0.99527829
<i>a</i>	2.5646829	Ω	255.03335	+0.91435032	+0.09428490
<i>e</i>	0.1368747	<i>i</i>	0.94995	+0.39344491	+0.02305397
<i>P</i>	4.11	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1989 11 02	374	(3.9−	4.5+)	1993 10 15	400	0.3+	0.6−	1997 12 29	566	1.0−	0.7+
1989 11 02	374	(3.3−	1.0−)	1993 10 15	400	1.2−	0.7−	1999 01 22	120	0.4+	0.6+
1989 11 02	374	1.7−	0.9+	1993 10 16	400	1.0−	0.0	1999 01 22	120	0.2+	1

M.P.C. 34144

1991 04 19	809	1.5+	0.9-	1997 10 30	704	0.5+	0.1+	1999 03 23	704	0.0	1.1+
1991 05 15	675	0.4+	0.7+	1997 10 30	704	(2.1+	2.2-)	1999 03 23	704	0.3+	0.1-
1991 05 17	675	0.1+	1.4-	1997 12 29	566	1.7-	0.7+	1999 03 23	704	0.9-	0.1-
1991 05 17	675	1.6+	0.1+	1997 12 29	566	1.1-	0.5-				

(10331)* 1991 GM₁₀ = 1978 VX₁₂ = 1997 AL₂

Discovered 1991 Apr. 9 by F. Börngen at Tautenburg.

Id. S. Nakano (*MPC* 28845)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

M	224.81302		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$
n	0.12336349	ω	235.09499		+0.94226173		+0.32568192
a	3.9964859	Ω	105.78845		-0.27471847		+0.88485268
e	0.2267628	i	4.64560		-0.19150091		+0.33311712
P	7.99	H	11.4	G	0.15	U	1

Residuals in seconds of arc

1978 11 02	095	0.0	1.4+	1998 02 22	566	0.6+	0.7-	1999 01 22	910	0.1-	0.0
1991 04 09	033	0.6-	0.8+	1998 02 22	566	1.0+	0.9-	1999 01 22	910	0.2-	0.2+
1991 04 09	033	1.1-	0.5+	1998 02 23	113	0.3+	0.1-	1999 01 23	910	0.6-	0.3+
1991 04 11	033	1.2-	0.4+	1998 02 23	113	0.8+	0.1-	1999 01 23	910	0.4-	0.3+
1991 04 11	033	0.3-	0.6+	1998 02 23	113	0.4+	0.1-	1999 01 23	910	0.5-	0.2+
1991 04 12	033	0.2-	0.1-	1998 02 26	809	(1.7+	3.3+)	1999 01 26	910	0.4+	0.1+
1991 04 19	675	1.1+	0.2-	1998 02 26	809	(0.6+	3.1+)	1999 01 26	910	0.5+	0.0
1991 04 19	675	0.1-	0.2-	1998 02 26	809	(0.1-	2.9+)	1999 01 26	910	0.4+	0.0
1997 01 03	411	0.9-	0.1+	1998 03 20	704	0.7+	0.6+	1999 03 13	113	0.0	0.6+
1997 01 03	411	0.2-	0.0	1998 03 20	704	0.1+	1.1+	1999 03 13	113	0.4+	0.6+
1997 01 04	411	0.0	0.5-	1998 03 20	704	(0.8+	2.3-)	1999 03 19	704	1.0-	1.7-
1997 01 04	411	0.6-	0.1-	1998 03 20	704	1.4+	1.4-	1999 03 19	704	0.5-	0.4+
1997 01 10	411	1.4-	0.1+	1998 03 20	704	0.7+	0.2-	1999 03 19	704	0.0	1.9-
1997 01 10	411	0.1+	0.9-	1998 03 24	113	1.1+	0.4+	1999 03 19	704	0.6+	0.4+
1997 01 15	411	1.6-	0.5+	1998 03 24	113	0.9+	0.2-	1999 03 19	704	(2.8-	0.5-)
1997 01 15	411	1.0-	0.0	1998 03 24	113	0.2-	0.6-	1999 03 20	704	0.4-	1.2-
1997 01 27	411	0.0	0.1-	1998 03 25	113	0.1+	0.5+	1999 03 20	704	0.5+	0.6-
1997 01 27	411	0.1+	0.5-	1998 03 25	113	0.4+	0.6+	1999 03 20	704	0.4+	1.2-
1998 02 20	113	0.4-	1.3+	1998 03 25	113	0.3+	0.1+	1999 03 20	704	(0.7+	2.3-)
1998 02 20	113	1.2-	0.6+	1998 03 25	113	0.7+	0.7+	1999 03 23	704	(2.1-	2.0-)
1998 02 21	113	0.8-	1.4+	1999 01 21	910	0.3-	0.1+	1999 03 23	704	0.3+	0.7-
1998 02 21	113	1.2+	0.7-	1999 01 21	910	0.3-	0.0	1999 03 23	704	1.6-	0.7+
1998 02 21	113	0.5+	0.2-	1999 01 21	910	0.2-	0.1+	1999 03 23	704	0.9+	1.9+
1998 02 22	566	0.7+	1.3-	1999 01 22	910	0.2-	0.4+				

(10332)* 1991 JT₁ = 1950 HP₁ = 1995 JZ₁

Discovered 1991 May 13 by C. S. Shoemaker at Palomar.

Id. E. Bowell (*MPC* 26901), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	293.61618		(2000.0)		P		Q
n	0.24122024	ω	83.33475		-0.10972063		+0.99396085
a	2.5558001	Ω	180.38016		-0.98481695		-0.10895496
e	0.1529957	i	15.67255		-0.13452497		-0.01306313
P	4.09	H	13.1	G	0.15	U	1

Residuals in seconds of arc

1950 04 20	675	0.6+	0.7-	1996 09 06	587	0.3+	0.1-	1999 03 20	704	0.8+	0.0
1950 04 20	675	0.5-	0.3+	1996 09 06	587	1.0+	0.1-	1999 03 20	704	0.4+	0.4+
1991 04 20	675	0.5-	1.8-	1996 10 12	689	0.4+	0.6+	1999 03 20	704	0.9+	0.2-
1991 04 20	675	0.1-	1.6-	1996 10 13	689	0.9-	0.7+	1999 03 20	704	0.6+	1.0+
1991 05 13	675	0.4+	0.7-	1999 01 05	699	1.1-	0.1-	1999 03 20	704	0.4+	0.3+
1991 05 13	675	0.1-	0.5+	1999 01 05	699	0.4-	0.6-	1999 03 22	699	0.1+	0.2+
1991 05 15	675	0.6-	1.2-	1999 01 05	699	0.9-	0.5+	1999 03 22	699	0.1+	0.3+
1991 05 15	675	0.2-	0.1-	1999 02 26	704	(0.2-	3.2-)	1999 03 22	699	0.4+	0.3+
1991 06 07	675	1.1-	0.6+	1999 02 26	704	1.4-	0.8+	1999 03 23	704	0.6-	0.2-
1991 06 07	675	0.6+	0.1+	1999 02 26	704	0.1-	2.0-	1999 03 23	704	0.9-	0.3+
1991 06 09	675	0.0	1.1+	1999 02 26	704	(2.5-	0.7+)	1999 03 23	704	0.6-	0.4+
1991 06 09	675	0.7+	0.7+	1999 02 26	704	0.1-	0.6+	1999 03 23	704	1.6-	0.3+
1995 05 02	675	0.3+	0.1-	1999 03 19	704	1.0+	0.1+	1999 03 23	704	0.6-	0.7+

1999 APR. 2

1995 05 02	675	0.1-	0.9+	1999 03 19	704	0.4+	0.1+	1999 03 24	699	0.6+	0.0
1996 09 05	587	0.5-	1.3+	1999 03 19	704	0.7+	0.8+	1999 03 24	699	0.2+	0.3+
1996 09 05	587	0.4-	1.5+	1999 03 19	704	1.3+	0.6+	1999 03 24	699	0.3+	0.0
1996 09 05	587	0.4-	0.4+	1999 03 19	704	0.3+	1.1+				

(10333)* 1991 NZ₆ = 1992 VG

Discovered 1991 July 12 by H. Debehogne at the European Southern Observatory.

Id. S. Nakano (*MPC* 21264)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	100.38142		(2000.0)		P		Q
n	0.20031620	ω	285.19235		+0.72754387		-0.68271076
a	2.8928461	Ω	117.91692		+0.65520001		+0.66215164
e	0.1530118	i	4.39535		+0.20345235		+0.30896800
P	4.92	H	13.0	G	0.15	U	1

Residuals in seconds of arc

1991 07 12	809	(3.3-	1.3-)	1992 11 18	691	(2.4-	0.4-)	1997 12 04	704	0.4+	0.3-
1991 07 12	809	(3.0-	1.3-)	1994 02 08	809	1.3+	1.5-	1997 12 04	704	1.4-	0.3+
1991 07 12	809	(2.7-	1.3-)	1994 02 08	809	0.5+	1.7-	1997 12 05	704	0.1-	0.1-
1991 07 12	809	0.5-	0.6-	1994 02 08	809	0.1+	1.9-	1997 12 05	704	0.0	0.1-
1991 07 12	809	0.3-	0.5-	1994 02 10	809	(2.9+	3.5-)	1997 12 05	704	0.4-	0.7-
1991 07 12	809	0.0	0.5-	1994 02 10	809	(0.9+	2.7-)	1997 12 05	704	0.0	0.4-
1991 07 13	809	0.9+	0.5-	1994 02 10	809	(0.0	3.4-)	1997 12 05	704	0.1+	1.5-
1991 07 13	809	1.3+	0.7-	1994 02 13	809	0.1-	1.3-	1998 12 23	120	0.9-	0.4-
1991 07 13	809	1.6+	1.0-	1994 02 13	809	0.5-	1.1-	1999 02 18	699	0.7+	0.6-
1991 07 15	809	0.9-	0.2-	1994 02 16	010	0.1+	1.9+	1999 02 18	699	0.5+	1.9+
1991 07 15	809	0.6-	0.0	1994 02 16	010	(0.4+	2.1+)	1999 02 18	699	0.5+	1.7+
1991 07 15	809	0.4-	0.1-	1997 11 26	704	0.1+	1.4+	1999 03 20	704	0.6+	0.4-
1991 07 16	809	0.1-	0.4-	1997 11 26	704	0.5-	1.7+	1999 03 20	704	0.6-	0.3+
1991 07 16	809	0.1-	0.4-	1997 11 26	704	0.6-	1.2+	1999 03 20	704	0.5-	0.2+
1991 07 16	809	0.2+	0.5-	1997 11 28	910	0.1-	0.4+	1999 03 20	704	0.6-	0.2-
1992 11 02	408	(2.0-	2.2-)	1997 11 28	910	0.1+	0.5+	1999 03 20	704	0.6-	0.2+
1992 11 02	408	1.4+	0.7-	1997 11 28	910	0.1-	0.5+	1999 03 23	704	0.3-	0.1+
1992 11 16	400	0.9+	0.8-	1997 12 02	910	1.4+	0.9-	1999 03 23	704	0.3-	0.1-
1992 11 16	400	0.4+	0.7-	1997 12 02	910	1.3+	0.9-	1999 03 23	704	0.6-	0.2-
1992 11 17	400	1.2-	0.2-	1997 12 02	910	1.3+	0.9-	1999 03 23	704	1.1-	0.6-
1992 11 17	400	1.5-	0.1-	1997 12 04	704	(0.6+	2.0-)	1999 03 23	704	0.2-	0.7-
1992 11 18	691	0.6-	0.2-	1997 12 04	704	0.3+	0.1+				
1992 11 18	691	0.7-	0.6-	1997 12 04	704	0.7+	0.8-				

(10334)* 1991 PG₅ = 1996 PO₂

Discovered 1991 Aug. 3 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 27712)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	155.20240		(2000.0)		P		Q
n	0.20185514	ω	130.40798		+0.99771871		+0.06644326
a	2.8781240	Ω	225.78600		-0.06588114		+0.91969792
e	0.0682906	i	0.95485		-0.01473249		+0.38696386
P	4.88	H	14.1	G	0.15	U	1

Residuals in seconds of arc

1991 08 03	809	(2.5+ 0.9+)	1996 08 10	566	0.1+ 0.5-	1998 01 02	704	0.2+ 0.9+
1991 08 03	809	0.5+ 0.5+	1996 08 15	566	0.5+ 0.5-	1998 01 02	704	1.5- 1.3+
1991 08 03	809	0.3+ 0.4+	1996 08 15	566	0.0 1.6-	1999 02 21	557	0.8+ 0.4-
1991 08 05	809	0.2+ 1.0+	1996 08 15	566	0.2- 0.7-	1999 02 21	557	0.2+ 1.0-
1991 08 05	809	0.7- 0.7+	1997 11 29	704	0.2+ 0.5+	1999 03 20	704	0.1- 0.5-
1991 08 05	809	0.7- 1.3+	1997 11 29	704	0.9- 2.0-	1999 03 20	704	1.1- 1.6-
1991 09 06	809	0.2- 0.4+	1997 11 29	704	0.2- 0.5-	1999 03 20	704	1.6- 0.7+
1991 09 06	809	0.2+ 0.1-	1997 11 29	704	1.6- 1.4-	1999 03 20	704	(2.3- 0.3-)
1991 09 06	809	1.1- 0.2+	1997 12 31	704	0.9+ 0.2+	1999 03 23	704	1.3- 1.4-
1996 07 21	809	1.7+ 0.2-	1997 12 31	704	0.9+ 0.7+	1999 03 23	704	0.0 0.2+
1996 07 21	809	0.6+ 1.0-	1997 12 31	704	1.1+ 0.0	1999 03 23	704	0.0 0.7+
1996 07 21	809	0.0 0.9-	1997 12 31	704	0.4+ 0.4-	1999 03 23	704	1.6+ 0.4-

1999 APR. 2

M.P.C. 34145

1996 08 10 566 0.1+ 1.5- 1998 01 02 704 (3.2+ 0.4+)
 1996 08 10 566 0.2+ 0.4- 1998 01 02 704 0.5+ 0.4+

(10335)* 1991 PG₉

Discovered 1991 Aug. 15 by E. F. Helin at Palomar.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	216.38922	(2000.0)	P	Q
<i>n</i>	0.21103471	ω	131.96276	+0.70998340 +0.70416137
<i>a</i>	2.7940453	Ω	183.31312	-0.68325746 +0.68571292
<i>e</i>	0.1511478	<i>i</i>	8.92186	-0.17053682 +0.18426760
<i>P</i>	4.67	<i>H</i>	13.7	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1990 03 27	675	1.6-	1.0+	1991 09 14	675	0.1+	0.5-	1999 02 16	704	0.4-	1.0-
1990 03 27	675	1.4+	1.7-	1997 12 27	688	0.2+	0.1-	1999 02 16	704	(0.1-	2.7-)
1991 08 05	675	0.5+	0.9-	1997 12 27	688	0.2-	0.3-	1999 03 20	704	0.8+	0.4-
1991 08 05	675	0.2+	0.0	1997 12 27	688	0.2+	0.3-	1999 03 20	704	0.2-	0.9-
1991 08 09	675	0.7+	0.5-	1998 01 06	688	0.4-	0.0	1999 03 20	704	0.2-	0.3+
1991 08 09	675	1.2+	0.7-	1998 01 06	688	0.1+	0.3-	1999 03 20	704	3.0+	1.4+
1991 08 15	675	0.6-	0.9+	1998 01 07	688	0.1+	0.4-	1999 03 20	704	2.2-	0.8+
1991 08 15	675	0.4-	0.4+	1998 01 07	688	0.1+	0.3-	1999 03 23	704	0.1+	0.5-
1991 08 16	675	0.5-	0.0	1999 02 14	699	1.5+	1.4+	1999 03 23	704	0.5-	1.0+
1991 08 16	675	0.4-	0.3+	1999 02 14	699	1.1+	0.7+	1999 03 23	704	2.3-	0.0
1991 09 13	675	0.1+	0.2+	1999 02 14	699	1.2+	0.2-	1999 03 23	704	1.2-	2.4-
1991 09 13	675	0.3-	0.7-	1999 02 16	704	0.9-	0.6-	1999 03 23	704	0.9-	0.7-
1991 09 14	675	0.4-	0.4-	1999 02 16	704	0.9+	0.5+				

(10336)* 1991 PJ₁₂ = 1986 TK₁₇ = 1997 WM₃₃

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

Id. G. V. Williams (*MPC* 31100)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	90.14635	(2000.0)	P	Q
<i>n</i>	0.18454665	ω	144.36652	+0.66727158 -0.73052632
<i>a</i>	3.0553802	Ω	263.29665	+0.64499316 +0.66424028
<i>e</i>	0.1425480	<i>i</i>	8.40612	+0.37246808 +0.15848073
<i>P</i>	5.34	<i>H</i>	12.9	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1986 10 11	095	1.0-	1.8+	1997 11 29	704	0.5+	0.7+	1999 02 12	704	1.2-	0.5-
1991 08 07	675	(0.8+	2.9-)	1997 11 29	704	0.7-	0.1-	1999 02 12	704	0.1+	0.3-
1991 08 07	675	0.2+	0.6-	1997 11 29	704	0.7+	0.6-	1999 02 12	704	0.4-	1.6-
1991 08 10	675	0.3+	0.3-	1997 11 29	704	0.9+	1.5-	1999 02 12	704	0.5-	0.2+
1991 08 10	675	1.5+	0.9+	1997 11 29	704	(0.2+	2.1-)	1999 02 16	704	(3.5-	2.2+)
1991 09 10	675	0.5-	0.6-	1997 12 04	704	0.8+	0.5+	1999 02 16	704	(0.0	2.3-)
1991 09 10	675	0.1+	0.5-	1997 12 04	704	0.4+	0.0	1999 02 16	704	0.4-	0.6+
1996 06 24	691	0.2-	0.2-	1997 12 04	704	0.6+	0.4+	1999 02 16	704	0.5-	1.1+
1996 06 24	691	0.1-	0.3-	1997 12 04	704	0.8+	0.6+	1999 02 16	704	0.3-	0.4+
1996 06 24	691	0.2-	0.4-	1997 12 04	704	0.4+	1.2+	1999 02 18	566	0.5+	0.5-
1997 11 26	704	1.0-	1.2-	1997 12 15	327	0.2-	0.3-	1999 02 18	566	0.5+	0.6-
1997 11 26	704	1.8-	1.2-	1997 12 15	327	0.4-	0.3-	1999 02 18	566	0.6+	1.5-
1997 11 26	704	1.8-	1.1-	1997 12 15	327	0.2-	0.4-	1999 03 22	704	1.3-	0.0
1997 11 28	327	1.8+	1.6+	1998 03 16	327	0.1+	0.4+	1999 03 22	704	0.7+	0.2+
1997 11 28	327	0.2-	0.3-	1998 03 16	327	0.1-	0.5+	1999 03 22	704	0.7+	0.6+
1997 11 28	327	0.5-	0.2-	1998 03 16	327	0.1-	0.4+	1999 03 22	704	1.1+	0.7+

(10337)* 1991 RO₁ = 1949 PT = 1981 UG₂₀ = 1983 CV₅ = 1996 QF₁

Discovered 1991 Sept. 10 by A. Sugie at the Dynic Astronomical Observatory.

Id. T. Urata (*MPC* 27912)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i>	150.04829	(2000.0)	P	Q
<i>n</i>	0.18857123	ω	30.91389	+0.99849283 +0.00441923
<i>a</i>	3.0117512	Ω	328.69097	-0.03007778 +0.87779800
<i>e</i>	0.2109762	<i>i</i>	6.04274	+0.04590639 +0.47901059
<i>P</i>	5.23	<i>H</i>	12.7	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1949 08 02	024	0.9+	2.0-	1994 04 05	675	0.5-	0.1-	1999 03 14	691	0.6+	0.7-
1981 10 28	095	0.5+	1.8+	1996 08 18	905	0.9+	0.3+	1999 03 18	691	0.9+	0.3+
1983 02 14	381	1.4+	0.3-	1996 08 18	905	1.4-	0.3-	1999 03 18	691	0.6-	0.4-
1991 09 08	511	1.7+	1.0+	1996 08 22	905	0.3-	0.3+	1999 03 18	691	0.4-	0.3-
1991 09 08	511	1.3+	2.1-	1996 08 22	905	0.1+	0.2+	1999 03 20	704	0.6+	0.4-
1991 09 09	095	1.3-	0.2-	1996 09 03	905	0.9+	1.0+	1999 03 20	704	0.3-	0.5+
1991 09 10	095	1.2-	0.2+	1996 09 03	905	0.1+	0.9+	1999 03 20	704	0.8-	1.1+
1991 09 10	511	0.2-	1.7-	1996 11 11	689	0.3-	0.4-	1999 03 20	704	0.1+	0.1+
1991 09 10	402	0.6+	0.5-	1996 11 12	689	0.5+	0.0	1999 03 20	704	1.3-	1.2-
1991 09 10	402	0.4-	0.6+	1999 02 16	704	0.1+	0.2-	1999 03 21	691	0.2-	0.2-
1991 09 11	402	0.8+	0.0	1999 02 16	704	0.6-	1.0-	1999 03 21	691	0.8-	0.7-
1991 09 11	402	0.1+	0.4-	1999 02 16	704	0.5-	0.0	1999 03 21	691	0.2+	0.5-
1991 09 12	675	0.6+	0.8-	1999 02 16	704	0.6-	0.9-	1999 03 23	704	0.1+	0.6-
1991 09 12	675	0.2-	0.9-	1999 02 16	704	0.9-	0.7-	1999 03 23	704	1.1-	1.0+
1991 09 14	675	0.3-	1.2-	1999 03 14	691	0.3+	0.6-	1999 03 23	704	1.3+	0.6-
1991 09 14	675	0.1-	0.3-	1999 03 14	691	0.5+	0.6-	1999 03 23	704	1.1-	0.9+

(10338)* 1991 RB₁₁ = 1975 WR₁ = 1980 TJ₉ = 1986 WN₆ = 1996 QB₁

Discovered 1991 Sept. 10 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 27913)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	100.94732	(2000.0)	P	Q
<i>n</i>	0.17879040	ω	240.47765	+0.78086219 -0.62462367
<i>a</i>	3.1206130	Ω	158.17209	+0.58204001 +0.72164154
<i>e</i>	0.1450112	<i>i</i>	1.53736	+0.22690013 +0.29846065
<i>P</i>	5.51	<i>H</i>	13.1	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1975 11 29	330	0.7-	1.9+	1996 08 21	046	0.3-	0.4+	1997 11 29	704	0.6-	0.7-
1980 10 13	095	0.7+	0.2+	1996 08 21	046	0.2-	0.4+	1997 11 29	704	1.0-	1.1-
1986 11 28	010	0.9+	0.7+	1996 08 21	046	0.2-	0.4+	1997 11 29	704	(4.0-	0.1+)
1986 11 28	010	0.7-	0.9+	1996 08 21	046	0.4-	0.4+	1997 12 04	704	(2.7+	0.3+)
1986 11 28	010	0.6-	0.1+	1996 08 22	046	0.0	0.2+	1997 12 04	704	1.4+	1.6+
1991 09 10	675	0.5-	0.1+	1996 08 22	046	0.0	0.3+	1997 12 04	704	0.1+	0.3+
1991 09 10	675	(2.2-	1.8-)	1996 08 22	046	0.1-	0.3+	1999 02 10	704	1.3+	0.2+
1991 09 11	675	1.8+	0.3+	1996 08 22	046	0.0	0.2+	1999 02 10	704	0.4+	0.3+
1991 09 11	675	0.3+	0.1+	1996 08 22	046	0.2+	0.1+	1999 02 10	704	0.8+	0.8+
1991 09 13	675	0.9+	0.1+	1996 08 23	046	0.0	0.1+	1999 02 10	704	(3.7+	0.1+)
1991 09 13	675	0.4+	0.6-	1996 08 23	046	0.0	0.2+	1999 02 10	704	(1.4+	2.1+)
1991 09 16	675	0.4-	1.4-	1996 08 23	046	0.2+	0.2+	1999 03 20	704	1.6-	0.4+
1991 09 16	675	0.2-	0.9-	1996 08 30	046	0.8+	0.1+	1999 03 20	704	1.2+	0.5+
1991 10 08	675	0.1-	0.5-	1996 08 30	046	0.7-	0.5-	1999 03 20	704	0.7+	0.6+
1991 10 08	675	0.1-	0.5-	1996 09 19	046	0.1+	0.5+	1999 03 23	704	0.4-	0.3+
1996 08 14	566	0.4-	0.3-	1996 09 19	046	0.1-	0.3+	1999 03 23	704	0.2+	1.7-
1996 08 14	566	0.5-	0.3-	1996 09 19	046	0.0	0.3+	1999 03 23	704	0.8-	0.3-
1996 08 14	566	0.3-	0.3-	1997 11 29	704	0.7+	0.5-	1999 03 23	704	1.2-	1.4-
1996 08 21	046	0.2-	0.4+	1997 11 29	704	0.7-	0.6-				

(10339)* 1991 RK₁₇ = 1993 BO₁₄ = 1997 AX₇ = 1998 KL₃₈

Discovered 1991 Sept. 11 by H. E. Holt at Palomar.

Id. A. Doppler (*MPC* 33228)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	221.03689		(2000.0)	P	Q
<i>n</i>	0.24395817	ω	205.87746	+0.19380201	-0.98096641
<i>a</i>	2.5366417	Ω	232.95012	+0.90269228	+0.18312875
<i>e</i>	0.1012887	<i>i</i>	0.86650	+0.38417109	+0.06456590
<i>P</i>	4.04	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1991 09 11	675	1.3+	0.8+	1995 08 22	809	0.2+	0.8+	1998 05 22	704	1.8+	1.2+
1991 09 11	675	1.5-	0.3+	1995 09 17	809	0.5-	0.0	1998 05 22	704	0.3+	0.3+
1991 09 13	675	0.0	1.5-	1995 09 20	809	1.6+	0.6+	1998 05 24	704	0.0	0.7-
1991 09 13	675	1.6-	0.8-	1997 01 02	691	0.8-	0.1+	1998 05 24	704	0.0	0.3+
1991 09 16	675	0.1-	1.5-	1997 01 02	691	0.8-	0.1+	1998 05 24	704	(0.1+	2.4-)
1991 09 16	675	0.4+	1.3-	1997 01 02	691	0.5-	0.2+	1998 05 24	704	0.9-	1.1-
1993 01 23	809	(2.5+	0.3+)	1997 01 10	691	0.2-	0.0	1998 05 24	704	(2.8-	0.2+)
1993 01 28	809	1.8+	0.1+	1997 01 10	691	0.1-	0.1+	1998 06 27	699	0.2-	0.1+
1993 01 28	809	0.6+	1.0-	1997 01 10	691	0.1-	0.2-	1998 06 27	699	0.5-	0.1+
1995 08 19	809	0.4+	1.2+	1998 05 22	704	0.0	0.1+	1998 06 27	699	0.1+	1.6-
1995 08 20	809	0.4+	1.2+	1998 05 22	704	1.4-	0.4+				

(10340)* 1991 RT₄₀ = 1981 RH₇

Discovered 1991 Sept. 10 by F. Börngen at Tautenburg.

Id. G. V. Williams (*MPC* 21943)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	245.92186		(2000.0)	P	Q
<i>n</i>	0.20172788	ω	259.80182	+0.38133619	+0.92417041
<i>a</i>	2.8793344	Ω	32.64247	-0.83124587	+0.35329200
<i>e</i>	0.0383882	<i>i</i>	2.35622	-0.40449105	+0.14523710
<i>P</i>	4.89	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1981 09 03	675	0.6-	0.2+	1994 04 04	033	0.9-	0.3-	1999 03 13	113	1.2-	0.6+
1981 09 04	675	0.0	0.3-	1994 06 14	691	0.8+	0.2-	1999 03 18	113	0.7-	0.5+
1991 09 10	033	0.5-	0.1-	1994 06 14	691	0.3+	0.2-	1999 03 18	113	0.9-	0.2+
1991 09 10	033	0.4+	0.5-	1994 06 14	691	0.1+	0.2-	1999 03 20	704	1.0+	0.4-
1991 09 13	033	0.3-	0.3-	1996 09 29	689	0.5+	0.8-	1999 03 20	704	0.6+	0.4-
1991 09 17	675	1.3-	0.0	1996 10 03	113	1.3-	0.3-	1999 03 20	704	0.1+	0.1-
1991 09 17	675	0.8+	0.3-	1996 10 03	113	0.2-	0.0	1999 03 20	704	0.1+	0.1-
1991 10 03	691	0.5+	0.4+	1997 12 03	411	0.4+	0.2+	1999 03 20	704	0.9+	0.2+
1991 10 03	691	0.6+	0.4+	1997 12 03	411	0.1+	0.2+	1999 03 23	704	0.7+	0.5-
1991 10 03	691	0.4+	0.2+	1998 01 17	113	0.1-	0.1-	1999 03 23	704	0.1+	0.0
1991 10 04	033	0.1-	0.4+	1998 01 17	113	0.2+	0.0	1999 03 23	704	0.4+	0.2-
1991 10 04	033	0.3+	0.9+	1998 01 17	113	0.7-	0.1-	1999 03 23	704	0.3+	0.1+
1991 10 05	033	0.7+	0.1+	1998 01 17	113	0.2+	0.2-	1999 03 23	704	0.1-	0.1-
1994 04 03	033	0.0	0.1+	1999 01 21	113	0.0	0.2+	1999 03 24	699	0.6-	0.4-
1994 04 03	033	0.5+	0.2-	1999 01 21	113	0.7+	0.0	1999 03 24	699	0.1-	0.6+
1994 04 03	033	0.7-	0.1+	1999 03 13	113	1.4-	0.7+	1999 03 24	699	0.4+	0.0

(10341)* 1991 SC₂ = 1977 XB₁ = 1979 DJ = 1981 RU₅

Discovered 1991 Sept. 16 by H. E. Holt at Palomar.

Id. A. Lowe (*MPC* 20931), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	185.92741		(2000.0)	P	Q
<i>n</i>	0.19803106	ω	205.47523	+0.83652459	+0.54627687
<i>a</i>	2.9150579	Ω	121.34737	-0.49381240	+0.78525989
<i>e</i>	0.0635997	<i>i</i>	2.85399	-0.23743615	+0.29145924
<i>P</i>	4.98	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1977 12 07	675	0.6-	0.6-	1992 11 27	589	0.3+	0.2+	1999 02 10	704	0.2-	0.7-
1977 12 08	675	1.3+	0.1+	1994 02 07	809	0.0	1.3-	1999 02 10	704	(2.8-	1.2-)
1979 02 28	801	(1.0-	3.1+)	1994 02 07	809	1.6-	1.8-	1999 02 12	699	1.1+	0.3-
1981 09 01	675	0.4+	0.3+	1994 02 07	809	(1.8-	2.6-)	1999 02 12	699	0.2+	0.2+
1981 09 02	675	0.2-	0.5-	1994 02 09	809	(0.6+	3.7+)	1999 02 13	704	0.8+	0.1-

1991 09 10	675	1.5+	0.2-	1994 02 09	809	(1.3-	2.7+)	1999 02 13	704	0.3-	1.8+
1991 09 10	675	0.1-	0.2+	1994 02 09	809	0.9-	1.7+	1999 02 13	704	1.9-	1.9+
1991 09 14	675	0.4-	1.2-	1994 02 12	809	(0.4-	3.1+)	1999 02 13	704	1.5+	0.3+
1991 09 14	675	0.0	0.8-	1994 02 12	809	(1.5-	3.1+)	1999 02 13	704	1.2+	0.3-
1991 09 16	675	0.0	0.5-	1994 02 12	809	(1.5-	2.2+)	1999 03 20	704	0.1+	1.5-
1991 09 16	675	0.4-	0.1-	1994 02 15	675	1.0-	0.4-	1999 03 20	704	0.3+	0.1+
1992 11 27	589	0.1-	0.4+	1994 02 15	675	0.3-	1.4-	1999 03 20	704	0.7-	0.5-
1992 11 27	589	0.2+	0.1+	1999 02 10	704	0.1+	0.3-	1999 03 20	704	0.7+	0.4-
1992 11 27	589	0.7-	0.1-	1999 02 10	704	0.4-	0.1+	1999 03 20	704	1.2+	0.1+
1992 11 27	589	0.4-	0.3+	1999 02 10	704	1.0-	0.4-				

(10342)* 1991 TQ = 1981 UG₂₄

Discovered 1991 Oct. 1 by R. H. McNaught at Siding Spring.

Id. S. J. Bus (*MPC* 20509)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	198.06276		(2000.0)	P	Q
<i>n</i>	0.18957232	ω	241.62231	+0.63958132	+0.76086821
<i>a</i>	3.0011390	Ω	68.56434	-0.65764116	+0.61540458
<i>e</i>	0.1205338	<i>i</i>	6.76284	-0.39805004	+0.20580757
<i>P</i>	5.20	<i>H</i>	12.8	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1950 12 11	675	2.2+	0.7+	1991 10 05	413	0.1-	0.1+	1999 02 10	704	0.1+	1.8-
1950 12 11	675	1.7-	0.5+	1991 10 15	413	0.3+	0.7+	1999 02 10	704	1.1-	0.1-
1954 06 30	675	0.1+	0.0	1994 01 21	413	0.2-	0.2-	1999 02 10	704	1.5+	0.3+
1954 06 30	675	0.0	0.5-	1994 01 21	413	0.7-	0.1+	1999 02 13	704	0.7-	1.1-
1981 10 24	675	1.0-	0.5-	1994 02 20	413	(3.4+	1.6+)	1999 02 13	704	0.0	1.5+
1981 10 25	675	1.2-	0.5-	1994 02 21	413	0.1+	0.4+	1999 02 13	704	1.2+	0.2+
1991 09 12	675	1.4+	0.7-	1994 02 21	413	0.2+	0.3+	1999 02 13	704	1.4+	0.1-
1991 09 12	675	0.3+	0.4-	1997 12 06	627	0.7+	0.4-	1999 02 13	704	0.3-	0.2+
1991 09 16	675	0.0	0.6-	1997 12 06	627	0.6-	0.1-	1999 03 15	704	0.5+	0.3+
1991 10 01	413	0.6+	0.3+	1997 12 06	627	0.4+	0.0	1999 03 15	704	(2.2-	1.2+)
1991 10 02	413	1.1-	0.3+	1999 02 10	704	0.8-	0.8-	1999 03 15	704	1.4-	0.6-

(10343)* 1991 VW₈ = 1990 RM₁₈ = 1996 RW₁₇

Discovered 1991 Nov. 4 by Spacewatch at Kitt Peak.

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

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	154.22905		(2000.0)	P	Q
<i>n</i>	0.17804167	ω	194.20524	+0.96082723	+0.27650847
<i>a</i>	3.1293558	Ω	149.72253	-0.25049635	+0.89547762
<i>e</i>	0.1557916	<i>i</i>	2.13889	-0.11858588	+0.34880209
<i>P</i>	5.54	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1990 09 09	413	0.2+	1.9-	1994 03 14	691	1.1-	0.1-	1999 02 13	704	0.2-	0.9-
1990 09 10	413	1.3+	0.5-	1994 03 14	691	1.0-	0.2-	1999 02 13	704	0.3+	0.1-
1990 09 11	413	0.0	1.2-	1994 03 14	691	0.6-	0.1-	1999 02 13	704	0.9+	0.8+
1991 10 17	675	0.5+	0.6-	1996 09 14	691	0.2+	0.8-	1999 02 13	704	0.1+	0.2+
1991 11 04	691	0.5-	0.2+	1996 09 14	691	0.1-	0.5-	1999 02 13	704	(3.7-	1.2+)
1991 11 04	691	0.5-	0.2+	1996 09 14	691	0.1+	0.5-	1999 02 16	691	0.2+	0.1-
1991 11 04	691	0.3-	0.3+	1996 09 21	691	0.2+	0.5-	1999 02 16	691	0.4+	0.0
1991 11 06	691	(3.2+	2.2+)	1996 09 21	691	0.1+	0.4-	1999 02 16	691	0.4+	0.0
1991 11 06	691	(2.0+	0.1+)	1996 09 21	691	0.1+	0.1-	1999 02 18	691	0.7-	0.2-
1991 11 06	691	0.0	0.5+	1997 12 24	426	0.7+	1.0-	1999 02 18	691	0.7-	0.1-
1991 11 08	691	0.4-	0.7+	1997 12 24	426	0.1+	1.2-	1999 02 18	691	0.6-	0.0
1991 11 08	691	0.1-	0.5+	1997 12 24	426	0.6-	1.1-	1999 03 09	691	0.5+	0.1-
1991 11 08	691	0.3-	0.4+	1997 12 25	426	0.8+	0.8-	1999 03 09	691	0.5+	0.2-
1991 11 08	691	0.2-	0.4+	1997 12 25	426	0.1-	0.7-	1999 03 09	691	0.3+	0.4-
1991 11 08	691	0.1-	0.5+	1997 12 25	426	0.2-	1.4-	1999 03 16	691	0.2+	0.4-
1991 11 08	691	0.0	0.1+	1999 02 10	704	1.4+	0.9-	1999 03 16	691	0.0	0.9-
1992 12 24	691	0.2-	0.0	1999 02 10	704	0.3-	0.4+	1999 03 16	691	0.1+	0.1-
1992 12 24	691	0.2-	0.2+	1999 02 10	704	(2.2+	1.6+)	1999 03 24	691	0.2-	0.1-
1992 12 24	691	0.5-	0.1+	1999 02 10	704	0.6+	0.8+	1999 03 24	691	0.5-	0.0
1993 01 23	691	0.2+	0.1+	1999 02 12	691	0.7-	0.0	1999 03 24	691	0.3-	0.4-

1993 01 23 691 1.0+ 0.4+ 1999 02 12 691 0.7- 0.1-
 1993 01 23 691 0.9+ 0.5+ 1999 02 12 691 0.5- 0.1-

(10344)* 1992 CA₂ = 1951 CK = 1993 OY₇

Discovered 1992 Feb. 12 by O. A. Naranjo and J. Stock at Mérida.

Id. B. G. Marsden (*MPC* 22688), G. V. Williams (*MPC* 25530)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	47.11988		(2000.0)	P		Q	
<i>n</i>	0.28888814	ω	330.20882	-0.34359881	-0.93788279		
<i>a</i>	2.2662939	Ω	139.83298	+0.87569559	-0.33848508		
<i>e</i>	0.0539812	<i>i</i>	4.27856	+0.33925962	-0.07618212		
<i>P</i>	3.41	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1951 02 10	760	0.4+	0.7-	1993 07 23	809	0.1+	0.5-	1999 01 22	910	0.7-	1.4-
1951 02 10	760	0.8-	0.5+	1993 07 23	809	0.1+	0.2-	1999 02 20	699	1.3+	0.1-
1955 05 22	675	1.2+	0.5+	1993 07 24	809	(0.8+	3.7-)	1999 02 20	699	1.4+	0.2+
1992 02 12	303	(0.9-	2.3-)	1993 07 26	809	0.3-	0.4+	1999 02 20	699	0.5+	1.2+
1992 02 13	303	(2.8-	1.1-)	1993 07 26	809	1.2-	0.1-	1999 03 20	704	0.0	0.0
1992 02 27	675	0.5-	1.7-	1993 07 26	809	(2.8-	0.5-)	1999 03 20	704	0.3-	0.8+
1992 02 27	675	0.7-	0.9+	1995 01 02	560	0.7-	0.4-	1999 03 20	704	0.2-	0.3+
1992 02 28	691	0.3-	0.3-	1995 01 02	560	1.8-	0.5+	1999 03 20	704	1.1+	0.1-
1992 02 28	691	0.4-	0.5-	1995 01 02	560	1.0+	0.3-	1999 03 20	704	1.3+	0.1+
1992 02 28	691	0.3-	0.6-	1996 05 06	689	0.8-	1.6+	1999 03 23	699	0.4+	0.3+
1992 02 28	675	0.0	0.7-	1996 05 07	689	1.1-	0.3-	1999 03 23	699	0.8+	0.7+
1992 02 28	675	(0.0	2.3-)	1997 10 29	566	0.7+	0.6+	1999 03 23	699	1.0+	0.7+
1993 07 19	809	0.2-	0.8-	1997 10 29	566	0.5+	0.5+	1999 03 23	704	0.5+	0.6+
1993 07 19	809	0.1+	1.1-	1997 10 29	566	0.7+	0.5+	1999 03 23	704	0.3+	0.0
1993 07 19	809	0.5+	0.7-	1999 01 20	910	0.9-	1.1-	1999 03 23	704	0.1+	0.1+
1993 07 20	809	0.3-	0.3-	1999 01 20	910	1.0-	1.1-	1999 03 23	704	0.3-	0.4+
1993 07 20	809	0.3-	0.6-	1999 01 20	910	0.7-	1.1-	1999 03 23	704	0.8-	0.1-
1993 07 20	809	0.0	0.7-	1999 01 22	910	0.6-	1.2-				
1993 07 23	809	0.8+	0.7-	1999 01 22	910	0.7-	1.3-				

(10345)* 1992 DC₁₁ = 1980 WJ₄

Discovered 1992 Feb. 29 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. T. Kobayashi (*MPC* 24230), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	30.92203		(2000.0)	P		Q	
<i>n</i>	0.28117381	ω	315.32894	-0.30573535	-0.95175762		
<i>a</i>	2.3075589	Ω	152.44220	+0.88859040	-0.29508950		
<i>e</i>	0.1313352	<i>i</i>	3.23911	+0.34195467	-0.08414052		
<i>P</i>	3.51	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1980 11 29	675	1.4+	0.1+	1994 12 01	691	0.2-	0.7+	1999 02 13	704	1.0+	0.1+
1980 12 01	675	0.9-	0.8-	1994 12 01	691	0.8-	0.6-	1999 02 13	704	0.2+	1.3+
1992 02 29	809	0.9-	0.4+	1997 08 03	557	0.2-	0.2+	1999 02 13	704	1.2+	0.1+
1992 03 03	809	0.7-	0.4+	1997 08 03	557	0.8+	0.5-	1999 02 13	704	1.2-	0.8+
1992 03 09	809	0.8-	1.2-	1997 08 04	557	0.3-	0.7+	1999 03 20	704	0.1+	0.0
1992 03 11	691	0.8+	0.2-	1997 08 04	557	0.6-	0.2+	1999 03 20	704	0.6-	0.6-
1992 03 11	691	0.4+	0.3-	1997 08 04	557	0.0	0.3+	1999 03 20	704	0.8+	1.1+
1992 04 06	809	0.2+	0.0	1997 08 04	557	0.2-	0.5+	1999 03 20	704	1.1-	0.4-
1993 07 23	809	(9.4-	0.1-)	1999 02 10	704	0.1-	0.9-	1999 03 23	704	0.9+	1.4-
1993 07 23	809	(9.7-	0.5-)	1999 02 10	704	1.7-	0.5-	1999 03 23	704	0.7+	0.3+
1993 07 23	809	(8.4-	1.8-)	1999 02 10	704	1.5+	0.3+	1999 03 23	704	0.3+	1.6+
1994 11 27	675	0.1+	0.4+	1999 02 10	704	0.3+	0.8+	1999 03 23	704	0.3-	2.2-
1994 11 27	675	0.9+	0.2-	1999 02 10	704	0.5-	1.4+	1999 03 23	704	0.1+	1.1+
1994 12 01	691	0.4-	0.1+	1999 02 13	704	0.0	0.7-				

(10346)* 1992 GA₁ = 1975 SR₁

Discovered 1992 Apr. 2 by C. S. Shoemaker at Palomar.

Id. G. V. Williams (*MPC* 20344)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	296.12996		(2000.0)	P		Q	
<i>n</i>	0.27239669	ω	28.70572	-0.69782164	+0.70477560		
<i>a</i>	2.3568657	Ω	198.09006	-0.71027953	-0.70391089		
<i>e</i>	0.2077883	<i>i</i>	24.30683	-0.09245512	+0.08832223		
<i>P</i>	3.62	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1975 09 30	675	0.1+	0.1-	1993 10 14	675	0.7+	0.6+	1999 02 17	704	0.3+	0.6-
1975 10 01	675	1.1-	0.5-	1993 10 14	675	0.7+	0.7+	1999 02 17	704	0.5-	0.3+
1975 10 02	675	0.0	0.4+	1996 06 26	292	0.1+	0.2-	1999 02 17	704	0.2-	0.3-
1992 04 02	675	0.3+	0.5+	1996 06 29	292	0.6-	0.4+	1999 02 17	704	0.3+	0.4-
1992 04 03	675	0.3+	0.0	1996 06 29	292	0.4-	0.6+	1999 02 19	704	0.0	0.1+
1992 04 03	675	0.2+	1.0-	1999 01 23	704	0.1+	0.4+	1999 02 19	704	0.2+	0.6+
1992 04 24	675	0.3-	0.3+	1999 01 23	704	0.3-	0.9+	1999 02 19	704	0.3+	0.1+
1992 04 26	675	0.2+	0.1-	1999 01 23	704	0.2-	1.1+	1999 02 19	704	0.3-	0.2+
1992 04 26	675	0.0	0.8+	1999 01 23	704	0.9+	0.2+	1999 02 19	704	0.1-	0.6-
1992 04 29	675	0.3+	0.0	1999 02 17	704	1.2-	0.5-				

(10347)* 1992 HG₄ = 1959 NJ = 1977 FC₁ = 1989 TS₁₄

Discovered 1992 Apr. 23 by E. W. Elst at the European Southern

Observatory.

Id. B. G. Marsden (*MPC* 20825)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	235.47345		(2000.0)	P		Q	
<i>n</i>	0.26563506	ω	79.12204	+0.42756164	+0.90390895		
<i>a</i>	2.3966933	Ω	216.19824	-0.83701186	+0.39091251		
<i>e</i>	0.2215020	<i>i</i>	1.14660	-0.34147064	+0.17359731		
<i>P</i>	3.71	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1959 07 10	760	0.3-	0.1-	1992 04 30	691	0.9-	1.0+	1999 02 13	747	0.3+	0.6+
1959 07 10	760	0.2+	0.2+	1992 04 30	691	1.3-	1.0+	1999 02 13	747	0.1+	0.5+
1977 03 25	095	0.0	0.0	1992 04 30	691	1.4-	1.1+	1999 02 13	747	0.5+	0.2+
1989 10 02	809	0.1-	0.0	1992 05 01	809	(2.5-	1.6+)	1999 02 15	747	0.2+	0.5+
1989 10 02	809	0.4+	0.1+	1992 05 01	809	(2.4-	1.7+)	1999 02 15	747	0.0	0.4+
1989 10 02	809	1.0+	0.1+	1992 05 01	809	(2.4-	1.8+)	1999 02 15	747	0.0	0.4+
1989 10 03	809	1.0-	0.2-	1995 01 31	691	0.3+	0.5-	1999 02 15	747	0.1+	0.2+
1989 10 03	809	0.5-	0.2-	1995 01 31	691	0.3+	0.5-	1999 02 16	704	0.5-	0.5+
1989 10 03	809	0.2-	0.1-	1995 01 31	691	0.3+	0.5-	1999 02 16	704	0.7-	0.5+
1992 04 04	809	(2.2+	0.3-)	1997 12 04	704	1.2+	1.1+	1999 02 16	704	0.1+	0.1+
1992 04 04	809	0.9+	0.3-	1997 12 04	704	1.1-	0.4+	1999 02 16	704	0.1-	0.1+
1992 04 04	809	1.6+	1.1-	1997 12 04	704	0.0	1.0+	1999 02 16	704	0.8-	1.2-
1992 04 06	809	0.6+	1.3-	1997 12 04	704	0.3-	1.0+	1999 03 20	704	0.4-	0.5-
1992 04 06	809	0.1-	1.2-	1997 12 04	704	0.8-	0.1+	1999 03 20	704	0.6-	0.2+
1992 04 06	809	0.0	1.5-	1997 12 05	704	1.5+	0.7+	1999 03 20	704	0.1-	0.3+
1992 04 23	809	1.1-	1.7+	1997 12 05	704	0.9-	1.6-	1999 03 20	704	0.8+	0.2-
1992 04 23	809	0.2-	1.2+	1997 12 05	704	0.5+	0.0	1999 03 20	704	0.1-	0.3-
1992 04 23	809	0.6-	0.0	1997 12 05	704	0.6+	0.8+	1999 03 23	704	0.7-	1.7-
1992 04 25	809	0.4+	0.4+	1997 12 05	704	(2.3-	0.7-)	1999 03 23	704	0.3+	0.7-
1992 04 25	809	0.7+	0.5+	1999 02 12	012	0.3-	0.4+	1999 03 23	704	0.7-	1.3-
1992 04 25	809	0.9+	0.3+	1999 02 12	012	0.0	0.1+	1999 03 23	704	1.2-	0.4-
1992 04 25	809	0.4+	0.5+	1999 02 12	012	0.3+	0.1+	1999 03 23	704	0.6-	0.0
1992 04 25	809	1.2+	0.2+	1999 02 12	012	0.8+	0.4+				
1992 04 25	809	1.4+	0.1-	1999 02 12	012	0.0	0.5+				

(10348)* 1992 HL₄ = 1979 SS₁₃ = 1983 VS₂ = 1993 TP₄₄

Discovered 1992 Apr. 29 by F. Börngen at Tautenburg.

Id. K. Kinoshita (*MPC* 25427)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	324.22461	(2000.0)	P		Q	
<i>n</i>	0.28457966	ω 207.23591	−0.62540092	+0.77810418		
<i>a</i>	2.2891108	Ω 24.19358	−0.68739098	−0.51387252		
<i>e</i>	0.1399383	<i>i</i> 8.21315	−0.36927946	−0.36123250		
<i>P</i>	3.46	<i>H</i> 13.6	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1979 09 20	675	0.1+	0.7+	1993 10 10	809	0.3+	0.4−	1999 02 14	699	0.1+	0.4+
1979 09 21	675	0.5+	0.2+	1993 10 10	809	1.7−	1.3−	1999 02 23	704	0.9−	0.1−
1983 11 08	381	0.3−	0.2−	1993 10 22	809	1.1+	1.0−	1999 02 23	704	1.7−	0.3+
1983 11 08	381	1.0+	0.9−	1993 10 22	809	0.9+	0.3−	1999 02 23	704	(3.2−	0.2−)
1992 04 27	675	0.8−	0.9−	1993 10 22	809	0.3−	0.7−	1999 02 23	704	(0.2+	2.0+)
1992 04 27	675	0.4−	0.9−	1997 12 06	704	0.4+	0.5+	1999 02 23	704	1.0+	0.6+
1992 04 29	033	0.1−	0.0	1997 12 06	704	0.5+	0.3+	1999 02 26	704	0.0	0.3−
1992 04 29	033	0.4−	0.0	1997 12 06	704	1.3+	0.1+	1999 02 26	704	(1.2−	2.0−)
1992 04 30	033	0.8−	0.1−	1997 12 06	704	0.5−	0.4−	1999 02 26	704	1.2+	0.2+
1993 09 21	675	(2.4−	0.1−)	1997 12 06	704	1.1−	0.4−	1999 02 26	704	1.1+	1.8−
1993 09 23	675	1.0−	0.0	1999 02 14	699	0.0	0.8+	1999 03 13	113	0.4+	0.6−
1993 10 10	809	1.0+	0.3−	1999 02 14	699	0.1−	0.5+	1999 03 13	113	0.0	1.1−

(10349)* 1992 LN

Discovered 1992 June 3 by G. J. Leonard at Palomar.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	317.64991	(2000.0)	P		Q	
<i>n</i>	0.26818995	ω 123.50775	−0.83873020	+0.52901150		
<i>a</i>	2.3814477	Ω 88.74368	−0.53258568	−0.74746865		
<i>e</i>	0.0647314	<i>i</i> 7.42199	−0.11350830	−0.40179279		
<i>P</i>	3.68	<i>H</i> 13.3	<i>G</i> 0.15	<i>U</i> 1		

Residuals in seconds of arc

1992 04 28	675	0.2+	0.6−	1992 08 22	413	0.1+	0.2+	1995 03 05	801	0.1+	0.5−
1992 04 28	675	0.9−	0.8−	1993 09 18	675	0.2+	0.9−	1997 11 29	704	0.6+	0.1+
1992 06 03	675	0.3−	0.7−	1993 09 18	675	0.6−	0.4−	1997 11 29	704	0.2+	0.1+
1992 06 03	675	0.1−	0.3−	1993 09 23	675	1.2+	0.3−	1997 11 29	704	0.8+	0.1+
1992 06 05	675	0.2−	0.2−	1993 09 23	675	0.3+	0.7+	1997 11 29	704	0.6+	0.4−
1992 06 05	675	0.6+	0.9−	1993 10 09	675	0.7−	1.1−	1997 11 29	704	0.3−	0.5−
1992 06 06	675	0.4−	0.1−	1993 10 09	675	1.0−	0.2−	1999 02 23	699	0.1−	1.0+
1992 06 06	675	0.5−	0.5−	1995 01 06	033	0.2−	0.5−	1999 02 23	699	0.5+	0.6+
1992 06 25	675	0.7+	0.6−	1995 01 06	033	0.1−	0.1−	1999 02 23	699	0.0	1.0+
1992 06 25	675	1.2+	0.5+	1995 01 08	033	1.0−	0.1−	1999 03 15	704	0.5−	0.0
1992 06 26	675	1.0+	1.0−	1995 01 31	033	0.1−	0.2−	1999 03 15	704	0.4+	0.6+
1992 06 26	675	0.2−	0.5+	1995 01 31	033	0.3−	0.6−	1999 03 15	704	0.3+	0.1+
1992 06 27	675	1.0−	0.7−	1995 01 31	801	0.4+	0.6−	1999 03 15	704	0.0	1.2+
1992 06 27	675	1.5−	1.5−	1995 01 31	801	0.2+	0.6−	1999 03 15	704	0.1+	0.3+
1992 06 28	675	0.5+	0.4−	1995 02 03	033	0.1−	0.8−	1999 03 19	744	0.2+	0.7+
1992 06 28	675	0.6+	0.3+	1995 02 03	801	0.2+	1.0−	1999 03 19	744	0.9+	0.2+
1992 06 29	675	1.4−	0.3−	1995 02 03	801	0.0	1.2−	1999 03 19	744	0.5+	0.0
1992 06 29	675	0.3+	0.1+	1995 03 04	801	0.8−	0.0	1999 03 21	744	0.0	0.2+
1992 08 22	413	0.0	0.2+	1995 03 05	801	0.0	0.9−	1999 03 21	744	0.4−	0.1−

(10350)* 1992 OG₂ = 1979 OB₆ = 1984 UH₄

Discovered 1992 July 26 by E. W. Elst at the European Southern

Observatory.

Id. K. Ichikawa (*MPC* 22057)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	101.97219	(2000.0)	P		Q	
<i>n</i>	0.22982973	ω 281.20316	+0.61636780	−0.78438491		
<i>a</i>	2.6395623	Ω 130.51784	+0.75345346	+0.56179113		
<i>e</i>	0.1334372	<i>i</i> 5.24590	+0.22890745	+0.26292781		
<i>P</i>	4.29	<i>H</i> 13.8	<i>G</i> 0.15	<i>U</i> 1		

Residuals in seconds of arc

1954 11 24	675	0.3−	1.0+	1992 07 26	809	0.5−	1.4−	1999 02 20	699	0.2+	0.4−
1954 11 24	675	0.4+	0.1−	1992 07 30	809	0.2+	1.2−	1999 02 20	699	0.0	0.3−
1979 07 24	675	0.2+	0.2+	1992 07 30	809	1.4−	0.7−	1999 03 20	704	0.7−	0.3−
1979 07 25	675	0.2−	0.8+	1992 07 30	809	1.2−	1.2−	1999 03 20	704	0.7−	0.3−
1984 10 20	095	0.8−	0.7+	1995 04 08	691	0.3−	0.4−	1999 03 20	704	0.6−	0.4−
1987 05 30	675	0.0	1.6+	1995 04 08	691	0.3−	0.5−	1999 03 20	704	0.6−	0.5−
1987 05 30	675	0.2+	1.6+	1995 04 08	691	0.2−	0.5−	1999 03 20	704	0.7−	0.4−
1991 05 18	675	0.7+	0.3+	1996 06 17	566	1.2+	0.8+	1999 03 23	699	0.0	0.1+
1991 05 18	675	0.0	1.5+	1996 06 17	566	1.1+	0.6+	1999 03 23	699	0.1+	0.0
1992 06 28	675	0.8+	0.4−	1996 06 17	566	0.9+	0.5+	1999 03 23	699	0.3+	0.8+
1992 07 24	809	1.1+	0.8−	1998 03 22	327	0.2+	0.2−	1999 03 23	704	0.7−	0.7−
1992 07 24	809	(0.1−	2.3−)	1998 03 22	327	0.4+	0.1−	1999 03 23	704	0.0	0.1+
1992 07 24	809	(0.9−	2.2−)	1998 03 22	327	0.4+	0.1−	1999 03 23	704	0.1+	0.2−
1992 07 26	809	0.3+	1.2−	1998 03 22	327	0.7+	0.2−	1999 03 23	704	1.0+	0.9−
1992 07 26	809	0.1−	1.0−	1999 02 20	699	0.7+	0.7−	1999 03 23	704	0.0	0.5+

(10351)* 1992 SE₁ = 1996 PX₆

Discovered 1992 Sept. 23 by K. Endate and K. Watanabe at Kitami.

Id. G. V. Williams (*MPC* 27914)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	234.29776	(2000.0)	P		Q	
<i>n</i>	0.22445168	ω 233.65018	+0.15843024	+0.97243039		
<i>a</i>	2.6815597	Ω 46.42492	−0.81325419	+0.22679402		
<i>e</i>	0.1552394	<i>i</i> 13.66162	−0.55992632	−0.05425502		
<i>P</i>	4.39	<i>H</i> 12.9	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1992 09 23	400	0.2+	0.2+	1996 08 20	424	0.5−	0.2+	1997 12 06	704	1.3−	0.5+
1992 09 23	400	0.1+	0.5+	1996 08 20	424	0.8−	0.1+	1997 12 06	704	0.3+	1.3+
1992 09 28	400	1.1+	0.7+	1996 08 20	424	0.7−	0.5+	1997 12 06	704	0.2−	1.0+
1992 09 28	400	(3.1+	0.1+)	1996 08 20	424	0.6−	0.3+	1997 12 06	704	1.0+	0.5+
1992 10 19	400	0.9−	0.8−	1996 08 20	424	0.1−	0.7+	1997 12 06	704	(1.2+	2.6+)
1992 10 19	400	1.4−	0.0	1996 08 23	424	0.4−	0.5+	1999 02 11	704	1.4−	0.7+
1992 10 26	400	0.1−	1.2−	1996 08 23	424	0.4−	0.2+	1999 02 11	704	0.3−	0.7+
1992 10 26	400	1.7+	0.7−	1996 08 23	424	0.3+	0.1+	1999 02 11	704	0.2+	0.8+
1992 11 26	675	(3.3−	0.4−)	1996 09 15	670	0.6+	1.3−	1999 02 11	704	0.3−	1.0+
1992 11 26	675	0.1+	1.4−	1996 09 15	670	0.4+	0.8+	1999 02 18	704	0.0	0.6−
1992 11 28	675	1.0+	0.0	1996 09 15	670	0.2−	0.4−	1999 02 18	704	0.0	0.3+
1992 11 28	675	0.1−	0.2−	1996 10 12	424	0.3+	0.1−	1999 02 18	704	0.1+	0.1+
1996 08 11	413	0.0	0.4−	1996 10 12	424	0.5+	0.6−	1999 02 18	704	0.5−	0.6−
1996 08 11	413	0.1+	0.9+	1996 11 02	424	0.7−	0.6−	1999 03 15	704	0.9+	0.3+
1996 08 13	424	0.1+	1.7+	1996 11 02	424	0.3−	0.6−	1999 03 15	704	0.5+	0.4+
1996 08 16	424	0.2−	1.4+	1997 11 22	424	0.8+	0.9−	1999 03 15	704	0.8+	0.3−
1996 08 16	424	0.8−	0.3−	1997 11 22	424	0.8−	1.1+	1999 03 15	704	0.6+	0.0

(10352)* 1992 UO₃ = 1984 YT₁ = 1988 VC₆

Discovered 1992 Oct. 26 by K. Endate and K. Watanabe at Kitami.

Id. K. Ichikawa (*MPC* 21274)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i>	240.41403	(2000.0)	P		Q	
<i>n</i>	0.23787608	ω 294.79459	+0.80796504	+0.57914397		
<i>a</i>	2.5796980	Ω 30.16406	−0.43176591	+0.70728170		
<i>e</i>	0.1830691	<i>i</i> 12.47682	−0.40096221	+0.40539471		
<i>P</i>	4.14	<i>H</i> 13.0	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1984 12 20	095	0.1−	0.9−	1995 04 03	801	1.1−	1.0−	1996 10 10	801	0.2−	0.6−
1988 11 03	033	0.6−	0.1+	1995 05 02	801	1.3−	0.3+	1996 10 10	801	0.1−	1.8−
1988 11 04	033	0.3−	0.2+	1995 05 02	801	0.3−	0.2−	1996 10 10	399	(2.5−	0.6+)
1988 11 04	033	0.4−	0.1−	1995 05 04	801	0.2−	1.0−	1996 10 10	399	(2.9−	1.7+)
1988 11 09	675	0.5+	0.0	1995 05 04	801	0.4−	0.4−	1996 10 12	801	0.5+	1.5−
1988 11 09	675	0.4+	0.3+	1995 05 07	400	1.4+	0.3−	1996 10 12	801	0.3+	1.9−
1992 10 21	675	0.1+	0.8+	1995 05 07	400	0.8+	0.1+	1996 11 07	691	0.4+	0.5+
1992 10 21	675	1.2+	0.9+	1995 05 07	397	0.5+	2.2+	1996 11 07	691	0.2+	0.7+

1992 10 26	400	1.6+	0.9+	1995 05 07	397	0.7-	2.1-	1996 11 07	691	0.3+	0.4+
1992 10 26	400	1.2+	0.2+	1995 05 18	400	1.0+	0.2-	1996 11 11	801	0.9+	1.1+
1992 10 27	372	0.6+	1.9-	1995 05 18	400	0.7-	0.2+	1996 11 11	801	0.4+	0.2-
1992 10 27	372	2.1-	1.9-	1995 05 28	801	0.4-	0.8+	1996 11 12	801	0.8+	1.0-
1992 10 28	400	0.6-	0.9+	1995 05 28	801	0.2-	0.3+	1996 11 12	801	0.6+	0.3-
1992 10 28	400	1.8-	1.6+	1995 05 31	801	0.1-	0.3+	1999 02 19	120	0.2+	0.9-
1992 10 28	399	1.5-	1.1+	1995 05 31	801	0.7+	0.4-	1999 02 19	120	0.5-	0.7-
1992 10 28	399	(1.5-	2.6+)	1995 06 03	400	0.9+	0.7+	1999 02 19	120	0.8-	0.7-
1992 11 01	372	0.4-	0.5+	1995 06 03	400	1.0+	0.8+	1999 03 23	704	0.2-	0.2-
1992 11 01	372	0.4+	0.4+	1996 09 15	801	0.7-	0.1+	1999 03 23	704	1.1+	0.6+
1992 11 21	400	0.4-	1.3+	1996 09 15	801	0.4-	0.1+	1999 03 23	704	0.2-	0.5+
1992 11 21	400	0.5+	0.7-	1996 10 09	399	(3.3-	1.1+)	1999 03 23	704	0.2+	0.2+
1995 04 03	801	(2.7-	0.1-)	1996 10 09	399	0.8-	1.5+	1999 03 23	704	0.5-	1.1+

(10353)* 1992 YS₂ = 1986 RW₁₂ = 1991 RV₂₂

Discovered 1992 Dec. 20 by S. Otomo at Kiyosato.

Id. S. Nakano (*MPC* 21801), A. Lowe (unpublished)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i>	71.23427		(2000.0)	P	Q
<i>n</i>	0.19662838	ω	13.85148	-0.03303462	-0.99795239
<i>a</i>	2.9289047	Ω	78.06267	+0.91156783	-0.05255480
<i>e</i>	0.0380836	<i>i</i>	3.20912	+0.40982045	+0.03645569
<i>P</i>	5.01	<i>H</i>	12.4	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1986 09 09	095	(0.7-	4.5+)	1993 01 22	894	1.9+	1.2+	1999 02 20	699	0.3-	0.3+
1991 09 15	675	0.5+	0.0	1997 10 17	327	0.3-	0.2-	1999 02 20	699	0.3-	0.1+
1991 09 15	675	0.0	0.5-	1997 10 17	327	0.5-	0.3-	1999 03 14	739	0.6+	0.4+
1991 09 17	675	1.0-	0.6-	1997 10 17	327	0.6-	0.4-	1999 03 14	739	0.6-	2.1-
1991 09 17	675	1.9+	2.0-	1997 10 17	327	0.3-	0.2-	1999 03 19	699	0.8+	0.1-
1992 12 15	894	0.0	0.6-	1997 12 04	704	0.6+	0.6+	1999 03 19	699	0.6+	0.2+
1992 12 15	894	0.6+	0.1+	1997 12 04	704	0.3+	1.4+	1999 03 19	699	0.5+	0.4+
1992 12 16	894	0.2-	1.2+	1997 12 04	704	0.5+	1.4+	1999 03 20	704	0.2-	0.7-
1992 12 16	894	0.8-	1.3-	1997 12 25	426	0.1+	0.2-	1999 03 20	704	0.1-	1.2-
1992 12 20	894	0.8+	0.2-	1997 12 25	426	0.1+	0.1-	1999 03 20	704	0.8-	0.7-
1992 12 20	894	0.1+	0.8-	1997 12 25	426	0.2+	0.1-	1999 03 20	704	0.2-	1.3-
1992 12 22	894	0.8+	0.4+	1997 12 26	426	0.1+	0.2-	1999 03 23	699	0.8+	0.2+
1992 12 22	894	0.2+	0.0	1997 12 26	426	0.1+	0.4-	1999 03 23	699	0.4+	0.1-
1992 12 26	894	0.7-	0.9+	1997 12 26	426	0.1-	0.2-	1999 03 23	699	0.1+	1.2+
1992 12 26	894	0.0	0.3+	1998 01 26	704	1.4+	0.7-	1999 03 23	704	0.5-	0.1+
1992 12 27	894	0.7+	0.7-	1998 01 26	704	0.3+	0.7-	1999 03 23	704	0.3-	0.3+
1992 12 27	894	0.3+	0.1-	1998 01 26	704	0.3+	0.3-	1999 03 23	704	0.7-	0.1-
1992 12 29	894	1.8-	0.3-	1998 01 26	704	0.6-	0.4-	1999 03 23	704	0.9-	0.2-
1992 12 29	894	1.3-	0.7-	1998 01 26	704	1.9-	0.1-				
1993 01 22	894	0.6-	1.2+	1999 02 20	699	0.2-	0.2+				

(10354)* 1993 BU₅ = 1996 TJ₅₅ = 5010 T-2

Discovered 1993 Jan. 27 by E. W. Elst at Caussols.

Id. A. Gnädig (*MPC* 31233)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	34.45977		(2000.0)	P	Q
<i>n</i>	0.17052862	ω	152.66375	-0.39336429	-0.90723165
<i>a</i>	3.2206080	Ω	320.00027	+0.79550896	-0.25463020
<i>e</i>	0.0500478	<i>i</i>	13.40155	+0.46090132	-0.33480470
<i>P</i>	5.78	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1973 09 19	675	(5.1+	1.0+)	1993 02 20	010	0.5+	0.8-	1999 02 16	704	0.0	0.9-
1973 09 20	675	0.6-	0.3+	1993 02 22	010	0.2-	1.5-	1999 02 16	704	0.2-	1.0-
1973 09 20	675	0.6+	0.7+	1993 02 23	010	0.1+	1.3-	1999 02 16	704	0.5-	1.6-
1973 09 24	675	0.8-	0.3+	1996 10 02	809	0.3+	1.8-	1999 02 21	699	0.5+	1.2+
1973 09 24	675	1.2+	0.2-	1996 10 02	809	(0.0	2.2-)	1999 02 21	699	0.3+	0.5+
1973 09 25	675	0.0	0.0	1996 10 02	809	0.5-	0.5-	1999 02 21	699	1.0+	0.7+
1973 09 25	675	1.3-	0.2-	1996 10 03	809	1.5+	0.1-	1999 03 19	704	1.1-	0.1-
1993 01 27	010	0.6+	0.6+	1996 10 03	809	0.6+	0.5-	1999 03 19	704	1.2-	1.2-

1993 01 27	010	0.1-	1.1+	1996 10 03	809	0.4+	0.1-	1999 03 19	704	1.9-	1.5+
1993 01 27	010	0.6+	0.9+	1999 02 13	747	0.2-	0.4+	1999 03 19	704	0.5-	0.5-
1993 01 28	010	(0.6+	2.2+)	1999 02 13	747	0.1+	0.3+	1999 03 20	704	0.1+	0.3-
1993 01 28	010	0.8+	1.3+	1999 02 15	747	0.2-	0.7+	1999 03 20	704	0.3+	0.7-
1993 01 28	010	(2.0+	2.5-)	1999 02 15	747	0.2+	0.6+	1999 03 20	704	0.1+	0.0
1993 02 20	010	0.2-	0.3-	1999 02 16	704	0.2-	0.7-	1999 03 20	704	0.1+	0.0
1993 02 20	010	0.8-	0.2+	1999 02 16	704	0.5+	0.7-	1999 03 20	704	0.4+	0.2-

(10355)* 1993 EQ

Discovered 1993 Mar. 15 by K. Endate and K. Watanabe at Kitami.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	257.09235		(2000.0)	P	Q
<i>n</i>	0.28542627	ω	158.15881	-0.99128136	-0.12793892
<i>a</i>	2.2845820	Ω	14.59672	+0.09460173	-0.85752475
<i>e</i>	0.0467212	<i>i</i>	7.18274	+0.09171578	-0.49827998
<i>P</i>	3.45	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1991 10 07	675	0.5+	0.7-	1993 04 10	400	1.0-	0.3+	1998 11 09	104	0.2+	1.3-
1991 10 07	675	0.6-	0.8+	1993 04 10	400	0.7+	1.0+	1998 11 09	104	0.4+	1.6-
1993 03 15	400	0.5-	1.2+	1993 04 15	399	0.4-	0.5-	1998 11 10	704	0.2-	0.3+
1993 03 15	400	0.4+	0.8-	1993 04 15	399	(2.5+	2.0-)	1998 11 10	704	0.4-	0.1+
1993 03 17	809	0.9+	0.6+	1993 04 16	413	(2.4+	2.2+)	1998 11 10	704	0.7+	0.8+
1993 03 18	809	0.4+	0.6+	1994 09 09	675	0.0	0.1+	1998 11 10	704	0.5-	0.5+
1993 03 20	400	(1.7-	3.4-)	1994 09 09	675	0.2+	0.1-	1998 11 11	704	0.9-	0.5+
1993 03 20	400	(2.4-	2.9-)	1994 10 01	675	0.5+	0.0	1998 11 11	704	0.2-	0.2+
1993 03 23	691	0.2+	0.5-	1994 10 01	675	0.6-	0.3-	1998 11 11	704	0.1+	0.5-
1993 03 23	691	0.2+	0.5-	1998 10 29	704	0.2-	0.2+	1998 11 11	704	0.3+	0.8-
1993 03 23	691	0.2+	0.5-	1998 10 29	704	0.7-	0.9+	1998 11 11	704	0.2-	0.6-
1993 03 25	400	(2.9+	1.1-)	1998 10 29	704	0.2+	0.0	1998 11 15	699	0.2-	0.1+
1993 03 25	400	(2.5+	3.7-)	1998 10 29	704	1.3+	0.4-	1998 11 15	699	0.0	0.9+
1993 03 29	400	1.8-	0.2-	1998 10 29	704	0.3-	0.8+	1998 11 15	699	0.4+	0.3+
1993 03 29	400	0.5+	1.0-	1998 11 09	104	0.4+	0.7-				

(10356)* 1993 RQ₄ = 1997 NV₂

Discovered 1993 Sept. 15 by E. W. Elst at the European Southern

Observatory.

Id. G. V. Williams (*MPC* 30872)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	36.27066		(2000.0)	P	Q
<i>n</i>	0.22299594	ω	191.23480	+0.59922380	-0.80004755
<i>a</i>	2.6932174	Ω	221.95979	+0.73786642	+0.56608297
<i>e</i>	0.1424625	<i>i</i>	2.50617	+0.31061870	+0.19868064
<i>P</i>	4.42	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1993 09 15	809	0.2-	0.2+	1993 10 17	033	1.6+	0.7+	1999 01 11	747	0.5+	0.7+
1993 09 15	809	0.5-	0.5+	1996 05 13	566	0.2-	0.7-	1999 01 11	747	0.3+	0.5+
1993 09 15	809	(2.2-	0.4+)	1996 05 13	566	0.1-	0.7-	1999 01 11	747	0.1+	0.9+
1993 09 16	809	(3.0-	0.9-)	1996 05 13	566	0.4-	0.4-	1999 01 16	747	0.2+	0.5+
1993 09 16	809	(3.3-	1.1-)	1997 07 02	691	0.1+	0.3+	1999 01 16	747	0.1-	0.4+
1993 09 16	809	(3.2-	0.1+)	1997 07 02	691	0.2+	0.0	1999 01 16	747	0.3+	0.7+
1993 09 17	809	1.1-	1.1-	1997 07 02	691	0.1+	0.2+	1999 01 18	704	1.3-	0.7+
1993 09 17	809	0.2-	1.3-	1997 07 09	691	0.1-	0.2-	1999 01 18	704	1.1-	0.6+
1993 09 17	809	1.5-	0.7-	1997 07 09	691	0.2-	0.1+	1999 01 18	704	0.8-	0.2-
1993 09 18	809	(3.0+	5.9+)	1997 07 09	691	0.1-	0.4+	1999 01 18	704	0.1+	0.3+
1993 09 18	809	(2.1+	5.3+)	1998 12 15	704	1.1-	1.3+	1999 01 18	704	0.1-	1.0-
1993 09 18	809	(1.9+	5.2+)	1998 12 15	704	0.8+	0.4-	1999 01 20	704	0.6-	0.4-
1993 09 18	675	0.9+	0.2+	1998 12 15	704	0.7+	0.1-	1999 01 20	704	(0.7-	2.3-)
1993 09 22	675	0.4+	0.8+	1998 12 15	704	0.6+	0.6-	1999 01 20	704	0.0-	0.8-
1993 09 22	675	0.8+	0.3-	1998 12 22	704	0.4-	1.4-	1999 01 20	704	0.5-	0.8-
1993 09 23	809	0.2-	0.4+	1998 12 22	704	0.2+	0.5-	1999 03 10	704	0.9+	0.4-
1993 09 23	809	0.9-	0.1+	1998 12 22	704	0.9+	0.4-	1999 03 10	704	2.0+	1.4-
1993 09 23	809	(2.4-	0.6-)	1998 12 22	704	0.5+	1.1-	1999 03 10	704	0.1-	1.2+
1993 10 17	033	1.6+	0.9-	1998 12 22	704	1.5-	1.0+				

(10357)* 1993 SL₃ = 1982 HB = 1985 BN₁ = 1985 FW₂ = 1989 KN

Discovered 1993 Sept. 19 by H. E. Holt at Palomar.

Id. S. Nakano (*MPC* 22693)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i>	248.94397		(2000.0)		P		Q
<i>n</i>	0.28747040	ω	285.33444		+0.50122553		+0.85775773
<i>a</i>	2.2737391	Ω	16.30702		-0.55186257		+0.41845376
<i>e</i>	0.2186963	<i>i</i>	23.98219		-0.66649882		+0.29857683
<i>P</i>	3.43	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1982 04 18	688	(3.2- 0.2-)	1993 10 10	675	0.4+	1.4-	1999 03 15	704	0.3-	0.8-
1982 04 18	688	0.7- 0.5+	1993 10 11	410	0.0	0.7+	1999 03 15	704	0.2-	1.0+
1982 04 25	688	(2.9+ 3.0+)	1993 10 11	410	0.2+	0.1-	1999 03 15	704	0.0	0.4+
1982 04 25	688	(4.6- 0.5-)	1993 10 11	410	1.3+	0.2-	1999 03 15	704	0.5+	0.7+
1985 01 18	691	0.7+ 0.7-	1993 10 12	809	(3.1+ 1.3+)		1999 03 16	012	0.0	0.2-
1985 01 18	691	2.0+ 0.7-	1993 10 12	809	(2.3+ 1.1+)		1999 03 16	012	0.2-	0.1-
1985 01 18	691	(2.7+ 0.6-)	1993 10 12	809	(2.4+ 0.8+)		1999 03 16	012	0.1-	0.1-
1985 03 25	801	(8.1- 9.4+)	1993 10 13	675	0.1+	0.8-	1999 03 16	012	0.0	0.2-
1985 03 26	801	0.4- 1.2+	1993 10 13	675	0.1-	0.0	1999 03 16	012	0.1+	0.1-
1989 05 29	808	(1.4- 4.0+)	1993 12 14	675	0.3-	0.3+	1999 03 20	704	0.3-	0.5+
1989 05 30	808	(20.3+ 0.6+)	1993 12 14	675	0.3-	0.2+	1999 03 20	704	0.6-	0.1-
1993 09 19	675	0.3- 0.0	1993 12 16	675	0.5+	0.3-	1999 03 20	704	0.6-	0.3-
1993 09 22	303	1.0- 0.5-	1993 12 16	675	2.1+	1.2-	1999 03 20	704	0.6-	0.1-
1993 09 22	303	0.6+ 0.4-	1997 10 30	566	0.5-	0.3+	1999 03 20	704	0.4+	0.5+
1993 09 22	303	1.2- 0.4+	1997 10 30	566	0.4-	0.2+	1999 03 23	704	0.1+	0.9+
1993 09 23	303	0.4+ 1.4+	1997 10 30	566	0.3-	0.2+	1999 03 23	704	0.3+	0.7+
1993 09 23	675	1.0+ 1.9+	1999 02 20	704	1.3+	0.7-	1999 03 23	704	0.3-	0.0
1993 10 09	374	0.4- 0.9+	1999 02 20	704	(2.3- 0.2-)		1999 03 23	704	1.9+	0.9-
1993 10 09	374	1.5- 0.0	1999 02 20	704	2.0-	1.9-	1999 03 23	704	0.5-	0.0
1993 10 10	675	0.2- 1.0-	1999 03 15	704	0.3+	0.3-				

(10358)* 1993 TH₃₂ = 1988 CL₆

Discovered 1993 Oct. 9 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 23342)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	259.25044		(2000.0)		P		Q
<i>n</i>	0.26766166	ω	120.73427		-0.12328701		+0.99194987
<i>a</i>	2.3845802	Ω	142.15007		-0.92583317		-0.10448430
<i>e</i>	0.1843416	<i>i</i>	2.70049		-0.35725797		-0.07154353
<i>P</i>	3.68	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1988 02 15	809	0.8+ 0.2-	1997 12 05	691	0.4-	0.2-	1999 02 12	691	0.8-	0.4-
1988 02 15	809	0.6+ 0.4+	1998 01 02	691	0.9+	0.1-	1999 02 12	691	0.8-	0.2-
1988 02 16	809	0.1- 0.6+	1998 01 02	691	0.4+	0.3-	1999 02 12	691	0.8-	0.1-
1988 02 16	809	0.5+ 0.4-	1998 01 02	691	0.4+	0.3-	1999 02 12	699	(2.8+ 0.3+)	
1988 03 17	675	1.2- 0.3-	1998 01 22	691	0.1-	0.4-	1999 02 12	699	0.3+	0.6+
1988 03 17	675	1.7- 0.1+	1998 01 22	691	0.2+	0.5-	1999 02 12	699	0.0	0.4+
1993 10 09	809	0.8+ 1.1+	1998 01 22	691	0.1+	0.2-	1999 02 13	704	0.1-	0.1+
1993 10 09	809	0.2+ 1.7+	1998 01 26	691	0.1+	0.0	1999 02 13	704	0.3-	0.5+
1993 10 09	809	0.8- 0.9+	1998 01 26	691	0.2+	0.2-	1999 02 13	704	0.4-	0.7+
1993 10 11	809	0.2+ 0.5+	1998 01 26	691	0.1+	0.3-	1999 02 13	704	0.2-	0.3-
1993 10 11	809	0.4+ 0.9+	1998 02 15	327	0.1-	1.3+	1999 02 13	704	0.3+	0.8-
1993 10 11	809	0.8- 0.9+	1998 02 15	327	(0.0 2.0+)		1999 02 18	691	0.4-	0.2-
1993 10 21	809	(0.3- 2.5+)	1998 02 15	327	0.2+	1.6+	1999 02 18	691	0.4-	0.2-
1993 10 21	809	(0.6- 2.7+)	1998 02 22	327	0.1+	0.4+	1999 02 18	691	0.5-	0.2-
1993 10 21	809	(0.3- 2.4+)	1998 02 22	327	0.5+	0.6+	1999 03 10	691	0.4-	0.0
1995 02 05	691	1.0+ 0.5-	1998 02 22	327	0.7+	0.5+	1999 03 10	691	0.3-	0.3-
1995 02 05	691	0.9+ 0.4-	1998 02 26	327	0.1-	0.4+	1999 03 10	691	0.5-	0.1+
1997 11 29	704	0.6- 0.8-	1998 02 26	327	0.9+	0.3+	1999 03 21	699	0.1+	0.5+
1997 11 29	704	0.3- 0.8-	1998 02 26	327	0.8+	0.4+	1999 03 21	699	0.0	0.1+
1997 11 29	704	0.1- 1.9-	1998 02 27	327	0.2+	0.4+	1999 03 21	699	0.2+	0.3+
1997 11 29	704	0.6+ 0.8-	1998 02 27	327	0.2+	0.0	1999 03 24	699	1.6+	0.4+
1997 11 29	704	0.2- 1.4-	1998 02 27	327	0.4+	0.2+	1999 03 24	699	0.1+	0.3-

1997 11 29	691	1.5-	0.1-	1999 02 10	704	0.5+	0.3-	1999 03 24	699	0.5+	0.1+
1997 11 29	691	1.3-	0.1-	1999 02 10	704	0.4+	0.0	1999 03 24	691	0.2+	1.0+
1997 11 29	691	1.4-	0.3-	1999 02 10	704	0.5+	0.3+	1999 03 24	691	1.4+	1.0+
1997 12 05	691	0.4-	0.3-	1999 02 10	704	1.0+	0.0	1999 03 24	691	0.2+	0.7+
1997 12 05	691	0.4-	0.1-	1999 02 10	704	0.1-	0.2+				

(10359)* 1993 TU₃₆ = 1988 FT₁ = 1995 CX₁₀

Discovered 1993 Oct. 13 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 30873)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	169.60589		(2000.0)		P		Q
<i>n</i>	0.26122245	ω	242.15666		+0.90383851		+0.38757509
<i>a</i>	2.4236080	Ω	94.55627		-0.29982824		+0.87595758
<i>e</i>	0.1741529	<i>i</i>	10.47766		-0.30525232		+0.28720003
<i>P</i>	3.77	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1988 03 18	033	0.4- 0.6+	1998 02 22	327	0.5+	0.7+	1999 02 10	704	0.2-	0.5+
1988 03 18	033	0.1- 0.0	1998 02 22	327	0.4+	0.8+	1999 02 10	704	1.2-	0.2+
1993 09 19	675	0.1- 0.1-	1998 02 22	327	0.1+	0.6+	1999 02 13	699	0.4+	0.9+
1993 09 19	675	0.5+ 0.8+	1998 02 23	327	0.9+	0.2-	1999 02 13	699	0.4-	0.1+
1993 09 20	675	0.2- 0.1+	1998 02 23	327	0.2+	0.3+	1999 02 13	699	0.7+	0.5+
1993 09 20	675	0.3- 0.3+	1998 02 23	327	0.6+	0.2+	1999 02 13	704	0.2-	0.7-
1993 10 13	675	0.4+ 0.3-	1998 02 23	327	0.3+	0.2+	1999 02 13	704	0.5-	0.3+
1993 10 13	675	0.3+ 1.1-	1998 02 26	327	0.3+	0.2-	1999 02 13	704	0.6-	0.4+
1993 10 15	675	0.2+ 0.1-	1998 02 26	327	0.4-	0.5-	1999 02 13	704	0.5+	0.1-
1993 10 15	675	0.3+ 0.2-	1998 02 26	327	0.1+	0.2-	1999 02 13	704	1.2-	0.5+
1995 02 03	033	0.1+ 0.4-	1998 02 27	327	0.1+	0.1-	1999 03 15	704	1.2+	0.6+
1995 02 03	033	0.1- 0.2+	1998 02 27	327	0.0	0.2-	1999 03 15	704	0.9+	0.6-
1997 10 29	566	0.9- 0.3-	1998 02 27	327	0.2-	0.3-	1999 03 15	704	(1.0+ 2.5-)	
1997 10 29	566	1.1- 0.1+	1999 02 10	704	0.1+	0.2-	1999 03 15	704	0.8+	1.5-
1997 10 29	566	0.7- 0.2-	1999 02 10	704	0.4-	0.1+	1999 03 15	704	0.5+	1.6-
1998 02 22	327	0.1- 0.4+	1999 02 10	704	0.2+	0.3-				

(10360)* 1993 VN = 1978 UQ = 1992 GB₄

Discovered 1993 Nov. 7 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 22821)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Asher

<i>M</i>	195.30490		(2000.0)		P		Q
<i>n</i>	0.26490162	ω	161.49780		+0.91785962		+0.39689292
<i>a</i>	2.4011151	Ω	175.11473		-0.36861868		+0.85533196
<i>e</i>	0.2312856	<i>i</i>	2.09808		-0.14715291		+0.33299135
<i>P</i>	3.72	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 10 28	688	1.1+ 2.0- Y	1993 11 09	399	0.3-	0.9+	1999 03 07	595	0.2+	0.8-
1989 09 04	675	0.1+ 0.3+	1993 11 09	399	0.5+	0.3-	1999 03 07	595	0.2+	0.7-
1989 09 04	675	0.2- 0.8-	1993 11 11	399	1.9-	0.3-	1999 03 20	704	0.0	0.3-
1989 09 29	675	0.3+ 0.4+	1993 11 11	399	0.3-	0.0	1999 03 20	704	0.2-	1.2-
1989 09 29	675	0.5+ 0.8+	1993 11 21	691	0.1+	0.4+	1999 03 20	704	0.7-	0.1-
1992 04 04	809	0.2+ 1.4+	1993 11 21	691	0.5-	0.5+	1999 03 20	704	0.1-	0.8-
1992 04 04	809	0.3+ 0.4+	1993 11 21	691	0.3+	0.3+	1999 03 20	704	0.3+	0.2+
1992 04 04	809	1.1- 1.4+	1996 05 16	801	0.2+	0.2-	1999 03 23	704	0.6+	0.1+
1992 04 06	809	1.1- 0.9+	1996 05 16	801	0.5-	1.5-	1999 03 23	704	0.6-	0.9+
1992 04 06	809	0.3- 0.7+	1996 05 23	801	0.6+	0.4-	1999 03 23	704	0.8+	0.1-
1992 04 06	809	0.6- 0.2+	1996 05 23	801	0.0	1.2-	1999 03 23	704	1.3+	0.1+
1993 11 07	399	0.1- 0.0	1999 03 07	595	0.1-	0.2-	1999 03 23	704	0.2-	1.2-
1993 11 07	399	0.2+ 1.4-	1999 03 07	595	0.8+	0.3-				

(10361)* 1994 PR₂₀ = 1996 DS

1999 APR. 2

M.P.C. 34151

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	20.71385		(2000.0)	P		Q	
<i>n</i>	0.28399900	ω	286.03804	+0.34667215		−0.93723239	
<i>a</i>	2.2922299	Ω	143.60802	+0.88299769		+0.31256258	
<i>e</i>	0.1211043	<i>i</i>	3.63362	+0.31643878		+0.15459650	
<i>P</i>	3.47	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1994 08 12	809	0.4+	0.2+	1996 03 26	566	0.3−	0.7−	1998 12 15	704	0.2−	1.0+
1994 08 12	809	0.4−	0.5−	1996 03 26	566	0.4−	1.4−	1998 12 15	704	0.1+	1.3+
1994 08 12	809	0.2−	0.3+	1996 03 26	566	0.5−	0.8−	1998 12 15	704	0.5+	1.5+
1994 08 13	809	1.8+	1.0−	1997 06 28	704	0.0	0.1+	1998 12 18	610	0.6−	0.7−
1994 08 13	809	0.6+	1.2−	1997 06 28	704	0.1+	0.3+	1998 12 18	610	0.2−	0.5−
1994 08 13	809	0.1+	1.3−	1997 06 28	704	0.1+	0.0	1998 12 18	610	0.2+	0.3−
1994 09 05	809	1.0−	1.7−	1997 06 29	704	0.2+	0.3−	1998 12 18	610	0.3+	0.2−
1994 09 05	809	(1.9−	2.3−)	1997 06 29	704	0.2+	0.3−	1998 12 18	610	0.5+	0.0
1994 09 05	809	(0.9−	2.7−)	1997 06 29	704	0.9−	0.3−	1998 12 22	704	0.2−	1.2+
1994 09 06	809	1.0+	0.1−	1997 06 29	704	0.1+	0.2+	1998 12 22	704	0.4−	0.9−
1994 09 06	809	0.1+	0.9−	1997 06 29	704	0.1−	0.1+	1998 12 22	704	0.3−	0.2−
1994 09 06	809	0.6+	0.3−	1997 07 02	704	0.1−	1.3+	1998 12 22	704	0.2+	1.0−
1994 09 30	675	0.8−	0.5+	1997 07 02	704	0.6+	0.4+	1999 03 10	704	0.2+	0.1+
1994 09 30	675	(2.5−	0.1+)	1997 07 02	704	0.8−	0.5−	1999 03 10	704	0.2+	1.9−
1996 02 19	411	0.2+	0.8−	1997 07 02	704	0.1−	0.3+	1999 03 10	704	0.1+	0.6+
1996 02 19	411	0.3+	0.4−	1997 07 02	704	0.6+	0.2+	1999 03 10	704	1.3+	1.4−
1996 02 21	411	1.0−	0.7−	1998 12 15	704	0.4−	0.3−				
1996 02 21	411	(0.4−	2.3−)	1998 12 15	704	0.6−	0.4+				

(10362)* 1994 UC₂ = 1996 GF

Discovered 1994 Oct. 31 by S. Ueda and H. Kaneda at Kushiro.

Id. T. Kobayashi (*MPC* 27717)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	68.36722		(2000.0)	P		Q	
<i>n</i>	0.28392066	ω	172.00380	+0.51643776		−0.85247199	
<i>a</i>	2.2926515	Ω	246.86921	+0.78069966		+0.50764358	
<i>e</i>	0.1857174	<i>i</i>	5.06190	+0.35185235		+0.12485793	
<i>P</i>	3.47	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1994 10 31	399	0.4+	0.7−	1996 04 09	608	0.7−	0.7−	1999 02 16	704	0.1+	0.8−
1994 10 31	399	1.1+	0.1+	1996 04 09	608	0.6+	1.9−	1999 02 16	704	0.4−	2.1+
1994 11 07	675	1.0+	0.6−	1997 08 01	688	0.5−	0.1−	1999 02 16	704	0.4+	0.5−
1994 11 07	675	0.8+	0.9+	1997 08 01	688	0.2+	0.4−	1999 02 16	704	0.8+	1.3−
1994 11 07	399	1.2−	1.2−	1997 08 09	104	0.0	0.3+	1999 03 20	704	1.5+	1.6−
1994 11 07	399	1.5−	0.7−	1997 08 09	104	0.4+	0.0	1999 03 20	704	0.1+	0.5+
1994 11 23	399	0.6−	0.7−	1999 02 14	699	0.8+	0.2−	1999 03 20	704	1.3−	0.4−
1994 11 23	399	0.5+	0.7+	1999 02 14	699	0.2+	0.7+	1999 03 20	704	1.0−	0.3+
1996 04 07	608	0.5−	0.2−	1999 02 14	699	0.3+	1.5+	1999 03 20	704	1.3−	0.6+
1996 04 07	608	0.2−	0.2−	1999 02 16	704	0.1−	0.3−				

(10363)* 1994 UP₁₁ = 1957 YU = 1964 YN = 1990 HJ₆ = 1992 AT₆

Discovered 1994 Oct. 31 at Palomar in the course of the Planet-Crossing

Asteroid Survey.

Id. G. V. Williams (*MPC* 24400)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	95.53549		(2000.0)	P		Q	
<i>n</i>	0.29288504	ω	314.02555	+0.82508906		−0.56202666	
<i>a</i>	2.2456286	Ω	80.25255	+0.53373523		+0.74169664	
<i>e</i>	0.1755643	<i>i</i>	3.36879	+0.18535033		+0.36607666	
<i>P</i>	3.37	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1957 12 19	330	0.8+	0.5+	1994 11 24	670	0.4−	0.8+	1999 02 18	699	0.1+	0.3+
1964 12 31	330	1.0−	2.1+	1994 11 28	675	1.0+	1.3−	1999 03 11	758	0.6−	0.7+
1990 04 29	413	0.2+	0.6−	1994 11 28	675	1.1+	0.7−	1999 03 11	758	0.2−	0.3+

1990 05 01	413	0.2+	0.3−	1994 12 03	675	(2.2+	0.1−)	1999 03 11	758	0.6−	0.1+
1990 05 02	413	0.2+	0.3−	1994 12 03	675	1.5+	0.1+	1999 03 13	758	0.6−	0.1−
1992 01 01	691	0.1−	0.7−	1996 04 07	608	0.5−	0.7−	1999 03 13	758	0.1−	0.6+
1992 01 01	691	0.1−	0.8−	1996 04 07	608	0.8−	0.7−	1999 03 19	704	0.1−	0.1−
1992 01 01	691	0.2+	0.9−	1996 04 08	608	0.5−	0.4−	1999 03 19	704	0.3−	0.1−
1992 02 04	675	0.3−	1.9−	1996 04 08	608	0.5−	0.6−	1999 03 19	704	0.5−	0.4−
1994 10 06	675	0.8−	0.8−	1999 02 10	704	0.4+	0.1+	1999 03 19	704	1.1−	0.1+
1994 10 06	675	0.2−	0.3+	1999 02 10	704	0.6+	0.5+	1999 03 20	704	0.3+	0.8−
1994 10 29	691	0.1+	0.3+	1999 02 10	704	0.1+	1.4+	1999 03 20	704	1.7+	0.0
1994 10 29	691	0.1+	0.2+	1999 02 10	704	0.2−	0.2+	1999 03 20	704	1.5−	0.6+
1994 10 29	691	0.0	0.0	1999 02 10	704	0.4+	0.9+	1999 03 20	704	0.9−	0.2+
1994 10 31	675	0.9+	0.1+	1999 02 13	704	0.6−	1.0+	1999 03 20	704	0.0	0.1+
1994 10 31	675	0.2+	0.3−	1999 02 13	704	0.2+	0.1−	1999 03 23	704	0.0	0.8−
1994 11 01	400	0.1−	0.5+	1999 02 13	704	0.9+	1.0−	1999 03 23	704	0.9+	0.3+
1994 11 01	400	1.3−	0.4−	1999 02 13	704	0.8+	0.8−	1999 03 23	704	0.2+	0.1+
1994 11 03	400	0.2−	1.1−	1999 02 13	704	0.4−	0.9−	1999 03 23	704	1.3+	0.5+
1994 11 03	400	0.5−	0.4−	1999 02 18	699	0.6+	0.4−	1999 03 23	704	1.8+	0.3−
1994 11 24	670	0.8−	0.9+	1999 02 18	699	0.3+	0.2+				

(10364)* 1994 VR₁ = 1992 CG₈ = 1993 JO₁

Discovered 1994 Nov. 3 by T. Kobayashi at Oizumi.

Id. E. Bowell (*MPC* 28854), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	125.85145		(2000.0)	P		Q	
<i>n</i>	0.29886397	ω	82.50967	+0.90566219		−0.42320553	
<i>a</i>	2.2155778	Ω	302.52417	+0.37586926		+0.82966602	
<i>e</i>	0.1019129	<i>i</i>	1.76323	+0.19620983		+0.36407605	
<i>P</i>	3.30	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1992 02 04	675	1.3−	0.3−	1994 11 27	675	1.5−	1.0+	1997 10 09	691	0.1+	0.5−
1992 02 04	675	0.1−	1.9−	1994 11 29	411	0.5−	0.5+	1999 01 28	120	0.6+	1.0+
1993 05 14	809	0.5+	0.8+	1994 11 29	411	0.5−	1.1+	1999 01 28	120	1.2+	0.2+
1993 05 14	809	0.0	0.5+	1994 11 30	411	1.0+	0.0	1999 03 20	704	0.1+	0.4+
1993 05 14	809	0.0	0.1+	1994 11 30	411	0.1+	0.4+	1999 03 20	704	0.2−	0.4−
1994 11 03	411	0.6+	1.7−	1994 12 26	413	1.4+	1.6+	1999 03 20	704	0.2+	0.9−
1994 11 03	411	0.1+	1.4−	1994 12 26	413	0.2−	0.6−	1999 03 20	704	0.7−	0.7+
1994 11 08	411	0.7+	0.3−	1994 12 27	413	(3.3+	0.7+)	1999 03 20	704	0.1−	0.8+
1994 11 08	411	0.5+	0.9−	1994 12 27	413	(2.1−	0.6−)	1999 03 23	704	0.2−	0.7−
1994 11 10	411	0.3−	0.7−	1997 10 04	691	0.1−	0.4−	1999 03 23	704	0.0	0.9−
1994 11 10	411	0.1+	0.2+	1997 10 04	691	0.1−	0.6−	1999 03 23	704	0.2−	0.5+
1994 11 15	411	0.1+	1.0+	1997 10 04	691	0.1−	0.4−	1999 03 23	704	0.3−	0.7−
1994 11 15	411	0.0	1.6+	1997 10 09	691	0.8+	0.4−	1999 03 23	704	1.0−	1.5−
1994 11 27	675	0.9−	1.4+	1997 10 09	691	0.0	0.6−				

(10365)* 1994 WL₁ = 1982 BA₁₂ = 1997 SK₃

Discovered 1994 Nov. 27 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 30760)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	345.83624		(2000.0)	P		Q	
<i>n</i>	0.29366035	ω	272.10338	−0.99783208		+0.03085031	
<i>a</i>	2.2416743	Ω	269.66805	−0.00526194		−0.91789198	
<i>e</i>	0.1013872	<i>i</i>	3.33268	−0.06560064		−0.39562933	
<i>P</i>	3.36	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1982 01 20	095	0.3−	0.7−	1997 09 26	557	0.1+	0.1+	1997 10 30	704	0.9+	0.1−
1994 11 27	411	0.3−	0.0	1997 09 26	557	0.2+	0.2+	1997 10 30	704	1.1−	1.2−
1994 11 27	411	1.1−	1.3−	1997 09 26	557	0.1−	0.5+	1999 02 26	704	0.2+	0.3−
1994 11 28	411	0.3+	0.3+	1997 10 02	557	0.7−	0.3+	1999 02 26	704	1.6−	0.2+
1994 11 28	411	0.8+	1.3+	1997 10 02	557	0.8−	0.2+	1999 02 26	704	(2.6−	0.5+)
1994 12 06	411	0.1−	0.8+	1997 10 05	557	0.4−	0.4+	1999 03 20	704	0.1−	0.9−
1994 12 06	411	0.6−	0.6+	1997 10 05	557	0.4−	0.3+	1999 03 20	704	0.4+	0.1−
1994 12 21	411	0.1−	0.5+	1997 10 10	557	0.3−	0.4−	1999 03 20	704	0.5+	0.3+
1994 12 21	411	1.0+	1.2−	1997 10 11	557	0.1−	0.4−	1999 03 20	704	0.4+	0.8+

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1997 09 25	557	0.2−	0.2+	1997 10 25	910	1.6+	0.8+	1999 03 23	704	0.7+	0.7−
1997 09 25	557	0.0	0.1+	1997 10 25	910	1.7+	0.9+	1999 03 23	704	0.4+	0.2−
1997 09 26	557	0.4−	0.2+	1997 10 25	910	1.7+	0.8+	1999 03 23	704	0.2+	0.6+
1997 09 26	557	0.1−	0.0	1997 10 30	704	0.1−	0.9−	1999 03 23	704	0.1+	1.4+
1997 09 26	557	0.0	0.4+	1997 10 30	704	1.2−	1.2−				
1997 09 26	557	0.3−	0.2+	1997 10 30	704	0.1−	0.8−				

(10366)* 1994 WD₄ = 1982 BG₁₂ = 1986 JH₁ = 1989 GJ₅

Discovered 1994 Nov. 24 by K. Endate and K. Watanabe at Kitami.

Id. S. Nakano (*MPC* 24575)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Nakano					
<i>M</i>	66.61608	(2000.0)	P	Q			
<i>n</i>	0.29352648	ω	277.67905	+0.16913697	−0.98535071		
<i>a</i>	2.2423558	Ω	162.53748	+0.93052161	+0.15234602		
<i>e</i>	0.1462498	<i>i</i>	4.17231	+0.32484182	+0.07664643		
<i>P</i>	3.36	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1982 01 20	095	0.0	0.6+	1996 05 06	596	0.8−	0.4−	1998 12 23	704	0.6−	0.2+
1986 05 08	046	2.1+	0.5+	1996 05 18	801	0.1−	0.9−	1999 03 20	704	0.7+	0.2+
1986 05 09	046	(6.3+	2.6−)	1996 05 18	801	0.8−	1.1−	1999 03 20	704	0.4+	0.2+
1989 04 06	675	(3.7−	1.8−)	1996 05 18	400	0.7−	0.8+	1999 03 20	704	0.1+	0.4+
1989 04 06	675	2.0−	2.1−	1996 05 18	400	0.7−	0.6+	1999 03 20	704	0.2+	0.3+
1989 04 08	675	0.5−	1.3−	1996 06 09	400	1.3+	1.0−	1999 03 22	699	0.0	0.5+
1989 04 08	675	0.6−	1.4−	1996 06 09	400	0.4+	1.0−	1999 03 22	699	0.6−	1.0+
1994 11 24	400	1.2−	1.4−	1997 08 31	138	0.4−	0.6−	1999 03 22	699	0.8+	1.0+
1994 11 24	400	0.3+	1.1−	1997 09 01	138	0.7+	0.0	1999 03 23	704	0.4−	0.1+
1994 11 30	400	0.0	0.2−	1997 09 01	138	0.1+	0.0	1999 03 23	704	0.0+	1.0+
1994 11 30	400	0.4+	0.2−	1998 12 23	704	1.5+	0.7−	1999 03 23	704	0.4−	0.3+
1994 12 03	400	0.2−	1.0−	1998 12 23	704	0.1+	0.6−	1999 03 23	704	0.2−	0.2+
1994 12 03	400	1.5+	0.3+	1998 12 23	704	0.0	1.3−	1999 03 23	704	0.4+	1.3−
1996 05 06	596	0.8−	0.1−	1998 12 23	704	1.0+	0.3+				

(10367)* 1994 YL₁ = 1990 UT = 1996 HR₂₃

Discovered 1994 Dec. 31 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 24753), G. V. Williams (*MPC* 30663)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Nakano					
<i>M</i>	90.75588	(2000.0)	P	Q			
<i>n</i>	0.27420052	ω	352.76885	+0.67435816	−0.73742749		
<i>a</i>	2.3465179	Ω	54.81820	+0.67977763	+0.59991459		
<i>e</i>	0.1490631	<i>i</i>	2.66276	+0.28834605	+0.31032755		
<i>P</i>	3.59	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1990 10 16	399	(5.0−	1.9−)	1995 01 10	411	0.9+	1.0−	1997 12 01	910	1.2−	0.4−
1990 10 16	399	(3.9−	0.2+)	1995 02 01	411	2.1−	0.4−	1997 12 01	910	1.2−	0.5−
1990 10 16	399	0.3+	1.0+	1995 02 01	411	0.2−	0.5+	1999 02 18	699	0.1+	1.4+
1990 10 19	399	(1.8−	3.6−)	1996 04 20	809	0.2+	1.4+	1999 02 18	699	0.5+	0.1+
1990 10 22	399	(0.3−	4.7−)	1996 04 20	809	0.4−	1.1+	1999 02 18	699	1.4+	0.1+
1994 12 31	411	0.0	1.9+	1996 04 20	809	0.4−	0.7+	1999 03 20	704	0.7+	0.6−
1994 12 31	411	0.7−	0.4+	1997 08 13	124	0.7+	0.4+	1999 03 20	704	0.2−	0.4+
1995 01 01	411	0.2−	1.0+	1997 08 13	124	0.6+	0.1+	1999 03 20	704	0.3−	0.4−
1995 01 01	411	0.3−	0.2−	1997 08 13	124	0.5−	0.3−	1999 03 20	704	0.1−	1.1−
1995 01 01	411	0.3+	0.6+	1997 08 31	124	0.0	2.1+	1999 03 23	704	0.2+	0.0
1995 01 05	411	0.0	0.4−	1997 08 31	124	0.5−	1.0−	1999 03 23	704	1.7−	0.9−
1995 01 05	411	0.6+	0.2+	1997 08 31	124	(4.2+	1.8+)	1999 03 23	704	1.2+	0.1+
1995 01 05	411	0.4+	0.3−	1997 08 31	124	1.4+	0.4+				
1995 01 10	411	0.2+	1.0−	1997 12 01	910	1.2−	0.4−				

(10368)* 1995 CM₁ = 1989 SS₀

Discovered 1995 Feb. 7 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 24908)

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Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Nakano					
<i>M</i>	213.06347	(2000.0)	P	Q			
<i>n</i>	0.26640385	ω	331.78114	+0.79982451	+0.59965335		
<i>a</i>	2.3920801	Ω	351.22846	−0.51300783	+0.66010443		
<i>e</i>	0.1193622	<i>i</i>	9.96680	−0.31161470	+0.45241353		
<i>P</i>	3.70	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1989 09 26	809	1.8−	0.6−	1995 02 22	411	0.8+	0.6−	1999 03 20	704	0.7+	0.8−
1989 09 26	809	1.0−	0.5−	1997 11 29	688	0.9+	0.5+	1999 03 22	699	0.3+	1.1+
1989 09 26	809	0.3−	0.4−	1997 11 29	688	1.0+	0.4+	1999 03 22	699	0.9+	0.4−
1989 09 28	809	0.2+	0.8+	1997 12 06	704	0.8−	0.1+	1999 03 22	699	1.1+	1.3+
1989 09 28	809	0.4+	0.8+	1997 12 06	704	1.1−	0.4+	1999 03 23	704	0.3−	0.1−
1989 09 28	809	0.6+	0.8+	1997 12 06	704	1.3−	0.1+	1999 03 23	704	0.2+	0.1−
1989 09 29	675	0.0	1.3+	1997 12 06	704	0.1−	1.5−	1999 03 23	704	0.3+	0.2+
1989 09 29	675	0.5+	0.1+	1997 12 27	688	0.7+	0.4−	1999 03 23	704	0.1−	0.2+
1995 02 07	411	0.4+	0.4+	1997 12 27	688	0.8+	0.1−	1999 03 23	120	0.5−	0.1+
1995 02 07	411	0.4+	0.7−	1999 02 23	704	0.8−	1.1−	1999 03 23	120	1.1−	0.3+
1995 02 08	411	1.1−	1.4+	1999 02 23	704	2.1−	0.6−	1999 03 23	120	0.2+	0.4+
1995 02 08	411	0.3+	0.5−	1999 02 23	704	1.9−	0.5−	1999 03 24	699	0.3+	0.2+
1995 02 21	411	0.4+	1.2+	1999 03 20	704	0.9+	0.1+	1999 03 24	699	0.8+	0.6+
1995 02 21	411	0.5+	0.5−	1999 03 20	704	0.7+	0.2−	1999 03 24	699	0.2+	0.1+
1995 02 22	411	0.4−	1.6+	1999 03 20	704	0.2+	0.1−				

(10369)* 1995 CE₂ = 1992 OY

Discovered 1995 Feb. 8 by D. J. Asher at Siding Spring.

Id. G. V. Williams (*MPC* 25071)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams					
<i>M</i>	237.13590	(2000.0)	P	Q			
<i>n</i>	0.23393689	ω	330.47455	−0.08980163	+0.89089318		
<i>a</i>	2.6085765	Ω	291.15557	−0.79432323	−0.33375424		
<i>e</i>	0.0408604	<i>i</i>	28.51727	−0.60082133	+0.30808674		
<i>P</i>	4.21	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1989 11 28	675	0.2−	0.4−	1995 02 08	413	0.5+	0.4−	1998 12 23	704	0.3−	0.1+
1989 11 28	675	0.3−	0.6−	1995 02 08	413	0.5+	0.3+	1998 12 26	699	0.8+	0.0
1992 06 28	675	0.5+	0.7−	1995 02 09	413	0.4−	0.4−	1998 12 26	699	0.4+	0.2−
1992 06 28	675	0.3+	0.9−	1995 02 09	413	0.4−	0.4−	1998 12 26	699	1.5+	0.1−
1992 07 26	675	1.2+	0.0	1995 02 20	413	0.5+	0.6+	1998 12 30	689	0.2+	0.6−
1992 07 26	675	0.2+	0.1+	1995 02 20	413	0.5+	0.3+	1999 02 17	704	1.8−	1.0−
1992 07 26	675	0.4+	1.0−	1995 03 07	413	0.6−	0.0	1999 02 17	704	0.3+	0.4−
1992 07 26	675	(2.3−	1.1−)	1995 03 07	413	0.5−	0.1−	1999 02 17	704	0.2−	0.9−
1992 07 28	675	(2.8−	1.2−)	1998 12 23	704	0.0	1.0−	1999 02 17	704	0.1+	0.2−
1992 07 28	675	(1.5−	2.4−)	1998 12 23	704	0.1−	1.1+	1999 02 17	704	1.4−	1.8+
1992 07 29	675	(2.2+	0.9+)	1998 12 23	704	0.3−	1.2−				
1992 07 29	675	1.0−	0.6+	1998 12 23	704	0.2−	1.2+				

(10370)* 1995 DW₂

Discovered 1995 Feb. 27 by D. Jewitt and J. X. Luu at Mauna Kea.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams					
<i>M</i>	10.95394	(2000.0)	P	Q			
<i>n</i>	0.00793978	ω	5.80926	−0.99747966	+0.07091863		
<i>a</i>	24.8845809	Ω	178.25292	−0.06766528	−0.94143790		
<i>e</i>	0.2422239	<i>i</i>	4.15253	−0.02134798	−0.32964410		
<i>P</i>	124.14	<i>H</i>	8.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1995 02 27	568	0.7+	1.6−	1996 01 20	711	0.7+	0.2−	1996 04 13	608	0.2+	0.3+
1995 02 27	568	0.3+	1.4−	1996 01 20	711	0.1−	0.5+	1996 04 13	608	0.4−	0.4+
1995 02 27	568	0.5+	1.6−	1996 01 20	711	0.3−	0.1+	1997 03 12	711	0.5+	0.3+
1995 02 27	568	0.3+	1.4−	1996 01 20	711	0.3+	0.1−	1997 03 12	711	0.3+	0.0
1995 02 27	568	0.6+	1.2−	1996 01 20	711	0.1−	0.5+	1997 03 12	711	0.7+	0.4+

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1995 03 09	691	0.0	0.4−	1996 01 20	711	0.0	0.9+	1997 03 13	711	0.8+	0.8+
1995 03 10	691	0.1+	0.4−	1996 01 20	711	0.2−	0.9+	1997 03 13	711	0.6+	0.2+
1995 03 28	413	0.6−	0.6−	1996 01 20	711	0.4−	0.3+	1997 03 13	711	0.5+	0.4+
1995 03 28	413	0.5−	0.1−	1996 01 20	711	0.4−	0.5+	1997 03 13	711	0.5+	0.4+
1995 04 06	809	0.4−	0.4−	1996 01 21	711	0.2−	0.8+	1998 06 23	705	0.8+	1.7−
1995 04 06	809	0.2−	0.4−	1996 01 22	711	0.6+	0.7+	1998 06 24	709	0.7−	0.3+
1995 04 07	809	0.5−	0.5−	1996 01 22	711	0.0	0.4+	1998 06 24	705	0.9+	0.2−
1995 04 07	809	0.4−	0.6−	1996 01 22	711	0.5+	0.5−	1998 06 25	705	0.5+	0.4−
1995 04 07	809	0.5−	0.5−	1996 01 22	711	0.6+	0.4+	1998 06 26	709	1.1−	0.4−
1995 04 07	809	0.6−	0.5−	1996 01 22	711	0.0	0.6+	1998 06 27	568	0.9−	0.2−
1995 04 07	809	0.2−	0.5−	1996 01 22	711	0.0	0.1+	1998 06 28	568	0.5−	0.3−
1995 04 07	809	0.5−	0.5−	1996 01 22	711	0.3−	0.5+	1999 01 15	696	0.4−	0.6−
1995 04 07	809	0.4−	0.6−	1996 01 22	711	0.5−	0.5+	1999 01 15	696	0.1+	1.6−
1995 05 29	568	0.2−	0.8+	1996 01 23	711	0.1+	0.2+	1999 01 16	696	0.0	0.1−
1995 05 29	568	0.2−	0.9+	1996 01 23	711	0.0	0.3+	1999 01 16	696	0.1+	0.2+
1995 12 23	568	0.5−	0.6+	1996 01 23	711	0.3+	0.4+	1999 01 16	696	0.3+	0.0
1995 12 23	568	0.6−	0.4+	1996 01 23	711	0.1+	0.7+	1999 03 19	696	0.2−	0.3−
1995 12 24	568	0.5−	1.0+	1996 01 23	711	0.3−	0.5+	1999 03 19	696	1.3−	0.1−
1996 01 20	711	0.2+	0.9+	1996 01 23	711	0.1−	0.4+				

(10371)* 1995 DU₃

Discovered 1995 Feb. 27 by L. Tesi and A. Boattini at San Marcello Pistoiese.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5	Williams										
<i>M</i>	357.39914		(2000.0)	P		Q					
<i>n</i>	0.26572348	ω	139.89964	−0.98851707	−0.15107287						
<i>a</i>	2.3961616	Ω	31.41173	+0.13695857	−0.90500458						
<i>e</i>	0.1659443	<i>i</i>	0.36461	+0.06384639	−0.39767286						
<i>P</i>	3.71	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	1				

Residuals in seconds of arc

1995 01 30	033	0.1+	0.4+	1995 03 30	104	0.6+	0.1+	1997 10 11	691	1.2−	0.9−
1995 01 31	033	0.5−	0.1+	1995 03 30	104	0.8+	0.3+	1997 10 28	691	0.9−	0.4−
1995 02 03	033	0.4+	0.4+	1995 04 04	104	0.8+	0.1−	1997 10 28	691	0.9−	0.2−
1995 02 22	033	1.0−	0.8−	1995 04 04	104	0.5+	0.5−	1997 10 28	691	0.8−	0.2−
1995 02 22	033	0.2+	0.9+	1995 04 04	104	0.6+	0.5−	1998 12 26	104	0.6+	0.2−
1995 02 27	104	0.4+	0.8+	1995 05 02	104	1.7−	0.3+	1998 12 26	104	0.3+	0.5−
1995 02 27	104	0.2+	0.6+	1995 05 02	104	0.0	0.1−	1998 12 26	104	2.0+	0.6−
1995 02 27	104	0.1+	1.1+	1996 07 22	104	0.3+	0.1+	1998 12 27	104	1.8+	0.5+
1995 02 27	104	0.4+	1.0+	1996 07 22	104	0.4+	0.1+	1998 12 27	104	1.6+	0.7−
1995 02 27	104	0.3−	0.9+	1996 07 22	104	0.1+	0.2+	1999 03 14	104	0.3+	0.1−
1995 02 28	104	0.1−	0.7+	1996 07 22	104	0.6−	0.1−	1999 03 14	104	0.8−	0.4+
1995 02 28	104	0.1−	0.6+	1996 07 23	104	0.5−	0.2+	1999 03 14	104	0.7−	0.3+
1995 02 28	104	0.6−	0.7+	1996 07 23	104	0.7+	1.0+	1999 03 19	704	1.1+	1.0−
1995 02 28	104	0.5−	0.9+	1996 07 23	104	0.5−	1.1+	1999 03 19	704	0.6−	0.5−
1995 03 09	104	0.3−	0.6−	1996 07 23	104	0.2+	0.7+	1999 03 19	704	0.1+	0.8−
1995 03 09	104	0.4−	0.6−	1997 09 28	104	0.1−	0.4−	1999 03 20	704	0.5−	0.4−
1995 03 09	104	0.1−	0.6−	1997 09 28	104	0.7+	0.2−	1999 03 20	704	0.7+	0.9−
1995 03 09	104	1.3+	0.4−	1997 09 28	104	1.1+	0.2+	1999 03 20	704	0.9−	0.8−
1995 03 10	104	0.5−	0.3+	1997 09 30	104	1.7+	1.6−	1999 03 20	704	0.7+	0.7−
1995 03 10	104	0.1+	0.3+	1997 09 30	104	1.1+	1.8−	1999 03 21	104	1.0−	0.3−
1995 03 10	104	0.8+	0.3+	1997 09 30	104	1.3+	1.3−	1999 03 21	104	1.5−	0.4+
1995 03 10	104	1.0−	0.1+	1997 09 30	104	1.6+	1.1−	1999 03 23	704	0.6−	0.3+
1995 03 21	104	0.8−	0.7−	1997 10 05	104	0.2−	0.6+	1999 03 23	704	0.5−	0.1−
1995 03 21	104	0.3+	0.4−	1997 10 05	104	0.0	0.7+	1999 03 23	704	0.6−	0.3+
1995 03 21	104	0.7+	0.6−	1997 10 05	104	0.2+	1.0+	1999 03 23	704	1.2−	1.8−
1995 03 21	104	0.4+	0.4−	1997 10 11	691	0.6−	0.5−				
1995 03 30	104	0.7+	0.1−	1997 10 11	691	1.0−	0.5−				

(10372)* 1995 FO₁₀ = 1980 XT = 1988 ST₃ = 1997 WP₃₃

Discovered 1995 Mar. 26 by Spacewatch at Kitt Peak.

Id. S. Nakano (*MPC* 32239)

M.P.C. 34153

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	149.53631		(2000.0)	P		Q					
<i>n</i>	0.23261504	ω	313.80799	+0.98707188	−0.13276092						
<i>a</i>	2.6184494	Ω	54.02121	+0.15923633	+0.87606988						
<i>e</i>	0.0392197	<i>i</i>	6.37102	−0.01824535	+0.46354730						
<i>P</i>	4.24	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	2				

Residuals in seconds of arc

1980 12 12	046	0.4−	0.2+	1997 11 29	704	0.6+	0.3+	1999 03 15	704	0.2+	0.9+
1980 12 12	046	0.9+	1.9−	1997 11 29	704	1.2+	0.5−	1999 03 15	704	0.0	0.9+
1988 09 16	095	(2.8−	7.1−)	1997 11 29	704	0.2+	0.7+	1999 03 15	704	0.1−	0.4+
1988 09 16	095	0.0	1.6−	1997 11 29	704	1.7+	0.2+	1999 03 19	744	0.4+	0.1+
1995 03 26	691	0.2+	0.2−	1997 12 04	704	0.6+	0.3+	1999 03 19	744	0.5+	0.2+
1995 03 26	691	0.2−	0.4−	1997 12 04	704	0.9+	0.1+	1999 03 19	744	0.8+	0.4+
1995 03 26	691	0.0	0.3−	1997 12 04	704	0.2−	0.6+	1999 03 20	704	0.6−	0.4−
1995 04 01	691	0.1−	0.8−	1997 12 04	704	0.2−	1.0+	1999 03 20	704	1.1−	0.4−
1995 04 01	691	0.0	0.5−	1997 12 04	704	0.3−	0.2+	1999 03 20	704	0.9−	0.5−
1995 04 01	691	0.4+	0.8−	1998 02 15	327	0.2−	0.3+	1999 03 20	704	0.7−	0.7−
1995 04 04	691	0.1−	0.5−	1998 02 15	327	0.4−	0.2+	1999 03 21	744	0.9−	0.4+
1995 04 04	691	0.2+	0.4−	1998 02 15	327	0.0	0.8+	1999 03 21	744	0.9+	0.9+
1995 04 04	691	0.3+	0.4−	1999 02 23	699	0.9+	0.9+	1999 03 23	704	0.1−	0.8−
1997 11 26	704	1.9−	2.0−	1999 02 23	699	0.4+	0.2+	1999 03 23	704	1.0−	0.3−
1997 11 26	704	0.4−	1.4−	1999 02 23	699	0.1+	0.6+	1999 03 23	704	0.1−	0.1+
1997 11 26	704	1.4−	0.1−	1999 03 15	704	0.3+	0.2+	1999 03 23	704	0.9−	0.6−
1997 11 29	704	0.7+	0.5+	1999 03 15	704	0.7+	0.1−	1999 03 23	704	0.8−	0.3−

(10373)* 1996 ER = 1980 FS₂

Discovered 1996 Mar. 14 by D. di Cicco at Sudbury.

Id. G. V. Williams (*MPC* 30668)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	196.89377		(2000.0)	P		Q					
<i>n</i>	0.30780670	ω	133.28192	+0.62469229	+0.78084267						
<i>a</i>	2.1724544	Ω	175.36304	−0.73815618	+0.59327873						
<i>e</i>	0.1203912	<i>i</i>	4.72096	−0.25472534	+0.19571683						
<i>P</i>	3.20	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	2				

Residuals in seconds of arc

1980 03 16	809	0.4−	0.3+	1996 03 18	566	0.0	0.3+	1999 02 12	704	0.8+	0.4+
1980 03 16	809	0.1−	0.3+	1997 10 23	817	0.4−	0.5+	1999 02 12	699	0.5+	0.1−
1980 03 16	809	0.5−	0.2−	1997 10 23	817	0.6−	0.8+	1999 02 12	704	0.8+	0.5−
1980 03 16	809	0.1+	0.5−	1997 10 23	817	0.4−	0.4+	1999 02 12	704	0.0	1.1−
1980 03 17	809	0.4+	0.0	1997 10 23	817	0.1−	0.6+	1999 02 16	704	0.8+	0.5−
1980 03 17	809	0.2−	0.5+	1997 10 24	817	0.3+	0.1+	1999 02 16	704	0.8−	0.4+
1980 03 17	809	0.5−	0.1−	1997 10 24	817	0.3−	0.6+	1999 02 16	704	0.1+	1.4+
1980 03 17	809	1.2+	1.0−	1997 10 29	817	0.2+	0.4+	1999 02 16	704	1.1−	1.1+
1996 03 14	817	0.3−	0.3+	1997 10 29	817	0.1−	0.0	1999 02 20	557	0.1−	0.0
1996 03 14	817	0.5−	0.2+	1997 10 29	817	0.2+	0.3+	1999 02 20	557	0.1−	0.1−
1996 03 14	817	0.6−	0.5+	1997 10 29	385	0.2+	0.4+	1999 02 20	557	0.7−	0.3−
1996 03 14	817	0.4−	0.5+	1997 10 29	385	0.6−	0.1+	1999 02 20	557	0.8−	0.1+
1996 03 14	817	0.3−	0.2+	1997 11 01	385	0.1−	0.5+	1999 03 06	817	0.3−	0.7−
1996 03 16	709	0.4+	0.7+	1997 11 01	385	0.3+	0.2−	1999 03 06	817	0.0	0.2−
1996 03 16	709	0.4+	0.5+	1999 01 10	684	0.0	0.3−	1999 03 08	817	0.1−	0.9+
1996 03 16	709	0.6+	0.6+	1999 01 10	684	0.5+	0.2−	1999 03 11	817	1.3−	0.4+
1996 03 16	709	0.4+	0.6+	1999 01 10	684	0.2−	0.3−	1999 03 11	817	0.0	0.3−
1996 03 16	709	0.4+	0.7+	1999 01 18	704	1.1+	1.8−	1999 03 21	817	0.5+	0.0
1996 03 17	817	1.1+	0.7+	1999 01 18	704	0.3−	0.0	1999 03 21	817	0.2+	0.3−
1996 03 17	817	0.9+	0.8+	1999 01 18	704	1.1−	0.6−	1999 03 21	817	0.0	0.2+
1996 03 17	817	0.5+	1.2+	1999 02 12	699	1.0+	0.2+	1999 03 26	817	0.0	0.3−
1996 03 18	566	0.3+	0.1+	1999 02 12	699	1.0+	0.0	1999 03 26	817	1.9−	1.2−
1996 03 18	566	0.2−	0.6+	1999 02 12	704	0.3+	1.0−				

Id. B. G. Marsden (*MPC* 28862), G. V. Williams (*MPC* 31107), N. S. Chernykh
(d, *MPC* 31107)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 235.98613		(2000.0)		P		Q	
<i>n</i>	0.30030487	ω	106.04408	+0.57789894	+0.81567391		
<i>a</i>	2.2084851	Ω	199.33121	−0.77614612	+0.53922468		
<i>e</i>	0.2206392	<i>i</i>	4.61336	−0.25224989	+0.20955386		
<i>P</i>	3.28	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i>	2	

Residuals in seconds of arc

1980 09 04	688	0.6+	1.3−	1996 03 24	809	0.2−	0.9+	1997 12 05	704	0.4+	0.3+
1980 09 04	095	0.5−	0.6−	1996 03 24	809	0.8−	1.0+	1999 01 21	120	0.4−	0.1−
1980 09 07	095	(4.4−	2.8+)	1996 03 27	809	0.8+	1.3+	1999 01 21	120	0.5−	0.5+
1980 09 09	095	(4.1−	1.9+)	1996 03 27	809	0.7+	1.4+	1999 01 22	120	0.8−	0.3−
1983 05 14	095	0.4+	0.6−	1996 03 27	809	1.0+	1.2+	1999 02 21	699	0.5−	0.2−
1983 06 05	095	(2.0−	3.6+)	1996 04 15	809	0.1−	1.7−	1999 02 21	699	0.5−	0.5−
1990 09 27	402	1.3+	0.9−	1996 04 15	809	0.3+	1.7−	1999 02 21	699	0.9−	0.7+
1990 09 27	402	1.1−	0.6+	1996 04 15	809	0.8+	1.7−	1999 03 20	704	1.2−	0.2+
1990 10 23	095	(2.2−	5.6+)	1996 04 17	809	1.5+	0.4−	1999 03 20	704	1.3+	1.2+
1993 06 15	675	0.3+	0.4−	1996 04 17	809	1.3+	0.7−	1999 03 20	704	0.1−	0.8−
1993 06 15	675	1.5−	0.8−	1996 04 17	809	1.4+	1.1−	1999 03 23	704	1.0−	0.2−
1993 06 17	675	0.8−	1.3−	1997 12 05	704	0.4+	0.8−	1999 03 23	704	1.3−	0.4+
1993 06 19	675	1.2+	1.5+	1997 12 05	704	(2.8+)	1.4−)	1999 03 23	704	1.0−	0.1−
1993 06 19	675	0.8−	0.6+	1997 12 05	704	(2.5+	0.8−)	1999 03 23	704	0.6−	0.6−
1996 03 24	809	1.0−	1.2+	1997 12 05	704	1.8+	1.2−	1999 03 23	704	0.9−	1.3−

(10375)* 1996 HM₁

Discovered 1996 Apr. 21 by A. Nakamura at Kuma.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 347.71323		(2000.0)		P		Q	
<i>n</i>	0.26767952	ω	126.56454	−0.48036226	−0.87705560		
<i>a</i>	2.3844741	Ω	352.13962	+0.79242000	−0.43152154		
<i>e</i>	0.1316520	<i>i</i>	2.11926	+0.37592903	−0.21109866		
<i>P</i>	3.68	<i>H</i>	16.3	<i>G</i> 0.15	<i>U</i>	1	

Residuals in seconds of arc

1992 03 09	809	0.5−	1.1−	1996 04 24	360	0.8−	0.2−	1998 12 11	360	0.2−	0.7+
1996 03 22	809	(2.5+)	1.0−)	1996 04 24	360	0.2−	0.1−	1998 12 11	360	0.1+	0.8+
1996 03 22	809	1.0+	1.4−	1996 04 26	360	0.0	0.1+	1998 12 11	360	0.5−	0.3+
1996 03 22	809	1.3+	1.1−	1996 04 26	360	0.2−	0.2+	1998 12 16	360	0.1+	0.8+
1996 03 26	809	1.4+	1.2+	1996 04 26	360	0.5−	0.3+	1998 12 16	360	0.2−	0.7+
1996 03 26	809	1.3+	2.0+	1997 08 01	360	0.6−	0.4−	1998 12 16	360	0.3−	0.8+
1996 03 26	809	0.6+	1.7+	1997 08 01	360	0.8−	0.5+	1998 12 17	360	0.0	0.5+
1996 04 21	360	0.7−	0.2+	1997 08 01	360	0.7−	0.8−	1998 12 17	360	0.1+	0.5+
1996 04 21	360	0.6−	0.3+	1997 08 27	360	0.7+	0.5+	1998 12 17	360	0.1+	0.5+
1996 04 21	360	0.5−	0.2−	1997 08 27	360	0.7+	1.0+	1999 01 13	360	0.6+	0.4−
1996 04 22	360	0.2+	0.0	1997 08 27	360	0.4+	0.3+	1999 01 13	360	0.5+	0.6−
1996 04 22	360	0.3+	0.1−	1998 11 28	360	0.1+	0.7−	1999 01 22	360	0.3−	0.6−
1996 04 22	360	1.0−	0.2+	1998 11 28	360	0.2+	0.5−	1999 01 22	360	0.1−	0.4−
1996 04 24	360	0.5−	0.5−	1998 11 28	360	0.1+	0.6−				

(10376)* 1996 KW = 1984 UY₁

Discovered 1996 May 16 at the Osservatorio S. Vittore, Bologna.

Id. G. V. Williams (*MPC* 33947)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 131.22357		(2000.0)		P		Q	
<i>n</i>	0.22519291	ω	278.17036	+0.86212381	+0.47008846		
<i>a</i>	2.6756722	Ω	53.99617	−0.32154727	+0.79599929		
<i>e</i>	0.2563499	<i>i</i>	13.51817	−0.39159914	+0.38131610		
<i>P</i>	4.38	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i>	1	

Residuals in seconds of arc

1984 10 29	688	0.1−	1.5−	1996 07 11	552	0.2+	1.3+	1999 01 15	552	0.8−	0.4+
1984 10 29	688	1.6+	1.0−	1996 07 13	552	0.2+	0.1−	1999 01 15	552	1.0−	0.3+

1996 05 09	691	0.7−	0.6+	1996 07 13	552	0.7+	0.4+	1999 01 15	552	1.2−	0.7+
1996 05 09	691	0.7+	2.0+	1996 07 13	552	0.8+	0.4+	1999 01 21	552	0.3−	0.1−
1996 05 09	691	0.0	0.2+	1997 10 05	552	0.6−	0.5+	1999 01 21	552	0.2−	0.2+
1996 05 15	691	0.2+	0.8−	1997 10 05	552	0.9−	1.4+	1999 01 22	552	0.7−	0.1+
1996 05 15	691	0.5+	0.2+	1997 10 25	552	0.5+	0.1+	1999 01 22	552	0.0	1.2−
1996 05 15	691	0.5+	0.2+	1997 10 25	552	0.3+	1.1+	1999 02 10	704	(2.3+)	0.9−)
1996 05 16	552	1.0−	0.7−	1997 10 29	566	1.2−	0.1+	1999 02 10	704	0.1+	0.8+
1996 05 16	552	1.4−	0.5−	1997 10 29	566	1.1−	0.1+	1999 02 10	704	0.2+	0.2+
1996 05 16	552	1.0+	1.5−	1997 10 29	566	1.0−	0.0	1999 02 10	704	0.5+	0.1+
1996 05 16	552	0.2+	0.6−	1997 11 02	552	0.3−	0.5−	1999 02 13	704	1.2+	0.2+
1996 05 24	552	0.7−	0.6+	1997 11 02	552	0.6−	1.1+	1999 02 13	704	1.2+	0.2+
1996 05 24	552	0.3−	0.6+	1997 12 07	552	0.2+	0.1+	1999 02 13	704	0.5+	1.0+
1996 06 13	552	0.3+	1.1−	1997 12 07	552	0.3+	0.2+	1999 02 13	704	1.3+	0.2+
1996 06 13	552	2.0−	0.9−	1997 12 25	566	1.4+	1.4−	1999 02 13	704	(0.8+	2.2−)
1996 07 11	552	0.9+	0.1−	1997 12 25	566	1.7+	0.2−				
1996 07 11	552	0.6+	0.3+	1997 12 25	566	1.2+	0.6−				

(10377)* 1996 NN₄ = 1997 WW₄₄

Discovered 1996 July 14 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 31108)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 114.57224		(2000.0)		P		Q	
<i>n</i>	0.17023686	ω	223.96817	+0.96501029	−0.26174810		
<i>a</i>	3.2242867	Ω	151.19486	+0.24862625	+0.89450109		
<i>e</i>	0.1733590	<i>i</i>	1.85429	+0.08330749	+0.36243033		
<i>P</i>	5.79	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i>	1	

Residuals in seconds of arc

1991 11 09	691	0.1−	0.8+	1996 08 11	566	0.9−	0.1−	1999 02 12	704	0.2−	1.2+
1991 11 09	691	0.1−	0.8+	1996 08 11	566	1.3−	0.3−	1999 02 12	704	(1.9+	2.8−)
1991 11 09	691	0.3−	0.8+	1996 08 11	566	0.8−	0.5−	1999 02 12	704	(0.0	3.2−)
1996 07 14	809	0.9+	0.1−	1997 11 29	704	1.9−	0.4−	1999 02 12	704	(0.4+	3.3−)
1996 07 14	809	0.0	0.1+	1997 11 29	704	0.2+	0.1−	1999 02 18	566	0.2−	0.5−
1996 07 14	809	0.0	0.1−	1997 11 29	704	2.0−	1.3−	1999 02 18	566	0.0	0.5−
1996 07 16	809	(0.0	2.2+)	1997 11 29	704	1.4−	1.0−	1999 02 18	566	0.3−	0.2−
1996 07 16	809	0.2−	1.2+	1997 12 04	704	1.2+	0.9−	1999 03 06	691	0.7−	0.5−
1996 07 16	809	(0.1−	2.2+)	1997 12 04	704	1.9+	1.1−	1999 03 06	691	0.9−	0.5−
1996 08 08	809	1.0+	1.6−	1997 12 04	704	0.7+	0.9+	1999 03 06	691	0.8−	0.7−
1996 08 08	809	1.4+	0.6−	1997 12 04	704	0.4+	1.2−	1999 03 12	691	0.4+	1.6−
1996 08 08	809	0.4+	1.3+	1997 12 29	566	0.5+	0.3+	1999 03 12	691	0.2+	0.9−
1996 08 09	809	0.7+	1.2−	1997 12 29	566	0.3+	0.8+	1999 03 12	691	0.3+	0.9−
1996 08 09	809	0.0	0.9−	1997 12 29	566	0.4+	1.1+				
1996 08 09	809	0.1+	1.4−	1999 02 12	704	1.1+	1.2+				

(10378)* 1996 NE₅ = 1996 PD₆ = 1986 PK₂ = 1992 WW₉ = 1997 VN₇

Discovered 1996 July 14 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 30984, *MPC* 33947)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

$\dot{M}$	192.50101		(2000.0)		P		Q
n	0.19805478	ω	42.26940		+0.64585010		+0.76319199
a	2.9148250	Ω	267.97054		−0.70580963		+0.58668450
e	0.0248956	i	1.16891		−0.29105054		+0.27081226
P	4.98	H	13.5	G	0.15	U	1

Residuals in seconds of arc

1986 08 01	675	(3.1−	4.0+)	1996 09 11	566	0.6+	0.3+	1999 02 09	691	0.5−	0.2+
1986 08 01	675	(0.3−	6.0+)	1997 11 02	327	0.0	0.7+	1999 02 09	691	0.5−	0.1+
1986 08 02	675	(5.4+	1.0+)	1997 11 02	327	0.0	0.6+	1999 02 12	704	0.0	0.0
1986 08 02	675	(8.7+	1.9+)	1997 11 02	327	0.1−	0.5+	1999 02 12	704	0.4+	0.1+
1986 08 04	675	0.1−	1.1+	1997 11 06	327	0.3−	0.6+	1999 02 12	704	0.2−	0.1+
1986 08 04	675	(6.7−	0.7+)	1997 11 06	327	0.2−	0.5+	1999 02 12	704	0.6+	0.2−
1992 11 21	399	0.4−	0.7+	1997 11 06	327	0.0	0.5+	1999 02 12	699	1.0+	0.4+
1992 11 21	399	0.3−	0.6−	1997 11 29	704	0.8+	0.6+	1999 02 12	704	0.8+	0.1+

1996 07 14	809	(3.9+ 2.8+)	1997 11 29	704	0.9+ 1.4-	1999 02 12	699	(3.4+ 0.3-)
1996 07 14	809	(4.3+ 3.8+)	1997 11 29	704	0.7+ 1.7-	1999 02 12	699	1.3+ 0.9+
1996 07 14	809	(3.8+ 2.8+)	1997 11 29	704	0.7- 1.3-	1999 02 16	704	1.4- 0.8+
1996 07 15	809	(1.8+ 2.7+)	1997 11 29	704	(2.7- 1.2-)	1999 02 16	704	0.2- 0.2-
1996 07 15	809	(3.1+ 2.1+)	1997 12 04	704	0.4+ 0.4+	1999 02 16	704	0.0 0.7-
1996 07 15	809	(1.9+ 3.2+)	1997 12 04	704	1.4- 1.1-	1999 02 16	704	1.0- 0.8-
1996 07 21	809	(0.7+ 3.4+)	1997 12 04	704	0.3- 0.0	1999 02 23	699	0.6+ 0.4+
1996 07 21	809	(1.4+ 3.1+)	1997 12 04	704	1.1+ 0.4-	1999 02 23	699	0.3+ 0.2+
1996 07 21	809	(1.5+ 3.7+)	1997 12 04	704	1.1- 0.3-	1999 02 23	699	0.0 0.3+
1996 08 10	566	0.2- 0.2-	1998 01 02	704	0.7+ 0.8+	1999 03 12	691	0.0 0.1-
1996 08 10	566	0.0 0.0	1998 01 02	704	1.1+ 0.5+	1999 03 12	691	0.2- 0.0
1996 08 10	566	0.1+ 0.3+	1998 01 02	704	0.9+ 0.8+	1999 03 12	691	0.2- 0.4-
1996 09 11	566	0.4- 0.1-	1998 01 02	704	1.8- 0.1+			
1996 09 11	566	0.5- 0.5-	1999 02 09	691	0.5- 0.0			

(10379)* 1996 OH = 1995 KO₂

Discovered 1996 July 18 by G. R. Viscome at Rand Observatory.

Id. G. V. Williams (*MPC* 27722)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.15068888	ω	13.90003	-0.77106039	-0.63018922		
<i>a</i>	3.4974263	Ω	126.66188	+0.57280890	-0.74905547		
<i>e</i>	0.0262381	<i>i</i>	6.53208	+0.27812919	-0.20439531		
<i>P</i>	6.54	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1995 05 22	010	(3.1+ 2.0-)	1996 08 03	816	0.3- 0.3+	1998 12 13	816	0.3- 0.5+
1995 05 22	010	1.7+ 1.4-	1996 08 03	816	0.0 0.7+	1998 12 13	816	0.2- 0.1+
1995 05 22	010	0.2+ 1.4-	1996 08 03	816	0.2+ 0.7+	1998 12 15	704	(2.2+ 0.9+)
1995 05 23	010	1.6- 0.7-	1996 08 11	816	1.0+ 0.2-	1998 12 15	704	1.3- 1.1+
1995 05 23	010	1.4- 0.7-	1996 08 11	816	0.4+ 0.1+	1998 12 15	704	0.8+ 0.7+
1995 05 23	010	(2.6- 1.1-)	1996 08 15	816	0.6+ 0.2-	1998 12 15	704	1.4+ 0.7+
1996 07 18	816	0.2+ 0.5+	1996 08 15	816	0.5+ 0.1-	1998 12 15	704	1.5+ 0.8+
1996 07 18	816	0.8+ 0.6+	1996 08 15	816	0.3+ 0.2-	1998 12 16	816	0.0 0.1+
1996 07 18	816	0.3- 0.8+	1997 09 22	816	0.1+ 0.0	1998 12 16	816	0.1- 0.1-
1996 07 20	684	0.3+ 0.1+	1997 09 22	816	0.3+ 0.2+	1998 12 16	816	0.0 0.3-
1996 07 20	684	0.0 0.6-	1997 09 22	816	0.4- 0.2-	1998 12 16	816	0.1+ 0.2-
1996 07 20	684	0.2- 0.3-	1997 09 22	816	0.1- 0.3-	1998 12 16	816	0.0 0.0
1996 07 21	816	0.4- 0.0	1997 09 25	816	0.6+ 0.3-	1998 12 22	704	(2.2- 2.1-)
1996 07 21	816	0.6- 0.4-	1997 09 27	816	0.0 0.4-	1998 12 22	704	1.2- 1.0-
1996 07 21	816	0.1- 0.3+	1997 09 27	816	0.1- 0.2-	1998 12 22	704	0.4+ 1.8-
1996 07 21	816	0.6- 0.2+	1997 09 27	816	0.2+ 0.3-	1998 12 22	704	0.3- 1.2-
1996 07 21	816	0.4- 0.2+	1997 09 28	816	0.3+ 0.1-	1998 12 22	704	0.9- 1.8-
1996 07 21	816	0.5- 0.2+	1997 09 28	816	0.2+ 0.1+	1999 01 23	699	0.6+ 0.7-
1996 07 22	540	0.5- 0.5-	1997 09 28	816	0.8- 0.2+	1999 01 23	699	0.1- 0.4-
1996 07 22	540	0.4- 1.7-	1998 12 13	816	0.1- 0.1-	1999 01 23	699	0.6+ 0.0
1996 08 03	816	0.2+ 0.2-	1998 12 13	816	0.0 0.1+			

(10380)* 1996 PY₇ = 1949 WJ₁ = 1989 AH₄

Discovered 1996 Aug. 8 by E. W. Elst at the European Southern Observatory.

Id. K. Ichikawa (*MPC* 29115)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20604131	ω	281.34498	+0.66693481	-0.74400135		
<i>a</i>	2.8390073	Ω	126.74590	+0.70192884	+0.60899412		
<i>e</i>	0.0508571	<i>i</i>	2.91449	+0.24998770	+0.27493298		
<i>P</i>	4.78	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1949 11 21	675	(7.3- 5.7+)	1996 09 08	809	1.3+ 1.5-	1999 02 18	699	0.1- 1.6+
1949 11 21	675	0.3- 0.1-	1996 09 08	809	0.5+ 1.7-	1999 02 18	699	0.0 0.2+
1989 01 04	413	0.5+ 0.9+	1996 09 08	809	0.6+ 0.7-	1999 02 18	699	0.3+ 0.3+
1989 01 04	413	0.2+ 0.1-	1997 11 29	704	0.9- 0.2-	1999 03 20	704	0.0 0.2-
1989 01 10	413	0.6- 1.0+	1997 11 29	704	1.3- 1.5-	1999 03 20	704	0.7- 0.4+
1989 01 10	413	2.0+ 0.4-	1997 11 29	704	0.6- 0.8-	1999 03 20	704	0.2- 1.0-

1995 06 26	691	0.5- 1.4-	1997 11 29	704	0.7- 0.6+	1999 03 20	704	0.2+ 1.4-
1995 06 26	691	0.3+ 0.5-	1997 11 29	704	0.5- 1.5-	1999 03 20	704	0.7- 0.1+
1995 06 26	691	0.1+ 0.2-	1997 12 06	704	0.2- 0.6+	1999 03 23	704	0.4+ 0.1+
1996 08 08	809	1.4- 0.3+	1997 12 06	704	0.6+ 0.5+	1999 03 23	704	1.3- 0.6+
1996 08 08	809	0.8- 0.6+	1997 12 06	704	1.1+ 0.8-	1999 03 23	704	0.2+ 0.8+
1996 08 08	809	0.7- 1.5+	1997 12 06	704	1.3+ 0.2+	1999 03 23	704	1.2+ 0.5-
1996 08 09	809	1.7+ 1.2+	1997 12 06	704	1.3+ 1.1+	1999 03 23	704	0.9- 0.1-
1996 08 09	809	0.8+ 1.2+	1999 02 13	704	0.7+ 1.8+	1999 03 23	143	0.5- 0.8-
1996 08 09	809	0.8+ 1.8+	1999 02 13	704	0.6- 1.9+	1999 03 23	143	1.6+ 1.1-
1996 08 16	566	1.1- 0.1-	1999 02 13	704	(0.5+ 2.6+)	1999 03 23	143	1.0- 0.8-
1996 08 16	566	1.3- 0.1-	1999 02 13	704	1.1+ 1.5+			
1996 08 16	566	1.2- 0.5+	1999 02 13	704	0.6- 0.9-			

(10381)* 1996 RB = 1984 BG₇ = 1991 NW₁

Discovered 1996 Sept. 3 by B. G. W. Manning at Stakenbridge.

Id. G. V. Williams (*MPC* 27924)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20217309	ω	0.92283	+0.81013870	+0.58018900		
<i>a</i>	2.8751057	Ω	323.19597	-0.53875738	+0.68035174		
<i>e</i>	0.3152582	<i>i</i>	8.06029	-0.23111854	+0.44777475		
<i>P</i>	4.88	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1984 01 25	675	1.1+ 1.0-	1996 09 06	494	0.7+ 0.1+	1999 02 13	704	1.8- 1.3+
1984 01 26	675	0.2- 0.1-	1996 09 06	494	0.3+ 0.1-	1999 02 13	704	0.3- 1.1-
1991 07 14	675	1.8- 0.5+	1996 09 15	494	0.6+ 0.3+	1999 02 13	704	1.4+ 1.3-
1991 07 14	675	0.6+ 0.4+	1996 09 15	494	0.1+ 0.1-	1999 02 13	704	1.1- 1.1-
1991 07 16	675	1.5- 1.0+	1996 09 27	494	0.4- 0.1-	1999 02 18	691	0.3+ 0.2-
1991 07 16	675	(0.8- 5.7-)	1996 09 27	494	0.2- 1.0-	1999 02 18	691	0.1- 0.1-
1991 07 18	675	1.6+ 0.7-	1996 10 13	494	1.0- 0.2-	1999 02 18	691	0.3+ 0.0
1991 07 18	675	(3.4- 2.5+)	1998 01 24	494	0.6+ 1.0+	1999 03 09	691	0.4- 0.4-
1996 09 03	494	0.7+ 0.6-	1998 01 24	494	0.1+ 0.9+	1999 03 09	691	0.1+ 0.1+
1996 09 03	494	0.4+ 0.6-	1998 02 03	494	1.0- 0.9+	1999 03 09	691	0.1- 0.3+
1996 09 06	494	0.2+ 0.2+	1998 02 03	494	0.4- 0.2-			

(10382)* 1996 RJ₃ = 1985 SF₁

Discovered 1996 Sept. 15 by P. G. Comba at Prescott.

Id. G. V. Williams (*MPC* 28079)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26275708	ω	297.55316	+0.60757762	+0.79409007		
<i>a</i>	2.4141621	Ω	9.91176	-0.69087466	+0.53859227		
<i>e</i>	0.1928112	<i>i</i>	5.48185	-0.39184389	+0.28167238		
<i>P</i>	3.75	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1985 09 16	809	1.0- 1.1+	1996 09 19	684	0.3+ 0.2+	1999 02 13	684	0.4- 0.3+
1985 09 16	809	0.7- 1.0+	1996 10 01	684	0.4- 0.0	1999 03 09	684	0.0 0.9-
1985 09 16	809	0.7- 1.1+	1996 10 01	684	0.4- 0.0	1999 03 09	684	0.0 1.1-
1985 09 18	809	0.2+ 0.1+	1996 10 01	684	0.5- 0.0	1999 03 10	684	0.1+ 1.2-
1985 09 18	809	0.4+ 0.1+	1996 10 02	684	0.0 0.1-	1999 03 10	684	0.0 1.1-
1985 09 18	809	0.5+ 0.2+	1996 10 02	684	0.1- 0.2-	1999 03 20	704	0.1- 1.3-
1985 09 19	809	0.5- 0.7-	1996 10 02	684	0.1- 0.2-	1999 03 20	704	0.7- 1.0-
1985 09 19	809	0.4- 0.7-	1996 10 17	684	0.0 0.6+	1999 03 20	704	(0.6- 2.1-)
1985 09 19	809	0.1- 0.7-	1996 10 17	684	0.2- 0.3+	1999 03 20	704	0.3- 1.1-
1985 09 20	809	0.1+ 0.3-	1996 10 17	684	0.4- 0.2+	1999 03 20	704	(1.4- 2.3-)
1985 09 20	809	0.4+ 0.3-	1997 11 25	684	0.3- 0.1+	1999 03 22	699	0.2+ 0.4+
1985 09 20	809	0.6+ 0.2-	1997 11 25	684	0.3+ 0.1-	1999 03 22	699	0.2+ 1.1+
1985 09 21	809	1.2+ 0.3-	1997 11 25	684	0.3+ 0.2-	1999 03 22	699	1.1+ 1.4+
1985 09 21	809	1.3+ 0.4-	1997 11 27	684	0.2+ 0.1-	1999 03 23	704	0.1- 1.5-
1985 09 21	809	1.5+ 0.4-	1997 11 27	684	0.1+ 0.2+	1999 03 23	704	0.2- 0.9-
1985 09 22	809	0.5- 1.5-	1997 12 28	684	0.1+ 0.2+	1999 03 23	704	0.6- 0.7-
1985 09 22	809	0.3- 1.4-	1997 12 28	684	0.6- 0.1+	1999 03 23	699	0.2- 0.5+
1996 09 15	684	0.1+ 0.3+	1997 12 29	684	0.4+ 0.1+	1999 03 23	704	0.1+ 0.3-

M.P.C. 34156

1996 09 15	684	0.0	0.1+	1997 12 29	684	0.3+	0.1+	1999 03 23	704	0.1-	0.5-
1996 09 15	684	0.0	0.1-	1998 01 26	684	0.0	0.0	1999 03 23	699	0.6+	0.5+
1996 09 16	684	0.1+	0.0	1998 01 26	684	0.0	0.1+	1999 03 23	699	1.1+	1.9+
1996 09 16	684	0.3+	0.1+	1998 01 27	684	0.8-	0.6+	1999 03 25	691	0.2-	0.8+
1996 09 16	684	0.2+	0.2+	1999 02 12	684	0.4-	0.8+	1999 03 25	691	1.4-	0.3+
1996 09 19	684	0.3+	0.2+	1999 02 12	684	0.1-	1.1+	1999 03 25	691	0.2-	0.2-
1996 09 19	684	0.1+	0.1+	1999 02 13	684	0.3-	0.2+				

(10383)* 1996 SR₇ = 1994 AV₁₁

Discovered 1996 Sept. 16 by S. P. Laurie at Church Stretton.

Id. G. V. Williams (*MPC* 28080)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	254.91996		(2000.0)	P	Q
<i>n</i>	0.22676990	ω	357.05036	+0.17333384	+0.98392305
<i>a</i>	2.6632531	Ω	282.92850	-0.90268835	+0.14125139
<i>e</i>	0.1888455	<i>i</i>	2.52986	-0.39383895	+0.10928624
<i>P</i>	4.35	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1994 01 11	691	0.3+	0.3+	1996 10 03	966	0.6+	0.4-	1998 01 26	327	0.0	0.4-
1994 01 11	691	0.2+	0.7+	1996 10 03	966	0.8-	0.1+	1998 01 26	327	0.5-	0.0
1994 01 11	691	0.8+	0.2+	1996 10 03	966	0.2-	0.1+	1999 02 16	704	1.1-	1.3-
1994 01 12	691	0.3-	0.1-	1996 10 04	809	1.7+	1.7-	1999 02 16	704	0.6-	0.9-
1994 01 12	691	0.5-	0.5+	1996 10 04	809	0.1+	1.7-	1999 02 16	704	0.3+	0.8-
1994 01 12	691	0.1-	0.5+	1996 10 04	809	(0.9- 2.2-)		1999 02 16	704	1.2-	1.9-
1996 09 15	292	0.5+	1.2+	1996 10 05	809	(2.7+ 1.1+)		1999 02 16	704	(1.7- 2.1-)	
1996 09 15	292	1.1-	2.0-	1996 10 05	809	1.7+	0.2-	1999 03 20	704	0.0	0.0
1996 09 16	966	0.4+	1.6-	1996 10 05	809	1.5+	0.2+	1999 03 20	704	1.2-	0.6+
1996 09 17	966	0.5-	0.8+	1996 10 16	966	0.9+	0.0	1999 03 20	704	0.0	0.7-
1996 09 17	966	0.1+	1.2-	1996 10 16	966	0.2+	0.6-	1999 03 20	704	0.4+	0.0
1996 09 20	292	1.6-	0.3-	1998 01 06	688	0.2+	0.6+	1999 03 20	704	0.2+	0.5-
1996 09 20	292	(2.4- 1.1-)		1998 01 06	688	0.4+	0.5+	1999 03 23	704	0.6-	1.1-
1996 10 01	966	0.0	0.5+	1998 01 07	688	0.3+	0.5+	1999 03 23	704	0.3+	0.7+
1996 10 01	966	0.4-	0.1+	1998 01 07	688	0.4+	0.3+	1999 03 23	704	0.3-	0.5-
1996 10 02	966	0.9-	1.2+	1998 01 26	327	0.7-	0.5-	1999 03 23	704	0.6+	0.4-

(10384)* 1996 TQ₁₀ = 1982 BM₁₅ = 1990 OV₃ = 1993 BM₁₃

Discovered 1996 Oct. 9 by S. Ueda and H. Kaneda at Kushiro.

Id. A. Doppler (*MPC* 32676)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	180.24789		(2000.0)	P	Q
<i>n</i>	0.17972643	ω	207.36357	+0.93317752	+0.33485695
<i>a</i>	3.1097687	Ω	132.44251	-0.28885267	+0.91491671
<i>e</i>	0.0771965	<i>i</i>	10.19189	-0.21387812	+0.22538465
<i>P</i>	5.48	<i>H</i>	12.8	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1982 01 30	675	0.1+	1.4-	1993 01 28	809	0.8-	0.3-	1999 03 20	704	0.4-	0.0
1982 01 31	675	0.3+	0.9-	1996 10 09	399	0.2-	0.6+	1999 03 20	704	0.7-	0.4-
1990 07 27	675	0.6+	0.0	1996 10 09	399	0.1-	1.1+	1999 03 20	704	1.0+	1.3-
1990 07 27	675	0.1-	0.5-	1996 10 10	399	0.4+	0.0	1999 03 20	704	1.1+	0.0
1990 07 30	675	1.5-	0.2+	1996 10 10	399	0.4+	0.6+	1999 03 23	704	0.8-	0.7+
1990 07 30	675	0.7+	0.4-	1996 10 16	399	0.1+	0.1-	1999 03 23	704	0.9-	1.2+
1993 01 22	809	1.4+	0.6-	1996 10 16	399	0.9-	0.1-	1999 03 23	704	1.4-	0.4+
1993 01 22	809	0.3+	0.5+	1999 02 18	699	0.3+	0.3-	1999 03 23	704	0.2+	0.2-
1993 01 22	809	0.4+	0.2-	1999 02 18	699	0.4+	2.1+	1999 03 23	704	0.1+	0.4+
1993 01 28	809	0.9-	0.5+	1999 02 18	699	2.2+	1.0+				
1993 01 28	809	1.4-	0.1+	1999 03 20	704	0.2+	0.4-				

(10385)* 1996 TL₁₂ = 1960 MB = 1987 VH

Discovered 1996 Oct. 15 by Y. Shimizu and T. Urata at the Nachi-Katsuura Observatory.

Id. S. Nakano (*MPC* 28308)

1999 APR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	224.78790		(2000.0)	P	Q
<i>n</i>	0.22384845	ω	299.84186	+0.89907950	+0.41562781
<i>a</i>	2.6863751	Ω	36.10821	-0.27564361	+0.78146653
<i>e</i>	0.1883771	<i>i</i>	13.49399	-0.34011272	+0.46536392
<i>P</i>	4.40	<i>H</i>	12.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1960 06 24	839	0.2-	0.6+	1996 11 14	385	0.2-	0.0	1999 01 21	910	0.5-	0.5+
1960 06 24	839	0.5+	0.3-	1996 11 30	385	0.3-	0.1+	1999 01 21	910	0.4-	0.1+
1987 11 11	010	1.7-	0.8+	1996 11 30	385	0.2-	0.2+	1999 01 26	910	0.5-	0.9+
1987 11 11	010	1.0-	0.7+	1996 11 30	385	0.2+	0.9+	1999 01 26	910	0.6-	0.9+
1987 11 20	010	0.6+	0.4-	1997 01 03	385	0.5-	0.4-	1999 01 26	910	0.4-	0.7+
1987 11 20	010	0.4+	0.4-	1997 01 03	385	0.4-	0.2-	1999 03 19	704	0.7+	0.9-
1996 10 15	905	0.4+	0.6+	1997 01 03	385	0.9-	0.7-	1999 03 19	704	0.6-	0.0
1996 10 15	905	0.1-	0.2-	1997 12 28	566	0.0	0.5+	1999 03 19	704	0.9-	0.1+
1996 10 16	905	0.5+	0.5+	1997 12 28	566	0.2+	0.6+	1999 03 20	704	0.7+	0.3+
1996 10 16	905	0.8+	0.0	1997 12 28	566	0.1+	0.5+	1999 03 20	704	0.4+	0.3+
1996 10 17	385	0.0	0.1+	1998 01 20	886	0.1-	0.7-	1999 03 20	704	0.6+	0.1-
1996 10 17	385	0.1+	0.1+	1998 01 20	886	2.1+	0.6-	1999 03 20	704	0.3-	1.0+
1996 10 17	385	0.1-	0.1+	1998 01 25	886	0.5+	0.1-	1999 03 20	704	0.1-	0.5-
1996 10 22	385	0.0	0.3+	1998 01 25	886	1.1-	0.6+	1999 03 23	704	0.1+	0.1+
1996 10 22	385	0.1-	0.5+	1998 02 02	886	1.1-	0.3-	1999 03 23	704	0.3+	0.5+
1996 10 22	385	0.0	0.4+	1998 02 02	886	0.6-	0.6-	1999 03 23	704	0.6+	0.6+
1996 11 03	385	0.1+	0.1-	1998 02 06	886	0.8-	0.1-	1999 03 23	704	0.0	0.2-
1996 11 03	385	0.0	0.1-	1998 02 06	886	1.4-	0.1+	1999 03 23	704	0.7-	0.3-
1996 11 03	385	0.2-	0.2-	1998 03 03	886	1.3+	0.3+	1999 03 24	699	1.6+	0.2+
1996 11 14	385	0.2-	0.1+	1998 03 03	886	1.1+	1.0-	1999 03 24	699	1.3+	0.1-
1996 11 14	385	0.1-	0.1+	1999 01 21	910	0.7-	0.3+	1999 03 24	699	0.8+	0.6+

(10386)* 1996 TS₁₅ = 1990 TY₁₄

Discovered 1996 Oct. 12 by V. S. Casulli at Colleverde di Guidonia.

Id. G. V. Williams (*MPC* 31111)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	212.16331		(2000.0)	P	Q
<i>n</i>	0.16834210	ω	284.98947	+0.69641706	+0.68626277
<i>a</i>	3.2484353	Ω	32.53811	-0.41035865	+0.62073454
<i>e</i>	0.0940441	<i>i</i>	22.96693	-0.58873514	+0.37912008
<i>P</i>	5.85	<i>H</i>	12.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1990 10 14	808	0.5-	0.2+	1996 10 31	596	0.1-	0.2+	1998 01 18	596	1.0+	0.1+
1990 10 14	808	0.5-	0.9+	1996 11 03	596	0.6+	0.9-	1998 01 18	596	0.7-	0.3-
1996 10 12	596	0.9-	0.5+	1996 11 27	596	0.6-	0.9-	1999 02 18	704	0.0	0.2-
1996 10 12	596	1.0-	0.0	1996 11 27	596	0.5-	1.4-	1999 02 18	704	0.7-	0.7-
1996 10 12	596	0.4-	0.1+	1996 12 04	596	0.2+	0.1-	1999 02 18	704	0.4-	0.3+
1996 10 12	596	0.4+	0.4+	1996 12 04	596	0.1-	0.2+	1999 02 18	704	1.7-	0.7+
1996 10 20	596	0.3+	0.9+	1996 12 04	596	0.1-	0.1+	1999 02 25	596	0.7+	1.2+
1996 10 20	596	1.0+	0.1-	1997 12 07	596	0.8+	1.2-	1999 02 25	596	0.1-	0.5+
1996 10 20	596	0.9+	0.6+	1997 12 07	596	0.5+	1.4-	1999 02 26	596	(3.1+ 0.8+)	
1996 10 21	596	0.2-	0.6+	1997 12 07	596	0.6+	1.4-	1999 02 26	596	0.2-	0.5+
1996 10 21	596	0.3-	0.4+	1997 12 28	596	0.4-	0.1-	1999 02 26	596	0.4+	0.4+
1996 10 21	596	0.5-	0.6+	1997 12 28	596	0.8-	0.0	1999 03 15	704	0.4+	0.5-
1996 10 30	596	0.2-	0.2+	1997 12 28	596	0.3-	0.4-	1999 03 15	704	0.5-	0.6-
1996 10 30	596	0.2-	0.0	1997 12 29	688	0.5+	0.8+	1999 03 15	704	0.1-	1.4+
1996 10 30	596	0.1+	0.1-	1997 12 29	688	0.1+	0.2+	1999 03 21	699	1.7+	0.6+
1996 10 31	596	0.3-	0.4+	1998 01 08	688	0.1-	0.5+	1999 03 21	699	1.8+	0.0
1996 10 31	596	0.4+	0.2+	1998 01 08	688	0.3-	0.6+	1999 03 21	699	1.2+	0.5-
1996 10 31	596	0.0	0.0	1998 01 18	596	1.1-	0.7-				

(10387)* 1996 UQ = 1990 FT₂

Discovered 1996 Oct. 18 by P. Sicoli and F. Manca at Sormano.

Id. G. V. Williams (*MPC* 28310)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	221.55551		(2000.0)	P	Q
<i>n</i>	0.22401977	ω	325.34416	+0.83317545	+0.55299249
<i>a</i>	2.6850053	Ω	1.10985	-0.44483889	+0.67473969
<i>e</i>	0.1619633	<i>i</i>	12.64487	-0.32853773	+0.48880021
<i>P</i>	4.40	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1990 03 17	033	0.3-	0.5-	1996 11 01	587	0.1-	0.0	1999 03 20	704	0.1+	0.4-
1990 03 18	033	0.0	0.1+	1996 11 03	587	0.1+	0.0	1999 03 20	704	0.1-	0.5-
1996 10 18	587	0.2+	0.7-	1996 11 03	587	0.0	0.4+	1999 03 20	704	0.6-	0.1-
1996 10 18	587	0.4+	0.5-	1996 12 01	587	0.1+	0.5+	1999 03 20	704	0.6-	0.5-
1996 10 18	587	(1.5-	2.9-)	1996 12 01	587	0.8-	0.4-	1999 03 20	704	0.2-	0.6+
1996 10 19	587	0.4+	0.3-	1996 12 02	587	0.5+	0.5+	1999 03 22	699	0.8+	0.8+
1996 10 19	587	0.4+	0.5-	1996 12 02	587	1.3+	0.1+	1999 03 22	699	0.4+	1.0+
1996 10 21	587	0.1-	0.1+	1998 01 17	587	0.1-	0.3+	1999 03 23	704	0.6+	0.4-
1996 10 21	587	0.3-	0.6+	1998 01 17	587	0.1-	0.2+	1999 03 23	704	0.6-	0.1-
1996 10 30	108	0.1-	0.9-	1998 01 26	587	0.3+	0.1-	1999 03 23	704	1.1-	0.5-
1996 10 30	108	0.7-	0.5-	1998 01 26	587	0.6+	0.3+	1999 03 23	704	0.8-	1.0-
1996 10 30	108	0.7-	0.3-	1998 12 16	910	0.8-	0.3+	1999 03 23	704	0.5-	1.0-
1996 10 30	108	1.3+	0.4+	1998 12 16	910	0.8-	0.1+	1999 03 24	699	1.3+	0.5+
1996 10 30	587	0.2-	0.1+	1998 12 16	910	1.1-	0.1-	1999 03 24	699	1.6+	0.8-
1996 10 30	587	0.3-	0.2+	1998 12 17	910	0.5-	0.4+	1999 03 24	699	1.2+	0.3+
1996 10 30	587	0.1-	0.4-	1998 12 17	910	0.9-	0.1+				
1996 11 01	587	0.1-	0.2+	1998 12 17	910	0.6-	0.6+				

(10388)* 1996 YH₃ = 1979 VJ₂ = 1990 WN₇

Discovered 1996 Dec. 25 by the Beijing Schmidt CCD Asteroid Program at Xinglong.

Id. T. B. Spahr (*MPC* 30671)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	200.75339		(2000.0)	P	Q
<i>n</i>	0.17097575	ω	261.47138	+0.79166643	+0.55128892
<i>a</i>	3.2149905	Ω	64.67287	-0.37968938	+0.78162786
<i>e</i>	0.0926319	<i>i</i>	16.93804	-0.47864417	+0.29178488
<i>P</i>	5.76	<i>H</i>	11.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1979 11 14	095	0.3+	1.8-	1997 11 30	327	0.2-	0.3+	1998 04 14	327	0.2-	0.2+
1990 11 19	413	0.7+	0.2+	1997 12 07	327	0.1-	0.3-	1998 04 14	327	0.2-	0.2+
1990 11 19	413	0.6+	0.8+	1997 12 07	327	0.2-	0.2-	1999 01 16	426	0.0	0.1+
1996 12 25	327	0.7-	0.9+	1997 12 07	327	0.2-	0.5-	1999 01 16	426	1.2+	0.3-
1996 12 25	327	0.9-	0.5+	1997 12 17	327	0.2-	0.1+	1999 01 16	426	0.8+	0.7+
1996 12 25	327	0.2-	0.3+	1997 12 17	327	0.4-	0.3-	1999 01 20	426	1.1+	0.7-
1996 12 26	327	0.2-	0.0	1997 12 17	327	1.1-	0.2+	1999 01 20	426	0.4-	0.4+
1996 12 26	327	0.9-	0.3+	1997 12 19	327	0.2+	0.1-	1999 01 20	426	0.1+	0.3-
1996 12 26	327	0.7-	0.4+	1997 12 19	327	0.2-	0.2-	1999 02 11	704	1.1-	0.6+
1997 01 10	327	0.1+	0.6+	1997 12 19	327	0.3-	0.1-	1999 02 11	704	1.5-	1.8-
1997 01 10	327	0.8-	0.8+	1997 12 20	327	0.3-	0.0	1999 02 11	704	(2.5-	2.4-)
1997 01 10	327	0.7-	0.5+	1997 12 20	327	0.1-	0.1-	1999 02 11	704	1.5+	1.3+
1997 01 10	327	0.6-	0.5+	1997 12 20	327	0.2-	0.1-	1999 02 11	704	0.2-	1.1+
1997 10 17	327	0.1+	0.2-	1998 02 01	327	0.2-	0.1+	1999 02 18	704	0.2-	0.2-
1997 10 17	327	0.1-	0.3-	1998 02 01	327	0.2-	0.2+	1999 02 18	704	0.6-	0.0
1997 10 17	327	0.2+	0.1-	1998 02 01	327	0.0	0.4+	1999 02 18	704	0.2-	0.5+
1997 10 17	327	0.1+	0.5+	1998 02 01	327	0.3-	0.1-	1999 02 18	704	0.2-	0.3-
1997 10 20	327	0.7+	0.5-	1998 03 14	327	0.6-	0.6-	1999 02 18	704	0.7-	0.0
1997 10 20	327	0.3-	0.1+	1998 03 14	327	0.8+	0.3+	1999 03 15	704	1.4-	0.3-
1997 10 20	327	0.7+	1.0-	1998 03 14	327	0.6-	0.6-	1999 03 15	704	0.6+	0.9+
1997 10 22	327	0.5-	0.2-	1998 03 14	327	0.1+	0.5-	1999 03 15	704	1.0+	1.0+
1997 10 22	327	0.5+	0.8+	1998 03 19	327	1.1+	0.3-	1999 03 21	699	0.5+	0.1-
1997 10 22	327	0.7+	0.5-	1998 03 19	327	1.4+	1.5-	1999 03 21	699	0.9+	0.7+
1997 11 23	327	0.6+	0.2+	1998 03 19	327	1.5+	1.4-	1999 03 21	699	1.3+	1.2+
1997 11 23	327	0.3-	0.3+	1998 03 19	327	1.0+	0.2+				
1997 11 23	327	0.1+	0.5+	1998 04 14	327	0.1-	0.5+				

(10389)* 1997 LD = 1973 QF₁ = 1980 TT₄

Discovered 1997 June 1 at Haleakala by the JPL Near-Earth Asteroid

Tracking program.

Id. G. V. Williams (*MPC* 30673)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	143.52300		(2000.0)	P	Q
<i>n</i>	0.28932338	ω	179.11696	+0.99935187	+0.03595425
<i>a</i>	2.2640205	Ω	178.81820	-0.03353115	+0.94763662
<i>e</i>	0.2014012	<i>i</i>	4.92334	-0.01309594	+0.31732021
<i>P</i>	3.41	<i>H</i>	13.8	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1973 08 29	095	1.3+	0.4+	1997 09 02	557	0.3+	0.0	1999 02 16	704	0.4-	1.8-
1973 09 02	095	(4.3-	6.0+)	1997 09 02	557	0.3+	0.1+	1999 03 19	704	0.3+	0.3-
1980 10 07	675	0.8-	1.9-	1997 09 02	557	0.4+	0.2+	1999 03 19	704	1.2+	1.9-
1980 10 08	675	0.6-	0.1-	1997 09 03	557	0.4+	0.2-	1999 03 19	704	0.3+	1.1-
1980 10 09	675	0.1-	0.3+	1997 09 03	557	0.2+	0.4-	1999 03 19	704	0.8-	0.8-
1980 10 10	675	0.6+	0.5-	1997 09 03	557	0.2+	0.1-	1999 03 20	704	0.1+	0.3-
1996 03 15	566	0.7-	0.2-	1997 09 03	557	0.0	0.2-	1999 03 20	704	0.1+	0.6+
1996 03 15	566	0.4-	0.2-	1997 09 06	557	0.1+	0.1-	1999 03 20	704	0.5+	0.1-
1996 03 15	566	0.9-	0.0	1997 09 06	557	0.0	0.1-	1999 03 20	704	0.3-	0.5+
1997 06 01	566	0.4-	1.1-	1997 09 08	557	0.2+	0.2-	1999 03 20	704	0.1+	0.7-
1997 06 01	566	0.4-	0.9-	1997 09 08	557	0.0	0.1-	1999 03 23	704	1.1+	0.1-
1997 06 01	566	0.6-	0.8-	1997 09 08	557	0.0	0.2-	1999 03 23	704	0.4+	1.2-
1997 06 02	566	0.4-	0.8-	1999 02 16	704	1.9+	0.1-	1999 03 23	704	1.2-	1.2-
1997 06 02	566	1.0+	0.9-	1999 02 16	704	0.2-	0.6-	1999 03 23	704	1.7-	1.9+
1997 06 02	566	0.6-	0.9-	1999 02 16	704	0.6-	1.0-	1999 03 23	704	1.3-	1.2+

(10390)* 1997 QD₁ = 1985 XA₁ = 1991 TV₁₄ = 1996 FR₂₃

Discovered 1997 Aug. 27 by P. Pravec and M. Wolf at Ondřejov.

Id. G. V. Williams (*MPC* 30769)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	95.61178		(2000.0)	P	Q
<i>n</i>	0.31373456	ω	84.50856	+0.68107011	-0.73104501
<i>a</i>	2.1450025	Ω	322.45418	+0.64200033	+0.62340825
<i>e</i>	0.0586177	<i>i</i>	3.89858	+0.35210664	+0.27737223
<i>P</i>	3.14	<i>H</i>	14.8	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1985 12 14	010	(8.7-	5.8-)	1997 09 20	557	0.2-	0.3+	1999 02 12	557	0.5-	0.3-
1985 12 14	010	(2.6+	7.5-)	1997 09 20	557	0.2-	0.1+	1999 02 16	704	0.1-	0.3-
1991 10 11	691	0.0	0.6-	1997 09 21	557	0.4-	0.1-	1999 02 16	704	0.1+	0.4-
1991 10 11	691	0.1-	0.4+	1997 09 21	557	0.3-	0.1-	1999 02 16	704	0.2+	0.7+
1991 10 11	691	0.2+	0.3-	1997 09 21	557	0.5-	0.0	1999 02 16	704	0.7-	0.5+
1996 03 23	566	0.2+	0.4-	1997 09 28	557	0.1-	0.2+	1999 02 16	704	1.0+	0.9-
1996 03 23	566	0.3-	0.6-	1997 09 28	557	0.4-	0.0	1999 03 13	557	0.1-	0.5-
1996 03 23	566	0.1-	0.4-	1997 10 06	557	0.1-	0.3+	1999 03 13	557	0.6-	0.5-
1997 08 27	557	0.2+	0.0	1997 10 06	557	0.3+	0.1+	1999 03 13	557	0.3-	0.1-
1997 08 27	557	0.0	0.1+	1997 10 17	557	0.3+	0.5-	1999 03 13	557	0.2-	0.1+
1997 08 30	557	0.5+	0.1+	1997 10 17	557	0.9+	0.5+	1999 03 20	704	0.5+	0.4+
1997 08 30	557	0.3+	0.0	1997 10 17	557	1.4+	0.9+	1999 03 20	704	0.1-	1.2+
1997 09 01	557	0.2+	0.1+	1997 10 19	557	0.5+	0.0	1999 03 20	704	0.4+	0.5-
1997 09 01	557	0.4+	0.1+	1997 10 19	557	0.4+	0.1-	1999 03 20	704	1.2+	1.0-
1997 09 08	557	0.1+	1.1-	1998 12 18	557	0.2+	0.4-	1999 03 20	704	0.1+	0.8-
1997 09 08	557	0.0	0.9-	1998 12 18	557	1.3+	0.7-	1999 03 23	704	0.1-	0.6+
1997 09 08	557	0.2+	0.9-	1999 02 10	557	0.0	0.0	1999 03 23	704	0.3-	0.3+
1997 09 11	557	0.5-	0.9-	1999 02 10	557	0.2-	0.2+	1999 03 23	704	0.2+	0.4+
1997 09 11	557	0.1+	0.2-	1999 02 10	557	0.2-	0.3-	1999 03 23	704	0.6-	0.5-

Id. T. Urata (*MPC* 30770)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23782739	ω	283.09660	-0.18529757	-0.98262881		
<i>a</i>	2.5800501	Ω	177.51193	+0.96810746	-0.18433233		
<i>e</i>	0.1299771	<i>i</i>	13.68227	+0.16862016	-0.02149939		
<i>P</i>	4.14	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1970 03 02	805	0.2+	0.7-	1998 12 01	704	0.1-	1.1+
1970 03 02	805	0.0	0.8-	1998 12 01	704	0.7+	0.5+
1970 03 02	805	0.4-	0.0	1998 12 01	704	0.3+	0.9+
1981 10 09	675	0.2+	0.3+	1998 12 01	704	0.4-	0.6+
1981 10 09	675	0.2-	0.2+	1998 12 01	704	0.6+	1.2+
1997 09 04	905	1.1-	0.6-	1998 12 23	704	(2.5-	0.5+)
1997 09 04	905	0.1-	0.1+	1998 12 23	704	0.5-	1.1-
1997 09 05	905	0.0	0.2-	1998 12 23	704	1.7-	1.9-
1997 09 05	905	0.4+	0.3-	1998 12 23	704	0.5-	1.3+
1997 09 09	905	0.7-	0.1-	1998 12 23	704	0.8+	0.7-
1997 09 09	905	1.6-	1.2-	1999 02 12	704	0.2-	0.3-
1997 09 11	385	0.1+	0.4-	1999 02 12	704	0.2-	0.2+
1997 09 11	385	0.0	0.2+	1999 02 12	704	0.3+	0.3+
1997 09 29	905	0.4+	0.1-	1999 02 12	704	0.2-	0.1-
1997 09 29	905	0.3+	0.1+	1999 02 14	699	0.5+	0.0
1997 09 29	905	0.5+	0.3-	1999 02 14	699	0.7+	0.1+
1997 09 30	566	0.7+	0.3+	1999 02 14	699	1.0+	0.3+
1997 09 30	566	1.5+	0.4+	1999 02 14	886	0.3-	0.5-
1997 09 30	566	2.1+	0.8+	1999 02 14	886	(3.1+	1.7-)
1997 10 05	905	1.6-	0.1+	1999 02 16	704	0.1-	1.1-
1997 10 05	905	1.1-	0.0	1999 02 16	704	0.2+	0.4-
1997 10 31	566	0.0	0.3-	1999 02 16	704	0.0	0.0
1997 10 31	566	0.2+	0.6-	1999 02 16	704	0.2-	0.6+
1997 10 31	566	0.1+	0.3-	1999 02 16	704	0.1+	0.9+
				1999 03 23	704	0.7-	0.3+

(10392)* 1997 RP₇ = 1974 OP₁ = 1978 QO₃ = 1982 UG₉

Discovered 1997 Sept. 11 by R. Linderholm at Lime Creek.

Id. S. Nakano (*MPC* 30878)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26461161	ω	79.46776	+0.95917399	+0.27190447		
<i>a</i>	2.4028691	Ω	264.72148	-0.28028048	+0.87713696		
<i>e</i>	0.1341890	<i>i</i>	4.48130	-0.03779023	+0.39585189		
<i>P</i>	3.72	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc							
1974 07 19	808	0.3-	0.5-	1997 11 26	566	0.0	0.4+
1974 07 19	808	0.2+	0.1-	1997 11 26	566	0.5-	0.3-
1978 08 27	808	0.8+	0.9-	1997 11 26	566	0.2-	0.3+
1978 08 27	808	0.1+	0.2-	1997 11 29	704	0.1-	0.1-
1982 10 21	095	0.9+	0.5-	1997 11 29	704	0.9+	0.7-
1982 10 22	095	0.8-	0.5-	1997 11 29	704	0.5+	0.3+
1997 09 11	721	0.2+	0.8-	1997 11 29	704	0.2-	0.0
1997 09 11	721	0.6-	0.5-	1997 11 29	704	0.3+	0.3-
1997 09 12	721	0.8-	0.8-	1997 12 04	704	0.2-	0.3+
1997 09 12	721	1.3-	0.1-	1997 12 04	704	1.0+	0.4+
1997 11 01	411	1.2-	0.2+	1997 12 04	704	0.4+	1.5+
1997 11 01	411	0.2+	1.3-	1997 12 04	704	0.4-	0.8+
1997 11 03	411	0.1-	0.6-	1997 12 04	704	0.6+	2.0+
1997 11 03	411	0.3+	0.8-	1999 02 16	704	0.4-	1.1-
				1999 03 23	704	0.1+	0.2+

(10393)* 1997 RF₈ = 1980 TG₆

Discovered 1997 Sept. 4 by T. Kagawa and T. Urata at the Gekko Observatory.

Id. S. Nakano (*MPC* 33263)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23090652	ω	286.10874	+0.29068729	+0.95681276		
<i>a</i>	2.6313498	Ω	0.81143	-0.76864268	+0.23550843		
<i>e</i>	0.2484241	<i>i</i>	13.05680	-0.56981517	+0.17042627		
<i>P</i>	4.27	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc							
1980 10 08	095	0.1-	0.1+	1997 10 01	888	0.2-	0.7+
1996 03 21	566	0.6-	0.4+	1997 10 01	888	0.0	1.9+
1996 03 21	566	0.7-	0.1+	1997 10 06	888	1.5-	0.4-
1996 03 21	566	0.8-	0.1+	1997 10 06	888	1.7-	0.2+
1996 04 23	566	1.6+	0.2+	1997 10 08	691	0.0	1.2+
1996 04 23	566	0.8+	0.3+	1997 10 08	691	0.1+	0.5+
1996 04 23	566	1.0+	0.2-	1997 10 25	888	0.4-	0.1-
1997 09 04	888	1.3+	1.2-	1997 10 25	888	1.8-	0.9-
1997 09 04	888	0.7+	1.2-	1997 11 19	385	0.9+	0.6+
1997 09 11	888	0.2-	0.1+	1997 11 19	385	1.1+	0.2-
1997 09 11	888	1.2+	0.1-	1998 11 22	385	1.3-	0.2-

(10394)* 1997 SG₁ = 1977 CH₁

Discovered 1997 Sept. 22 by P. Sala at Giesing.

Id. B. G. Marsden (*MPC* 30772)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22549343	ω	339.66122	-0.77681802	-0.62511684		
<i>a</i>	2.6732944	Ω	161.02465	+0.60526132	-0.77450761		
<i>e</i>	0.1080756	<i>i</i>	13.52477	+0.17381741	-0.09678272		
<i>P</i>	4.37	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc							
1977 02 11	675	0.1+	0.2+	1997 10 29	117	1.3-	0.1-
1977 02 12	675	0.1+	0.5+	1997 10 31	117	1.9-	0.2-
1991 05 11	675	0.5+	0.7+	1997 10 31	117	0.7-	1.4+
1991 05 11	675	0.9-	1.6+	1997 10 31	117	0.2-	0.2+
1991 05 12	675	0.1+	0.2-	1997 11 02	117	1.2+	1.0+
1997 09 22	116	1.2+	0.9-	1997 11 02	117	0.7+	0.9+
1997 09 22	116	0.7+	0.5-	1997 11 02	117	0.8+	1.8+
1997 09 23	116	0.4+	0.8-	1997 11 04	117	0.2-	1.6+
1997 09 23	116	0.0	0.6-	1997 11 04	117	0.1+	1.6+
1997 09 23	116	0.4+	0.5-	1997 11 04	117	0.1-	1.6+
1997 09 24	116	0.7+	0.1-	1997 11 19	117	1.5-	0.6+
1997 09 24	116	0.2-	0.2-	1997 11 19	117	0.9-	1.8+
1997 09 24	116	0.1-	0.3-	1997 11 19	117	1.1+	0.7+
1997 09 24	116	1.0-	0.4+	1997 11 19	117	1.7+	0.4-
1997 09 24	116	0.1+	0.2-	1997 11 19	117	0.4-	0.6+
1997 09 25	116	0.5+	0.3-	1997 11 19	117	0.4+	0.3+
1997 09 26	116	0.4+	0.2-	1997 11 19	117	0.8-	0.6+
1997 09 27	116	0.3-	1.0-	1997 11 19	117	(1.5+	2.3+)
1997 09 27	116	0.5-	1.2-	1997 11 19	117	(2.1-	0.4-)
1997 09 28	116	0.1+	0.3-	1997 12 16	116	0.8-	1.1+
1997 09 28	116	0.3+	0.3+	1997 12 16	116	0.7-	0.3-
1997 09 29	116	0.1-	0.7-	1997 12 16	116	0.7-	0.2-
1997 09 29	116	0.2+	0.4+	1997 12 16	116	(2.6-	2.2+)
1997 10 04	116	0.1-	0.3-	1998 01 04	116	1.3+	0.8-
1997 10 04	116	0.4+	0.5-	1998 01 05	116	0.8+	0.7-
1997 10 04	116	(2.6+	1.1-)	1998 01 05	116	0.4+	0.8-
1997 10 05	116	(2.4+	0.5-)	1998 01 05	116	0.3-	0.8-
1997 10 06	116	0.5+	0.5-	1998 01 05	116	0.1-	0.3-
1997 10 06	116	0.0	0.5-	1998 01 09	116	1.0-	0.3+
1997 10 07	116	0.4+	0.4-	1998 01 09	116	0.8+	1.6+
1997 10 07	116	0.0	0.6-	1998 01 09	116	1.5-	0.1+
1997 10 28	117	0.5-	1.4-	1998 01 09	116	(2.1-	0.6+)
1997 10 28	117	0.9-	0.0	1998 01 12	116	0.7+	0.5+
1997 10 28	117	0.7-	0.8+	1998 01 12	116	1.6+	0.7-
1997 10 29	117	(0.3+	3.4+)	1998 11 25	704	(2.2-	1.0-)

1999 APR. 2

M.P.C. 34159

1997 10 29 117 (2.3– 2.0+) 1998 11 25 704 0.4+ 0.6+ 1999 03 23 704 0.4+ 0.5–
 1997 10 29 117 (2.1– 0.6–) 1998 11 25 704 1.4+ 0.8– 1999 03 23 704 0.2– 0.6–

(10395)* 1997 SZ₁ = 1991 BQ₄ = 1993 RZ₅

Discovered 1997 Sept. 23 by M. Wolf and P. Pravec at Ondřejov.

Id. G. V. Williams (*MPC* 30772)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams		Williams	
<i>M</i>	86.55738 (2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.25775113	ω	230.80631
<i>a</i>	2.4453198	Ω	200.64986
<i>e</i>	0.1187636	<i>i</i>	2.71264
<i>P</i>	3.82	<i>H</i>	14.2

Residuals in seconds of arc

1991 01 22	675	0.2+	0.3+	1997 09 23	557	0.3+	0.3–	1998 12 18	557	0.5+	0.4+
1991 01 22	675	0.4–	1.2–	1997 09 23	557	0.3+	0.1–	1998 12 18	557	0.1–	0.2–
1993 09 15	809	1.7+	1.4+	1997 09 25	557	0.0	0.3–	1998 12 18	557	0.2+	0.1+
1993 09 15	809	0.3+	1.0+	1997 09 25	557	0.1–	0.1–	1999 03 13	557	0.1–	0.1–
1993 09 15	809	0.3–	1.3+	1997 09 25	557	0.1–	0.0	1999 03 13	557	0.2+	0.2–
1993 09 16	809	(2.8– 2.1–)		1997 09 25	557	0.0	0.2–	1999 03 14	557	0.7–	0.5+
1993 09 16	809	(3.1– 1.1–)		1997 09 27	557	0.0	0.3–	1999 03 14	557	0.1–	0.2+
1993 09 16	809	(3.7– 0.9–)		1997 09 27	557	0.0	0.3–	1999 03 14	557	0.5–	0.5+
1993 09 17	809	0.8+	0.9–	1997 10 03	691	0.3–	0.3–	1999 03 16	120	0.5+	0.8+
1993 09 17	809	0.0	0.6–	1997 10 03	691	0.1–	0.0	1999 03 16	120	1.3–	0.8–
1993 09 17	809	0.3–	0.8–	1997 10 03	691	0.5–	0.6–	1999 03 16	120	1.4–	0.5+
1993 09 18	809	0.2–	0.3+	1997 10 05	557	0.1–	0.3–	1999 03 20	704	0.0	0.4–
1993 09 18	809	0.4+	0.3+	1997 10 05	557	0.0	0.4–	1999 03 20	704	1.3+	0.0
1993 09 18	809	0.2+	0.1–	1997 10 12	557	0.1+	0.6+	1999 03 20	704	0.3+	0.4+
1993 09 18	675	0.8–	0.5–	1997 10 12	557	0.3+	0.9+	1999 03 20	704	0.2+	0.1+
1993 09 18	675	0.1–	0.7–	1997 10 29	566	0.1–	0.5+	1999 03 21	120	0.4+	0.3–
1993 09 19	400	1.7+	0.6+	1997 10 29	566	0.1–	0.3+	1999 03 21	120	0.5–	0.9+
1993 09 19	400	1.2+	0.7–	1997 10 29	566	0.2–	0.7+	1999 03 21	120	0.6+	0.3+
1993 09 22	675	1.2–	0.2+	1997 11 01	557	0.1–	0.2+	1999 03 23	704	0.2–	0.6–
1993 09 22	675	0.8–	0.6–	1997 11 01	557	0.1+	0.0	1999 03 23	704	0.4+	0.6–
1993 09 23	809	(3.2– 0.8–)		1997 11 15	426	0.1+	0.6+	1999 03 23	704	0.4+	0.6–
1993 09 23	809	(3.7– 0.4–)		1997 11 15	426	0.5–	0.6+	1999 03 23	704	0.6+	0.9–
1993 09 23	809	(3.9– 0.3–)		1997 11 15	426	0.2+	0.8+	1999 03 23	704	0.5–	0.1–
1993 09 23	095	(1.4– 4.2+)		1997 11 18	426	0.1–	0.2–	1999 03 23	120	1.6–	0.5–
1993 10 12	095	1.7–	0.3+	1997 11 18	426	0.2+	0.7–	1999 03 23	120	0.4+	0.4–
1993 10 17	033	0.2–	1.3–	1997 11 18	426	0.1+	0.2–	1999 03 23	120	0.9+	0.5–
1993 10 17	033	0.0	0.6–	1997 11 19	557	0.3+	0.1–	1999 03 24	699	0.9+	0.7+
1997 09 09	910	0.3–	0.2+	1997 11 19	557	0.2+	0.2–	1999 03 24	699	0.1–	0.7+
1997 09 09	910	0.3–	0.2+	1998 12 17	557	0.5+	0.0	1999 03 24	699	0.1–	0.6+
1997 09 09	910	0.2–	0.1+	1998 12 17	557	0.9–	0.5–				
1997 09 23	557	0.1+	0.0	1998 12 18	557	0.5–	0.2–				

(10396)* 1997 SW₃₃ = 1977 EQ₃ = 1991 RV₁₀

Discovered 1997 Sept. 17 by the Beijing Schmidt CCD Asteroid Program at

Xinglong.

Id. S. Nakano (*MPC* 30881)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano		Nakano	
<i>M</i>	57.34335 (2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.17779316	ω	47.82163
<i>a</i>	3.1322711	Ω	37.81644
<i>e</i>	0.1466738	<i>i</i>	4.98697
<i>P</i>	5.54	<i>H</i>	12.7

Residuals in seconds of arc

1977 03 15	381	0.2+	1.3–	1997 12 04	704	0.3–	0.1+	1999 02 18	699	1.2+	0.7+
1977 03 15	381	0.2+	1.0–	1997 12 04	704	0.5–	1.4+	1999 03 11	621	0.6–	0.3–
1991 09 10	675	0.2–	0.2+	1997 12 04	704	(2.7– 2.9+)		1999 03 11	621	0.2–	0.3–
1991 09 10	675	0.8+	0.1–	1997 12 05	704	0.4+	0.6–	1999 03 11	621	0.6–	0.4–
1991 09 16	675	0.0	1.0–	1997 12 05	704	1.6+	1.2–	1999 03 11	621	0.1–	0.3–
1991 09 16	675	0.8–	0.6–	1997 12 05	704	(0.6+ 2.3–)		1999 03 11	621	0.6–	0.3–
1991 10 07	691	0.1+	0.6–	1997 12 05	704	0.0	1.4–	1999 03 12	621	0.9–	0.6–

1991 10 07	691	0.2–	0.3–	1997 12 05	704	0.8–	1.4–	1999 03 12	621	0.0	0.3–
1991 10 07	691	0.4–	0.4–	1997 12 15	327	0.1–	0.1–	1999 03 12	621	0.1+	0.7–
1993 01 22	399	0.1–	1.1+	1997 12 15	327	0.2–	0.1–	1999 03 13	621	0.0	0.5–
1993 01 22	399	1.7–	0.7+	1997 12 15	327	0.2–	0.0	1999 03 13	621	0.0	0.5–
1997 09 17	327	0.6+	0.1–	1997 12 17	327	0.0	0.1–	1999 03 13	621	0.2–	0.5–
1997 09 17	327	0.7+	0.3–	1997 12 17	327	0.0	0.1–	1999 03 19	699	(2.5+ 0.2–)	
1997 09 17	327	1.1+	0.8–	1997 12 17	327	0.1–	0.3–	1999 03 19	699	2.1+	0.7+
1997 09 19	327	0.2+	1.7+	1998 01 26	327	0.4+	0.5+	1999 03 19	699	1.0+	1.8+
1997 09 19	327	1.1+	0.9+	1998 01 26	327	0.1+	0.1–	1999 03 20	704	0.5–	0.0
1997 09 19	327	0.6+	0.5–	1998 01 26	327	0.6+	0.7+	1999 03 20	704	0.6–	0.4–
1997 11 01	411	0.0	0.9+	1998 01 26	327	0.3+	0.4+	1999 03 20	704	0.6–	0.6–
1997 11 01	411	0.1+	1.1–	1998 02 15	327	0.0	0.7+	1999 03 20	704	0.6–	0.0
1997 11 05	411	0.3–	0.3+	1998 02 15	327	0.3–	0.5+	1999 03 23	704	0.1+	0.3–
1997 11 05	411	0.5–	0.2–	1998 02 15	327	0.0	0.5+	1999 03 23	704	0.3–	0.6–
1997 12 04	704	0.1+	0.1–	1999 02 18	699	0.4+	0.5+	1999 03 23	704	0.0	0.3+
1997 12 04	704	0.2–	0.9+	1999 02 18	699	0.6+	0.7+	1999 03 23	704	0.7–	0.3+

(10397)* 1997 SX₃₃ = 1975 VV₃ = 1977 DN₆ = 1991 RO₁₇

Discovered 1997 Sept. 17 by the Beijing Schmidt CCD Asteroid Program at

Xinglong.

Id. G. V. Williams (*MPC* 31114)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams		Williams	
<i>M</i>	89.49905 (2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.18023408	ω	3.87154
<i>a</i>	3.1039265	Ω	38.74680
<i>e</i>	0.1852784	<i>i</i>	0.96446
<i>P</i>	5.47	<i>H</i>	13.4

Residuals in seconds of arc

1975 11 02	095	1.2+	0.1+	1997 11 29	704	0.7–	0.4–	1999 02 10	704	0.1+	0.1–
1975 11 07	095	(5.0+ 4.7+)		1997 11 29	704	0.8–	0.3–	1999 02 10	704	0.3+	0.2+
1977 02 19	381	0.8–	0.5+	1997 11 29	704	0.4–	0.0	1999 02 10	704	0.6+	0.3–
1977 02 19	381	1.0–	0.3–	1997 11 29	704	1.8–	0.2–	1999 02 10	704	(1.9+ 2.2+)	
1991 09 11	675	(2.5+ 1.0+)		1997 12 04	704	1.3+	0.8–	1999 02 10	704	(4.1– 0.9+)	
1991 09 11	675	0.0	0.7+	1997 12 04	704	1.2–	1.0+	1999 02 12	699	0.5+	0.6+
1991 09 13	675	0.9–	1.8–	1997 12 04	704	0.1+	0.3–	1999 02 12	699	0.3+	0.2+
1991 09 13	675	(2.4– 0.1–)		1997 12 04	704	1.1–	0.7+	1999 02 12	699	1.6+	1.0+
1991 09 14	033	(2.8+ 1.3+)		1997 12 04	704	0.1+	0.4–	1999 02 13	704	0.1+	1.0–
1991 09 14	033	0.3–	1.2+	1998 01 04	327	0.6+	0.0	1999 02 13	704	0.5+	1.3–
1991 09 16	675	0.0	1.0–	1998 01 04	327	0.0	0.1–	1999 02 13	704	(2.1– 0.3–)	
1991 09 16	675	0.8+	0.6–	1998 01 04	327	0.5+	0.0	1999 02 13	704	0.2–	1.5–
1997 09 17	327	1.1+	0.3+	1998 01 26	327	0.4+	0.3–	1999 03 20	704	0.2+	0.5–
1997 09 17	327	1.1+	0.6+	1998 01 26	327	0.3+	0.5–	1999 03 20	704	1.7–	0.4+
1997 09 17	327	1.1+	0.3+	1998 01 26	327	0.2+	0.6–	1999 03 20	704	0.5–	1.2+
1997 09 26	327	0.7+	0.3+	1998 02 15	327	0.4–	0.0	1999 03 20	704	(0.5+ 2.2+)	
1997 09 26	327	0.4+	0.5+	1998 02 15	327	0.2–	0.4+				
1997 09 26	327	0.4+	0.5+	1998 02 15	327	0.8–	0.2+				

(10398)* 1997 UP₈ = 1981 TP₃ = 1981 UH₁₁ = 1991 XN₁

Discovered 1997 Oct. 23 by S. Ueda and H. Kaneda at Kushiro.

Id. K. Ichikawa (*MPC* 31115)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano		Nakano	
<i>M</i>	180.77452 (2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.30960988	ω	264.49837
<i>a</i>	2.1640112	Ω	72.44171
<i>e</i>	0.1706288	<i>i</i>	2.41710
<i>P</i>	3.18	<i>H</i>	13.9

Residuals in seconds of arc

1981 10 07	095	0.3–	1.0+	1997 11 01	399	1.0–	0.4+	1999 03 08	596	0.0	0.7–
1981 10 22	095	(3.9+ 0.6–)		1997 11 02	399	0.7–	0.8–	1999 03 19	699	1.2+	0.1+
1991 12 10	033	0.5+	1.1–	1997 11 02	399	0.4+	0.8+	1999 03 19	699</		

1994 12 03	098	1.3−	1.2−	1997 11 03	704	(2.6+	0.8+)	1999 03 20	704	0.1+	0.0
1996 03 20	691	0.1−	0.2−	1997 12 25	566	0.9+	0.2−	1999 03 20	704	0.8+	0.5−
1996 03 20	691	0.1−	0.1−	1997 12 25	566	0.8+	0.1−	1999 03 20	704	0.3−	0.0
1996 03 20	691	0.1−	0.1−	1997 12 25	566	1.2+	0.4−	1999 03 23	704	0.5+	1.1−
1996 03 26	566	0.2−	0.2+	1998 01 28	566	0.5+	0.1−	1999 03 23	699	0.3−	0.4+
1996 03 26	566	0.5−	0.0	1998 01 28	566	0.3+	0.0	1999 03 23	704	0.6−	0.5−
1996 03 26	566	0.1−	0.3+	1998 01 28	566	0.1−	0.1−	1999 03 23	699	0.7−	1.7+
1997 10 23	399	(2.7−	1.0−)	1999 02 18	699	0.4−	1.0+	1999 03 23	704	0.4−	0.5−
1997 10 23	399	0.5−	0.6+	1999 02 18	699	0.7+	0.8+	1999 03 23	704	0.5−	0.5−
1997 10 25	399	(4.5−	2.9+)	1999 02 18	699	0.7+	1.1+	1999 03 23	699	0.5+	1.0+
1997 10 25	399	(3.9−	1.0+)	1999 03 08	596	0.6−	0.3−	1999 03 23	704	0.0	1.0−
1997 11 01	399	0.6−	0.1−	1999 03 08	596	0.1+	0.2−				

(10399)* 1997 UZ₈ = 1978 SA₂ = 1992 JC₂

Discovered 1997 Oct. 29 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 30886)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	202.07009		(2000.0)		P		Q
<i>n</i>	0.26659223	ω	102.75601	+0.77149642			+0.63490744
<i>a</i>	2.3909531	Ω	217.85339	−0.60661258			+0.71458285
<i>e</i>	0.0765886	<i>i</i>	3.83652	−0.19187093			+0.29370716
<i>P</i>	3.70	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1978 09 26	095	0.5−	1.0+	1997 11 29	704	0.2−	0.2−	1999 02 14	699	0.3+	0.7+
1992 05 02	809	0.4+	0.3+	1997 11 29	704	0.3+	0.5−	1999 02 14	699	0.7+	1.0+
1992 05 02	809	0.8+	0.1−	1997 11 29	704	0.6+	0.7−	1999 02 14	699	0.7+	0.9+
1992 05 02	809	1.1+	0.2−	1997 12 04	704	1.2+	1.4+	1999 02 16	704	1.4−	0.3+
1992 05 03	809	0.9−	0.1+	1997 12 04	704	0.3+	0.4+	1999 02 16	704	0.8−	0.4−
1992 05 03	809	0.6−	0.2+	1997 12 04	704	0.4+	0.9+	1999 02 16	704	0.5−	1.2−
1992 05 03	809	0.4−	0.1+	1997 12 04	704	1.0+	0.8+	1999 02 16	704	1.5−	0.7−
1997 09 07	910	0.4−	1.0−	1997 12 05	704	0.9+	1.5+	1999 02 16	704	(2.4−	1.3−)
1997 09 07	910	0.3−	1.0−	1997 12 05	704	0.9−	0.3+	1999 03 20	704	0.5−	0.3+
1997 09 07	910	0.2−	0.9−	1997 12 05	704	1.8−	2.1+	1999 03 20	704	0.5−	0.4−
1997 10 29	411	0.0	0.4−	1997 12 05	704	(2.1−	2.2+)	1999 03 20	704	0.4+	0.3−
1997 10 29	411	1.7−	1.0+	1997 12 05	704	1.9−	1.1+	1999 03 20	704	0.5−	0.5−
1997 10 30	411	0.5+	0.4−	1998 01 26	691	0.1−	0.7−	1999 03 23	704	0.1−	0.0
1997 10 30	411	0.3−	0.8−	1998 01 26	691	0.0	0.5−	1999 03 23	704	0.7+	0.0
1997 11 05	905	0.1−	0.7−	1998 01 26	691	0.0	0.7−	1999 03 23	704	0.3+	0.5+
1997 11 05	905	0.2+	0.1−	1998 02 24	327	0.1−	0.4+	1999 03 23	699	0.2+	0.8+
1997 11 06	905	0.6+	0.5−	1998 02 24	327	0.3−	0.2+	1999 03 23	704	0.2+	0.5−
1997 11 06	905	0.5+	1.0−	1998 02 24	327	0.4+	0.3+	1999 03 23	704	0.4+	0.5+
1997 11 07	411	0.1−	0.7−	1998 12 23	704	1.1+	1.3−	1999 03 23	699	0.3+	0.3−
1997 11 07	411	0.1−	0.6−	1998 12 23	704	0.3−	0.2−	1999 03 23	699	0.5+	0.6+
1997 11 29	704	0.0	0.2+	1998 12 23	704	(2.3−	1.3−)				
1997 11 29	704	0.7+	0.3+	1998 12 23	704	0.3+	0.3−				

(10400)* 1997 VX = 1965 UA₂ = 1972 TF₇ = 1983 XK₁

Discovered 1997 Nov. 1 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 30993)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	155.34920		(2000.0)		P		Q
<i>n</i>	0.27759003	ω	339.57132	+0.98013552			−0.18220394
<i>a</i>	2.3273774	Ω	31.25180	+0.19638472			+0.83645213
<i>e</i>	0.1403638	<i>i</i>	8.68425	+0.02770188			+0.51686513
<i>P</i>	3.55	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1965 10 20	330	(0.8−	2.4+)	1997 12 02	411	0.0	0.1+	1999 02 26	704	0.6−	0.2−
1972 10 06	095	1.5+	2.1−	1997 12 06	704	0.7−	0.1+	1999 02 26	704	1.0−	1.9−
1983 12 04	561	0.3+	0.2−	1997 12 06	704	0.7−	0.1−	1999 03 20	704	0.1−	0.0
1983 12 04	561	0.8−	1.0+	1997 12 06	704	1.4−	0.0	1999 03 20	704	0.1+	0.9+
1993 08 17	808	0.0	0.2−	1997 12 06	704	0.1+	0.3−	1999 03 20	704	1.4−	1.2+
1993 08 17	808	0.3+	0.6−	1997 12 06	704	0.7−	0.0	1999 03 20	704	0.2+	0.2+
1997 11 01	411	0.2+	0.0	1998 02 01	689	0.2−	0.3+	1999 03 20	704	0.1−	0.1−

1997 11 01	411	0.1+	0.2−	1999 02 20	704	0.0	1.5−	1999 03 23	704	0.2+	0.8−
1997 11 03	411	0.1−	0.1+	1999 02 20	704	0.4−	0.8−	1999 03 23	704	0.5+	0.1+
1997 11 03	411	0.3+	0.1+	1999 02 20	704	0.6−	1.5−	1999 03 23	699	0.5+	1.0+
1997 11 08	411	0.9+	0.4−	1999 02 20	704	1.0−	0.0	1999 03 23	704	0.1−	0.2−
1997 11 08	411	0.9+	0.3−	1999 02 20	704	1.5−	1.4−	1999 03 23	704	0.4−	0.3−
1997 11 19	411	0.4+	0.4+	1999 02 26	704	0.3−	0.6+	1999 03 23	699	0.5+	1.0+
1997 11 19	411	0.6+	0.2+	1999 02 26	704	0.9+	1.2−	1999 03 23	704	0.0	0.1−
1997 12 02	411	0.0	0.1+	1999 02 26	704	1.9+	0.1+	1999 03 23	699	0.3+	0.7+

(10401)* 1997 VD₃ = 1988 WM = 1994 AF₁₇

Discovered 1997 Nov. 6 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 30994), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	97.16592		(2000.0)		P		Q
<i>n</i>	0.21994920	ω	262.79253	+0.54921999			−0.83566398
<i>a</i>	2.7180313	Ω	153.89217	+0.77096702			+0.50446255
<i>e</i>	0.0775313	<i>i</i>	0.62608	+0.32243954			+0.21721706
<i>P</i>	4.48	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1988 11 17	399	0.3+	1.3−	1997 11 19	411	0.7−	0.4+	1999 01 15	910	0.8−	0.3+
1988 11 17	399	1.6−	0.2−	1997 11 19	411	1.3+	0.1+	1999 01 15	910	0.7−	0.1−
1988 11 17	399	0.1−	0.4−	1997 11 29	704	0.7−	0.5−	1999 01 28	120	0.8+	1.0+
1988 11 17	399	0.2+	0.7+	1997 11 29	704	0.2+	0.5−	1999 01 28	120	1.7−	0.8+
1992 09 23	691	0.2+	0.6+	1997 11 29	704	0.4−	0.3−	1999 03 19	691	0.3+	0.1+
1992 09 23	691	0.1+	0.5+	1997 11 29	704	0.4−	0.2+	1999 03 19	691	0.4+	0.3+
1992 09 23	691	0.1+	0.8+	1997 11 29	704	0.0	0.2−	1999 03 19	691	0.2+	0.0
1994 01 13	691	(3.0+	1.2+)	1997 11 30	411	0.4−	0.1+	1999 03 20	704	0.5+	0.1+
1994 01 13	691	0.1+	0.6+	1997 11 30	411	0.6−	0.0	1999 03 20	704	0.6−	1.3−
1994 01 13	691	0.1+	0.0	1997 12 04	704	0.8+	0.5−	1999 03 20	704	0.1−	0.3−
1994 01 18	691	0.3+	0.0	1997 12 04	704	0.7+	0.7−	1999 03 20	704	1.1+	0.5+
1994 01 18	691	0.4+	0.2−	1997 12 04	704	1.0+	0.3−	1999 03 20	704	0.5−	0.7−
1994 01 18	691	1.1+	0.0	1997 12 04	704	0.9+	0.8+	1999 03 23	704	0.7+	0.5+
1997 09 07	910	1.8−	0.8−	1997 12 04	704	1.0+	0.6−	1999 03 23	704	0.3−	1.0+
1997 09 07	910	1.7−	0.7−	1998 01 02	704	1.1+	1.9+	1999 03 23	704	0.8−	0.6+
1997 09 07	910	1.6−	0.7−	1998 01 02	704	1.4+	0.7−	1999 03 23	704	0.7−	1.4−
1997 11 06	411	0.1−	0.5−	1998 01 02	704	0.2−	1.8+	1999 03 23	704	0.7+	0.8−
1997 11 06	411	0.7−	0.1+	1998 01 02	704	(2.8−	0.8−)	1999 03 24	691	0.3+	0.2−
1997 11 07	411	0.1+	0.1+	1998 01 03	910	0.7−	0.1+	1999 03 24	691	0.0	0.1+
1997 11 07	411	0.6+	0.2−	1998 01 03	910	1.1−	0.3+	1999 03 24	691	0.1+	0.1+
1997 11 09	411	0.2+	1.0+	1998 01 03	910	0.8−	0.2+				
1997 11 09	411	0.7+	0.5−	1999 01 15	910	1.0−	0.1+				

(10402)* 1997 VS₅ = 1980 TH₉ = 1991 RL₁₀

Discovered 1997 Nov. 8 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 30996)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	115.84185		(2000.0)		P		Q
<i>n</i>	0.17759012	ω	4.42777	+0.98188897			−0.18940831
<i>a</i>	3.1346581	Ω	6.49525	+0.17263398			+0.88510785
<i>e</i>	0.2070798	<i>i</i>	2.18109	+0.07804841			+0.42509833
<i>P</i>	5.55	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1980 10 13	095	0.8+	1.9−	1997 11 29	704	1.0−	1.9−	1999 02 10	704	(0.1−	3.1−)
1991 09 10	675	(4.2+	1.9+)	1997 11 29	704	0.3+	0.5−	1999 02 10	704	1.0+	0.9+
1991 09 10	675	0.6+	0.2+	1997 11 29	704	0.4+	1.2+	1999 02 10	704	0.2+	0.5+
1991 09 16	675	0.6+	1.0−	1997 11 29	704	1.7−	0.1−	1999 02 10	704	1.6−	0.2+
1991 09 16	675	0.3−	1.1−	1997 11 29	704	0.6−	2.0−	1999 02 20	691	0.5+	0.6−
1991 10 08	691	0.4−	1.0+	1997 11 29	704	2.1−	0.6−	1999 02 20	691	0.7+	0.3−
1991 10 08	691	0.3−	0.5+	1997 11 29	704	0.7−	0.2−	1999 02 20	691	0.6+	0.6−
1997 11 08	411	0.4−	0.5−	1997 11 29	704	0.1−	1.2+	1999 02 21	691	1.0−	0.6−
1997 11 08	411	0.3−	0.3−	1997 12 03	411	0.2+	0.2+	1999 02 21	691	1.2−	0.6−
1997 11 09	411	1.0+	0.9+	1997 12 03	411	1.1+	0.3+	1999 02 21	691	1.0−	0.6−
1997 11 09	411	0.9+	0.2−	1997 12 04	704	1.3+	0.5+	1999 03 24	691	0.3+	0.3−

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M.P.C. 34161

1997 11 19 411 0.2- 1.0+ 1997 12 04 704 0.6+ 0.8+ 1999 03 24 691 0.4+ 0.4-
 1997 11 19 411 1.0+ 0.6+ 1997 12 04 704 0.8+ 0.8+ 1999 03 24 691 0.3+ 0.2-
 1997 11 29 704 1.4- 0.3+ 1997 12 04 704 0.8+ 0.3+

(10403)* 1997 WU₃ = 1982 FC₂ = 1984 YE₅ = 1992 BR₃

Discovered 1997 Nov. 22 at Kleť.

Id. K. Ichikawa (*MPC* 31118)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams					
<i>M</i>	21.08270	(2000.0)		P		Q	
<i>n</i>	0.29337584	ω	275.06908	-0.91646080	-0.39310411		
<i>a</i>	2.2431233	Ω	241.80056	+0.39240824	-0.84656729		
<i>e</i>	0.0930143	<i>i</i>	4.85730	+0.07820087	-0.35887740		
<i>P</i>	3.36	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1982 03 23	704	0.3+	0.2-	1997 11 22	046	0.4+	0.1-	1998 01 13	046	0.4-	0.6+
1982 03 23	046	0.6-	0.8-	1997 11 22	046	0.2+	0.2-	1998 01 24	566	0.1-	0.4-
1982 03 23	046	0.6+	1.8-	1997 11 22	046	0.0	0.1-	1998 01 24	566	0.3+	0.5-
1982 03 25	046	0.5+	2.0+	1997 11 22	046	0.2+	0.1+	1998 01 24	566	0.5-	0.3-
1982 03 25	046	2.0-	1.3-	1997 11 25	046	0.9+	0.3-	1999 01 22	046	0.6+	0.7+
1984 12 28	095	1.0+	1.0+	1997 11 25	046	0.5+	0.7-	1999 01 22	046	0.4+	0.7+
1992 01 27	691	0.1-	0.2-	1997 11 25	046	0.0	0.6-	1999 01 22	046	0.4+	0.8+
1992 01 27	691	0.1+	0.4-	1997 11 25	046	0.1-	0.7-	1999 01 23	046	0.0	0.5+
1992 01 27	691	0.1+	0.3-	1997 11 25	046	0.2+	0.1+	1999 01 23	046	0.1+	0.8+
1992 01 28	691	0.7-	0.1-	1997 11 29	566	0.4+	0.1-	1999 01 23	046	0.0	0.8+
1992 01 28	691	0.5-	0.4-	1997 11 29	566	0.4+	0.4+	1999 02 25	046	0.1+	0.5+
1992 01 28	691	0.6-	0.5-	1997 11 29	566	0.1-	0.3-	1999 02 25	046	0.5+	0.7+
1997 11 03	704	0.9-	0.3+	1998 01 12	046	0.1+	0.4+	1999 02 25	046	0.1+	0.6+
1997 11 03	704	0.4-	1.1+	1998 01 12	046	0.0	0.8+	1999 02 27	046	0.1+	0.3+
1997 11 03	704	0.5-	0.5+	1998 01 12	046	0.2-	0.5+	1999 02 27	046	0.3+	0.4+
1997 11 03	704	0.1-	0.1+	1998 01 13	046	0.3+	0.8+	1999 02 27	046	0.1+	0.1+
1997 11 03	704	1.1-	0.2-	1998 01 13	046	0.2+	0.9+				

(10404)* 1997 WP₁₄ = 1991 RD₄₁

Discovered 1997 Nov. 22 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 30999)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams					
<i>M</i>	67.04501	(2000.0)		P		Q	
<i>n</i>	0.18101665	ω	297.79933	+0.36055405	-0.93211959		
<i>a</i>	3.0949742	Ω	131.02486	+0.87083322	+0.32335479		
<i>e</i>	0.0821187	<i>i</i>	2.58065	+0.33414112	+0.16307899		
<i>P</i>	5.44	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 09 10	033	0.2+	0.5-	1997 12 04	704	1.0+	0.6+	1999 02 10	704	1.0+	1.5+
1991 09 10	033	1.4+	0.0	1997 12 04	704	0.1+	1.6-	1999 02 13	704	0.2+	0.3+
1991 09 13	033	0.1+	0.2-	1997 12 04	704	(2.2-	0.3+)	1999 02 13	704	0.8-	0.4+
1991 10 02	691	1.2-	0.1+	1997 12 04	704	1.3-	1.8+	1999 02 13	704	0.5+	1.0+
1991 10 02	691	0.6-	0.0	1997 12 05	691	0.5+	0.3-	1999 02 13	704	0.2+	0.4+
1991 10 02	691	0.2-	0.5+	1997 12 05	691	0.7+	0.2-	1999 02 13	704	0.4+	1.7+
1994 04 03	691	0.3-	0.6-	1997 12 05	691	0.7+	0.1+	1999 02 18	691	0.5+	0.0
1994 04 03	691	0.3-	1.6-	1998 01 26	691	0.2-	0.2-	1999 02 18	691	0.5+	0.1-
1994 04 03	691	0.3-	0.9-	1998 01 26	691	0.3-	0.5-	1999 02 18	691	1.2-	0.2-
1996 09 12	566	0.5-	0.5+	1998 01 26	691	0.4-	0.0	1999 02 18	691	1.3-	0.2-
1996 09 12	566	0.4+	0.1-	1998 02 02	691	0.1-	0.2-	1999 02 18	691	0.9-	0.2-
1996 09 12	566	0.1+	0.3+	1998 02 02	691	0.4-	0.3+	1999 02 18	566	0.5-	0.2-
1997 11 22	691	0.1+	0.3-	1998 02 02	691	0.3-	0.3+	1999 02 18	566	0.4-	0.2-
1997 11 22	691	0.1-	0.3-	1998 02 22	327	1.1+	0.0	1999 02 18	566	0.4-	1.1-
1997 11 22	691	0.1+	0.6-	1998 02 22	327	0.7+	0.8-	1999 03 15	691	0.0	0.3-
1997 11 29	691	0.7-	0.2-	1998 02 22	327	1.2+	0.3+	1999 03 15	691	0.1-	0.1-
1997 11 29	691	0.5-	0.3-	1999 02 10	704	0.1+	0.3-	1999 03 15	691	0.0	0.0
1997 11 29	691	0.6-	0.1-	1999 02 10	704	1.2+	0.2-				
1997 12 04	704	(0.2+	2.2-)	1999 02 10	704	1.6+	0.9+				

(10405)* 1997 WT₂₃ = 1978 RS₃ = 1982 UE₁₀ = 1982 VA₁₁ = 1995 CO₄

Discovered 1997 Nov. 19 by T. Okuni at Nanyou.

Id. S. Nakano (*MPC* 31000)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		(2000.0)		P		Q	
<i>M</i>	156.92930						
<i>n</i>	0.26340947	ω	94.46158	+0.98173247	+0.18858729		
<i>a</i>	2.4101743	Ω	254.66957	-0.18329087	+0.90182650		
<i>e</i>	0.1917891	<i>i</i>	1.49865	-0.05104713	+0.38877217		
<i>P</i>	3.74	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1978 09 03	095	(2.5-	3.1+)	1997 10 29	704	0.1-	0.2-	1997 11 30	900	0.1-	1.3-
1982 10 22	095	0.2-	0.2-	1997 10 29	704	0.2+	0.0	1997 12 04	900	0.3-	0.2+
1982 11 14	095	(7.2+	2.8+)	1997 10 29	704	0.3-	0.1-	1997 12 04	358	0.1+	1.6+
1992 04 30	691	0.4-	0.5-	1997 10 30	704	(2.8+	1.6+)	1997 12 04	900	0.3-	0.3+
1992 04 30	691	0.4-	1.2-	1997 10 30	704	(4.4+	1.4-)	1997 12 04	358	0.1+	0.6+
1992 04 30	691	0.4+	0.9-	1997 10 30	704	(3.3+	0.6+)	1997 12 04	358	0.2-	0.8+
1993 09 14	095	(3.1+	1.7+)	1997 10 30	704	(3.3+	0.4-)	1997 12 04	900	0.1+	0.0
1993 09 14	095	0.1+	0.5-	1997 11 06	704	(3.7-	0.3+)	1997 12 08	327	0.1-	0.6+
1993 09 15	691	0.1-	0.3-	1997 11 06	704	(3.5-	0.3-)	1997 12 08	327	0.2+	0.4+
1993 09 15	691	0.2+	0.0	1997 11 06	704	(3.5-	0.0)	1997 12 08	327	0.2-	0.6+
1993 09 15	691	0.2+	0.2-	1997 11 06	704	(3.8-	0.2-)	1998 02 16	327	0.5-	0.2+
1995 02 01	691	0.3+	0.2-	1997 11 06	704	(3.0-	0.9-)	1998 02 16	327	0.5+	0.1+
1995 02 01	691	0.1+	0.3-	1997 11 19	358	(1.0+	2.3-)	1998 02 16	327	0.3+	0.6-
1995 02 01	691	0.1+	0.6-	1997 11 19	358	1.3+	0.3+	1999 02 16	704	0.2-	1.5+
1995 02 07	691	0.2+	0.3-	1997 11 23	358	0.9-	0.6+	1999 02 16	704	0.6+	0.0
1995 02 07	691	0.2+	0.2-	1997 11 23	358	0.0	0.4+	1999 02 16	704	0.8-	1.5-
1995 02 07	691	0.3+	0.2-	1997 11 28	358	0.8-	0.1-	1999 02 16	704	0.4+	1.3+
1995 02 21	691	0.2-	0.5-	1997 11 28	358	(2.3-	4.7+)	1999 02 16	704	1.8-	0.2+
1995 02 21	691	0.4-	0.3-	1997 11 28	358	(0.4-	2.4+)	1999 03 20	704	0.6+	1.1+
1995 02 21	691	0.4-	0.3-	1997 11 30	566	0.9+	0.9-	1999 03 20	704	0.3-	1.7-
1997 10 29	704	0.8-	0.9-	1997 11 30	566	0.8+	1.3-	1999 03 20	704	1.0+	2.1+
1997 10 29	704	0.3-	0.3-	1997 11 30	566	1.0+	1.1-				

(10406)* 1997 WZ₂₉ = 1974 SA₃ = 1991 RU₂₉

Discovered 1997 Nov. 24 by S. Ueda and H. Kaneda at Kushiro.

Id. G. V. Williams (*MPC* 31121)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		(2000.0)		P		Q	
<i>M</i>	108.50317						
<i>n</i>	0.17318020	ω	107.10663	+0.98874718	-0.09652303		
<i>a</i>	3.1876495	Ω	258.54559	+0.04721697	+0.92630015		
<i>e</i>	0.2179307	<i>i</i>	6.69667	+0.14194920	+0.36421331		
<i>P</i>	5.69	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1974 09 20	095	0.9+	2.1+	1997 11 29	704	0.7-	1.2-	1999 02 12	704	0.5-	0.7+
1974 09 22	095	1.3-	0.4-	1997 11 29	704	0.5-	0.8-	1999 02 12	704	1.5-	1.5-
1991 09 12	675	0.2-	0.5-	1997 11 29	704	0.3+	1.1-	1999 02 12	704	1.0-	0.0
1991 09 12	675	0.3+	1.1-	1997 12 03	399	1.3-	1.0-	1999 02 12	704	0.7+	0.4+
1991 09 16	675	0.2+	1.2-	1997 12 03	399	0.1+	0.6-	1999 02 12	704	0.2-	0.2+
1991 09 16	675	0.3+	0.7-	1997 12 04	704	(2.4+	1.6-)	1999 02 19	566	0.2-	0.3+
1997 11 24	399	0.7+	0.8+	1997 12 04	704	1.7+	1.0+	1999 02 19	566	0.5-	0.0
1997 11 24	399	0.3-	0.0	1997 12 04	704	1.3+	1.3+	1999 02 19	566	0.4-	0.4+
1997 11 26	566	0.5+	0.5+	1997 12 04	704	0.7+	1.8+	1999 03 10	704	0.9+	0.6-
1997 11 26	566	0.4-	0.0	1997 12 04	704	0.8+	1.4+	1999 03 10	704	(0.1+	2.1-)
1997 11 26	566	0.4-	0.3+	1998 02 23	327	1.0-	0.4-	1999 03 10	704	1.3+	0.0
1997 11 29	704	1.4-	0.9+	1998 02 23	327	0.4-	0.3-	1999 03 10	704	1.3+	1.0-
1997 11 29	704	0.3+	0.6-	1998 02 23	327	0.7-	0.9-	1999 03 10	704	(3.3-	0.1-)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	203.97488		(2000.0)	P		Q			
<i>n</i>	0.29007460	ω	217.70100	+0.74933565		+0.65801811			
<i>a</i>	2.2601100	Ω	100.98074	−0.58767450		+0.71247653			
<i>e</i>	0.1504667	<i>i</i>	4.33580	−0.30517990		+0.24369933			
<i>P</i>	3.40	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc									
1983 09 03	808	(9.4− 0.6−)	1997 12 04	704	0.2−	0.2−	1999 01 20	561	0.1− 0.0
1983 09 03	808	0.2+ 0.6+	1997 12 04	704	0.0	0.3+	1999 01 20	561	0.2− 0.0
1989 04 06	033	0.1+ 0.1−	1997 12 04	704	0.2+ 0.4+		1999 01 20	561	0.1− 0.1−
1989 04 07	033	0.1+ 0.7+	1997 12 04	704	0.3− 0.1+		1999 01 21	561	0.5− 0.3+
1989 04 09	033	0.6− 0.4−	1997 12 04	704	0.5+ 0.7+		1999 01 21	561	0.3− 0.9−
1989 04 09	033	0.8− 1.0−	1998 01 26	691	0.2− 0.6−		1999 01 21	561	0.6− 0.3+
1992 02 24	691	0.0 0.2−	1998 01 26	691	0.4− 0.7−		1999 02 18	699	0.7+ 0.0
1992 02 24	691	0.2− 0.2−	1998 01 26	691	0.4− 0.5−		1999 02 18	699	0.0 0.1−
1992 02 24	691	0.7− 0.1−	1998 02 26	327	0.1+ 0.2−		1999 02 18	699	1.4+ 1.1−
1994 11 29	691	0.2+ 0.1−	1998 02 26	327	0.1+ 0.5−		1999 02 22	699	1.4+ 0.7+
1994 11 29	691	0.7+ 0.1+	1998 02 26	327	0.2− 0.4−		1999 02 22	699	0.8+ 1.2+
1994 11 29	691	0.5+ 0.0	1998 02 27	327	0.0 0.5−		1999 03 20	704	0.1− 0.2+
1996 03 24	691	0.2− 0.2−	1998 02 27	327	0.1+ 0.4−		1999 03 20	704	0.4− 0.9+
1996 03 24	691	0.2− 0.0	1998 02 27	327	0.2− 0.0		1999 03 20	704	0.0 1.0+
1996 03 24	691	0.4− 0.2−	1998 03 01	327	0.4− 0.1−		1999 03 20	704	0.3+ 1.0+
1997 11 29	704	0.9− 0.0	1998 03 01	327	0.2+ 0.3+		1999 03 20	704	0.5+ 0.5+
1997 11 29	704	0.4+ 0.3−	1998 03 01	327	0.8− 1.0−		1999 03 23	704	1.3+ 1.6−
1997 11 29	704	0.6+ 0.0	1999 01 18	561	0.3+ 0.5+		1999 03 23	704	1.6− 0.6−
1997 11 29	704	0.2− 0.3+	1999 01 18	561	0.1+ 0.6+		1999 03 23	704	0.2− 0.6−
1997 11 29	704	0.3+ 0.5+	1999 01 18	561	0.3+ 0.7+		1999 03 23	704	0.2− 0.2−

(10408)* 1997 WL₄₄ = 1991 RC₁₅ = 1996 PL₄

Discovered 1997 Nov. 29 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 31122)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	98.58648		(2000.0)	P		Q					
n	0.18440590	ω	230.62110	+0.72069183		−0.69325303					
a	3.0569347	Ω	173.26631	+0.64086994		+0.66519811					
e	0.1548480	i	0.91718	+0.26436529		+0.27732961					
P	5.34	H	13.8	G	0.15	U	1				
Residuals in seconds of arc											
1991 09 04	033	0.2−	0.5+	1997 11 29	704	1.9−	0.7+	1999 02 08	691	0.7−	0.5−
1991 09 05	033	0.7+	0.6+	1997 12 04	704	0.9+	0.6−	1999 02 08	691	0.7−	0.4−
1991 09 11	675	1.0+	0.9−	1997 12 04	704	1.3+	0.4−	1999 02 09	691	0.3−	0.5−
1991 09 11	675	0.9−	1.3−	1997 12 04	704	0.7+	0.7−	1999 02 09	691	0.2−	0.8−
1991 09 14	033	0.2−	0.3−	1997 12 04	704	1.1+	0.5−	1999 02 09	691	0.3−	0.6−
1991 09 14	033	(3.8−	1.0−)	1997 12 04	704	0.3+	1.4−	1999 02 14	691	0.5+	0.5−
1991 09 15	675	0.2+	0.8−	1997 12 31	704	0.5−	0.1+	1999 02 14	691	0.6+	0.3−
1991 09 15	675	0.9+	1.4−	1997 12 31	704	0.3+	0.4+	1999 02 16	704	0.5−	0.3+
1996 08 12	566	0.2+	0.1−	1997 12 31	704	0.1−	0.4+	1999 02 16	704	0.6−	0.0
1996 08 12	566	0.4+	0.1+	1997 12 31	704	0.3−	0.4+	1999 02 16	704	1.6+	0.4+
1996 08 12	566	0.7+	0.1+	1998 01 02	704	0.0	0.3+	1999 02 16	704	0.5+	1.3+
1996 08 17	566	0.7−	0.8+	1998 01 02	704	0.3+	1.0+	1999 02 16	704	0.6−	2.0+
1996 08 17	566	0.6−	0.6+	1998 01 02	704	0.9−	0.6+	1999 02 18	691	0.3−	0.5−
1996 08 17	566	0.8−	0.9+	1998 01 02	704	0.6−	0.5+	1999 02 18	691	0.2−	0.5−
1997 11 29	704	(2.2−	0.4+)	1998 01 07	699	0.7−	0.7+	1999 02 18	691	0.1−	0.6−
1997 11 29	704	(2.2−	0.4+)	1998 01 07	699	0.2−	0.1+	1999 03 12	691	0.1+	0.0
1997 11 29	704	(3.0−	0.2−)	1998 01 07	699	0.4−	0.3+	1999 03 12	691	0.4+	0.4−
1997 11 29	704	(3.0−	0.1+)	1999 02 08	691	0.8−	0.4−	1999 03 12	691	0.5+	0.4−

(10409)* 1997 WP₄₄ = 1990 HM₃ = 1991 RG₈

Discovered 1997 Nov. 29 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 31122)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	105.06881		(2000.0)			P		Q		
<i>n</i>	0.17816684	ω	304.48625			+0.87339760		−0.48465831		
<i>a</i>	3.1278900	Ω	84.54640			+0.46108122		+0.79132718		
<i>e</i>	0.1981126	<i>i</i>	2.75111			+0.15678246		+0.37270313		
<i>P</i>	5.53	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc										
1990 04 29	413	0.4−	1.1−	1997 12 04	704	1.3+	0.8−	1999 02 18	699	0.7+ 1.2+
1990 05 01	413	0.5−	0.9−	1997 12 29	566	0.0	0.1+	1999 02 18	566	0.5− 0.5−
1990 05 02	413	0.7−	0.9−	1997 12 29	566	0.0	0.2+	1999 02 18	566	0.3+ 0.3−
1991 09 12	675	0.9+	1.0−	1997 12 29	566	0.1+	0.2+	1999 02 18	566	0.6− 0.0
1991 09 12	675	0.7+	0.8−	1997 12 31	704	0.4+	0.0	1999 03 19	704	(1.9− 2.6−)
1991 09 14	675	0.7+	0.9−	1997 12 31	704	0.3+	0.0	1999 03 19	704	1.0+ 0.2−
1991 09 14	675	0.9+	0.4−	1997 12 31	704	0.2+	0.2−	1999 03 19	704	0.9+ 0.9−
1993 02 16	691	0.4−	0.1−	1997 12 31	704	0.1−	0.2−	1999 03 19	704	(2.7+ 0.0)
1993 02 16	691	0.4−	0.1+	1998 01 02	704	0.2+	0.2+	1999 03 20	704	0.0 0.7−
1993 02 16	691	0.4−	0.0	1998 01 02	704	0.0	0.3+	1999 03 20	704	1.1− 1.2−
1997 11 29	704	0.7−	0.2−	1998 01 02	704	0.1+	0.6+	1999 03 20	704	0.1− 0.7−
1997 11 29	704	0.2−	0.3−	1998 01 02	704	0.3−	0.1−	1999 03 20	704	0.1− 0.4+
1997 11 29	704	0.8−	0.3−	1999 02 10	704	0.2−	0.4−	1999 03 20	704	0.2+ 0.1−
1997 11 29	704	1.1−	1.0−	1999 02 10	704	0.9+	1.6−	1999 03 23	704	1.0− 1.6−
1997 11 29	704	0.9−	0.6−	1999 02 10	704	0.0	1.6+	1999 03 23	704	0.4− 0.1−
1997 12 04	704	0.0	0.1−	1999 02 10	704	1.3−	0.5+	1999 03 23	704	0.4+ 0.9−
1997 12 04	704	0.5−	0.7+	1999 02 10	704	0.6+	0.3−	1999 03 23	704	1.2− 0.1+
1997 12 04	704	0.4+	0.5+	1999 02 18	699	0.2+	0.4+			
1997 12 04	704	0.1−	0.4+	1999 02 18	699	1.7+	0.1+			

(10410)* 1997 XR₉ = 1978 GH₄ = 1978 JZ₃ = 1980 UT = 1999 CB₁₈

Discovered 1997 Dec. 4 by the Beijing Schmidt CCD Asteroid Program at

Xinglong.

Id. G. V. Williams (*MPC* 33966)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	177.27878		(2000.0)	P		Q					
n	0.17567076	ω	267.38843	+0.54972719	+0.83132048						
a	3.1574493	Ω	36.35024	−0.70097877	+0.51240188						
e	0.1480488	i	7.94156	−0.45434434	+0.21529184						
P	5.61	H	12.0	G	0.15	U	1				
Residuals in seconds of arc											
1978 04 11	095	0.0	0.5+	1997 12 04	327	0.5−	0.3+	1999 02 10	704	0.4+	0.6+
1978 05 05	095	0.3+	0.1+	1997 12 08	327	0.3+	0.4+	1999 02 10	704	0.5−	0.8+
1980 10 17	095	0.3−	0.6+	1997 12 08	327	0.1−	0.2−	1999 02 10	704	0.9+	0.5+
1997 11 29	704	0.4+	0.5+	1997 12 08	327	0.0	0.2+	1999 02 10	704	1.1+	0.8−
1997 11 29	704	0.6+	0.3−	1997 12 15	327	0.1−	0.2+	1999 02 10	704	0.2+	1.2−
1997 11 29	704	0.6+	0.1−	1997 12 15	327	0.0	0.1−	1999 02 13	704	(2.2−	0.1+)
1997 11 29	704	0.3+	1.4−	1997 12 15	327	0.1−	0.3+	1999 02 13	704	1.2+	0.4−
1997 11 29	704	0.8−	0.6−	1999 01 22	699	0.2−	1.3+	1999 02 13	704	0.6−	0.4+
1997 12 04	327	0.4−	0.5+	1999 01 22	699	0.3−	0.1−	1999 02 13	704	0.6−	0.7−
1997 12 04	327	0.2−	0.4+	1999 01 22	699	0.2+	0.5+	1999 02 13	704	1.8−	1.1−

(10411)* 1997 XO₁₁ = 1983 VT₃ = 1996 LX₁

Discovered 1997 Dec. 15 by the Beijing Schmidt CCD Asteroid Program at

Xinglong.

Id. A. Gnädig (*MPC* 31396)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	226.16441		(2000.0)	P		Q		Williams	
<i>n</i>	0.28190384	ω	43.88847	+0.50879253		+0.85463790			
<i>a</i>	2.3035734	Ω	256.94999	−0.81626540		+0.44069054			
<i>e</i>	0.1313290	<i>i</i>	6.10226	−0.27357077		+0.27456493			
<i>P</i>	3.50	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1983 11 08	381	0.2+	2.1-	1997 11 29	704	1.0+	1.0-	1999 02 12	704	0.1+	1.5+
1996 06 12	566	0.2-	0.9-	1997 12 05	704	1.4+	0.6-	1999 02 12	704	1.6-	0.7-
1996 06 12	566	0.2-	0.8-	1997 12 05	704	1.0+	1.8-	1999 02 16	704	0.5-	0.2+
1996 06 12	566	0.2-	0.8-	1997 12 05	704	(2.1+	3.2-)	1999 02 16	704	0.0	0.7+
1996 06 22	566	0.2-	0.9-	1997 12 05	704	(1.4+	2.9-)	1999 02 16	704	0.8-	0.2+
1996 06 22	566	0.1-	0.7-	1997 12 05	704	(1.2+	2.9-)	1999 02 16	704	0.3-	0.9-
1996 06 22	566	0.0	1.2-	1997 12 15	327	0.3-	0.1+	1999 02 16	704	(3.4-	1.0-)
1997 10 23	327	0.1+	0.0	1997 12 15	327	0.2-	0.1-	1999 03 22	704	0.3+	0.5-
1997 10 23	327	0.1-	0.0	1997 12 15	327	0.1+	0.6-	1999 03 22	704	1.7+	0.5-
1997 10 23	327	0.2-	0.1-	1997 12 23	327	0.1-	0.4-	1999 03 22	704	0.3-	0.0
1997 11 29	704	1.1-	1.5+	1997 12 23	327	0.1-	0.2-	1999 03 22	704	1.3+	0.3-
1997 11 29	704	0.2-	1.4+	1997 12 23	327	0.1-	0.5-	1999 03 22	704	0.2+	0.5+
1997 11 29	704	0.8-	0.4-	1999 02 12	704	0.8-	0.7-				
1997 11 29	704	0.0	1.2-	1999 02 12	704	0.0	0.3-				

(10412)* 1997 YO₄ = 1977 XA

Discovered 1997 Dec. 21 by Y. Shimizu and T. Urata at the Nachi-Katsuura Observatory.

Id. T. Urata (*MPC* 31128)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.19118531	ω	73.82688	-0.73316879	-0.65690589		
<i>a</i>	2.9842352	Ω	64.74224	+0.52563284	-0.71151694		
<i>e</i>	0.0598545	<i>i</i>	11.21469	+0.43147843	-0.24943594		
<i>P</i>	5.16	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 12 07	675	0.1+	0.9+	1997 12 30	566	0.6+	0.2-	1999 02 23	699	0.3+	0.4+
1977 12 08	675	0.1+	0.7+	1997 12 31	385	0.3-	0.9-	1999 02 23	699	0.4+	0.6+
1989 03 30	675	0.5+	2.0-	1997 12 31	385	0.3-	0.0	1999 02 25	888	0.1-	0.4-
1989 03 30	675	0.7-	1.9-	1997 12 31	886	0.3-	0.2-	1999 02 25	888	0.4-	0.4-
1989 04 01	675	0.2+	1.7+	1997 12 31	886	0.9+	0.4+	1999 03 15	704	0.6+	0.0
1989 04 01	675	0.2-	1.2+	1998 11 25	704	0.4-	0.9-	1999 03 15	704	0.3+	0.2+
1997 12 21	905	0.6-	0.6-	1998 11 25	704	1.3+	1.6-	1999 03 15	704	0.7-	0.7-
1997 12 21	905	0.6-	0.1-	1998 11 25	704	0.2+	0.4+	1999 03 15	704	0.1-	0.3-
1997 12 24	905	0.7-	0.3+	1998 11 25	704	(3.3-	2.0-)	1999 03 15	704	2.1-	1.4+
1997 12 24	905	0.6-	0.0	1999 01 30	888	0.2-	0.3+	1999 03 20	108	0.0	0.9+
1997 12 27	886	1.8+	0.8+	1999 01 30	888	0.0	0.2-	1999 03 20	108	0.2+	0.1+
1997 12 27	886	0.2+	0.1-	1999 02 22	886	0.4-	0.8-	1999 03 20	108	0.3+	0.4-
1997 12 30	566	0.3+	0.2-	1999 02 22	886	0.5+	0.4-				
1997 12 30	566	0.0	0.1-	1999 02 23	699	0.4+	1.0+				

(10413)* 1997 YG₂₀ = 1988 BC₂ = 1991 RS₂₃

Discovered 1997 Dec. 29 at the Osservatorio S. Vittore, Bologna.

Id. B. G. Marsden (*MPC* 31259)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.18555599	ω	116.50391	+0.43009847	-0.89417820		
<i>a</i>	3.0442903	Ω	307.46439	+0.76247440	+0.43353641		
<i>e</i>	0.0782631	<i>i</i>	9.01271	+0.48337159	+0.11176549		
<i>P</i>	5.31	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1988 01 22	303	0.7+	2.3+	1998 01 17	552	0.2-	0.4-	1999 03 19	552	0.1+	0.1+
1988 01 22	303	1.1+	1.6+	1998 01 24	552	0.4-	0.0	1999 03 19	552	0.2-	0.0
1988 01 23	303	1.6+	2.2+	1998 01 24	552	0.2-	0.2-	1999 03 20	704	0.2-	0.8-
1988 01 23	303	(7.9+	6.9-)	1999 02 12	704	0.3+	0.6-	1999 03 20	704	0.3+	0.6-
1988 01 23	303	(7.5+	5.9-)	1999 02 12	704	1.2-	0.1+	1999 03 20	704	0.4-	0.6-
1991 09 10	675	(0.2-	2.4-)	1999 02 12	704	0.3-	0.5-	1999 03 20	704	0.1-	0.2-
1991 09 10	675	0.4-	1.4-	1999 02 12	704	1.6-	1.5+	1999 03 20	704	0.6-	0.1+
1991 09 17	675	1.1+	0.8-	1999 02 16	704	0.3+	0.2-	1999 03 23	704	1.7-	0.4+
1991 09 17	675	0.9+	1.4-	1999 02 16	704	0.4+	0.0	1999 03 23	704	0.8+	1.1-
1997 12 29	552	0.2+	0.9-	1999 02 16	704	0.5+	0.9-	1999 03 23	704	0.4+	0.3-
1997 12 29	552	0.6+	0.6-	1999 02 16	704	0.1+	1.0-	1999 03 23	704	0.1-	0.3-

1997 12 29	552	0.5+	0.4-	1999 02 16	704	1.2-	1.4-	1999 03 23	704	0.2-	1.7-
1998 01 17	552	0.1-	0.2-	1999 03 19	552	0.3-	0.0				

(10414)* 1998 QJ₃₇ = 1976 UH₁₄ = 1993 TY₃₆

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32702)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.17362735	ω	57.52039	-0.46198483	+0.88677748		
<i>a</i>	3.1821743	Ω	185.02560	-0.85784921	-0.45080620		
<i>e</i>	0.0278074	<i>i</i>	9.18936	-0.22508833	-0.10197776		
<i>P</i>	5.68	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 10 22	381	0.5-	1.1+	1996 04 17	566	0.2+	0.0	1998 08 23	704	0.8+	0.2+
1976 10 22	381	0.3-	1.0+	1996 04 17	566	0.2+	0.5+	1998 08 26	699	0.6+	0.3-
1976 10 24	381	0.1+	1.4+	1996 04 17	566	0.0	1.1+	1998 08 26	699	0.0	0.4+
1993 10 09	809	(3.9-	2.1-)	1998 08 17	704	0.3-	0.1-	1998 08 26	699	0.0	0.4+
1993 10 09	809	(3.4-	2.9-)	1998 08 17	704	1.3-	0.4+	1998 09 14	704	0.7+	0.3+
1993 10 09	809	(3.9-	2.6-)	1998 08 17	704	0.5-	0.1-	1998 09 14	704	0.5-	0.3+
1993 10 11	809	1.5+	1.0+	1998 08 17	704	0.8-	0.3-	1998 09 14	704	0.0	0.1+
1993 10 11	809	0.8+	0.1-	1998 08 17	704	0.1-	0.7-	1998 09 14	704	0.2-	0.2-
1993 10 11	809	0.6+	0.3-	1998 08 21	566	0.2-	0.1+	1998 09 14	704	0.3-	0.8-
1993 10 21	809	0.7-	0.4-	1998 08 21	566	0.7+	0.2-	1998 09 18	704	0.9+	0.4+
1993 10 21	809	0.9-	1.0-	1998 08 21	566	0.7+	0.7-	1998 09 18	704	0.4-	0.0
1993 10 21	809	1.0-	0.8-	1998 08 23	704	0.5-	1.1+	1998 09 18	704	0.3-	1.0-
1996 03 20	566	0.2+	0.7+	1998 08 23	704	0.6+	0.5-	1998 09 18	704	0.4-	0.7+
1996 03 20	566	0.0	0.6+	1998 08 23	704	0.8-	0.9+	1998 09 18	704	0.4+	0.3+
1996 03 20	566	0.3+	0.6+	1998 08 23	704	0.5+	1.0+				

(10415)* 1998 UT₁₅ = 1925 VM = 1962 WE₁ = 1977 TN₃ = 1987 SW₂₀ = 1988 VW₇

Discovered 1998 Oct. 23 by K. Korlević at Višnja.

Id. G. V. Williams (*MPC* 33051)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.19076187	ω	309.58109	-0.97284263	-0.16094784		
<i>a</i>	2.9886497	Ω	221.93426	+0.19512592	-0.95684229		
<i>e</i>	0.0205542	<i>i</i>	14.41401	-0.12451143	-0.24196822		
<i>P</i>	5.17	<i>H</i>	12.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc (or two decimals in units of degrees)

1925 11 15	024	(0.06-	0.01-)	X	1998 10 24	120	0.6-	0.2-	1998 11 18	704	0.4+	0.9-
1962 11 26	760	1.3-	1.3+		1998 10 24	120	0.7+	0.3-	1998 11 18	704	0.4+	0.3+
1962 11 26	760	1.3+	0.6+		1998 10 26	120	0.0	0.4-	1998 11 18	704	0.6-	1.6+
1977 10 10	330	0.1-	0.3-		1998 10 26	120	0.0	0.4-	1998 11 18	704	0.5+	1.6+
1977 10 16	330	1.7+	0.4+		1998 10 29	120	0.3+	0.7-	1998 12 11	699	0.5-	0.7+
1987 09 18	095	0.5-	0.7+		1998 10 29	120	0.2-	0.8-	1998 12 11	699	0.2+	0.6+
1987 09 23	095	1.9-	0.4+		1998 11 10	704	1.2+	0.4-	1998 12 11	699	0.2-	0.5+
1988 11 07	092	0.5-	0.6+		1998 11 10	704	0.4+	0.9-	1999 02 04	704	0.3-	0.6+
1988 11 07	092	0.6-	0.3-		1998 11 10	704	0.7+	1.2-	1999 02 04	704	0.7-	0.1+
1996 03 24	566	0.5+	0.7+		1998 11 10	704	(2.3+	1.1-)	1999 02 04	704	0.3-	0.6+
1996 03 24	566	0.2+	0.3+		1998 11 10	704	0.1-	1.6-	1999 02 04	704	0.2+	0.8+
1996 03 24	566	0.7+	0.8+		1998 11 11	699	0.6+	0.3-	1999 02 04	704	(2.4+	0.0)
1996 09 13	566	0.2-	0.3+		1998 11 11	704	0.5+	0.8-	1999 02 04	699	0.8-	0.4+
1996 09 13	566	0.3-	0.0		1998 11 11	704	0.2+	0.9-	1999 02 04	699	0.6-	0.2+
1996 09 13	566	0.7-	0.4+		1998 11 11	699	1.3+	0.4-	1999 02 04	699	0.7-	0.9+
1998 10 18	699	1.1-	0.8+		1998 11 11	704	0.0	0.3-	1999 02 20	699	0.2+	0.2-
1998 10 18	699	0.3-	1.4+		1998 11 11	699	1.3+	0.9-	1999 02 20	699	1.2-	0.3-
1998 10 23	120	0.7-	0.3-		1998 11 18	704	0.5-	0.9+	1999 02 20	699	0.1-	0.6+

(10416)* 1998 VA₃₂ = 1976 KG₂ = 1988 XC₄

Discovered 1998 Nov. 14 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPC* 33971), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		333.00157		(2000.0)		P		Q	
<i>n</i>		0.29356379	ω	251.29817		−0.80095628		−0.49306284	
<i>a</i>		2.2421658	Ω	257.86546		+0.58980589		−0.74732389	
<i>e</i>		0.3978709	<i>i</i>	20.32875		−0.10294686		−0.44541670	
<i>P</i>		3.36	<i>H</i>	14.6		<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc									
1976 05 29	413	(4.4− 1.1+)		1998 11 14	704	0.7−	0.3−	1999 01 07	704 0.8+ 0.9+
1976 05 29	413	0.0	0.9−	1998 11 16	704	0.7−	0.5−	1999 01 07	704 0.7− 0.2+
1976 05 30	413	0.4−	0.0	1998 11 16	704	0.1−	0.4−	1999 01 11	704 0.3− 0.2+
1976 05 30	413	0.1−	0.6−	1998 11 16	704	0.7−	0.6+	1999 01 11	704 0.2− 0.3−
1979 05 20	413	(3.0+ 0.3+)		1998 11 16	704	1.3−	0.0	1999 01 11	704 0.4+ 0.1−
1979 05 20	413	1.7−	1.1−	1998 11 16	704	0.7−	0.7+	1999 01 11	704 0.5− 1.1−
1988 12 01	054	0.6+	1.1−	1998 12 14	704	0.6−	0.1−	1999 01 11	704 0.0 0.7−
1988 12 01	054	0.4+	0.8−	1998 12 14	704	0.6+	0.6−	1999 01 15	699 0.4− 0.3+
1988 12 01	054	0.4+	0.6−	1998 12 14	704	0.7+	0.4−	1999 01 15	699 0.1+ 0.4+
1996 06 21	566	0.5+ 0.3+		1998 12 14	704	0.8+ 0.2+		1999 01 15	699 0.2− 0.1+
1996 06 21	566	0.5+ 0.2+		1998 12 14	704	0.6+ 0.4−		1999 02 04	704 0.3+ 0.5−
1996 06 21	566	0.5+ 0.1−		1999 01 06	699	0.2− 0.6+		1999 02 04	704 1.1+ 0.4+
1998 11 14	704	0.1−	1.0−	1999 01 06	699	0.4+ 0.9+		1999 02 04	704 0.5− 0.2−
1998 11 14	704	0.4+ 0.4−		1999 01 06	699	0.2+ 0.3+		1999 02 04	704 0.4+ 0.1+
1998 11 14	704	(0.8+ 2.7−)		1999 01 07	704	0.4− 1.2+		1999 02 04	704 0.9− 0.7+
1998 11 14	704	(1.2+ 2.8−)		1999 01 07	704	0.0 0.2+			

(10417)* 1998 WA₂₃ = 1998 XT₂₈ = 1978 EA₉ = 1979 MZ = 1989 CC₈

Discovered 1998 Nov. 18 by the Lincoln Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (d, *MPC* 33786), S. Nakano (*MPC* 33972)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		239.43884		(2000.0)		P		Q	
<i>n</i>		0.17763670	ω	156.04367		−0.91536375		+0.40253286	
<i>a</i>		3.1341102	Ω	47.69591		−0.37128759		−0.83551084	
<i>e</i>		0.1389766	<i>i</i>	0.67758		−0.15573927		−0.37401729	
<i>P</i>		5.55	<i>H</i>	12.8		<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc									
1978 03 15	675	1.4−	0.4+	1989 02 13	809	0.9+	0.9+	1998 11 25	699 0.7− 0.9+
1978 03 16	675	1.1−	0.2+	1995 04 08	695	0.6−	0.9+	1998 11 25	699 0.8+ 0.5−
1979 06 22	805	1.7+ 1.7+		1995 04 08	695	0.7−	0.3−	1998 12 14	704 0.0 0.3−
1979 06 22	805	0.2+ 0.3−		1995 04 08	695	0.6−	0.3−	1998 12 14	704 0.1+ 0.1−
1979 06 25	805	0.8−	0.1−	1995 04 10	695	0.4−	0.8−	1998 12 14	704 0.0 0.7+
1989 02 07	809	(19.9− 1.3+)		1995 04 10	695	0.5−	0.8−	1998 12 14	704 0.1− 0.4−
1989 02 07	809	(20.2− 1.0+)		1995 04 10	695	0.2+ 0.9−		1998 12 14	704 0.2− 2.0+
1989 02 07	809	(20.3− 0.8+)		1998 11 18	704	0.4+ 0.2−		1998 12 17	704 0.3+ 1.5−
1989 02 10	809	1.0+ 0.2−		1998 11 18	704	0.3+ 0.2−		1998 12 17	704 0.4− 0.7+
1989 02 10	809	0.4+ 0.3−		1998 11 18	704	(0.0 3.0−)		1998 12 17	704 1.0+ 0.8−
1989 02 10	809	0.2+ 0.6−		1998 11 18	704	0.3− 1.3−		1998 12 17	704 1.0+ 1.6−
1989 02 12	809	0.4+ 0.0		1998 11 21	704	0.5+ 0.9−		1999 02 11	691 0.7− 0.3+
1989 02 12	809	0.6+ 0.1+		1998 11 21	704	0.4+ 1.8+		1999 02 11	691 0.8− 0.3−
1989 02 12	809	0.5+ 0.0		1998 11 21	704	0.9− 0.2+		1999 02 11	691 0.6− 0.0
1989 02 13	809	0.5+ 0.9+		1998 11 21	704	1.7− 0.1−			
1989 02 13	809	0.8+ 0.8+		1998 11 25	699	0.4+ 0.2−			

(10418)* 1998 WZ₂₃ = 1953 RN₁ = 1973 AQ = 1986 QP₄ = 1986 RD₁₃ = 1986 TA₁₉ = 1992 FX

Discovered 1998 Nov. 25 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 33711)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		95.41568		(2000.0)		P		Q	
<i>n</i>		0.26925660	ω	22.17563		+0.77040398		−0.63654401	
<i>a</i>		2.3751542	Ω	17.50709		+0.56556193		+0.65632406	
<i>e</i>		0.0936367	<i>i</i>	6.85562		+0.29430837		+0.40503143	
<i>P</i>		3.66	<i>H</i>	12.9		<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc									
1953 09 13	760	(22.9+ 2.4−)X		1998 12 01	704	1.6+	0.3−	1999 02 13	704 0.2+ 0.6+
1953 09 17	760	2.2+ 2.1−		1998 12 01	704	0.5+	1.9−	1999 02 13	704 0.3+ 1.0+
1953 09 17	760	0.4+ 2.4−		1998 12 01	704	0.2−	1.1−	1999 02 14	327 0.1− 0.0
1973 01 01	095	(5.4+ 1.5+)		1998 12 01	704	0.5+	0.7−	1999 02 14	327 0.0 0.0
1973 01 03	095	0.4+ 0.6+		1998 12 21	704	(0.3− 2.2+)		1999 02 14	327 0.1− 0.1−
1986 08 17	095	(7.8− 2.8+)		1998 12 21	704	1.0+ 0.2−		1999 03 15	636 0.2− 1.1+
1986 09 09	095	2.2− 0.3−		1998 12 21	704	1.0+ 0.1+		1999 03 15	636 0.2+ 1.3+
1986 10 06	095	(3.6+ 2.4−)		1998 12 21	704	0.9+	1.9−	1999 03 17	636 0.4− 1.1+
1992 03 23	400	1.4+ 1.0+		1998 12 21	704	(0.8+ 2.8−)		1999 03 17	636 0.2− 1.1+
1992 03 23	400	(3.7+ 0.8−)		1999 01 18	327	0.1− 0.4+		1999 03 19	704 1.0+ 0.8−
1992 03 24	400	0.5+ 1.1−		1999 01 18	327	0.2− 0.6+		1999 03 19	704 0.5− 0.3−
1992 03 24	400	0.4+ 0.6+		1999 01 18	327	0.1− 0.5+		1999 03 19	704 0.6+ 0.3−
1992 04 03	400	0.2+ 0.5−		1999 01 24	327	0.1− 0.1+		1999 03 19	704 0.6− 1.3−
1992 04 03	400	1.3− 1.3−		1999 01 24	327	0.1+ 0.0		1999 03 19	704 (2.2+ 1.5+)
1997 09 28	566	0.6+ 0.8+		1999 01 24	327	0.1+ 0.0		1999 03 20	704 0.5+ 0.7−
1997 09 28	566	0.3+ 0.5+		1999 02 05	327	0.7− 0.0		1999 03 20	704 0.4− 0.9−
1997 09 28	566	0.1+ 0.5+		1999 02 05	327	0.5− 0.0		1999 03 20	704 0.8− 0.7−
1998 11 25	704	0.2− 0.5+		1999 02 05	327	0.6− 0.1+		1999 03 20	704 0.3+ 0.7−
1998 11 25	699	1.2− 0.5+		1999 02 10	704	0.1+ 0.7−		1999 03 20	704 0.8− 0.5−
1998 11 25	704	0.0 1.1−		1999 02 10	704	0.6− 0.4−		1999 03 23	704 (2.0− 0.8−)
1998 11 25	704	2.0+ 0.6−		1999 02 10	704	1.2− 0.7+		1999 03 23	704 (2.1+ 0.2+)
1998 11 25	699	0.8− 0.0		1999 02 10	704	1.2− 0.1−		1999 03 23	704 0.3− 0.5+
1998 11 25	704	1.0+ 0.1+		1999 02 10	704	0.5− 1.0−		1999 03 23	704 0.8+ 0.6+
1998 11 25	704	0.2+ 0.9+		1999 02 13	704	0.3− 0.4−		1999 03 23	704 0.2− 0.4+
1998 11 25	699	0.8− 0.6+		1999 02 13	704	0.6− 0.5−			
1998 12 01	704	(2.3− 3.1−)		1999 02 13	704	0.0 0.3+			

(10419)* 1998 XB₄ = 1957 YQ = 1965 AH₁ = 1982 BD = 1984 WL₁ = 1989 CE₄ = 1994 RY₂₈

Discovered 1998 Dec. 11 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 33530)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	336.82645		(2000.0)		P		Q		
n	0.28737463	ω	155.20404		−0.48489701		−0.87304769		
a	2.2742442	Ω	323.73974		+0.78714669		−0.40995169		
e	0.0800637	i	5.00505		+0.38114954		−0.26405934		
P	3.43	H	13.4	G	0.15	U	2		
Residuals in seconds of arc									
1957 12 27	760	0.8−	1.7+	1996 03 25	566	0.9−	0.1+	1998 12 17	704 0.2− 0.2+
1957 12 27	760	(3.3+ 1.0+)		1997 08 02	566	0.1+	0.6+	1998 12 19	411 0.3− 0.2+
1965 01 11	330	1.6+ 0.9+		1997 08 02	566	0.3+	0.4+	1998 12 19	411 1.2+ 0.1+
1982 01 16	688	0.7+ 1.9−		1997 08 02	566	0.9+	0.4+	1998 12 26	411 0.4+ 0.2+
1982 01 16	688	1.0+ 0.8−		1998 12 11	411	0.7+	0.1−	1998 12 26	411 0.2− 0.2+
1984 11 20	688	(3.5+ 2.1−)		1998 12 11	411	0.3+	0.4+	1999 01 02	411 0.2− 0.1+
1984 11 20	688	1.7+ 1.9−		1998 12 12	411	0.0	0.2−	1999 01 02	411 0.5− 0.5+
1984 11 27	688	1.9− 1.1−		1998 12 12	411	0.1−	0.3−	1999 02 06	704 0.1+ 1.2+
1984 11 27	688	(1.7+ 2.4−)		1998 12 14	704	0.7+	0.7−	1999 02 06	704 0.4− 0.5+
1989 02 01	220	(4.1+ 6.4−)		1998 12 14	704	0.2+	0.7+	1999 02 06	704 1.2− 0.2−
1989 02 01	220	(4.4+ 6.9−)		1998 12 14	704	0.6−	1.3+	1999 02 06	704 0.5+ 0.5−
1989 02 02	220	(1.6+ 4.9−)		1998 12 14	704	(0.5+ 2.3+)		1999 02 06	704 1.8− 0.2−
1994 09 01	033	0.8− 0.7−		1998 12 14	704	0.5−	0.7+	1999 03 11	704 0.9+ 0.5−
1994 09 02	033	0.3+ 0.1+		1998 12 17	704	0.3+	0.3+	1999 03 11	704 0.1+ 0.2+
1994 09 04	033	0.7− 0.4+		1998 12 17	704	0.2+	1.1+	1999 03 11	704 0.5+ 0.8−
1996 03 25	566	0.9− 0.2+		1998 12 17	704	0.3+	0.7−	1999 03 11	704 0.1+ 2.1−
1996 03 25	566	0.8− 0.2+		1998 12 17	704	0.2+	0.7−	1999 03 11	704 0.1+ 0.5+

(10420)* 1998 YB₁₂ = 1978 EG₃ = 1989 HF

Discovered 1998 Dec. 27 by T. Kobayashi at Oizumi.

Id. A. Lowe (*MPC* 33726), S. Nakano (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 323.11544		(2000.0)		P		Q	
<i>n</i>	0.18218202	ω	98.30149	−0.98116019	−0.18548303		
<i>a</i>	3.0817617	Ω	71.02223	+0.14699521	−0.89824740		
<i>e</i>	0.1119436	<i>i</i>	3.27625	+0.12536786	−0.39843150		
<i>P</i>	5.41	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 1		

Residuals in seconds of arc

1978 03 06	095	1.1+	1.4+	1998 11 28	327	0.2+	0.4−	1999 01 19	704	0.5−	0.3−
1978 04 07	095	0.2−	0.8+	1998 11 28	327	0.3+	0.6−	1999 01 19	704	0.5+	0.2−
1989 04 30	675	0.5+	1.3−	1998 12 14	699	0.1−	0.3−	1999 01 21	411	0.7+	0.4+
1989 04 30	675	0.8−	2.1−	1998 12 14	699	0.1−	0.0	1999 01 21	411	0.1−	0.3+
1989 05 02	675	0.8−	0.7−	1998 12 14	699	0.2+	0.2−	1999 02 10	704	0.1−	0.1−
1989 05 02	675	0.6−	0.7−	1998 12 27	411	0.4−	0.3−	1999 02 10	704	0.1−	0.3+
1997 10 30	566	0.3+	0.8−	1998 12 27	411	0.7−	0.5−	1999 02 10	704	0.1−	0.8+
1997 10 30	566	0.2+	0.7−	1998 12 28	411	0.5−	0.4−	1999 02 10	704	0.2−	1.1+
1997 10 30	566	0.2+	0.9−	1998 12 28	411	0.3+	0.6−	1999 02 10	704	0.4+	0.4+
1998 11 14	699	1.4+	0.1−	1998 12 29	411	0.2−	0.2−	1999 02 13	704	0.3−	0.5+
1998 11 14	699	0.4+	0.7−	1998 12 29	411	0.6−	0.3−	1999 02 13	704	0.1+	0.7+
1998 11 14	699	0.6+	0.7−	1999 01 07	411	0.3+	0.1+	1999 02 13	704	(2.4− 3.6+)	
1998 11 15	699	0.7+	0.7−	1999 01 07	411	0.5−	0.8+	1999 02 13	704	1.2−	0.4+
1998 11 15	699	1.0+	0.4+	1999 01 14	727	0.2−	0.8+	1999 02 13	704	(3.0− 1.4+)	
1998 11 15	699	(0.3+ 2.1+)		1999 01 14	727	0.4−	0.9+	1999 02 19	566	0.3−	0.7−
1998 11 25	699	0.2+	0.3+	1999 01 14	727	0.4+	0.8+	1999 02 19	566	0.3−	0.7−
1998 11 25	699	0.5−	0.9−	1999 01 19	704	0.1+	0.2+	1999 02 19	566	0.1+	0.8−
1998 11 25	699	0.2+	0.5−	1999 01 19	704	0.1−	0.1−				
1998 11 28	327	0.1+	0.4−	1999 01 19	704	0.1−	0.0				

(10421)* 1999 AY₆ = 1952 UM₁ = 1978 ND₂ = 1982 RG₁

Discovered 1999 Jan. 9 by K. Korlević at Višnja.

Id. T. B. Spahr (*MPC* 33978), A. Doppler (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 133.22127		(2000.0)		P		Q	
<i>n</i>	0.26182736	ω	129.67602	+0.92520683	+0.37925710		
<i>a</i>	2.4198737	Ω	208.04288	−0.35578706	+0.85555026		
<i>e</i>	0.2176127	<i>i</i>	1.52419	−0.13193897	+0.35241709		
<i>P</i>	3.76	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1952 10 17	024	0.5+	1.2+	1996 03 17	566	0.0	0.8−	1999 01 10	699	0.4+	0.8+
1978 07 06	095	1.0+	1.8+	1996 03 17	566	0.3−	0.7−	1999 01 13	120	0.5+	0.7−
1982 09 14	046	0.1−	1.4−	1996 04 19	566	0.6−	0.5−	1999 01 14	120	0.2+	0.2−
1982 09 14	046	(1.6+ 3.1−)		1996 04 19	566	1.2−	0.3+	1999 01 15	120	0.8−	0.3+
1982 09 15	046	0.4−	1.1−	1996 04 19	566	0.4−	0.6−	1999 01 15	120	0.6+	0.3−
1982 09 15	046	0.0	1.5−	1997 11 30	566	1.0+	1.1+	1999 01 23	120	1.6+	0.3−
1982 09 16	046	1.8−	1.9−	1997 11 30	566	0.9+	0.8+	1999 01 23	120	1.0−	0.2−
1982 09 16	046	0.1+	2.3−	1997 11 30	566	0.8+	0.9+	1999 02 06	120	0.2−	0.0
1982 09 19	095	(2.9+ 2.3+)		1999 01 09	120	0.4−	0.1−	1999 02 06	120	0.6−	0.0
1982 09 21	095	0.9+	1.8+	1999 01 09	120	0.3+	0.3−	1999 02 11	699	0.5+	0.5−
1992 03 06	809	0.1+	0.3−	1999 01 10	120	0.7−	0.3+	1999 02 11	699	1.7+	1.1+
1992 04 07	809	1.0−	0.3−	1999 01 10	699	0.3+	0.3−	1999 02 11	699	1.1−	0.0
1996 03 17	566	0.3−	0.5−	1999 01 10	699	0.1−	0.2−				

**(10422)* 1999 AN₂₂ = 1953 XW₁ = 1982 VW₁₀ = 1985 GR = 1989 AH₈
= 1990 KP₃ = 1995 KL₂**

Discovered 1999 Jan. 14 by the Beijing Schmidt CCD Asteroid Program at

Xinglong.

Id. G. V. Williams (*MPC* 33733)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 258.07621		(2000.0)		P		Q	
<i>n</i>	0.20400689	ω	203.31149	+0.01178935	+0.95829554		
<i>a</i>	2.8578504	Ω	68.38309	−0.86226854	+0.15433387		
<i>e</i>	0.2058514	<i>i</i>	17.88680	−0.50631411	−0.24052176		
<i>P</i>	4.83	<i>H</i>	11.9	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1953 12 08	024	0.1−	1.7−	1999 01 14	327	0.2−	0.4−	1999 02 11	704	0.5−	1.0+
1982 11 12	095	1.0+	0.5+	1999 01 14	327	0.3+	0.2−	1999 02 12	628	0.8+	0.3+
1985 04 15	688	0.9+	0.1+	1999 01 15	327	0.0	0.1−	1999 02 12	628	0.5+	0.5+
1985 04 15	688	0.7+	0.2−	1999 01 15	327	0.0	0.0	1999 02 12	628	0.1−	1.0+
1985 05 15	688	0.8+	0.1−	1999 01 15	327	0.0	0.0	1999 02 13	628	0.9+	1.2+
1985 05 15	688	0.0	0.6−	1999 01 18	327	0.0	0.1−	1999 02 13	628	0.3−	2.1+
1989 01 14	033	0.2−	0.4−	1999 01 18	327	0.1+	0.1+	1999 02 13	628	0.9−	0.6+
1989 01 14	033	0.1−	0.1−	1999 01 18	327	0.1−	0.1−	1999 02 18	704	1.8+	1.5+
1990 05 26	675	1.3−	0.5−	1999 01 26	327	0.1+	0.1+	1999 02 18	704	0.3+	1.9−
1990 05 26	675	1.7−	0.5−	1999 01 26	327	0.3+	0.1−	1999 02 18	704	0.2−	1.1−
1995 05 28	675	0.1−	0.3+	1999 01 26	327	0.1−	0.2+	1999 02 18	704	0.0	0.5−
1995 05 28	675	(2.5− 1.1+)		1999 01 28	327	0.0	0.1+	1999 02 18	704	0.6+	0.4−
1995 05 30	675	0.6+	0.1+	1999 01 28	327	0.2−	0.1+	1999 03 15	704	0.0	1.1−
1995 05 30	675	(3.0+ 0.8+)		1999 01 28	327	0.1−	0.4−	1999 03 15	704	0.4−	0.3−
1999 01 14	327	0.0	0.2−	1999 02 11	704	0.2−	0.1+	1999 03 15	704	0.5−	0.0
1999 01 14	327	0.1+	0.6−	1999 02 11	704	0.9−	0.7−	1999 03 15	704	0.2+	0.6+
1999 01 14	327	0.1−	0.1−	1999 02 11	704	0.8−	0.6−	1999 03 15	704	0.6−	0.4−
1999 01 14	327	0.3+	0.1−	1999 02 11	704	0.5−	0.5+				

(10423)* 1999 BB = 1982 AH = 1993 OQ₁₃

Discovered 1999 Jan. 16 by K. Korlević at Višnja.

Id. G. V. Williams (*MPC* 33983)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 271.54251		(2000.0)		P		Q	
<i>n</i>	0.29316038	ω	287.39607	−0.49735414	+0.86710852		
<i>a</i>	2.2442222	Ω	312.74613	−0.78101384	−0.46136858		
<i>e</i>	0.1424098	<i>i</i>	2.15375	−0.37769860	−0.18778138		
<i>P</i>	3.36	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 1		

Residuals in seconds of arc

1982 01 15	046	(7.6− 0.4−)		1998 12 17	699	0.1−	0.0	1999 02 12	704	0.2−	0.3−
1982 01 15	046	0.8−	0.4−	1998 12 17	699	1.8−	1.6−	1999 02 12	704	0.2−	0.3+
1982 01 16	046	(5.0− 1.9−)		1998 12 17	699	0.4+	0.4+	1999 02 12	704	0.3−	0.3+
1982 01 16	046	0.8+	0.5+	1999 01 16	120	0.3−	0.3−	1999 02 12	704	0.3+	1.1+
1993 07 23	809	0.9−	1.5+	1999 01 16	120	0.8−	0.2+	1999 02 12	704	0.6+	0.2−
1993 07 23	809	1.0−	0.5+	1999 01 16	120	0.2−	0.2+	1999 02 16	704	0.1+	0.0
1993 07 23	809	0.1+	0.3+	1999 01 16	120	0.1+	0.0	1999 02 16	704	(1.3+ 2.7−)	
1993 07 26	809	1.8+	0.7−	1999 01 16	120	0.5−	0.0	1999 02 16	704	0.9+	0.4+
1993 07 26	809	0.3−	0.3−	1999 01 19	120	0.6−	0.4−	1999 02 16	704	0.4+	0.2+
1993 07 26	809	0.0	0.2+	1999 01 19	120	0.9−	0.6−	1999 02 16	704	1.1+	0.0
1997 08 05	910	0.5−	0.3−	1999 01 22	699	0.1−	0.3+	1999 03 10	704	0.2+	0.2+
1997 08 05	910	0.6−	0.1+	1999 01 22	699	0.0	0.2+	1999 03 10	704	0.8+	0.7−
1997 08 05	910	0.7−	0.3−	1999 01 22	699	0.3+	0.0	1999 03 10	704	0.1+	0.6+
1997 10 30	566	0.1+	0.6+	1999 02 12	699	0.2+	0.7+	1999 03 10	704	0.4−	0.3−
1997 10 30	566	0.4+	0.4+	1999 02 12	699	0.6+	0.5+	1999 03 10	704	(2.3− 1.2+)	
1997 10 30	566	0.2+	0.8+	1999 02 12	699	0.2+	0.5+				

(10424)* 1999 BD₅ = 1988 DK₄ = 1992 GK₁ = 1993 QS₃ = 1997 SN₂₀

Discovered 1999 Jan. 20 by the OCA-DLR Asteroid Survey at Caussols.

Id. G. V. Williams (*MPC* 33985)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	315.44657		(2000.0)	P	Q
<i>n</i>	0.27397557	ω	201.56034	−0.93834615	+0.34569589
<i>a</i>	2.3478021	Ω	358.66290	−0.31109387	−0.84558448
<i>e</i>	0.1167640	<i>i</i>	2.27214	−0.15075513	−0.40679386
<i>P</i>	3.60	<i>H</i>	14.7	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1988 02 23	809	0.4−	1.0−	1997 09 28	691	0.6+	0.1−	1999 02 13	704	0.2+	0.5+
1988 02 23	809	0.4−	0.8−	1997 09 28	691	0.4+	0.0	1999 02 13	704	0.2+	0.8+
1988 02 23	809	0.0	0.0	1997 10 03	691	0.4−	0.1+	1999 02 13	704	0.9−	1.1−
1992 04 03	303	0.8+	0.8−	1997 10 03	691	0.2−	0.2+	1999 02 13	704	0.1−	1.6−
1992 04 03	303	1.2+	0.3−	1997 10 03	691	0.2−	1.0+	1999 03 19	704	0.4+	0.5−
1992 04 03	303	1.1+	0.2−	1999 01 20	910	0.2+	0.0	1999 03 19	704	0.2+	0.7−
1992 04 04	303	1.6−	0.0	1999 01 20	910	0.1+	0.3+	1999 03 19	704	0.4−	0.6−
1992 04 04	303	0.9−	0.2−	1999 01 20	910	0.1+	0.1+	1999 03 19	704	1.7−	0.3−
1992 04 04	303	0.0	0.6+	1999 01 21	910	0.1+	0.2+	1999 03 19	704	0.7−	1.1−
1993 08 18	010	0.1−	0.5−	1999 01 21	910	0.3+	0.1+	1999 03 20	704	0.1−	0.8+
1993 08 19	010	0.5+	1.3−	1999 01 21	910	0.1+	0.1+	1999 03 20	704	0.5−	0.6−
1993 08 19	010	(1.7−	2.8−)	1999 01 23	910	0.1−	0.3−	1999 03 20	704	0.0	0.7+
1993 08 19	010	0.1−	1.9−	1999 01 23	910	0.3−	0.3−	1999 03 20	704	1.1−	0.4+
1993 08 20	809	(0.6+	4.9+)	1999 01 23	910	0.1−	0.4−	1999 03 20	704	0.5−	0.4+
1993 08 20	809	(2.3+	5.2+)	1999 02 10	704	0.0	0.5+	1999 03 23	704	1.8+	0.7−
1993 08 20	809	(2.2+	4.9+)	1999 02 10	704	0.4+	0.5+	1999 03 23	704	1.1+	0.5+
1993 08 24	809	(2.7+	2.7+)	1999 02 10	704	0.3+	0.3+	1999 03 23	704	0.4+	0.4+
1993 08 24	809	(2.4+	3.5+)	1999 02 10	704	0.5−	0.2−	1999 03 23	704	0.6−	1.0+
1993 08 24	809	(1.9+	3.6+)	1999 02 10	704	0.8+	0.2+				
1997 09 28	691	1.0+	0.0	1999 02 13	704	0.3+	0.2+				

(10425)* 1999 BE₆ = 1991 EU₄ = 1992 OW₆ = 1995 FC₁ = 1996 NM₂
= 1997 WK₄₆

Discovered 1999 Jan. 20 by the OCA-DLR Asteroid Survey at Caussols.

Id. G. V. Williams (*MPC* 33986)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	296.65319		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.24434916	ω	80.65611	−0.59810208	+0.80122054		
a	2.5339351	Ω	152.58531	−0.74968654	−0.55146992		
e	0.0766476	i	2.22506	−0.28327370	−0.23222095		
P	4.03	H	14.5	G	0.15	U	1

Residuals in seconds of arc

1991 03 12	809	0.8+	0.8+	1997 11 26	704	0.7−	1.7+	1999 02 23	120	0.7−	0.9+
1991 03 12	809	1.2+	0.9+	1997 11 26	704	0.3−	1.4+	1999 02 24	120	0.4+	0.0
1991 03 12	809	1.3+	1.2+	1997 11 26	704	1.9−	1.3+	1999 02 26	120	1.2+	1.1+
1991 03 14	809	0.8−	0.0	1997 11 26	704	1.4−	0.8+	1999 02 26	120	0.5−	0.4+
1991 03 14	809	0.5−	0.1−	1997 11 29	704	0.5+	0.9−	1999 02 27	120	0.3−	0.1−
1991 03 14	809	0.0	0.0	1997 11 29	704	0.7+	1.1−	1999 03 20	704	0.0	0.5−
1992 07 30	809	0.6+	0.8−	1997 11 29	704	0.5−	1.9−	1999 03 20	704	0.4−	0.4−
1992 07 30	809	0.2+	1.5−	1997 11 29	704	0.7−	1.2−	1999 03 20	704	0.3−	0.8−
1992 07 30	809	1.0+	0.8−	1997 11 29	704	0.1+	1.6−	1999 03 20	704	0.6+	0.5−
1992 07 31	809	1.1+	1.2−	1997 12 28	566	1.5+	0.2+	1999 03 20	704	0.3−	0.4−
1992 07 31	809	(0.9+	2.1−)	1997 12 28	566	1.4+	0.4+	1999 03 22	699	1.2+	0.4+
1992 07 31	809	0.4+	1.8−	1997 12 28	566	1.4+	0.7+	1999 03 22	699	1.9+	0.4+
1995 03 26	905	0.6−	1.6+	1999 01 20	910	0.9−	0.6−	1999 03 22	699	0.7+	0.5+
1995 03 26	905	1.6−	1.0+	1999 01 20	910	0.8−	0.8−	1999 03 23	704	0.5+	0.9−
1995 04 04	905	(3.7−	2.6+)	1999 01 20	910	0.5−	1.1−	1999 03 23	704	0.1+	0.7−
1995 04 04	905	(3.4−	2.7+)	1999 01 22	910	0.7−	1.0−	1999 03 23	699	0.2+	1.0+
1996 07 14	809	0.3−	0.4+	1999 01 22	910	0.6−	1.0−	1999 03 23	704	0.8+	0.0
1996 07 14	809	0.9−	0.9+	1999 01 22	910	0.5−	1.0−	1999 03 23	699	0.2+	0.6+
1996 07 14	809	1.3−	0.6+	1999 02 13	691	1.1−	0.5−	1999 03 23	704	0.1−	1.0−
1996 07 16	809	(0.1+	2.5+)	1999 02 13	691	1.0−	0.7−	1999 03 23	704	0.3+	1.1−
1996 07 16	809	(1.3+	2.3+)	1999 02 13	691	1.1−	0.3−	1999 03 23	699	0.9+	0.2+
1996 07 16	809	0.3−	1.9+	1999 02 14	691	0.8−	0.5−	1999 03 24	691	0.1+	0.4+
1997 11 26	704	0.1+	1.9+	1999 02 14	691	0.7−	0.4−	1999 03 24	691	0.6+	0.1+
1997 11 26	704	(0.4+	2.2+)	1999 02 14	691	0.7−	0.7−	1999 03 24	691	0.2+	0.3+

(10426)* 1999 BB₂₇ = A908 YA = 1949 KM = 1950 RB = 1961 DJ
= 1972 XM₁ = 1993 SC₁₅ = 1993 TR₁₃

Discovered 1999 Jan. 16 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 33990)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	52.34465		(2000.0)	P	Q		
n	0.23055180	ω	294.55787	+0.57636602	−0.79047053		
a	2.6340481	Ω	118.64762	+0.80883872	+0.51564983		
e	0.1565929	i	13.66095	+0.11654245	+0.33054742		
P	4.27	H	12.4	G	0.15	U	1

Residuals in seconds of arc

1908 12 18	000(83.1−	12.1−)X	1997 09 02	566	0.2−	0.0	1999 01 23	691	0.7−	0.1+	
1949 05 29	760	1.0−	0.3+	1997 09 02	566	0.4−	0.0	1999 01 23	691	0.6−	0.1+
1949 05 29	760	1.4+	0.0	1997 09 02	566	0.3−	0.0	1999 01 23	691	0.7−	0.0
1950 09 03	078	(5.2+	11.9+)Y	1998 11 01	699	0.3−	0.2+	1999 02 10	704	0.2+	0.4+
1961 02 17	033	(4.5−	1.2+)	1998 11 01	699	0.2−	0.2−	1999 02 10	704	0.1−	0.4+
1961 02 18	033	0.0	1.2−	1998 11 01	699	0.1−	0.1+	1999 02 10	704	0.2+	0.3−
1972 12 03	095	0.6−	0.4−	1998 11 17	699	0.1+	0.2+	1999 02 10	704	0.2+	0.1−
1993 09 21	675	0.2+	0.6+	1998 11 17	699	0.2+	0.6+	1999 02 10	704	0.8−	1.3−
1993 09 21	675	0.1+	0.6+	1998 11 17	699	0.2+	0.7+	1999 02 11	757	0.5+	0.6+
1993 09 22	675	0.4+	0.4+	1998 11 23	699	0.1−	0.2+	1999 02 11	757	0.5+	0.5+
1993 09 22	675	0.6+	0.9−	1998 11 23	699	0.1−	0.3+	1999 02 13	704	0.9+	1.1−
1993 10 09	675	0.4+	0.5−	1998 11 23	699	0.1+	0.3+	1999 02 13	704	0.6−	1.1−
1993 10 09	675	0.3+	0.8−	1998 12 16	699	0.4−	0.2+	1999 02 13	704	0.1+	0.2−
1993 10 14	675	0.0	0.6−	1998 12 16	699	0.4−	0.3+	1999 02 13	704	0.2+	0.7+
1993 10 14	675	(1.7−	2.3−)	1998 12 16	699	0.4−	0.4+	1999 02 13	704	1.3−	0.4+
1997 09 02	566	0.2−	0.2+	1999 01 16	691	0.8+	0.2−	1999 03 21	699	0.3+	0.1−
1997 09 02	566	0.2−	0.5+	1999 01 16	691	0.8+	0.2−	1999 03 21	699	0.1−	0.6+
1997 09 02	566	0.3−	0.2+	1999 01 16	691	0.9+	0.2−	1999 03 21	699	0.3+	0.2−

(10427)* 2017 P-L = 1980 TT₆

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* 7461)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	207.88759		(2000.0)	P	Q
n	0.29524736	ω	55.38355	+0.74271129	+0.66847852
a	2.2336341	Ω	262.63323	−0.62649490	+0.67318055
e	0.2176277	i	2.25031	−0.23639816	+0.31617150
P	3.34	H	14.6	G 0.15	U 2

Residuals in seconds of arc

1960 09 24	675	0.2+	0.2−	1997 11 18	411	0.9+	0.4−	1997 12 31	704	0.7+	0.1−
1960 09 26	675	0.1−	0.1−	1997 11 18	411	0.8+	0.4+	1997 12 31	704	0.0	0.2+
1960 09 28	675	0.5−	1.5−	1997 11 26	704	0.9−	1.4+	1997 12 31	704	0.3+	0.7+
1960 09 29	675	0.3+	0.3+	1997 11 26	704	1.2−	0.5+	1997 12 31	704	0.2+	0.8−
1960 10 22	675	0.3+	0.6+	1997 11 26	704	0.4−	0.1+	1999 02 16	704	0.1−	0.0
1960 10 25	675	0.5+	0.1−	1997 11 29	704	0.4−	1.2+	1999 02 16	704	(2.6−	0.8−)
1960 10 26	675	0.2−	0.3−	1997 11 29	704	0.9−	1.0−	1999 02 16	704	0.1−	1.6−
1980 10 08	095	(2.7+	3.2+)	1997 11 29	704	1.3−	1.2−	1999 03 20	704	0.6−	0.0
1980 10 12	095	0.1−	1.2+	1997 11 29	704	0.3−	1.1−	1999 03 20	704	0.8−	0.6−
1990 08 31	095	(1.9−	5.4+)	1997 11 29	704	1.8−	1.2−	1999 03 20	704	1.6−	0.9+
1990 09 18	675	0.9+	0.3+	1997 11 30	566	1.5+	0.1+	1999 03 20	704	0.2−	0.5−
1990 09 18	675	1.5+	0.2+	1997 11 30	566	1.6+	0.4+	1999 03 23	704	1.0+	0.8+
1990 09 19	675	0.8−	0.3−	1997 11 30	566	1.5+	0.0	1999 03 23	704	0.4+	0.7+
1990 09 19	675	0.1+	0.3−	1997 12 04	704	0.1−	0.4−	1999 03 23	704	1.2+	1.5−
1990 09 20	675	1.0−	0.6−	1997 12 04	704	0.6+	1.1+	1999 03 23	704	(1.8−	2.3−)
1990 09 20	675	0.4−	0.5−	1997 12 04	704	0.6−	0.7+				

(10428)* 2073 P-L = 1993 TH₄₄

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* 25336)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	33.32178	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.23951940	ω 252.80982	-0.28510691	-0.95809911
<i>a</i>	2.5678851	Ω 213.79447	+0.89716519	-0.25662946
<i>e</i>	0.1852895	<i>i</i> 2.84123	+0.33735540	-0.12722979
<i>P</i>	4.11	<i>H</i> 15.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1960 09 24	675	0.0	0.2-	1997 10 04	691	0.0	0.1+	1999 02 16	704	(0.4-	2.2-)
1960 09 26	675	0.1+	1.1+	1997 10 04	691	0.1+	0.0	1999 02 16	704	0.1-	1.4-
1960 09 29	675	0.9+	0.6-	1997 10 04	691	0.1+	0.2+	1999 03 20	704	0.2+	0.3+
1960 10 17	675	1.6-	0.4+	1997 10 04	691	0.4+	0.1+	1999 03 20	704	0.1-	0.5+
1960 10 22	675	0.5-	0.0	1997 10 04	691	0.2+	0.0	1999 03 20	704	0.1+	1.6+
1960 10 25	675	0.7+	0.1+	1997 10 09	691	0.6-	0.1-	1999 03 20	704	0.2+	0.0
1960 10 26	675	0.1+	0.1+	1997 10 09	691	0.0	0.1+	1999 03 20	704	0.4-	1.9+
1993 10 10	809	1.0+	1.1+	1997 10 09	691	0.1+	0.1-	1999 03 23	704	1.2-	0.0
1993 10 10	809	0.3+	1.6+	1999 02 14	699	0.1-	1.0+	1999 03 23	704	0.2+	1.0+
1993 10 10	809	0.5-	0.9+	1999 02 14	699	1.0+	0.6+	1999 03 23	704	0.3+	0.6+
1993 10 22	809	1.0+	0.6-	1999 02 14	699	1.7+	0.6-	1999 03 23	704	0.8+	0.3-
1993 10 22	809	0.5-	1.4-	1999 02 16	704	0.3-	1.2-	1999 03 23	704	1.4-	1.1-
1993 10 22	809	1.8-	1.3-	1999 02 16	704	0.1-	0.7-				
1997 10 04	691	0.0	0.2-	1999 02 16	704	0.4-	1.2-				

(10429)* 2546 P-L = 1979 GD

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. T. Kobayashi (*MPC* 12689)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	13.28559	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.23709184	ω 255.72752	+0.14903434	-0.98848274
<i>a</i>	2.5853835	Ω 185.89351	+0.97689443	+0.15130030
<i>e</i>	0.0931659	<i>i</i> 14.82932	+0.15318626	-0.00317619
<i>P</i>	4.16	<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+	1.1-	1979 04 01	809	0.5-	0.8+	1998 12 13	683	(2.1+	1.7-)
1960 09 26	675	0.9-	0.1-	1979 04 02	809	0.4+	0.8-	1998 12 13	683	1.4+	1.2-
1960 09 28	675	0.3-	0.4+	1989 09 29	675	0.6+	0.5-	1999 03 10	704	0.0	0.2+
1960 09 29	675	0.8+	1.0+	1989 09 29	675	0.4-	0.4-	1999 03 10	704	0.8+	0.1-
1960 10 17	675	0.4-	0.3+	1998 12 12	683	0.9-	0.7+	1999 03 10	704	1.4+	0.3-
1960 10 22	675	0.3+	0.7+	1998 12 12	683	0.9-	0.8+	1999 03 10	704	0.2+	0.6-
1960 10 25	675	0.1-	0.3-	1998 12 12	683	1.1-	0.1+				
1960 10 26	675	0.4+	0.3-	1998 12 13	683	(2.6+	2.1-)				

(10430)* 4030 P-L = 1978 RH₄ = 1996 PT₂

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* 27724)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	163.53450	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.21700919	ω 68.60313	+0.99875065	-0.02323675
<i>a</i>	2.7425252	Ω 292.70616	+0.00282319	+0.91013435
<i>e</i>	0.0923413	<i>i</i> 2.74879	+0.04989164	+0.41366110
<i>P</i>	4.54	<i>H</i> 13.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1960 09 24	675	0.3-	1.2-	1996 07 21	809	1.6+	0.5+	1999 01 21	120	0.4-	1.2-
1960 09 25	675	0.2-	1.2-	1996 07 21	809	1.4+	0.6+	1999 01 22	120	0.3-	0.0
1960 09 26	675	0.7+	0.7-	1996 08 12	566	0.2-	0.5-	1999 03 20	704	1.1-	1.5-
1960 09 28	675	0.3+	0.2+	1996 08 12	566	0.4-	0.6-	1999 03 20	704	0.1-	1.4-
1960 10 17	675	0.7+	0.3+	1996 08 12	566	0.0	0.2-	1999 03 20	704	0.0	1.6-
1960 10 17	675	0.2-	0.3-	1996 08 15	566	0.9-	0.8-	1999 03 20	704	(0.1+	2.7-)
1960 10 22	675	1.0+	0.1+	1996 08 15	566	1.0-	0.8-	1999 03 23	704	0.1+	0.0
1960 10 24	675	0.2-	0.5-	1996 08 15	566	0.7-	0.7-	1999 03 23	704	0.5-	0.2-

1960 10 26	675	0.3+	0.1+	1998 01 26	704	0.0	0.6+	1999 03 23	704	0.1+	0.3+
1978 09 05	095	1.0-	0.0	1998 01 26	704	0.3+	0.3-	1999 03 23	704	0.6+	0.5+
1994 02 15	675	0.3-	0.2-	1998 01 26	704	0.5+	0.5-	1999 03 23	704	0.6-	0.2-
1994 02 15	675	0.6-	0.5-	1998 01 26	704	0.4-	0.1-				
1996 07 21	809	1.7+	0.2+	1998 01 26	704	0.1+	0.3+				

(10431)* 4042 P-L = 1997 XK₅

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. T. Urata (*MPC* 31000)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	96.53751	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.21543444	ω 229.56849	+0.41489287	-0.90956810
<i>a</i>	2.7558736	Ω 195.96692	+0.85847276	+0.39986467
<i>e</i>	0.2042603	<i>i</i> 4.88967	+0.30147707	+0.11311106
<i>P</i>	4.57	<i>H</i> 14.3	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1960 09 24	675	0.1-	0.3-	1995 06 26	691	0.2+	0.4-	1999 02 23	691	0.3+	0.1+
1960 09 25	675	0.4-	0.8-	1995 06 26	691	0.2-	0.2+	1999 03 12	691	0.3+	0.2+
1960 09 26	675	0.1-	0.2+	1995 06 26	691	0.1+	0.6-	1999 03 12	691	0.1-	0.0
1960 09 28	675	0.6+	0.9+	1997 12 02	905	0.4-	0.3+	1999 03 12	691	0.1+	0.4+
1960 10 17	675	0.7-	0.2+	1997 12 02	905	0.5+	0.6-	1999 03 23	704	0.1+	0.3+
1960 10 17	675	0.8-	0.2+	1997 12 03	905	0.5+	0.3+	1999 03 23	704	1.1+	0.2-
1960 10 22	675	0.2-	0.2-	1997 12 03	905	0.5-	0.5-	1999 03 23	704	0.8-	0.8-
1960 10 24	675	0.9+	0.3+	1999 02 23	691	0.4+	0.2+	1999 03 23	704	1.4-	0.0
1960 10 26	675	0.7+	0.3-	1999 02 23	691	0.2+	0.5+				

(10432)* 4623 P-L = 1984 WP₂ = 1999 CU₅₇

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* 33996)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	327.80081	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.29368392	ω 173.10853	-0.99198483	+0.12523427
<i>a</i>	2.2415543	Ω 14.11899	-0.11897037	-0.88088459
<i>e</i>	0.0916754	<i>i</i> 3.95075	-0.04256931	-0.45646328
<i>P</i>	3.36	<i>H</i> 14.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1960 09 24	675	0.8-	0.2-	1999 02 10	704	0.0	0.7-	1999 03 19	704	0.0	0.5-
1960 09 26	675	1.2-	0.6+	1999 02 10	704	0.8-	1.3-	1999 03 19	704	0.1+	0.5-
1960 09 27	675	0.4+	1.2+	1999 02 10	704	1.0-	0.6-	1999 03 20	704	0.3-	0.2-
1960 09 28	675	0.2+	0.3+	1999 02 10	704	0.3-	1.7-	1999 03 20	704	0.2+	0.5+
1960 10 17	675	1.0-	0.6+	1999 02 13	704	0.0	0.3-	1999 03 20	704	0.1+	0.1-
1960 10 22	675	0.3-	1.0+	1999 02 13	704	0.5-	0.5-	1999 03 20	704	0.1+	0.1-
1960 10 25	675	0.5+	0.1-	1999 02 13	704	1.0-	0.8+	1999 03 20	704	0.8+	0.4-
1960 10 26	675	0.4+	0.1-	1999 02 13	704	0.7+	0.3+	1999 03 20	699	0.4+	0.5+
1984 11 27	010	(0.4+	3.2+)	1999 02 13	704	0.0	0.9-	1999 03 20	699	0.4+	0.6+
1984 11 28	010	0.3+	1.2-	1999 02 18	699	0.4+	0.6+	1999 03 20	699	0.6+	0.1+
1996 03 24	566	0.2-	0.0	1999 02 18	699	0.7+	0.4+	1999 03 23	704	0.1-	0.5+
1996 03 24	566	0.0	0.0	1999 02 18	699	0.5+	0.3+	1999 03 23	704	0.2-	0.8+
1996 03 24	566	0.1-	0.4-	1999 02 22	699	0.6+	0.4+	1999 03 23	704	0.5+	0.8+
1999 01 14	699	1.5-	1.9+	1999 02 22	699	0.5+	0.2+	1999 03 23	704	1.1+	0.2+
1999 01 14	699	0.2+	1.6+	1999 02 22	699	0.0	0.3+	1999 03 23	704	0.1-	1.1+
1999 01 14	699	0.1-	0.4+	1999 03 19	704	0.1-	0.3-				
1999 02 10	704	0.9-	0.7-	1999 03 19	704	(0.0	2.4+)				

(10433)* 4716 P-L = 1995 DT₁₀

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* 25076)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	220.50364		(2000.0)	<i>P</i>	<i>Q</i>				
<i>n</i>	0.21542648	ω	248.64472	-0.02990676	+0.99873768				
<i>a</i>	2.7559415	Ω	19.77047	-0.86718800	-0.00584691				
<i>e</i>	0.0740428	<i>i</i>	6.85216	-0.49708204	-0.04988844				
<i>P</i>	4.58	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc									
1960 09 24	675	0.0	0.8+	1995 02 25	691	0.0	0.2-	1999 01 16	120 0.4+ 0.1-
1960 09 26	675	1.0+	0.0	1995 02 25	691	0.2-	0.2-	1999 01 16	120 0.4- 0.4-
1960 09 27	675	0.5+	0.6-	1995 03 04	691	0.1-	0.2+	1999 01 19	120 1.3- 0.1+
1960 09 28	675	1.0+	1.4+	1995 03 04	691	0.3-	0.5-	1999 01 19	120 0.6+ 0.2+
1960 09 28	675	0.6+	0.1+	1997 09 27	910	0.0	0.2+	1999 01 19	120 0.3+ 0.5-
1960 10 17	675	0.3-	1.3-	1997 09 27	910	0.3-	0.1+	1999 01 20	120 0.4- 0.2+
1960 10 22	675	0.1-	1.1-	1997 09 27	910	0.4-	0.2-	1999 01 20	120 1.4+ 0.1-
1960 10 25	675	1.3-	0.1+	1997 09 30	910	0.0	0.2+	1999 01 20	120 1.0+ 0.8+
1960 10 26	675	0.8-	0.9-	1997 09 30	910	0.2+	0.0	1999 02 21	725 (2.4- 2.7+)
1995 02 25	691	0.0	0.3-	1997 10 01	910	0.2+	0.1+	1999 02 21	725 1.9- 0.2-

(10434)* 4722 P-L = 1992 HB

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* 20158)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	305.63662		(2000.0)	<i>P</i>	<i>Q</i>				
<i>n</i>	0.26736022	ω	343.90463	-0.96601927	+0.25811781				
<i>a</i>	2.3863723	Ω	211.06383	-0.23416536	-0.89608365				
<i>e</i>	0.1539151	<i>i</i>	1.49806	-0.10942284	-0.36112226				
<i>P</i>	3.69	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	2		
Residuals in seconds of arc									
1960 09 24	675	0.7+	0.9-	1997 10 21	691	0.1-	0.1-	1999 02 12	704 0.9+ 1.0-
1960 09 26	675	0.3+	1.9-	1997 10 21	691	0.2-	0.4+	1999 02 12	704 1.2+ 1.0+
1960 09 27	675	0.5-	0.2+	1997 10 21	691	0.1-	0.3+	1999 02 16	704 0.0 0.3-
1960 09 28	675	0.2+	0.6+	1997 10 30	704	0.5-	0.8+	1999 02 16	704 0.5+ 0.8-
1960 09 28	675	0.4-	0.6-	1997 10 30	704	0.6+	1.3+	1999 02 16	704 0.4- 0.5+
1960 10 17	675	0.8+	0.1+	1997 10 30	704	0.7-	2.1+	1999 02 16	704 0.0 0.2-
1992 04 05	675	0.5+	0.9-	1997 10 30	704	0.3-	1.5-	1999 02 16	704 0.3- 0.3-
1992 04 05	675	0.0	0.2-	1999 01 10	699	0.8+	0.5+	1999 02 23	699 1.7- 0.3-
1992 04 22	372	0.5+	0.8+	1999 01 10	699	0.3+	0.4+	1999 02 23	699 0.1- 0.5+
1992 04 22	372	(0.3+ 3.6+)		1999 01 10	699	0.6+	0.0	1999 02 23	699 0.8- 0.6+
1992 04 23	372	1.4-	1.4+	1999 02 12	704	0.8-	0.6+		
1992 04 23	372	0.8+	0.1-	1999 02 12	704	0.3-	0.5+		

(10435)* 6064 P-L = 1993 VY₇

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. T. Kobayashi (*MPC* 27724), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	2.37334		(2000.0)	<i>P</i>	<i>Q</i>				
<i>n</i>	0.21211162	ω	275.50616	-0.31907532	-0.94676271				
<i>a</i>	2.7845803	Ω	193.34189	+0.92629814	-0.30199364				
<i>e</i>	0.1859351	<i>i</i>	10.68718	+0.20040634	-0.11153573				
<i>P</i>	4.65	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	2		
Residuals in seconds of arc									
1960 09 24	675	0.2+	0.7-	1993 11 13	303	0.6+	1.2+	1999 01 18	704 0.7+ 0.7+
1960 09 25	675	0.8+	1.2-	1993 11 15	303	0.2-	1.3-	1999 01 18	704 (1.9+ 2.6+)
1960 09 26	675	0.1+	0.7-	1997 09 01	610	0.3-	1.1+	1999 01 20	704 0.5+ 0.1-
1960 09 28	675	0.3-	0.1-	1997 09 01	610	0.4-	1.0+	1999 01 20	704 0.3+ 0.8-
1960 10 17	675	0.0	0.5-	1997 09 01	610	0.5-	1.0+	1999 01 20	704 0.1+ 1.2-
1960 10 22	675	0.3+	0.3-	1997 09 09	610	0.2+	1.3+	1999 01 20	704 0.8+ 1.0-
1960 10 24	675	0.7+	0.7-	1997 09 09	610	0.2-	1.8+	1999 03 10	704 0.2+ 1.3+
1960 10 26	675	0.5-	0.7-	1997 09 10	610	(0.4- 2.3+)		1999 03 10	704 0.2- 0.9+

1988 10 07	675	(0.4— 2.8—)	1999 01 18	704	0.4+	0.8+	1999 03 10	704	0.9—	0.0
1993 11 13	303	0.7— 0.3+	1999 01 18	704	1.2— 0.4+		1999 03 10	704	1.5—	0.6+
1993 11 13	303	0.4— 0.3+	1999 01 18	704	0.2+	0.7+	1999 03 10	704	0.7+	0.1—

(10436)* 6073 P-L = 1981 ER₁₉

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. B. G. Marsden (*MPC* 7943)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	243.49149		(2000.0)	<i>P</i>	<i>Q</i>				
<i>n</i>	0.21739463	ω	292.31399	+0.09408129	+0.99536818				
<i>a</i>	2.7392826	Ω	343.04872	-0.88664358	+0.07473985				
<i>e</i>	0.0513821	<i>i</i>	3.88827	-0.45278236	+0.06046596				
<i>P</i>	4.53	<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-	0.2+	1981 03 11	413	0.7+	0.6-	1999 02 10	704 0.9- 1.4-
1960 09 25	675	0.2+	0.7+	1981 03 16	413	0.8-	0.2+	1999 02 10	704 0.0 1.0+
1960 09 26	675	1.1+	0.3+	1981 03 29	413	1.5-	0.2-	1999 02 13	704 0.2- 1.4-
1960 09 28	675	0.4+	0.4-	1981 03 29	413	0.5-	0.5-	1999 02 13	704 0.1+ 0.7-
1960 10 17	675	0.5+	1.7-	1981 04 08	413	0.2-	0.3+	1999 02 13	704 0.4+ 0.9+
1960 10 22	675	0.4-	0.2-	1981 04 08	413	(3.4+ 1.6-)		1999 02 13	704 (3.5- 0.5+)
1960 10 24	675	0.5+	0.3-	1981 04 30	413	0.2+	0.6-	1999 02 18	699 0.5+ 0.4-
1960 10 26	675	0.2+	0.8-	1981 05 02	413	0.1+	1.2-	1999 02 18	699 1.2+ 1.9+
1981 02 02	413	0.9+	1.3-	1994 01 19	691	0.9-	0.6-	1999 02 18	699 1.1+ 1.8+
1981 02 09	413	0.3-	0.0	1994 01 19	691	0.4+	0.6-	1999 03 20	704 1.6+ 0.8-
1981 02 13	413	1.1+	0.0	1996 09 18	327	0.1+	0.1+	1999 03 20	704 0.1+ 0.4+
1981 02 13	413	0.5-	0.9+	1996 09 18	327	0.3-	0.8-	1999 03 20	704 0.0 1.5+
1981 03 02	413	2.1-	0.4+	1996 09 18	327	0.2-	0.3+	1999 03 20	704 0.4- 1.1-
1981 03 02	413	(4.5+ 1.9-)		1997 12 04	704	1.8-	0.5-	1999 03 20	704 0.6+ 0.5-
1981 03 03	413	(3.0- 0.1+)		1997 12 04	704	0.6-	0.1+	1999 03 23	704 0.5- 0.0
1981 03 03	413	1.6+	0.7-	1997 12 04	704	0.5+	1.1+	1999 03 23	704 0.0 1.6-
1981 03 07	413	1.6-	1.3+	1997 12 04	704	0.9+	0.1+	1999 03 23	704 0.1+ 0.6-
1981 03 07	413	0.2+	0.2+	1999 02 10	704	0.0	0.6+		
1981 03 11	413	0.5-	0.0	1999 02 10	704	0.8-	0.2-		

(10437)* 6085 P-L = 1995 CE₆

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* 24909)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	211.57067		(2000.0)	<i>P</i>	<i>Q</i>				
<i>n</i>	0.27011796	ω	120.07629	+0.74407495	+0.66802729				
<i>a</i>	2.3701022	Ω	198.01446	-0.62314759	+0.68876605				
<i>e</i>	0.2234525	<i>i</i>	1.77735	-0.24091398	+0.28167510				
<i>P</i>	3.65	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	2		
Residuals in seconds of arc									
1960 09 24	675	0.5-	0.2-	1995 02 01	691	0.5-	0.1-	1996 06 21	566 0.3- 1.2-
1960 09 25	675	0.2+	0.1-	1995 02 01	691	0.5-	0.1+	1996 06 21	566 0.4- 1.1-
1960 09 26	675	0.1-	0.4-	1995 02 01	691	0.2-	0.1+	1999 02 24	691 0.5+ 0.0
1960 09 28	675	0.5+	0.5+	1995 02 02	691	0.1-	0.2+	1999 02 24	691 0.4+ 0.3-
1960 10 17	675	0.2-	1.4-	1995 02 02	691	0.2-	0.1+	1999 03 14	691 0.3+ 0.4-
1960 10 22	675	0.4-	0.8+	1995 02 04	691	0.1+	0.1+	1999 03 14	691 0.3+ 0.4-
1960 10 22	675	0.7+	1.5-	1995 02 04	691	0.1-	0.4+	1999 03 14	691 0.5+ 0.3-
1960 10 24	675	0.2-	0.5-	1995 02 04	691	0.0	0.3+	1999 03 16	691 0.5- 0.3-
1960 10 25	675	1.4+	1.3-	1995 02 08	691	0.1-	0.1-	1999 03 16	691 0.7- 0.4-
1960 10 26	675	0.3-	0.3+	1995 02 21	691	0.4-	0.8-	1999 03 16	691 0.5- 0.4-
1960 10 26	675	1.1+	1.5-	1995 02 21	691	0.1-	0.5-	1999 03 18	691 0.5- 0.8-
1989 08 01	675	0.1-	0.5+	1995 02 21	691	0.8+	0.9-	1999 03 18	691 0.0 0.1-
1989 08 01	675	0.0	0.4+	1996 06 21	566	0.4-	1.2-	1999 03 18	691 0.1+ 0.3-

(10438)* 6615 P-L = 1992 BU₁

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* 19876)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	331.78909	ω	180.12803	-0.94409183	+0.32858453		
<i>a</i>	2.2325906	Ω	19.12191	-0.30240488	-0.83061367		
<i>e</i>	0.0941506	<i>i</i>	4.70776	-0.13130845	-0.44956995		
<i>P</i>	3.34	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1954 12 30	675	0.7+	0.6+	1997 11 28	691	0.1-	0.1+	1999 03 20	704	0.5-	0.8+
1954 12 30	675	0.5-	0.2+	1997 11 28	691	0.5+	0.0	1999 03 20	704	0.0	0.3+
1960 09 24	675	0.8-	0.3+	1997 11 28	691	0.1+	0.0	1999 03 20	704	0.5-	1.3+
1960 09 26	675	0.3-	0.0	1997 12 04	691	0.0	0.4+	1999 03 22	699	1.1+	1.1+
1960 09 27	675	0.1-	0.6-	1997 12 04	691	0.2-	0.1-	1999 03 22	699	0.5+	0.1+
1960 09 28	675	0.1-	1.0-	1997 12 04	691	0.3-	0.3+	1999 03 22	699	1.7+	0.3+
1960 10 17	675	1.1+	0.9+	1997 12 06	691	0.4-	0.1+	1999 03 23	704	0.3+	0.1-
1960 10 22	675	1.3-	0.3-	1997 12 06	691	0.3-	0.3+	1999 03 23	704	0.2+	0.2-
1960 10 24	675	0.6+	0.5+	1999 02 13	747	0.0	0.1-	1999 03 23	704	0.7-	0.4-
1960 10 26	675	0.1+	0.6+	1999 02 13	747	0.1+	0.3-	1999 03 23	704	0.3-	0.9-
1992 01 30	675	(0.7+	3.5-)	1999 02 13	747	0.1+	0.1-	1999 03 23	704	0.2-	0.7-
1992 01 30	675	(0.4+	2.7-)	1999 02 15	747	0.1+	0.0	1999 03 24	699	0.2-	0.4+
1992 02 02	675	(0.0	2.2-)	1999 02 15	747	0.0	0.2-	1999 03 24	699	0.3+	0.5+
1992 02 02	675	(0.7+	3.2-)	1999 02 15	747	0.1-	0.0	1999 03 24	699	1.5-	0.1+
1993 07 25	675	0.0	0.5+	1999 03 20	704	0.4+	0.4-				
1993 07 25	675	0.1-	1.2+	1999 03 20	704	0.1-	0.4+				

(10439)* 6676 P-L = 1989 GF₆

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. T. Kobayashi (*MPC* 14962)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	34.75188	ω	132.70786	-0.46919543	-0.88308010		
<i>a</i>	2.9951166	Ω	345.27186	+0.80434461	-0.42500249		
<i>e</i>	0.1117082	<i>i</i>	1.13098	+0.36453450	-0.19885275		
<i>P</i>	5.18	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1960 09 24	675	0.3+	2.1-	1997 12 04	704	0.2-	0.1-	1999 03 20	704	0.2+	0.9-
1960 09 26	675	0.3+	1.5-	1997 12 04	704	0.6+	0.6+	1999 03 20	704	(3.2-	0.9-)
1960 09 27	675	2.1+	0.6-	1997 12 05	704	(2.3+	0.1+)	1999 03 20	704	0.9-	1.0+
1960 09 28	675	0.5+	1.3-	1997 12 05	704	1.7+	1.7-	1999 03 20	704	1.0-	0.1-
1960 10 22	675	0.7-	0.9+	1997 12 05	704	0.2-	1.3+	1999 03 20	704	0.2-	0.2+
1960 10 26	675	0.3-	0.0	1997 12 05	704	0.7-	0.2-	1999 03 23	704	1.4+	0.2-
1989 04 08	809	0.6-	0.3+	1997 12 05	704	0.7+	0.3-	1999 03 23	704	0.8+	0.4+
1989 04 08	809	0.6-	0.4-	1999 01 28	120	1.1-	1.5+	1999 03 23	704	0.9+	0.4+
1989 04 08	809	0.0	0.4+	1999 01 28	120	0.4-	0.6+	1999 03 23	704	1.0+	0.9-
1989 04 10	809	0.2-	1.3-	1999 03 09	691	0.7-	0.7-	1999 03 23	704	0.2+	1.0-
1989 04 10	809	0.2+	0.2-	1999 03 09	691	0.6-	0.6-	1999 03 24	691	0.3-	0.6-
1989 04 10	809	0.1-	0.6-	1999 03 09	691	0.6-	0.5-	1999 03 24	691	0.1-	0.3-
1997 12 04	704	1.2-	0.3+	1999 03 19	691	0.2+	0.3-	1999 03 24	691	0.4-	0.5-
1997 12 04	704	0.5-	0.3+	1999 03 19	691	0.2+	0.3-				
1997 12 04	704	0.2-	1.2-	1999 03 19	691	0.2+	0.3-				

(10440)* 7636 P-L = 1990 SD₂₃ = 1996 GC₂₀

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. B. G. Marsden (*MPC* 27321)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	239.23059	ω	228.23862	+0.24989646	+0.96635311		
<i>a</i>	2.2338051	Ω	56.33139	-0.86523308	+0.25111197		
<i>e</i>	0.1209246	<i>i</i>	4.19895	-0.43465327	+0.05571761		
<i>P</i>	3.34	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1960 10 17	675	0.8+	0.3-	1996 04 17	809	(4.7+	1.1+)	1999 02 18	699	0.5-	0.0
1960 10 22	675	0.1-	0.2-	1996 04 17	809	(4.6+	1.2+)	1999 02 18	699	0.9+	0.7-
1960 10 25	675	0.2+	0.2-	1996 05 13	566	0.3-	0.7+	1999 02 18	699	0.5+	0.2+
1960 10 26	675	0.2-	0.9-	1996 05 16	566	0.4-	0.4+	1999 03 20	704	1.2-	0.7+
1990 09 25	809	0.3+	0.6+	1996 05 16	566	0.6-	0.5+	1999 03 20	704	0.1+	0.6+
1990 09 25	809	0.4+	0.0	1996 05 16	566	0.9-	0.5+	1999 03 20	704	1.6-	0.9+
1990 09 25	809	0.8-	0.4-	1999 02 13	704	0.6+	0.2-	1999 03 20	704	0.1+	1.1-
1996 04 15	809	0.8+	0.4-	1999 02 13	704	1.3-	0.6-	1999 03 20	704	0.1+	1.0-
1996 04 15	809	0.4+	1.1-	1999 02 13	704	1.3+	1.0-	1999 03 23	704	1.4-	0.8-
1996 04 15	809	0.9+	1.3-	1999 02 13	704	1.6+	0.9+	1999 03 23	704	0.9-	0.9+
1996 04 17	809	(3.5+	0.8+)	1999 02 13	704	1.6+	0.8+	1999 03 23	704	0.2-	0.2-

(10441)* 9076 P-L = 1993 QB₅

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. A. Milani (*MPC* 25435)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	79.54239	ω	194.30668	+0.86374524	-0.49966466		
<i>a</i>	2.5749350	Ω	196.17178	+0.48235591	+0.85734884		
<i>e</i>	0.1869710	<i>i</i>	13.58428	+0.14586617	+0.12364547		
<i>P</i>	4.13	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1960 10 17	675	0.9+	1.6-	1997 07 09	689	0.3-	1.2-	1999 02 12	704	0.5-	0.3-
1960 10 22	675	0.0	0.1+	1997 08 05	127	0.0	0.9-	1999 02 12	704	0.3-	0.4-
1960 10 24	675	0.6-	0.7+	1997 08 05	127	0.1+	0.6-	1999 02 12	704	1.2-	0.1-
1960 10 26	675	0.2-	0.6+	1997 08 06	127	0.3+	0.4-	1999 02 12	704	0.3-	0.3+
1993 08 22	675	0.6-	1.4+	1997 08 06	127	0.4+	0.6-	1999 02 16	704	0.7+	1.1-
1993 08 22	675	0.1+	0.3-	1997 08 31	138	0.1+	0.1+	1999 02 16	704	0.3+	0.3-
1993 08 24	675	0.6-	0.5-	1997 08 31	138	0.6+	0.3+	1999 02 16	704	0.2-	1.4-
1993 08 24	675	1.2-	0.5-	1997 09 30	327	0.0	0.7+	1999 02 16	704	0.6-	1.2-
1993 10 16	675	(2.6+	0.2+)	1997 09 30	327	0.2-	0.3+	1999 02 16	704	0.2-	0.7-
1993 10 16	675	(2.7+	1.0+)	1997 09 30	327	0.2-	0.6+	1999 03 10	704	0.2+	0.1-
1993 10 19	675	0.9+	1.3-	1997 09 30	327	0.3-	0.6+	1999 03 10	704	0.7+	1.3+
1993 10 19	675	0.7+	0.0	1997 11 30	566	0.8+	0.8-	1999 03 10	704	0.0	0.7+
1996 04 21	596	1.2+	0.3-	1997 11 30	566	0.4+	0.5-	1999 03 10	704	1.0+	0.1+
1996 04 21	596	1.0-	1.1-	1997 11 30	566	0.2+	0.6-	1999 03 10	704	0.9+	1.0+
1996 04 21	596	0.8-	0.4-	1999 02 12	704	0.6-	0.6-				

(10442)* 4062 T-1 = 1996 TZ₆₃

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* 29938)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	38.24608	ω	297.51323	-0.34791075	-0.93722861		
<i>a</i>	3.1828159	Ω	172.72534	+0.91256837	-0.34432927		
<i>e</i>	0.0142280	<i>i</i>	10.77719	+0.21488853	-0.05513514		
<i>P</i>	5.68	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1971 03 24	675	0.6+	1.6-	1997 11 30	566	0.1+	1.4-	1999 02 21	699	0.0	0.6+
1971 03 26	675	0.2+	1.9-	1997 11 30	566	0.0	1.2-	1999 03 19	704	0.1+	0.1+
1971 03 26	675	0.9-	1.6-	1997 11 30	566	0.2+	0.9-	1999 03 19	704	0.4+	0.2-
1971 03 27	675	1.8-	0.8-	1997 12 29	566	0.2-	0.2+	1999 03 19	704	0.5+	0.3+

1971 04 02	675	1.1+	0.7-	1997 12 29	566	0.2-	0.1+	1999 03 19	699	0.3-	0.2+
1971 04 16	675	2.1+	1.0-	1997 12 29	566	0.1-	0.3+	1999 03 19	699	0.3-	0.5+
1971 04 16	675	0.3+	2.7-	1999 02 12	704	0.1+	0.6-	1999 03 19	704	1.5-	0.3-
1971 05 13	675	1.1-	0.5+	1999 02 12	704	0.1+	0.8-	1999 03 19	699	1.4+	1.8+
1971 05 14	675	2.3-	1.0-	1999 02 12	704	0.7-	2.3-	1999 03 20	704	0.7+	0.3-
1971 05 16	675	0.9-	0.8+	1999 02 12	704	(0.9-	3.1-)	1999 03 20	704	0.8+	0.3+
1988 03 18	675	0.7+	0.1-	1999 02 12	704	(1.8-	2.9-)	1999 03 20	704	0.3-	0.2+
1988 03 18	675	0.9-	1.5+	1999 02 16	704	0.2+	0.1+	1999 03 20	704	0.0	0.2-
1996 10 06	809	0.3+	0.3-	1999 02 16	704	0.7+	0.4+	1999 03 20	704	1.5-	0.5-
1996 10 06	809	0.0	0.9-	1999 02 16	704	1.0+	0.4+	1999 03 23	704	0.5+	0.8+
1996 10 06	809	0.2-	0.3-	1999 02 16	704	0.4-	0.5+	1999 03 23	704	0.1-	0.1+
1996 10 07	809	0.4+	0.5-	1999 02 16	704	0.2-	0.5+	1999 03 23	704	0.2-	0.5+
1996 10 07	809	0.3+	0.7-	1999 02 21	699	0.7+	0.7+	1999 03 23	704	0.4-	0.6+
1996 10 07	809	0.3+	0.3-	1999 02 21	699	0.5+	0.4+	1999 03 23	704	0.7-	1.2+

(10443)* 1045 T-2 = 1990 RA₉

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. H. Kaneda (*MPC* 18446)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	143.76636		(2000.0)	P	Q	Williams
<i>n</i>	0.28825823	ω	166.69695	+0.99297219	-0.10902617	
<i>a</i>	2.2695943	Ω	199.73910	+0.09222247	+0.95662270	
<i>e</i>	0.1417769	<i>i</i>	7.83459	+0.07417036	+0.27015977	
<i>P</i>	3.42	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1955 04 16	675	0.9-	0.0	1996 03 24	809	0.6+	0.7+	1997 10 30	704	0.0	0.9-
1955 04 16	675	0.4-	0.8-	1996 03 24	809	0.3+	0.9+	1997 10 30	704	0.7-	0.1+
1973 09 29	675	0.2+	0.7-	1996 03 24	809	0.5-	0.3+	1997 10 30	704	1.0-	0.5+
1973 09 29	675	0.8+	0.9-	1996 03 26	809	(2.5-	0.1+)	1997 12 05	689	0.5-	1.8+
1973 09 30	675	0.3-	0.4-	1996 03 26	809	(2.9-	0.0)	1999 02 14	699	1.2+	0.1+
1973 09 30	675	0.2-	1.0-	1996 03 26	809	(2.8-	0.4-)	1999 02 14	699	1.4+	0.0
1973 10 04	675	2.3+	2.4-	1996 03 26	809	(2.8-	2.9+)	1999 02 14	699	0.0	0.4+
1973 10 04	675	(2.8+	2.0-)	1996 03 26	809	(3.7-	2.8+)	1999 02 16	704	1.7-	0.8-
1973 10 05	675	0.3-	0.1+	1996 03 26	809	(3.6-	2.3+)	1999 02 16	704	1.3-	0.9-
1973 10 05	675	0.1+	0.9+	1996 03 27	809	0.9+	1.2+	1999 02 16	704	(2.4-	2.1-)
1990 09 13	675	0.2-	0.5-	1996 03 27	809	1.4+	0.9+	1999 02 16	704	(1.5-	2.7-)
1990 09 17	675	0.6-	0.5-	1996 03 27	809	0.9+	0.6+	1999 03 20	704	0.9-	0.1-
1990 09 17	675	0.2-	0.3-	1996 04 15	809	(2.0+	3.2+)	1999 03 20	704	0.8-	0.5-
1990 09 19	675	0.2-	0.3-	1996 04 15	809	(2.2+	1.9+)	1999 03 20	704	1.2-	0.8-
1990 09 19	675	0.0	0.1-	1996 04 15	809	(2.1+	1.9+)	1999 03 20	704	0.1-	0.5-
1996 03 22	809	0.4+	0.0	1997 10 07	124	0.5-	1.3+	1999 03 20	704	0.4+	1.3-
1996 03 22	809	1.0-	0.5-	1997 10 07	124	0.4+	0.0	1999 03 23	704	0.6-	0.9+
1996 03 22	809	0.0	0.3-	1997 10 07	124	1.1+	0.4+	1999 03 23	704	0.3+	0.7-
1996 03 24	809	(1.0-	2.2+)	1997 10 07	124	0.0	0.0	1999 03 23	704	0.7+	0.5-
1996 03 24	809	(2.7-	1.9+)	1997 10 30	704	0.1-	0.7+	1999 03 23	704	0.3+	0.0
1996 03 24	809	(2.7-	0.9+)	1997 10 30	704	0.4+	0.6+	1999 03 23	704	0.0	0.9-

(10444)* 3290 T-2 = 1990 SQ₉

Discovered 1973 Sept. 30 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. B. G. Marsden (*MPC* 17464)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	9.84381		(2000.0)	P	Q	Marsden
<i>n</i>	0.17327605	ω	126.34225	-0.92404982	-0.37798675	
<i>a</i>	3.1864738	Ω	31.56314	+0.30640518	-0.82163854	
<i>e</i>	0.0393424	<i>i</i>	6.26028	+0.22857777	-0.42665692	
<i>P</i>	5.69	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1973 09 19	675	1.4-	0.3+	1973 10 05	675	(2.7+	1.1-)	1998 01 06	688	0.0	0.3-
1973 09 19	675	0.3-	0.2-	1973 10 05	675	0.9-	0.7-	1998 01 07	688	0.5-	0.0
1973 09 20	675	0.3-	1.6-	1973 10 05	675	2.3+	2.0-	1998 01 07	688	0.0	0.5-
1973 09 24	675	0.7+	0.1-	1973 10 05	675	0.4-	0.7-	1998 01 07	688	0.6-	0.1+

1973 09 24	675	1.7+	0.1-	1990 09 14	809	0.5+	1.2+	1999 02 20	699	0.6+	0.0
1973 09 25	675	1.7+	0.8+	1990 09 14	809	0.2-	0.1-	1999 02 20	699	0.6+	0.1+
1973 09 25	675	0.2+	0.3+	1990 09 14	809	1.4-	1.5-	1999 02 20	699	0.1-	0.6+
1973 09 29	675	1.1+	0.7-	1990 09 22	809	0.8-	0.8+	1999 03 20	704	0.3-	0.2-
1973 09 29	675	0.1-	0.7-	1990 09 22	809	1.0-	1.1+	1999 03 20	704	0.8-	0.2+
1973 09 29	675	1.3+	0.8-	1990 09 22	809	0.9-	0.2+	1999 03 20	704	0.1+	0.4+
1973 09 29	675	0.5+	0.4+	1990 09 25	809	1.1-	0.3-	1999 03 20	704	0.2-	0.2-
1973 09 30	675	(1.4+	4.6-)	1990 09 25	809	0.5-	0.5-	1999 03 23	699	1.2+	0.7-
1973 09 30	675	0.5-	0.2-	1990 09 25	809	0.2+	0.0	1999 03 23	699	0.3-	1.1+
1973 09 30	675	(2.0+	3.6-)	1990 10 22	675	(3.2-	1.3+)	1999 03 23	699	0.6+	1.0-
1973 09 30	675	0.1-	0.9-	1990 10 22	675	1.0-	1.4+	1999 03 23	704	0.1+	1.1-
1973 10 04	675	0.4-	0.4+	1996 10 13	566	1.5+	1.0+	1999 03 23	704	0.5-	0.1-
1973 10 04	675	0.0	1.4+	1996 10 13	566	0.9+	1.0+	1999 03 23	704	0.5+	1.3-
1973 10 04	675	0.4-	1.0-	1996 10 13	566	0.3+	1.4+	1999 03 23	704	1.3-	1.3+
1973 10 04	675	0.1-	0.3+	1998 01 06	688	0.3-	0.4+				

(10445)* 4090 T-2 = 1996 PG₆

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* 27724)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	284.90729		(2000.0)	P	Q	Williams
<i>n</i>	0.25393071	ω	149.68348	-0.30832644	+0.94907953	
<i>a</i>	2.4697855	Ω	102.29296	-0.88553510	-0.26151689	
<i>e</i>	0.1565375	<i>i</i>	3.79534	-0.34750882	-0.17566152	
<i>P</i>	3.88	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1973 09 19	675	0.3-	0.7+	1996 07 14	809	1.7-	2.0+	1997 12 05	704	0.6+	0.4-
1973 09 19	675	1.5-	0.9-	1996 07 14	809	(2.0-	2.2+)	1997 12 05	704	(2.3+	1.5-)
1973 09 20	675	0.7-	0.5+	1996 08 14	566	0.0	0.4-	1997 12 05	704	1.0+	0.8+
1973 09 24	675	0.7+	0.5+	1996 08 14	566	0.3+	0.2-	1999 02 22	699	0.4-	0.4+
1973 09 24	675	0.2+	0.3+	1996 08 14	566	0.0	0.1-	1999 02 22	699	0.1+	0.3+
1973 09 25	675	0.5+	1.4-	1996 08 19	566	0.1+	0.4+	1999 02 22	699	0.3+	0.2+
1973 09 25	675	0.4-	0.1+	1996 08 19	566	0.3+	0.6+	1999 03 19	699	0.8-	0.5-
1973 09 29	675	1.8+	1.3-	1996 08 19	566	0.2-	0.5+	1999 03 19	699	0.2+	0.1-
1973 09 29	675	1.6+	2.1-	1997 11 29	704	(0.9-	2.1+)	1999 03 19	699	0.7-	0.2+
1973 09 30	675	0.5-	0.9+	1997 11 29	704	0.3+	0.1+	1999 03 23	699	0.0	0.1+
1973 09 30	675	1.5-	1.1+	1997 11 29	704	1.8-	0.7-	1999 03 23	699	0.7+	1.6+
1973 10 04	675	0.5-	1.0+	1997 11 29	704	1.5-	1.5+	1999 03 23	699	1.6+	0.0
1973 10 04	675	0.7+	0.3+	1997 12 05	704	(0.9+	3.0+)				
1996 07 14	809	(0.7-	3.0+)	1997 12 05	704	1.1+	0.5+				

(10446)* 3006 T-3 = 1987 VA = 1990 RL₁₂

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. T. Kobayashi (*MPC* 13476), G. V. Williams (*MPC* 20158)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	149.67585		(2000.0)	P	Q	Williams
<i>n</i>	0.29726679	ω	350.16329	+0.92047035	-0.38565526	
<i>a</i>	2.2235068	Ω	32.74857	+0.36604372	+0.79402990	
<i>e</i>	0.1146092	<i>i</i>	6.71776	+0.13691724	+0.46987928	
<i>P</i>	3.32	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1977 10 16	675	0.3-	1.6-	1992 02 27	033	0.1+	1.1+	1999 03 19	704	0.9-	0.3+
1977 10 16	675	1.1+	1.6-	1992 02 27	033	0.1+	1.0+	1999 03 19	704	0.5-	1.7-
1977 10 17	675	0.1+	0.4-	1992 02 28	033	0.6+	1.0+	1999 03 20	704	0.4+	1.4-
1977 10 17	675	1.3+	0.6+	1997 09 23	966	0.6-	0.7+	1999 03 20	704	0.4-	0.5-
1977 10 21	675	(2.6+	2.8-)	1997 09 24	966	0.7-	0.4+	1999 03 20	704	0.7-	0.3-
1977 10 21	675	(2.9+	2.0-)	1997 10 02	966	0.7+	0.8+	1999 03 20	704	0.5+	0.5+
1977 10 22	675	0.2-	1.9-	1997 10 03	966	0.3+	0.1+	1999 03 20	704	0.3+	0.1+
1977 10 22	675	0.0	1.4-	1997 11 01	367	0.3-	0.2+	1999 03 22	699	0.0	0.5+
1987 09 25	095	(3.8+	2.2+)	1997 11 01	367	0.2-	0.4+	1999 03 22	699	1.4+	0.8-
1987 11 13	399	1.7+	1.0- Y	1997 12 17	758	0.6-	0.4-	1999 03 22	699	0.2+	0.5+

1999 APR. 2

M.P.C. 34171

1987 11 13	399	1.7+	1.0+	Y	1997 12 17	758	0.5-	0.8-	1999 03 23	704	0.7-	0.3+
1987 11 13	399	(2.9+	1.0+)	Y	1997 12 18	758	0.0	0.5-	1999 03 23	704	0.2-	0.9-
1987 11 14	399	0.9-	0.6-	Y	1997 12 18	758	0.2-	0.7+	1999 03 23	704	0.2-	0.3+
1987 11 14	399	0.9-	0.7-	Y	1997 12 18	758	0.3-	0.2-	1999 03 23	704	1.3-	0.2+
1987 11 14	399	0.2-	1.2+	Y	1999 01 26	910	0.6-	0.3-	1999 03 23	704	1.1-	0.8-
1987 11 15	400	(2.7-	1.5+)		1999 01 26	910	0.8-	0.4-	1999 03 24	699	0.5+	0.3+
1987 11 15	400	(1.8-	2.8+)		1999 01 26	910	0.7-	0.4-	1999 03 24	699	0.0	0.1+
1987 11 16	327	1.3+	0.9+		1999 03 19	704	0.1+	1.6-	1999 03 24	699	0.4+	0.7-
1990 09 15	675	0.1+	0.3+		1999 03 19	704	0.6+	0.5-				
1990 09 15	675	0.8-	0.4+		1999 03 19	704	(0.3+	2.2-)				

(10447)* 3357 T-3 = 1992 WF₂ = 1996 NL₅

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 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	106.75434		(2000.0)	P	Q		
<i>n</i>	0.20188541	ω	30.20229	+0.70689891	-0.70725165		
<i>a</i>	2.8778364	Ω	14.82165	+0.64134418	+0.63528454		
<i>e</i>	0.0463089	<i>i</i>	2.11387	+0.29828103	+0.31017520		
<i>P</i>	4.88	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 10 07	675	0.1-	0.6-	1992 11 28	675	1.4+	1.6-	1997 12 05	704	(2.1+	1.4+)
1977 10 11	675	2.1-	1.1+	1992 11 28	675	1.0+	0.6-	1999 02 13	704	0.2-	1.7-
1977 10 11	675	1.4-	0.9+	1996 07 14	809	0.3+	1.0-	1999 02 13	704	0.2+	0.4-
1977 10 12	675	1.1+	0.7-	1996 07 14	809	0.1-	0.1-	1999 02 13	704	0.1+	0.0
1977 10 16	675	0.8+	1.5-	1996 07 14	809	0.2+	1.3-	1999 02 13	704	0.3-	1.2-
1977 10 16	675	0.9+	1.2-	1996 07 15	809	(3.9+	1.6+)	1999 02 13	704	1.3-	1.7-
1977 10 17	675	0.6+	1.3-	1996 07 15	809	(2.4+	0.3+)	1999 02 18	699	0.4+	0.9+
1977 10 17	675	0.3-	1.8-	1996 07 15	809	(2.8+	0.2+)	1999 02 18	699	0.0	0.8+
1977 10 21	675	1.5-	0.2-	1996 07 21	809	1.5+	0.5-	1999 02 18	699	0.3-	0.4+
1977 10 21	675	0.1+	0.5+	1996 07 21	809	0.2+	1.0-	1999 03 19	699	0.7+	0.7-
1977 10 22	675	2.1+	0.0	1996 07 21	809	0.2+	1.1-	1999 03 19	699	0.2-	0.0
1977 10 22	675	1.5+	0.6-	1997 11 29	704	1.7-	1.3-	1999 03 19	699	0.2+	0.6-
1992 11 18	399	0.8-	1.0+	1997 11 29	704	(3.0-	0.6-)	1999 03 20	704	0.4-	0.5-
1992 11 18	399	0.8-	1.1-	1997 11 29	704	1.2-	0.9+	1999 03 20	704	1.1-	0.4+
1992 11 21	399	(0.7+	2.1+)	1997 11 29	704	(2.6-	0.1+)	1999 03 20	704	0.7-	0.4-
1992 11 21	399	0.3+	1.2+	1997 12 04	704	0.3+	1.0-	1999 03 20	704	0.6+	0.1+
1992 11 25	691	0.7+	0.2+	1997 12 04	704	0.1+	0.7-	1999 03 20	704	0.2-	0.5+
1992 11 25	691	0.3+	0.2+	1997 12 04	704	0.5-	0.1-	1999 03 23	704	0.5+	1.2-
1992 11 25	691	0.1+	0.3+	1997 12 04	704	0.9-	0.3-	1999 03 23	704	1.0-	1.5-
1992 11 25	691	0.3-	0.4+	1997 12 04	704	1.2-	1.2+	1999 03 23	704	0.6-	0.8-
1992 11 25	691	0.2-	0.1+	1997 12 05	704	0.4+	0.5+	1999 03 23	704	0.2-	0.7-
1992 11 25	691	0.1+	0.1+	1997 12 05	704	0.1+	0.9+	1999 03 23	704	0.1-	1.1-
1992 11 25	675	0.5+	0.6-	1997 12 05	704	0.6+	1.2+				
1992 11 25	675	0.6+	0.5-	1997 12 05	704	1.2+	1.3+				

(10448)* 4314 T-3 = 1981 NB₁ = 1986 PO₃ = 1991 RR₂₁

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* 20519)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	238.62934		(2000.0)	P	Q		
<i>n</i>	0.20592291	ω	179.64545	+0.48100198	+0.87532235		
<i>a</i>	2.8400954	Ω	119.10485	-0.80451374	+0.46311084		
<i>e</i>	0.0478227	<i>i</i>	3.24618	-0.34841748	+0.13906522		
<i>P</i>	4.79	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1954 12 22	675	1.3-	0.6-	1991 08 08	675	0.8+	0.8-	1999 02 13	747	0.4+	0.1-
1954 12 22	675	1.3-	0.1+	1991 08 08	675	0.5-	0.8-	1999 02 15	747	0.6+	0.5+
1956 03 16	675	0.2-	1.4-	1991 09 08	691	0.9-	0.2-	1999 02 15	747	0.2+	0.5+
1977 10 16	675	1.0+	1.0+	1991 09 08	691	0.7-	0.3-	1999 02 15	747	0.3+	0.6+
1977 10 16	675	0.3+	0.9+	1991 09 08	691	0.6-	0.1-	1999 02 15	747	0.0	0.1+

1977 10 17	675	1.4+	1.0-	1991 09 11	675	0.2-	0.2-	1999 02 16	747	0.1-	0.4+
1977 10 17	675	0.4+	0.3-	1991 09 11	675	0.1-	0.3-	1999 02 16	747	0.3+	0.4+
1977 10 21	675	1.3+	1.3-	1991 09 12	675	0.9-	0.8-	1999 03 20	704	0.8+	1.0-
1977 10 21	675	1.4+	1.5-	1991 09 12	675	1.2+	1.9-	1999 03 20	704	0.8-	0.8-
1977 10 22	675	0.0	0.9+	1991 09 15	675	0.5+	0.4-	1999 03 20	704	0.3-	1.7-
1977 10 22	675	1.1+	1.2+	1991 09 15	675	0.7-	0.2-	1999 03 20	704	0.3-	0.9-
1981 07 02	805	1.2+	0.8+	1991 09 16	675	0.6-	0.3-	1999 03 20	704	0.1+	1.0-
1981 07 02	805	1.1+	0.6-	1991 09 16	675	0.5+	0.3-	1999 03 22	699	0.2+	0.3+
1986 08 01	675	(45.1+	0.3-)	1991 09 17	675	0.4-	1.0-	1999 03 22	699	0.6+	0.2-
1986 08 01	675	(48.6+	1.4+)	1991 09 17	675	1.5-	0.1+	1999 03 22	699	0.3+	0.1-
1986 08 02	675	(8.9-	0.3+)	1995 06 02	689	0.0	0.8-	1999 03 23	704	0.1-	0.6-
1986 08 02	675	(9.0-	0.3-)	1998 01 08	704	0.7+	0.3+	1999 03 23	704	0.1+	0.4-
1989 03 09	675	2.0-	0.6-	1998 01 08	704	1.0+	0.0	1999 03 23	704	0.6-	0.8-
1989 03 09	675	1.3-	0.4-	1998 01 08	704	0.2-	0.7-	1999 03 23	704	0.6+	0.7-
1989 03 10	675	0.1+	0.8+	1998 01 08	704	0.6+	0.4-	1999 03 23	704	0.4-	1.2-
1990 05 25	675	0.7-	0.4+	1998 01 08	704	1.7-	0.3-				
1990 05 25	675	1.1-	0.0	1999 02 13	747	0.2+	0.3+				

1931 TC₂ = 1990 SX₁₉ = 1990 UZ₁₁ = 1998 FT₁₄₄

Id. T. Kobayashi, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	323.30611		(2000.0)	P	Q		
<i>n</i>	0.21717945	ω	340.68734	+0.86500415	+0.50094956		
<i>a</i>	2.7410917	Ω	349.11374	-0.43814827	+0.72633981		
<i>e</i>	0.2802250	<i>i</i>	8.70687	-0.24452793	+0.47061664		
<i>P</i>	4.54	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1931 10 10	024	2.5-	2.5-	1998 03 25	704	0.5-	0.3+	1998 04 20	704	0.2+	0.1-
1931 10 16	024	0.1+	0.6+	1998 03 25	704	1.0-	0.4+	1998 04 20	704	0.3+	0.1-
1931 10 19	024	3.4+	2.1+	1998 03 31	704	0.8-	0.5-	1998 04 20	704	0.9-	1.5-
1931 11 04	024	0.9-	0.3-	1998 03 31	704	0.0	0.3+	1998 05 16	704	1.3+	0.3-
1990 09 18	675	0.6-	0.3-	1998 03 31	704	0.2+	0.0	1998 05 16	704	0.3+	0.5+
1990 09 18	675	(4.9-	3.2-)	1998 03 31	704	0.1-	1.3+	1998 05 16	704	0.2+	0.2-
1990 10 23	095	0.9+	0.2-	1998 03 31	704	0.0	0.5+	1998 05 16	704	1.1+	0.2-
1998 03 25	704	1.1-	0.5-	1998 04 20	704	0.4-	0.3-	1998 05 16	704	1.6+	0.9-
1998 03 25	704	0.5-	0.5+	1998 04 20	704	0.3-	0.2-				

1968 OB = 1999 CP₆₃

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	98.81565		(2000.0)	P	Q		
<i>n</i>	0.17432016	ω	101.52595	+0.91091148	-0.32785526		
<i>a</i>	3.1737373	Ω	278.00347	+0.20403986	+0.88563535		
<i>e</i>	0.1817012	<i>i</i>	14.65309	+0.35861959	+0.32887833		
<i>P</i>	5.65	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1968 07 18	805	0.4+	0.1-	1997 12 29	566	1.0+	0.8-	1999 02 12	704	0.8-	0.7-
1968 07 19	805	0.2-	1.5-	1997 12 29	566	0.6+	0.7-	1999 02 16	704	(2.7-	1.2-)
1968 07 25	805	0.5+	0.7-	1997 12 29	566	0.8+	0.5-	1999 02 16	704	0.0	0.2-
1968 07 28	805	0.2+	0.4+	1998 12 26	699	0.8+	0.5+	1999 02 16	704	0.9-	0.1-
1968 07 30	805	0.1+	0.1+	1998 12 26	699	0.8+	0.2+	1999 02 16	704	0.5-	0.8-
1968 07 30	805	0.3-	0.7+	1998 12 26	699	0.5+	0.4+	1999 02 16	704	0.4-	1.0-
1968 08 21	805	0.3+	0.9-	1999 02 12	704	0.0	0.1-	1999 02 21	699	0.3-	0.1+
1997 10 30	566	0.5-	0.5+	1999 02 12	704	0.6+	0.5-	1999 02 21	699	0.3+	0.7+
1997 10 30	566	0.6-	0.4+	1999 02 12	704	0.7-	0.6+	1999 02 21	699	0.1+	0.9+
1997 10 30	566	0.6-	0.3+	1999 02 12	704	0.3-	1.2-				

1971 UW = 1999 CF₄₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	90.68916	(2000.0)	P		Q	
<i>n</i>	0.29782619	ω	347.66842	+0.90210349	-0.42606999	
<i>a</i>	2.2207216	Ω	37.78693	+0.40478603	+0.78063316	
<i>e</i>	0.1897794	<i>i</i>	6.40603	+0.14952444	+0.45724855	
<i>P</i>	3.31	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1971 10 26	029	0.5+	0.2-	1999 02 10	704	0.2+	0.8+	1999 02 13	704	0.7-	0.3-
1971 10 27	029	0.6-	0.3-	1999 02 10	704	0.2-	0.2-	1999 02 13	704	0.9-	0.2+
1971 10 30	029	0.2+	0.6+	1999 02 10	704	0.4-	1.0-	1999 02 20	699	1.1+	0.1-
1971 11 19	029	0.0	0.0	1999 02 13	704	0.3+	0.4+	1999 02 20	699	0.1-	0.1+
1999 02 10	704	0.0	0.4-	1999 02 13	704	0.7+	0.8+	1999 02 20	699	0.0	0.5-
1999 02 10	704	0.3+	0.0	1999 02 13	704	0.3-	0.2+				

1976 GV₂ = 1981 EW₄₈ = 1987 FE = 1998 FS₂₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	43.91776	(2000.0)	P		Q	
<i>n</i>	0.17670109	ω	41.70894	-0.99559649	+0.08918683	
<i>a</i>	3.1451635	Ω	143.37787	-0.09358204	-0.92759473	
<i>e</i>	0.1315493	<i>i</i>	2.77374	-0.00547950	-0.36278607	
<i>P</i>	5.58	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1976 04 01	095	2.2+	0.6+	1998 03 20	704	0.1-	0.4-	1998 03 22	704	0.1-	0.7+
1976 04 04	095	1.7-	0.6+	1998 03 20	704	0.2-	0.7-	1998 03 22	704	0.7+	0.2-
1981 03 08	095	0.1+	0.4+	1998 03 20	704	1.5+	0.2+	1998 03 22	704	1.2-	0.5-
1987 03 27	688	1.3-	0.1+	1998 03 20	704	0.4-	1.7+	1998 03 22	704	0.5+	0.4-
1987 03 27	688	0.5+	1.8-	1998 03 20	704	0.6-	0.7+	1998 03 22	704	0.2+	0.7-

1977 DC₄ = 1988 DA₁ = 1999 CR₄₆

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	15.10053	(2000.0)	P		Q	
<i>n</i>	0.18000272	ω	31.36350	-0.58676578	-0.80854100	
<i>a</i>	3.1065857	Ω	94.60071	+0.73342084	-0.55387042	
<i>e</i>	0.1429049	<i>i</i>	2.55041	+0.34321973	-0.19871842	
<i>P</i>	5.48	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1977 02 18	381	0.8+	0.6+	1999 02 10	704	0.1-	0.6-	1999 02 13	704	0.8-	0.7+
1977 02 18	381	0.5+	1.0+	1999 02 10	704	0.2+	0.7-	1999 02 13	704	0.1-	0.0
1977 02 19	381	0.3+	0.2+	1999 02 10	704	0.1-	0.5-	1999 02 13	704	0.5-	0.0
1977 02 19	381	0.0	0.3-	1999 02 10	704	0.0	0.2-	1999 02 23	699	0.2-	0.3-
1977 03 12	381	1.0-	0.2+	1999 02 10	704	0.5-	0.5-	1999 02 23	699	0.3+	0.4+
1977 03 12	381	0.9-	0.9-	1999 02 12	699	0.5-	0.7+	1999 02 23	699	0.1-	0.4+
1977 03 15	381	0.2-	0.3-	1999 02 12	699	0.3+	0.0	1999 03 20	699	0.1+	0.3+
1977 03 15	381	0.5+	0.5-	1999 02 12	699	0.3-	0.7+	1999 03 20	699	0.5+	0.9+
1988 02 17	809	0.1+	0.7+	1999 02 13	704	0.0	1.4-	1999 03 20	699	0.4+	0.3-
1988 02 17	809	0.2+	0.1+	1999 02 13	704	0.9+	0.3-				

1977 RS₁₇ = 1980 FP₈ = 1992 RN₄ = 1995 DE₁₂ = 1998 XU₇₈

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	62.01845	(2000.0)	P		Q	
<i>n</i>	0.19558981	ω	204.40966	+0.94220793	-0.33501667	
<i>a</i>	2.9392638	Ω	175.16125	+0.31264283	+0.87617940	
<i>e</i>	0.0274896	<i>i</i>	1.92582	+0.12041041	+0.34651621	
<i>P</i>	5.04	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1977 09 09	675	0.0	0.2-	1995 02 25	691	(0.4-	3.0-)	1998 12 15	704	1.6+	0.2+
1977 09 10	675	0.2+	0.4-	1995 02 25	691	0.5-	0.3-	1998 12 15	704	0.4-	1.2-

1980 03 23	809	0.3-	0.9-	1995 02 25	691	0.5-	0.3-	1998 12 15	704	1.9+	1.4-
1992 09 02	809	0.8+	0.0	1995 02 26	098	(3.9-	0.6-)	1998 12 22	704	1.5-	1.4+
1992 09 02	809	0.7+	0.6-	1995 02 26	098	(3.0-	1.7-)	1998 12 22	704	0.3+	1.6-
1992 09 02	809	0.7+	0.6-	1995 02 27	098	0.4+	0.0	1998 12 22	704	0.9-	0.9+
1992 09 03	809	1.4-	0.9-	1995 02 27	098	0.1-	1.3-	1998 12 22	704	0.9-	0.8+
1995 02 25	098	(4.4-	1.5-)	1998 12 15	704	0.2+	1.4+	1998 12 22	704	1.5-	0.3+
1995 02 25	098	(4.4-	1.3-)	1998 12 15	704	1.1+	1.1-				

1977 RG₁₉ = 1996 TT₄₉ = 1998 GF₁₁

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	189.05782	(2000.0)	P		Q	
<i>n</i>	0.31206525	ω	137.53473	+0.00612529	-0.99965938	
<i>a</i>	2.1526451	Ω	312.09754	+0.90803832	+0.01618650	
<i>e</i>	0.0823932	<i>i</i>	1.95935	+0.41884232	-0.02047253	
<i>P</i>	3.16	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1977 09 09	675	0.7+	0.6+	1998 04 01	704	0.0	0.2-	1998 04 03	704	0.5-	0.7-
1977 09 10	675	0.7-	0.5-	1998 04 01	704	1.2+	0.6-	1998 04 03	704	0.5+	1.4-
1996 10 04	809	0.8-	0.5-	1998 04 01	704	2.7+	0.5+	1998 04 03	704	0.7-	1.1+
1996 10 04	809	2.2-	1.5-	1998 04 01	704	0.4-	0.4+	1998 04 03	704	0.5-	0.1-
1996 10 04	809	1.0-	0.3-	1998 04 03	704	0.8-	0.2-	1998 04 03	704	0.9-	0.8+
1996 10 05	809	1.4+	0.7+	1998 04 03	704	0.5-	1.3+	1998 04 03	704	0.3-	0.3-
1996 10 05	809	1.8+	1.9+	1998 04 03	704	0.5+	0.9-				
1996 10 05	809	0.9+	0.4-	1998 04 03	704	0.4-	0.1+				

1978 RO₈ = 1996 KL = 1997 UU₁ = 1999 AU₁₁

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	242.33591	(2000.0)	P		Q	
<i>n</i>	0.26565518	ω	346.00785	-0.25235102	+0.96740065	
<i>a</i>	2.3965722	Ω	269.37221	-0.88572430	-0.23980889	
<i>e</i>	0.1805704	<i>i</i>	1.22225	-0.38962987	-0.08141054	
<i>P</i>	3.71	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1978 09 02	809	1.6-	1.2-	1996 05 16	566	0.2+	1.0+	1997 10 24	691	0.0	0.2+
1978 09 02	809	0.3+	0.2-	1996 05 22	566	0.0	0.6-	1997 10 24	691	0.1+	0.2+
1978 09 02	809	0.5+	0.3-	1996 05 22	566	0.2+	0.4-	1999 01 07	691	0.4-	0.1-
1978 09 02	809	0.3+	0.2+	1996 05 22	566	0.0	0.6-	1999 01 07	691	0.8-	0.0
1978 09 02	809	0.5-	0.8+	1997 10 23	691	0.3-	0.1+	1999 01 07	691	0.3-	0.1+
1978 09 06	809	1.0+	0.4+	1997 10 23	691	0.1-	0.3+	1999 01 14	691	0.6+	0.3-
1996 05 16	566	0.2-	0.9+	1997 10 23	691	0.0	0.2+	1999 01 14	691	0.4+	0.0
1996 05 16	566	0.1+	0.7+	1997 10 24	691	0.0	0.3+	1999 01 14	691	0.4+	0.3+

1978 UE₅ = 1997 WP

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	136.45922	(2000.0)	P		Q	
<i>n</i>	0.26239414	ω	97.12060	+0.86224588	-0.50560760	
<i>a</i>	2.4163878	Ω	293.25509	+0.45091290	+0.79316520	
<i>e</i>	0.1729903	<i>i</i>	1.86390	+0.23067206	+0.33948478	
<i>P</i>	3.76	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1978 10 27	675	0.5+	0.2+	1997 11 18	411	0.7-	0.9-	1997 11 29	704	1.2-	1.0-
1978 10 28	675	0.4-	0.6+	1997 11 19	411	1.1+	0.0	1997 11 29	704	0.3-	0.1-
1978 10 29	675	0.4-	0.1-	1997 11 19	411	0.8+	0.6-	1997 11 29	704	0.7-	2.0+
1978 11 28	675	0.4+	0.7-	1997 11 24	411	0.4-	0.6+	1997 12 04	411	1.6+	0.5+
1978 11 29	675	0.1-	0.2-	1997 11 24	411	0.4-	0.4+	1997 12 04	411	1.2+	0.3-
1997 11 18	411	0.6+	0.5-	1997 11 29	704	1.5-	0.1-				

1999 APR. 2

M.P.C. 34173

1979 MC₅ = 1999 EX₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	123.45174		(2000.0)	P		Q	
<i>n</i>	0.27750574	ω	203.14756	+0.93769870	−0.34742751		
<i>a</i>	2.3278486	Ω	177.17378	+0.32988800	+0.88671663		
<i>e</i>	0.2482800	<i>i</i>	4.54605	+0.10906444	+0.30500451		
<i>P</i>	3.55	<i>H</i>	16.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1979 06 23	413	(6.6− 0.0)	1979 07 26	675	0.9− 1.4+	1999 03 14	691	0.0	0.1+
1979 06 24	413	1.5− 0.7−	1979 07 27	675	1.1+ 0.2+	1999 03 18	691	0.0	0.3−
1979 06 25	413	1.6+ 0.2−	1979 07 28	413	0.1− 0.2−	1999 03 18	691	0.2+	0.6−
1979 06 29	413	0.8+ 1.4+	1979 08 23	675	0.3+ 1.9−	1999 03 18	691	0.0	0.3−
1979 07 24	413	0.9− 0.8−	1999 03 14	691	0.5− 0.3+				
1979 07 26	675	0.3− 0.6+	1999 03 14	691	0.2+ 0.4+				

1979 MZ₈ = 1999 BB₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	47.23683		(2000.0)	P		Q	
<i>n</i>	0.21789868	ω	124.77489	+0.77965673	−0.60800683		
<i>a</i>	2.7350566	Ω	273.13773	+0.51424436	+0.75822503		
<i>e</i>	0.2704623	<i>i</i>	8.63283	+0.35733474	+0.23541982		
<i>P</i>	4.52	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1979 06 24	413	0.3− 0.3−	1979 07 28	413	0.4− 0.0	1999 01 18	704	0.9− 0.4−
1979 06 25	413	1.4+ 0.6−	1979 08 22	675	0.8+ 0.4+	1999 01 20	704	1.6+ 0.5+
1979 06 29	413	0.7− 0.1+	1999 01 18	704	0.0 0.1−	1999 01 20	704	0.9+ 0.7+
1979 07 26	675	0.5− 0.2−	1999 01 18	704	0.6− 0.0	1999 01 20	704	0.3+ 0.4+
1979 07 27	675	(2.8+ 0.3−)	1999 01 18	704	1.5− 1.5−	1999 01 20	704	0.1+ 0.2−

1979 QM₃ = 1996 VJ₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	255.75220		(2000.0)	P		Q	
<i>n</i>	0.29674202	ω	240.41958	+0.87182663	−0.48748406		
<i>a</i>	2.2261274	Ω	148.68467	+0.47514796	+0.81803291		
<i>e</i>	0.1235622	<i>i</i>	5.26845	+0.11896532	+0.30525637		
<i>P</i>	3.32	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1979 08 22	809	0.4− 1.0−	1979 08 26	809	0.1+ 0.2+	1996 11 03	691	0.0	0.3+
1979 08 22	809	0.4+ 0.1+	1979 08 26	809	0.6+ 0.2+	1996 11 11	691	0.0	0.2−
1979 08 22	809	0.1− 0.2+	1979 08 26	809	0.1+ 0.1−	1996 11 11	691	0.1+	0.3−
1979 08 23	809	0.5− 0.2−	1996 11 03	691	0.1+ 0.1+	1996 11 11	691	0.0	0.3−
1979 08 23	809	0.2− 0.5+	1996 11 03	691	0.1− 0.4+				

1979 QH₄ = 1998 HU₁₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	229.85524		(2000.0)	P		Q	
<i>n</i>	0.18967478	ω	52.58123	+0.93768814	−0.33674757		
<i>a</i>	3.0000581	Ω	326.84806	+0.24815842	+0.82159722		
<i>e</i>	0.2141356	<i>i</i>	9.01461	+0.24322491	+0.45997726		
<i>P</i>	5.20	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1979 08 22	809	1.5+ 0.3−	1979 08 26	809	0.9− 0.1−	1998 04 19	704	0.3+ 1.1+
1979 08 22	809	0.3− 0.1−	1979 08 26	809	0.5− 0.0	1998 04 20	704	0.5− 0.7−
1979 08 23	809	0.7− 0.6+	1998 04 19	704	0.0 1.2+	1998 04 20	704	0.9− 0.9−
1979 08 23	809	0.1+ 0.2+	1998 04 19	704	0.5+ 0.5+	1998 04 20	704	(2.4− 0.8−)
1979 08 26	809	1.0+ 0.2−	1998 04 19	704	1.3+ 0.4+	1998 04 20	704	0.7− 1.6−

1980 FS₄ = 1999 CO₆₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	78.33027		(2000.0)	P		Q	
<i>n</i>	0.20318934	ω	229.06625	+0.66856790	−0.74363975		
<i>a</i>	2.8655112	Ω	178.94995	+0.73173176	+0.65685660		
<i>e</i>	0.1067534	<i>i</i>	12.95758	+0.13261067	+0.12465684		
<i>P</i>	4.85	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1980 03 16	809	0.1− 0.3+	1980 03 23	809	0.4− 0.2−	1999 02 16	704	0.2− 0.5+
1980 03 16	809	0.5+ 0.3−	1999 02 12	704	0.1− 0.2−	1999 02 16	704	0.5+ 0.4+
1980 03 16	809	0.1+ 0.5+	1999 02 12	704	0.6− 0.4+	1999 02 16	704	0.8+ 0.0
1980 03 16	809	0.0 0.3−	1999 02 12	704	0.1− 0.6−	1999 02 16	704	0.9+ 0.9−
1980 03 17	809	0.4+ 0.3+	1999 02 12	704	1.0− 0.2−	1999 02 16	704	0.6+ 0.1+
1980 03 17	809	0.6− 0.3−	1999 02 12	704	0.8− 0.4+			

1981 EV₂₅ = 1999 EJ₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	134.27985		(2000.0)	P		Q	
<i>n</i>	0.21627761	ω	197.84329	+0.97835219	−0.20635466		
<i>a</i>	2.7487063	Ω	173.99991	+0.20339099	+0.94483736		
<i>e</i>	0.1633539	<i>i</i>	8.60728	+0.03819801	+0.25436218		
<i>P</i>	4.56	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 09	413	0.0 1.6+	1981 03 11	413	0.9+ 1.3−	1999 03 06	691	0.1− 0.0
1981 02 13	413	1.2+ 0.0	1981 04 05	413	0.9+ 1.5+	1999 03 06	691	0.1− 0.2+
1981 03 02	413	0.5+ 0.5−	1981 04 05	413	(3.5+ 1.1−)	1999 03 06	691	0.1− 0.2+
1981 03 02	413	0.1+ 1.1−	1981 04 06	413	0.4− 0.8+	1999 03 11	691	0.1+ 0.2−
1981 03 06	413	1.6− 0.0	1981 04 26	413	(2.9+ 2.0−)	1999 03 11	691	0.0 0.1−
1981 03 11	413	0.9− 0.5−	1981 05 01	413	0.6− 0.4−	1999 03 11	691	0.3+ 0.1−

1981 ER₂₆ = 1999 FA₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	304.80165		(2000.0)	P		Q	
<i>n</i>	0.27248793	ω	208.65813	−0.82939101	+0.55854134		
<i>a</i>	2.3563395	Ω	5.34331	−0.48504223	−0.70933419		
<i>e</i>	0.0533982	<i>i</i>	7.35507	−0.27720855	−0.42997277		
<i>P</i>	3.62	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 09	413	0.4− 0.6−	1981 03 11	413	0.1+ 0.0	1999 03 23	143	1.2+ 0.5−
1981 02 12	413	0.8+ 0.3−	1981 03 15	413	0.9− 0.7+	1999 03 23	143	1.4− 0.5+
1981 02 13	413	0.4− 0.5+	1981 04 05	413	(4.7+ 1.0−)	1999 03 23	143	0.2+ 0.1+
1981 03 02	413	0.4− 0.0	1981 04 06	413	1.3− 1.4+	1999 03 24	143	1.7+ 0.3+
1981 03 02	413	0.7+ 0.2−	1981 04 06	413	1.6+ 0.7−	1999 03 24	143	1.6− 1.0−
1981 03 06	413	0.8− 0.2−	1981 04 26	413	1.1+ 1.5−	1999 03 24	143	0.4− 0.1+
1981 03 06	413	2.2+ 0.7+	1981 05 02	413	1.6− 0.3−			
1981 03 11	413	0.8− 0.2−	1981 05 03	413	0.5+ 1.0+			

1981 EL₃₈ = 1999 FD₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	57.64929		(2000.0)	P		Q	
<i>n</i>	0.22149322	ω	279.77381	−0.35686657	−0.93322970		
<i>a</i>	2.7053851	Ω	191.40157	+0.91815346	−0.34220342		
<i>e</i>	0.1489508	<i>i</i>	12.14085	+0.17216411	−0.10944927		
<i>P</i>	4.45	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 02 12	413	0.8+ 0.4−	1981 03 08	413	1.4− 0.6+	1999 03 23	691	0.4− 0.1−
1981 02 14	413	0.5+ 0.5+	1981 03 08	413	1.3+ 1.9−	1999 03 23	691	0.1− 0.4−
1981 03 01	413	0.3− 0.9+	1981 03 12	413	0.3+ 1.1+	1999 03 23	691	0.0 0.9+
1981 03 01	413	1.0− 1.1−	1981 03 12	413	1.5+ 1.3−	1999 03 24	691	0.1+ 0.1+

1981 03 06	413	0.8+	2.1+	1981 05 01	413	1.7+	0.6+	1999 03 24	691	0.3+	0.1-
1981 03 06	413	3.1-	0.4-	1981 05 01	413	0.9-	0.9-	1999 03 24	691	0.2+	0.2-

1981 QN₃ = 1987 SL₁₃ = 1987 SQ₃₀ = 1998 MF₄₆Id. G. V. Williams (*MPC* 32215, unpublished)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	2.38564	(2000.0)	P	Q	
<i>n</i>	0.17133296	ω	203.89804	+0.95544253	+0.29430341
<i>a</i>	3.2105205	Ω	138.96468	-0.26494427	+0.88894086
<i>e</i>	0.1919641	<i>i</i>	1.98104	-0.13013110	+0.35095534
<i>P</i>	5.75	<i>H</i>	13.8	<i>G</i>	0.15

Residuals in seconds of arc

1981 08 26	809	1.2+	0.6-	1981 09 05	809	0.3+	1.0-	1998 06 23	699	0.4-	2.2+
1981 08 26	809	1.7+	0.3-	1981 09 05	809	0.5+	0.6-	1998 06 26	704	0.4-	0.1-
1981 08 26	809	1.4+	0.1+	1981 09 05	809	0.0	0.3+	1998 06 26	704	0.3+	0.0
1981 08 27	809	0.9-	0.5-	1987 09 24	095	1.4-	0.7+	1998 06 26	704	0.1+	0.3-
1981 08 27	809	0.7-	0.3-	1987 09 26	809	0.8+	0.4+	1998 06 26	704	1.5-	1.7-
1981 08 27	809	0.7-	0.3+	1987 09 26	809	0.3+	0.2+	1998 08 17	704	0.6+	1.4+
1981 08 28	809	0.1+	0.1+	1987 09 26	809	0.2-	0.1-	1998 08 17	704	1.6+	0.1+
1981 08 28	809	0.8+	0.0	1996 01 26	691	0.2-	0.2-	1998 08 17	704	1.3-	1.3-
1981 08 28	809	1.1+	0.6-	1996 01 26	691	0.2-	0.5-	1998 08 17	704	0.6+	1.7-
1981 08 31	809	1.0-	0.7+	1996 01 26	691	0.0	0.4-	1998 08 17	704	0.5+	0.3+
1981 08 31	809	1.3-	0.3+	1998 06 23	699	0.0	0.5+				
1981 08 31	809	1.6-	0.1+	1998 06 23	699	0.2-	1.2+				

1981 UP₂₅ = 1981 ST₈ = 1999 BM₂₃Id. G. V. Williams (d, *MPC* 20484), A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Doppler			
<i>M</i>	293.02246	(2000.0)	P	Q	
<i>n</i>	0.24317460	ω	1.45145	-0.92077080	+0.38697784
<i>a</i>	2.5420880	Ω	201.52189	-0.35925350	-0.89040258
<i>e</i>	0.1946489	<i>i</i>	7.72114	-0.15204626	-0.23964848
<i>P</i>	4.05	<i>H</i>	13.6	<i>G</i>	0.15

Residuals in seconds of arc

1981 09 24	033	0.2+	0.3+	1999 01 18	704	0.9+	0.3+	1999 01 20	704	1.2-	1.0+
1981 09 24	033	0.2-	0.3-	1999 01 18	704	0.0	1.1-	1999 01 20	704	0.4-	0.4+
1981 10 25	675	0.4-	0.3-	1999 01 18	704	0.2-	0.5-	1999 01 20	704	0.4+	0.1+
1981 10 26	675	0.4+	0.3+	1999 01 20	704	1.1-	1.1+				
1999 01 18	704	0.2-	0.7-	1999 01 20	704	1.8+	0.4-				

1982 JH₂ = 1994 CD₁₇ = 1998 BG₁₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Doppler			
<i>M</i>	340.23549	(2000.0)	P	Q	
<i>n</i>	0.23634406	ω	150.22114	-0.18878472	+0.98012288
<i>a</i>	2.5908340	Ω	108.83999	-0.91323633	-0.15238951
<i>e</i>	0.1273570	<i>i</i>	3.69469	-0.36105364	-0.12702982
<i>P</i>	4.17	<i>H</i>	14.8	<i>G</i>	0.15

Residuals in seconds of arc

1982 05 15	675	1.1+	0.6+	1994 02 08	809	1.7-	1.6-	1998 01 26	566	0.3+	0.5+
1982 05 16	675	0.2-	0.9-	1994 02 10	809	(0.6-	3.5-)	1998 01 26	566	0.1-	0.4+
1982 05 16	675	1.8-	0.3+	1994 02 10	809	(0.9-	3.3-)	1998 01 26	566	0.0	0.4+
1982 05 17	675	0.7+	0.1+	1994 02 10	809	(1.9-	3.3-)	1998 01 28	566	0.0	0.7+
1982 05 18	675	0.6+	0.6+	1994 02 13	809	1.1+	0.4-	1998 01 28	566	0.4+	0.5+
1994 02 08	809	0.1-	0.5-	1994 02 13	809	0.3+	0.2+	1998 01 28	566	0.4+	0.7+
1994 02 08	809	0.9-	1.0-	1994 02 13	809	0.1+	0.1+				

1982 JR₂ = 1998 VG₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Doppler			
<i>M</i>	283.56892	(2000.0)	P	Q	
<i>n</i>	0.21048472	ω	28.16373	-0.77044296	-0.63154431
<i>a</i>	2.7989105	Ω	112.40432	+0.56581345	-0.74027733
<i>e</i>	0.1028817	<i>i</i>	5.39985	+0.29372227	-0.23052388
<i>P</i>	4.68	<i>H</i>	14.1	<i>G</i>	0.15

Residuals in seconds of arc

1982 05 15	675	1.0-	1.0+	1998 11 10	704	0.2-	1.7+	1998 11 11	704	0.9-	0.5-
1982 05 16	675	0.3-	0.3-	1998 11 10	704	0.3-	0.6+	1998 11 11	704	0.9+	0.9-
1982 05 17	675	0.6+	0.3+	1998 11 10	704	1.1-	0.9+	1998 11 11	704	1.0-	1.3-
1982 05 18	675	0.7+	0.9-	1998 11 11	704	(2.1+	2.1-)				
1998 11 10	704	1.6+	0.6+	1998 11 11	704	0.9+	1.0-				

1982 JD₃ = 1969 VS₂ = 1988 AG₁ = 1996 LK₄ = 1999 CA₅₆

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	107.66455	(2000.0)	P	Q	
<i>n</i>	0.27826735	ω	308.06910	+0.86755447	-0.47996180
<i>a</i>	2.3235992	Ω	80.96223	+0.48756202	+0.76905892
<i>e</i>	0.1104228	<i>i</i>	7.58335	+0.09814535	+0.42211971
<i>P</i>	3.54	<i>H</i>	14.2	<i>G</i>	0.15

Residuals in seconds of arc

1969 11 15	095	(4.1+	5.5-)	1996 06 08	809	(2.4-	2.5-)	1999 02 13	699	1.1+	0.7+
1982 05 15	675	1.1+	0.4-	1996 06 08	809	1.1-	1.4-	1999 02 13	699	0.3+	0.2-
1982 05 16	675	0.4-	1.5-	1996 06 10	809	1.4+	1.9+	1999 02 13	704	0.8-	0.3-
1982 05 16	675	2.0-	0.2-	1996 06 10	809	(2.7+	2.4+)	1999 02 13	699	0.7+	0.4-
1982 05 17	675	0.5+	0.6-	1996 06 10	809	(3.1+	2.5+)	1999 02 13	704	0.7-	0.6+
1982 05 18	675	0.1+	1.0+	1999 02 10	704	0.7-	0.2+	1999 02 13	704	0.2-	0.3-
1988 01 09	046	(4.1-	0.2+)	1999 02 10	704	1.4+	0.1-	1999 02 13	704	1.0-	0.4+
1988 01 09	046	0.0	2.0-	1999 02 10	704	0.2+	1.3+	1999 02 13	704	0.0	1.3-
1996 06 08	809	(2.0-	3.6-)	1999 02 10	704	0.4+	1.0+				

1984 AJ₁ = 1984 CK₁ = 1998 YM₉Id. B. G. Marsden (d, *MPC* 9153), A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	19.67815	(2000.0)	P	Q	
<i>n</i>	0.26627177	ω	137.70793	-0.57805737	-0.81560633
<i>a</i>	2.3928711	Ω	347.53627	+0.71390052	-0.49052177
<i>e</i>	0.1912161	<i>i</i>	6.71041	+0.39521605	-0.30687899
<i>P</i>	3.70	<i>H</i>	14.2	<i>G</i>	0.15

Residuals in seconds of arc

1984 01 08	688	0.7+	1.4-	1998 12 27	120	0.3+	0.4-	1999 01 14	120	0.6+	0.2+
1984 01 08	688	1.1-	0.4-	1998 12 27	120	0.1-	0.2+	1999 01 29	120	0.2+	0.4-
1984 01 26	688	1.7-	1.9+	1999 01 10	120	0.6-	0.3-	1999 01 29	120	0.0	0.0
1984 01 26	688	0.0	1.2-	1999 01 10	120	0.7+	0.5+	1999 02 20	699	0.4+	0.0
1984 02 04	688	0.3+	0.6-	1999 01 13	699	(0.5-	2.6+)	1999 02 20	699	0.3-	0.4+
1984 02 04	688	0.9+	0.6-	1999 01 13	699	0.3-	1.2+	1999 02 20	699	0.5-	0.2+
1998 12 23	120	0.8+	0.2-	1999 01 13	699	0.7+	0.5+	1999 03 23	699	0.2-	0.6-
1998 12 23	120	0.2+	1.2+	1999 01 14	120	0.8+	1.1+	1999 03 23	699	0.4-	0.7-
1998 12 23	120	0.0	0.4-	1999 01 14	120	0.5+	0.6+	1999 03 23	699	0.7-	0.6-

1985 QF₁ = 1999 CG₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Doppler			
<i>M</i>	354.42629	(2000.0)	P	Q	
<i>n</i>	0.24021263	ω	156.91944	+0.05411857	-0.97767040
<i>a</i>	2.5629423	Ω	289.48041	+0.87926928	+0.14303556
<i>e</i>	0.1307079	<i>i</i>	12.43816	+0.47324065	-0.15395265
<i>P</i>	4.10	<i>H</i>	13.3	<i>G</i>	0.15

Residuals in seconds of arc

1985 08 16	675	0.3+	0.2-	1985 08 23	675	(4.0-	0.0)	1999 02 06	704	0.6+	0.9+
1985 08 16	675	(4.4+	1.1+)	1999 02 05	704	0.7-	0.6+	1999 02 06	704	0.4-	1.5-
1985 08 17	675	1.3-	0.6-	1999 02 05	704	(0.4-	2.5+)	1999 02 06	704	1.0-	0.0
1985 08 17	675	0.1+	0.5+	1999 02 05	704	0.5+	0.1+				
1985 08 23	675	0.8+	0.4+	1999 02 06	704	0.9+	0.1-				

1986 TS = 1961 VA₁ = 1976 SC₁₁ = 1998 DB₆

Id. A. Milani, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams							
<i>M</i>	143.37086	(2000.0)		P		Q	
<i>n</i>	0.19568441	ω	70.75603	+0.68794555		-0.71932009	
<i>a</i>	2.9383165	Ω	334.94044	+0.55041598		+0.60375678	
<i>e</i>	0.2659188	<i>i</i>	13.16743	+0.47304669		+0.34359331	
<i>P</i>	5.04	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1961 11 12	690	(6.6+	5.5-)Y	1998 02 22	566	0.6+	0.5+	1998 03 03	704	0.1+	0.2-
1961 11 12	690	(13.5+	3.3+)Y	1998 02 22	566	0.4+	0.5+	1998 03 03	704	0.3-	0.7+
1976 09 23	033	1.2-	1.0+	1998 02 23	566	0.7+	0.0	1998 03 03	704	0.1+	0.7+
1976 09 24	033	1.7+	2.0-	1998 02 23	566	0.7+	0.1+	1998 03 04	809	1.9+	0.4-
1986 10 02	095	1.7+	1.2-	1998 02 23	566	0.9+	0.3-	1998 03 04	809	0.9+	1.0-
1986 10 04	054	1.0+	0.5-	1998 02 27	566	0.7+	0.2+	1998 03 04	809	0.9+	0.8-
1986 10 08	095	2.0-	3.2+	1998 02 27	566	0.8+	0.2+	1998 03 04	704	2.6-	0.2+
1986 10 11	054	0.8-	0.7-	1998 02 27	566	0.4+	0.3+	1998 03 04	704	2.5-	0.0
1986 10 12	054	0.3-	0.1-	1998 03 03	809	0.6+	1.2-	1998 03 04	704	3.3-	0.2-
1998 01 26	566	0.3-	0.3+	1998 03 03	809	2.2+	1.0-	1998 03 04	704	1.3-	0.2+
1998 01 26	566	0.7-	0.1+	1998 03 03	809	1.1+	1.0-	1998 03 04	704	2.0-	0.5+
1998 01 26	566	0.3-	0.0	1998 03 03	704	0.6-	0.3+				
1998 02 22	566	0.5+	0.5+	1998 03 03	704	0.2+	0.5+				

1988 BZ₃ = 1972 QO = 1986 RV₁₀ = 1999 FR₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams							
<i>M</i>	255.28416	(2000.0)		P		Q	
<i>n</i>	0.28488594	ω	43.06048	+0.51781437		+0.85072300	
<i>a</i>	2.2874698	Ω	258.31589	-0.80779495		+0.45149755	
<i>e</i>	0.1706340	<i>i</i>	5.28578	-0.28166576		+0.26911027	
<i>P</i>	3.46	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1972 08 19	095	0.6+	1.8-	1988 01 23	809	0.1-	0.2-	1999 03 19	704	0.9+	0.5+
1986 09 09	095	0.5+	1.2-	1988 01 23	809	0.3-	0.3-	1999 03 19	704	0.3+	0.0
1988 01 19	809	0.7-	0.0	1988 01 25	809	0.2+	0.2-	1999 03 19	704	1.1-	1.1+
1988 01 19	809	0.3-	0.1+	1988 01 25	809	0.4+	0.4-	1999 03 19	704	1.4-	0.7+
1988 01 19	809	0.2-	0.0	1988 01 27	809	0.3+	0.1-	1999 03 20	704	0.2-	0.9-
1988 01 20	809	0.2-	0.2-	1988 01 27	809	0.0	0.1-	1999 03 20	704	0.3-	0.4-
1988 01 20	809	0.3+	0.2+	1988 01 29	809	0.0	0.2+	1999 03 20	704	1.3-	0.7-
1988 01 21	809	0.4+	0.2-	1988 01 29	809	0.4-	0.7-	1999 03 20	704	1.2+	1.2-
1988 01 21	809	0.1+	0.2-	1999 03 19	704	1.2+	0.3+	1999 03 20	704	0.3-	1.6-

1988 CY = 1999 CT₅₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler							
<i>M</i>	271.45965	(2000.0)		P		Q	
<i>n</i>	0.17341256	ω	82.83191	-0.66201389		+0.73345687	
<i>a</i>	3.1848014	Ω	144.12828	-0.74842879		-0.63597927	
<i>e</i>	0.1112736	<i>i</i>	15.25752	-0.03989925		-0.23994039	
<i>P</i>	5.68	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1988 02 13	054	0.3+	0.3+	1999 02 11	699	1.3+	0.8+	1999 02 12	704	0.4-	0.6-
1988 02 13	054	0.9-	0.4+	1999 02 11	699	0.4-	0.3+	1999 02 12	704	0.9-	0.3-
1988 02 14	033	0.0	0.5-	1999 02 11	699	0.2+	0.1-	1999 02 16	704	0.8+	0.7+
1988 02 14	033	1.4+	1.0-	1999 02 12	704	0.1-	0.3+	1999 02 16	704	0.3-	0.3+
1988 02 15	033	0.1-	0.0	1999 02 12	704	0.1-	0.6-	1999 02 16	704	0.4-	0.1+
1988 02 15	033	0.6-	0.7+	1999 02 12	704	0.0	0.2-	1999 02 16	704	0.2+	0.7-

1988 CG₄ = 1942 RF₁ = 1999 CE₁₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler							
<i>M</i>	90.95489	(2000.0)		P		Q	
<i>n</i>	0.26837111	ω	157.95645	+0.78280666		-0.61556568	
<i>a</i>	2.3803759	Ω	240.35966	+0.55413419		+0.75617351	
<i>e</i>	0.1211454	<i>i</i>	6.01413	+0.28310603		+0.22199216	
<i>P</i>	3.67	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1942 09 07	057	0.0	0.0	1988 02 21	809	0.9+	0.6+	1999 02 12	704	1.3-	0.8+
1988 02 13	809	0.2+	0.1+	1988 02 21	809	1.0+	0.1+	1999 02 12	704	0.6-	1.5-
1988 02 15	809	2.0-	0.8-	1988 02 23	809	0.1-	0.3+	1999 02 16	704	0.6+	0.5+
1988 02 16	809	0.9-	0.7-	1988 02 23	809	0.0	0.2+	1999 02 16	704	0.4+	0.0
1988 02 16	809	0.5-	0.7-	1988 02 23	809	0.3+	0.5-	1999 02 16	704	0.8-	0.1-
1988 02 16	809	(4.9-	1.0-)	1999 02 12	704	0.7+	0.5+	1999 02 16	704	0.0	0.6+
1988 02 21	809	0.4+	0.0	1999 02 12	704	0.2+	0.2-	1999 02 16	704	1.2+	0.8+

1988 DD₂ = 1999 CW₅₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler							
<i>M</i>	343.08433	(2000.0)		P		Q	
<i>n</i>	0.27564761	ω	32.70667	-0.97553539		-0.19082169	
<i>a</i>	2.3382982	Ω	135.86935	+0.15242567		-0.94492957	
<i>e</i>	0.0527555	<i>i</i>	9.02031	+0.15842070		-0.26588568	
<i>P</i>	3.58	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1988 02 17	809	0.5+	0.0	1988 02 23	809	0.1-	0.1+	1999 02 13	704	0.3-	0.1-
1988 02 17	809	0.8+	0.4-	1988 02 23	809	1.2-	0.7+	1999 02 13	704	0.0	0.4+
1988 02 17	809	0.4-	0.6-	1999 02 10	704	0.6+	0.2-	1999 02 13	704	0.4+	0.5+
1988 02 21	809	0.9+	0.2+	1999 02 10	704	1.0+	0.8-	1999 02 13	704	0.9-	0.5+
1988 02 21	809	0.3-	0.4-	1999 02 10	704	0.3+	0.3-	1999 02 13	704	1.2-	0.1+
1988 02 21	809	1.1-	0.2-	1999 02 10	704	0.1-	0.1+				
1988 02 23	809	0.7+	0.8+	1999 02 10	704	0.2+	0.4-				

1988 RE₁ = 1980 WP = 1984 SU₁ = 1999 FD₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams							
<i>M</i>	128.86863	(2000.0)		P		Q	
<i>n</i>	0.23622369	ω	211.99980	+0.67840510		-0.73153163	
<i>a</i>	2.5917140	Ω	195.64056	+0.71599375		+0.67905788	
<i>e</i>	0.1046292	<i>i</i>	14.61558	+0.16467988		+0.06117078	
<i>P</i>	4.17	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1980 11 30	095	0.2-	0.5+	1988 09 11	675	0.7-	1.1+	1999 03 18	691	0.1+	0.5-
1984 09 27	046	0.6+	1.1-	1988 09 16	675	0.2+	0.7-	1999 03 19	704	1.2+	0.2+
1984 09 28	046	(3.2-	15.9+)	1988 09 16	675	0.1+	1.0-	1999 03 19	704	1.5-	1.2+
1988 09 08	054	0.4-	0.1-	1988 09 16	054	0.5+	1.1+	1999 03 19	704	0.3-	0.2+
1988 09 09	054	0.3-	0.4+	1988 09 20	054	0.4-	0.6+	1999 03 19	704	0.4-	0.7-
1988 09 09	054	1.5-	0.8-	1988 09 20	054	0.7+	0.8+	1999 03 19	704	1.0-	0.1+
1988 09 10	675	0.3+	1.1-	1999 03 17	691	0.2-	0.3-	1999 03 20	704	1.1+	0.3+
1988 09 10	675	0.8+	0.9-	1999 03 17	691	0.5-	0.3-	1999 03 20	704	0.0	0.6+
1988 09 11	675	0.5+	0.3-	1999 03 17	691	0.0	0.7-	1999 03 20	704	1.0+	0.1+
1988 09 11	675	0.3-	0.1-	1999 03 18	691	0.4-	0.2-	1999 03 20	704	0.7+	1.0+
1988 09 11	675	0.1+	1.8+	1999 03 18	691	0.1+	0.7-	1999 03 20	704	0.0	0.2-

1988 TN₁ = 1979 SH₄ = 1999 CW₄₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams							
<i>M</i>	130.28489	(2000.0)		P		Q	
<i>n</i>	0.22257805	ω	342.29434	+0.99524727		-0.04925756	
<i>a</i>	2.6965873	Ω	21.07297	+0.08935901		+0.80479668	
<i>e</i>	0.1696962	<i>i</i>	13.51091	-0.03870205		+0.59150316	
<i>P</i>	4.43	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	3

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Residuals in seconds of arc

1979 09 24	095	1.1+	0.6-	1997 11 30	566	(3.8+	1.0-)	1999 02 10	704	0.1-	0.3-
1988 10 05	399	1.4-	0.5-	1997 11 30	566	(3.4+	0.6-)	1999 02 10	704	0.6+	0.7-
1988 10 05	399	1.4-	1.5-	1997 11 30	566	(3.6+	1.0-)	1999 02 13	704	0.1+	0.1-
1988 10 05	399	2.0+	0.2-	1997 11 30	566	0.7+	0.5-	1999 02 13	704	0.6+	0.0
1988 10 13	399	1.3-	0.2+	1997 11 30	566	0.2+	0.3-	1999 02 13	704	0.6+	0.5-
1988 10 13	399	2.0+	1.1+	1997 11 30	566	0.7+	0.6-	1999 02 13	704	0.7+	0.1+
1988 10 13	399	1.5-	1.0+	1999 02 10	704	0.3+	0.4-	1999 02 13	704	1.4-	0.9+
1988 10 16	399	0.4-	0.7+	1999 02 10	704	0.5-	0.4+				
1988 10 16	399	0.5-	0.9+	1999 02 10	704	0.7-	1.1+				

1988 VQ₄ = 1936 QD₁ = 1998 VP₃₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	11.80661		(2000.0)	P	Q		
<i>n</i>	0.19289191	ω	246.73063	+0.65770403	-0.75135312		
<i>a</i>	2.9666072	Ω	161.81710	+0.73866653	+0.62930406		
<i>e</i>	0.1097206	<i>i</i>	9.92690	+0.14763866	+0.19860740		
<i>P</i>	5.11	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1936 08 28	024	0.0	0.0	1998 11 13	704	1.2+	0.3+	1998 11 16	704	1.6-	0.8-
1988 11 12	675	3.0+	0.0	1998 11 13	704	0.0	1.7+	1998 11 16	704	0.2+	0.9-
1988 11 13	675	3.0-	0.1+	1998 11 13	704	0.5-	0.5+	1998 11 16	704	0.5-	0.3-
1998 11 13	704	0.3+	0.7+	1998 11 13	704	0.8+	0.5-	1998 11 16	704	0.0	0.8-

1988 XW₄ = 1991 JW₆ = 1998 XE₇₆

Id. S. Nakano, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	35.49881		(2000.0)	P	Q		
<i>n</i>	0.20206278	ω	212.71993	+0.58538421	-0.81069474		
<i>a</i>	2.8761520	Ω	201.45512	+0.74959095	+0.54586565		
<i>e</i>	0.0522598	<i>i</i>	1.56165	+0.30893160	+0.21167129		
<i>P</i>	4.88	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1988 12 05	381	1.0-	0.2-	1991 05 12	809	(8.4-	1.6+)	1998 12 16	704	1.2+	0.2-
1988 12 06	381	0.3+	0.3-	1998 12 15	704	1.9-	1.2+	1998 12 16	704	1.0-	0.3+
1988 12 07	381	0.0	0.5+	1998 12 15	704	0.3+	1.0+	1998 12 16	704	1.4+	1.1+
1988 12 08	381	0.6+	0.1+	1998 12 15	704	0.1+	0.7-	1998 12 16	704	0.5-	1.1+
1991 05 12	809	1.6+	0.2-	1998 12 15	704	0.2-	2.0-				
1991 05 12	809	1.6-	0.2+	1998 12 16	704	0.5+	1.8-				

1989 GD₄ = 1971 XD = 1976 UW₄ = 1983 BK = 1986 RS₄ = 1999 BC₂₅

Id. G. V. Williams, E. Bowell

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Williams

<i>M</i>	31.20306		(2000.0)	P	Q		
<i>n</i>	0.18379459	ω	241.05170	+0.24008861	-0.97049677		
<i>a</i>	3.0637094	Ω	195.10552	+0.91768504	+0.23436722		
<i>e</i>	0.1831239	<i>i</i>	4.89010	+0.31656221	+0.05663952		
<i>P</i>	5.36	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1971 12 14	095	0.0	0.5-	1989 04 08	809	1.4+	0.4-	1998 11 23	699	0.2+	0.4-
1976 10 30	095	(2.1+	6.4-)	1989 04 08	809	0.8+	1.4-	1998 12 16	699	0.3-	0.1-
1983 01 22	688	0.3+	1.6-	1989 04 12	809	1.3-	0.4-	1998 12 16	699	0.0	0.1-
1983 01 22	688	1.1-	1.2-	1989 04 12	809	1.2-	0.1-	1998 12 16	699	0.0	0.1+
1986 09 06	071	(2.5-	3.5-)	1997 09 29	566	1.0+	0.4-	1999 01 10	699	0.1-	0.2-
1986 09 06	071	0.4+	1.7-	1997 09 29	566	0.2+	0.6-	1999 01 10	699	0.2+	0.0
1989 04 03	809	0.6+	1.6-	1997 09 29	566	1.5-	0.9-	1999 01 10	699	0.3-	0.3+
1989 04 03	809	1.1+	1.2-	1997 12 28	566	1.0+	1.5-	1999 01 18	704	0.3-	0.1+
1989 04 03	809	(3.0+	1.5-)	1997 12 28	566	1.0+	1.6-	1999 01 18	704	0.2-	0.0
1989 04 05	809	2.0-	0.0	1997 12 28	566	1.3+	1.6-	1999 01 18	704	0.6-	0.4-
1989 04 05	809	0.3+	0.2-	1998 11 01	699	0.2+	0.3+	1999 01 18	704	0.4-	0.4+
1989 04 06	809	0.4-	0.8-	1998 11 01	699	0.6+	0.6-	1999 01 18	704	0.2-	0.5-
1989 04 06	809	0.7+	0.9-	1998 11 01	699	0.6-	0.1+	1999 01 20	704	1.5+	0.6-

1989 04 06	809	0.0	0.6-	1998 11 17	699	0.2-	0.4+	1999 01 20	704	0.7-	1.3+
1989 04 07	809	2.1-	0.9-	1998 11 17	699	0.7-	0.5+	1999 01 20	704	0.0	0.6+
1989 04 07	809	1.2-	1.1+	1998 11 17	699	0.0	0.7+	1999 01 20	704	0.9+	0.3+
1989 04 07	809	0.2-	1.1+	1998 11 23	699	0.3+	0.5-	1999 01 20	704	0.5+	0.4+
1989 04 08	809	1.7+	0.2+	1998 11 23	699	0.4+	0.3+				

1989 OD = 1976 SK₂ = 1981 SR₇ = 1981 TJ₁ = 1990 TY₈ = 1998 FN₁₁₅Id. A. Doppler (*MPC* 33476), G. V. Williams (*ibid.*), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	355.51175		(2000.0)	P	Q		
<i>n</i>	0.21252055	ω	287.74762	+0.28657405	+0.95805350		
<i>a</i>	2.7810071	Ω	358.89229	-0.81055200	+0.24079959		
<i>e</i>	0.1338454	<i>i</i>	8.83005	-0.51076488	+0.15539966		
<i>P</i>	4.64	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1976 09 24	095	1.7-	1.4+	1990 10 12	033	0.7-	0.0	1998 03 31	704	0.5-	0.9+
1976 09 28	095	(6.2+	1.8+)	1990 10 13	033	0.5+	0.1-	1998 04 01	704	0.3+	0.8-
1976 09 29	095	0.1+	0.1+	1990 10 14	033	0.2-	0.0	1998 04 01	704	0.2-	0.3-
1981 09 29	095	0.7-	1.8+	1990 10 15	046	1.9+	0.9-	1998 04 01	704	0.4+	0.3+
1981 10 02	095	0.6+	0.2-	1990 10 15	046	1.2+	0.4+	1998 04 01	704	0.9-	1.2-
1989 07 21	413	0.4+	0.7+	1990 10 16	046	1.6-	2.0-	1998 04 01	704	0.9-	1.6-
1989 07 25	413	0.1+	0.4-	1990 10 16	046	1.3+	1.6-	1998 04 25	699	0.2-	0.2-
1989 08 02	413	(18.0-	4.6-)	1998 03 31	704	0.4+	0.7-	1998 04 25	699	0.1+	0.3+
1989 08 02	413	(18.7-	4.8-)	1998 03 31	704	0.8-	0.9-	1998 04 25	699	0.8-	0.3+
1990 10 11	033	1.0+	0.3-	1998 03 31	704	0.9+	1.4+				
1990 10 12	033	0.6-	0.3-	1998 03 31	704	0.7+	0.4+				

1989 RN₂ = 1999 FY₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	271.79395		(2000.0)	P	Q		
<i>n</i>	0.17407692	ω	313.29907	+0.55569890	+0.83075061		
<i>a</i>	3.1766931	Ω	350.30183	-0.69612253	+0.44360462		
<i>e</i>	0.2122713	<i>i</i>	11.10175	-0.45454610	+0.33625638		
<i>P</i>	5.66	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 09 01	474	0.4+	0.4-	1989 09 27	675	1.2+	1.3-	1999 03 19	704	0.8+	1.1-
1989 09 01	474	0.8-	0.8-	1989 09 27	675	1.1+	0.2-	1999 03 19	704	1.4+	1.0+
1989 09 02	675	0.5-	0.7+	1989 09 28	474	0.5+	0.2+	1999 03 19	704	0.8-	0.1-
1989 09 02	675	0.2-	0.9+	1989 09 28	474	0.1+	0.0	1999 03 19	704	2.0-	0.6+
1989 09 09	474	1.5+	0.3+	1989 09 30	675	1.0-	0.2-	1999 03 20	704	1.1+	0.2+
1989 09 09	474	0.3-	0.5-	1989 09 30	675	0.0	0.0	1999 03 20	704	0.5+	1.1+
1989 09 26	474	0.1-	0.5+	1989 09 30	474	0.4-	0.1+	1999 03 20	704	0.4+	1.0-
1989 09 26	474	0.1-	0.4+	1989 09 30	474	1.4-	0.4+	1999 03 20	704	1.4-	0.8-

1989 ST₉ = 1999 FM₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	225.04587		(2000.0)	P	Q		
<i>n</i>	0.27340143	ω	315.54195	+0.90654195	+0.42190658		
<i>a</i>	2.3510879	Ω	19.51495	-0.37535860	+0.82012503		
<i>e</i>	0.2356042	<i>i</i>	2.27944	-0.19310000	+0.38650974		
<i>P</i>	3.60	<i>H</i>	15.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1989 09 04	675	1.0+	0.2+	1989 09 28	809	1.5+	0.6-	1999 03 19	691	0.6-	0.0
1989 09 04	675	0.8-	0.5+	1989 09 29	675	1.1+	0.2-	1999 03 19	691	0.4-	0.2+
1989 09 26	809	2.6-	0.2-	1989 09 29	675	0.3+	0.5+	1999 03 23	691	0.4+	0.0
1989 09 26	809	1.5-	0.1-	1989 09 30	809	0.1-	0.2+	1999 03 23	691	0.7+	0.6-
1989 09 26	809	0.6-	0.2+	1989 09 30	809	0.3+	0.1+	1999 03 23	691	0.1+	0.2-
1989 09 28	809	0.2+	0.3-	1989 09 30	809	0.7+	0.2-				
1989 09 28	809	0.8+	0.5-	1999 03 19	691	0.6-	0.0				

1989 SZ₉ = 1978 TK₁ = 1999 EJ₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26829123	ω	214.43961	−0.79886006	+0.60143963		
<i>a</i>	2.3808484	Ω	2.59493	−0.49278995	−0.64518546		
<i>e</i>	0.1621714	<i>i</i>	12.29742	−0.34493576	−0.47117522		
<i>P</i>	3.67	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1978 10 02	095	1.2−	1.7+	1989 09 29	809	0.1+	0.5+	1999 03 13	106	0.3−	0.6+
1989 09 04	675	(4.3+	1.0−)	1989 09 29	675	0.5+	0.5−	1999 03 13	106	0.2−	1.0+
1989 09 04	675	1.7+	1.5−	1989 09 29	675	0.6+	0.4−	1999 03 22	699	0.8+	0.5+
1989 09 26	809	1.1−	0.1+	1989 09 30	809	0.4−	0.6−	1999 03 22	699	0.5+	0.4+
1989 09 26	809	0.6−	0.3+	1989 09 30	809	0.1−	0.6−	1999 03 22	699	0.6+	0.8+
1989 09 26	809	0.2−	0.3+	1989 09 30	809	0.3+	0.6−	1999 03 23	704	0.3−	0.5−
1989 09 28	809	0.7−	0.9+	1999 03 12	106	0.8+	0.2−	1999 03 23	704	0.0	0.2+
1989 09 28	809	0.5−	1.0+	1999 03 12	106	0.2−	0.6+	1999 03 23	704	0.1−	0.4−
1989 09 28	809	0.1−	1.0+	1999 03 12	106	0.3−	0.1+	1999 03 23	704	0.4−	0.2−
1989 09 29	809	0.3−	0.6+	1999 03 13	106	0.2+	1.4+	1999 03 23	704	0.3+	0.7−
1989 09 29	809	0.1−	0.6+	1999 03 13	106	0.2+	1.3−				

1989 SP₁₁ = 1979 SY₈ = 1994 RB₂₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19582888	ω	57.60522	+0.99778377	−0.06543729		
<i>a</i>	2.9368711	Ω	306.14397	+0.05492501	+0.91230276		
<i>e</i>	0.1235511	<i>i</i>	0.85591	+0.03756057	+0.40425443		
<i>P</i>	5.03	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1979 09 24	095	0.2−	0.5+	1989 10 01	809	0.4+	0.4+	1994 09 02	033	0.3+	0.4+
1989 09 30	809	1.0−	0.9−	1989 10 01	809	0.7+	0.4+	1994 09 04	033	0.6+	0.2−
1989 09 30	809	0.4−	0.6−	1989 10 01	809	1.0+	0.3+				
1989 09 30	809	0.3−	0.5−	1994 09 01	033	1.1−	0.2+				

1989 SF₁₄ = 1999 CS₁₀₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24257398	ω	113.49353	+0.96745667	−0.10669426		
<i>a</i>	2.5462824	Ω	253.27237	+0.02774456	+0.94601749		
<i>e</i>	0.1302954	<i>i</i>	13.86180	+0.25151110	+0.30605104		
<i>P</i>	4.06	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1989 09 26	493	0.3+	0.1−	1989 10 05	493	(8.1−	5.7−)	1999 02 12	704	(3.7−	1.6+)
1989 09 27	493	0.1+	0.2−	1989 10 06	493	0.1−	0.7−	1999 02 16	704	0.7+	1.1+
1989 10 03	493	0.6−	0.3−	1999 02 12	704	0.8+	1.7+	1999 02 16	704	0.3−	0.8+
1989 10 03	493	(0.7−	2.4+)	1999 02 12	704	0.2−	0.8−	1999 02 16	704	1.3−	0.7+
1989 10 04	493	(2.5−	1.1−)	1999 02 12	704	0.4−	0.6−	1999 02 16	704	0.6+	1.1−
1989 10 05	493	0.2+	1.2+	1999 02 12	704	1.0−	1.8−	1999 02 16	704	1.1+	0.1+

1989 UY₂ = 1985 RT₆ = 1999 FR₂₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26229183	ω	281.24865	+0.95923109	+0.27714216		
<i>a</i>	2.4170161	Ω	62.68174	−0.22883854	+0.87663538		
<i>e</i>	0.2131699	<i>i</i>	3.57425	−0.16585729	+0.39332256		
<i>P</i>	3.76	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1985 09 12	688	1.8+	1.1−	1989 11 02	400	(4.3+	3.7+)	1989 11 30	046	0.1+	1.5−
1985 09 12	688	0.9−	0.8−	1989 11 04	385	0.3+	1.2−	1999 03 19	704	0.2+	0.1−
1989 10 23	033	0.5+	0.3−	1989 11 04	385	1.1+	1.7−	1999 03 19	704	1.2−	2.0−
1989 10 23	033	0.2−	0.9+	1989 11 17	883	0.9−	1.5+	1999 03 19	704	2.0−	0.7−

1989 10 25	033	0.0	0.5−	1989 11 17	883	(4.6−	1.5+)	1999 03 19	704	0.7+	0.5+
1989 10 25	033	0.3+	0.1−	1989 11 23	046	0.7+	0.6−	1999 03 20	704	0.6+	0.3−
1989 10 27	033	0.8−	0.1−	1989 11 23	046	0.6−	1.1+	1999 03 20	704	0.2+	1.5−
1989 10 30	400	(4.3−	2.2+)	1989 11 29	046	0.5−	0.9−	1999 03 20	704	0.0	0.9+
1989 10 30	400	0.9+	3.1+	1989 11 29	046	2.6−	0.1+				
1989 11 02	400	(4.0+	3.3+)	1989 11 30	046	2.0+	1.1−				

1989 WJ = 1999 CP₁₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	59.71277	ω	8.09587	+0.25989836	−0.93548796		
<i>a</i>	2.6006887	Ω	67.10443	+0.87075891	+0.11987590		
<i>e</i>	0.1333887	<i>i</i>	15.06296	+0.41741079	+0.33240344		
<i>P</i>	4.19	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1989 11 20	888	1.0+	0.0	1989 11 29	888	0.7+	0.1−	1999 02 11	704	0.4−	0.1−
1989 11 20	888	1.0+	0.2+	1989 12 20	888	0.3−	0.1−	1999 02 18	704	0.3+	0.9−
1989 11 21	888	1.0−	0.2−	1989 12 20	888	0.6−	0.3+	1999 02 18	704	1.2+	0.2−
1989 11 21	888	0.5−	0.4+	1999 02 11	704	0.5−	0.7+	1999 02 18	704	0.4−	0.0
1989 11 25	888	1.2+	0.3+	1999 02 11	704	0.2−	1.0−	1999 02 18	704	0.5+	1.1+
1989 11 25	888	1.0−	0.7−	1999 02 11	704	0.4+	0.3−	1999 02 18	704	0.3−	0.6+
1989 11 29	888	0.6−	0.0	1999 02 11	704	0.6−	0.1+				

1990 BA₁ = 1986 EH₄ = 1999 DH₇

Id. E. Bowell, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	336.23801	ω	183.84914	−0.98932103	+0.14472576		
<i>a</i>	2.6533338	Ω	4.58146	−0.12728641	−0.80015414		
<i>e</i>	0.0359248	<i>i</i>	12.48860	−0.07100751	−0.58207199		
<i>P</i>	4.32	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1986 03 12	809	0.6−	0.9−	1990 02 01	372	(12.2+	0.1+)	1999 03 22	699	0.3+	0.3−
1990 01 21	372	0.7+	1.9−	1990 02 01	372	0.1−	0.2−	1999 03 22	699	0.1−	0.0
1990 01 21	372	1.1−	1.0+	1990 02 17	372	0.8−	0.1+	1999 03 22	699	0.0	0.1−
1990 01 24	372	(2.3+	1.1−)	1990 02 17	372	1.0+	0.3+	1999 03 23	699	0.2−	0.2+
1990 01 24	372	0.4+	0.8+	1999 02 20	699	0.2+	0.3+	1999 03 23	699	0.2+	1.3+
1990 02 01	372	(4.6−	0.1−)	1999 02 20	699	0.8+	0.4+	1999 03 23	699	0.5−	0.6−
1990 02 01	372	(2.5−	1.6−)	1999 02 20	699	0.1−	0.4−				

1990 DA₂ = 1988 VW₁₁ = 1999 CB₆₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	83.25516	ω	233.63926	+0.77842624	−0.62713669		
<i>a</i>	2.7571458	Ω	165.13583	+0.60474058	+0.73747770		
<i>e</i>	0.0545062	<i>i</i>	6.13723	+0.16834909	+0.25065156		
<i>P</i>	4.58	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1988 11 03	327	0.4+	0.3−	1990 02 28	809	0.8+	1.0−	1999 02 12	704	0.2−	0.5+
1988 11 03	327	0.4−	0.5+	1990 02 28	809	0.3+	1.1−	1999 02 12	704	0.4−	0.5+
1990 02 24	809	0.9−	0.7+	1990 02 28	809	0.4+	0.9−	1999 02 12	704	0.4−	0.4−
1990 02 24	809	0.5−	0.9+	1990 02 28	809	0.3+	0.2−	1999 02 16	704	0.3+	0.4−
1990 02 24	809	0.1−	1.0+	1990 02 28	809	0.3+	0.1−	1999 02 16	704	1.3+	0.2+
1990 02 25	809	0.5−	0.8+	1990 02 28	809	0.4+	0.2−	1999 02 16	704	0.1+	1.9−
1990 02 25	809	0.3−	0.6+	1999 02 12	704	0.4−	0.2−	1999 02 16	704	0.7+	0.1+
1990 02 25	809	0.0	0.3+	1999 02 12	704	1.0−	0.8+				

1990 DT₂ = 1998 HW₇₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	118.35776		(2000.0)	P			Q		
<i>n</i>	0.25839003	ω	266.31784	-0.90248735	-0.42995559				
<i>a</i>	2.4412873	Ω	248.21598	+0.40530705	-0.82764317				
<i>e</i>	0.1110000	<i>i</i>	1.57908	+0.14574906	-0.36075613				
<i>P</i>	3.81	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	7		

Residuals in seconds of arc

1990 02 24	809	0.3-	0.9+	1998 04 21	704	0.2+	0.0	1998 04 22	704	0.6-	0.9-
1990 02 24	809	0.5+	0.9+	1998 04 21	704	0.7-	1.0+	1998 04 22	704	0.4+	1.5-
1990 02 24	809	1.0+	1.4+	1998 04 21	704	0.2+	0.9+	1998 04 22	704	0.2-	0.7-
1990 02 25	809	0.8-	1.1-	1998 04 21	704	0.3+	0.9+	1998 04 22	704	(0.7-	2.5-)
1990 02 25	809	0.4-	1.0-	1998 04 21	704	0.3+	1.2+				
1990 02 25	809	0.1+	1.1-	1998 04 22	704	0.1-	0.9-				

1990 FM = 1999 CO₁₂₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	310.03011		(2000.0)	P			Q		
<i>n</i>	0.21801469	ω	150.64986	-0.57265775	+0.76060989				
<i>a</i>	2.7340863	Ω	82.74172	-0.79936803	-0.43531634				
<i>e</i>	0.2851849	<i>i</i>	17.95721	-0.18186215	-0.48163501				
<i>P</i>	4.52	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1990 03 23	675	1.0-	0.4-	1990 04 27	675	1.0-	1.2-	1999 02 11	704	0.4-	0.3+
1990 03 23	675	1.1-	0.4-	1990 04 27	675	1.2+	0.2+	1999 02 18	704	0.2-	0.4-
1990 03 25	675	3.5+	2.2+	1999 02 11	704	0.3+	0.1-	1999 02 18	704	0.5-	0.0
1990 03 25	675	1.5-	1.2-	1999 02 11	704	1.1+	0.1-	1999 02 18	704	0.1-	0.2+
1990 04 26	675	0.6+	0.1-	1999 02 11	704	0.0	0.0	1999 02 18	704	0.1+	0.3+
1990 04 26	675	0.8-	1.0+	1999 02 11	704	0.3+	0.3-	1999 02 18	704	0.5-	0.1-

1990 QU₄ = 1994 WV₁₁ = 1999 CJ₂₂

Id. A. Doppler, K. Ichikawa

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	170.76948		(2000.0)	P			Q		
<i>n</i>	0.28515842	ω	251.18965	+0.70370949	+0.70295934				
<i>a</i>	2.2860124	Ω	63.99094	-0.60097431	+0.66637822				
<i>e</i>	0.1927827	<i>i</i>	6.59094	-0.37897602	+0.24857238				
<i>P</i>	3.46	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1990 08 24	675	0.3-	1.0+	1990 08 29	675	1.6+	0.5+	1999 02 10	704	0.2+	0.7+
1990 08 24	675	0.9-	0.9-	1994 11 27	010	0.3-	0.2-	1999 02 10	704	0.3+	1.1+
1990 08 26	675	1.0-	0.2-	1994 11 27	010	0.7+	1.1-	1999 02 10	704	0.1-	0.8+
1990 08 26	675	0.5-	0.8+	1994 11 28	010	0.8+	0.6-	1999 02 10	704	1.4-	0.4-
1990 08 27	675	0.1+	1.3-	1994 11 28	010	0.5-	0.5+	1999 02 13	704	0.8+	0.7-
1990 08 27	675	0.2+	1.5-	1994 11 28	010	0.4-	0.3+	1999 02 13	704	0.9-	0.4-
1990 08 29	675	1.6+	0.1+	1994 11 29	010	0.4-	1.2+	1999 02 13	704	0.4+	0.0
1990 08 29	675	0.7-	1.3+	1999 02 10	704	0.5+	0.0	1999 02 13	704	0.2+	1.8-

1990 QW₄ = 1999 CK₁₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	73.23626		(2000.0)	P			Q		
<i>n</i>	0.28164337	ω	306.60605	+0.33499777	-0.93378461				
<i>a</i>	2.3049934	Ω	123.35586	+0.90541184	+0.28208000				
<i>e</i>	0.1505258	<i>i</i>	8.66148	+0.26077940	+0.22017533				
<i>P</i>	3.50	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1990 08 24	675	0.1-	0.2-	1999 02 15	411	0.3+	0.2-	1999 02 21	411	0.8-	0.1+
1990 08 24	675	0.1+	0.5+	1999 02 15	411	0.2+	0.7-	1999 02 23	699	0.6+	0.0
1990 08 26	675	0.8+	0.5-	1999 02 16	411	0.1-	0.1+	1999 02 23	699	0.9+	0.1+

1990 08 26	675	0.3-	0.0	1999 02 16	411	0.1+	0.6+	1999 02 23	699	0.3+	0.4-
1990 08 29	675	0.5-	0.2+	1999 02 21	411	1.4-	0.5+				

1990 QM₇ = 1998 XP₆₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	161.18196		(2000.0)	P			Q		
<i>n</i>	0.27083856	ω	278.84677	+0.20489459	+0.97876796				
<i>a</i>	2.3658964	Ω	2.99404	-0.85050157	+0.18087455				
<i>e</i>	0.1072491	<i>i</i>	6.16643	-0.48442264	+0.09642442				
<i>P</i>	3.64	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1990 08 16	809	0.7+	0.2-	1990 08 26	809	0.3-	0.2-	1998 12 14	704	(4.6-	1.1-)
1990 08 16	809	0.2-	0.4+	1990 08 26	809	0.0	0.2-	1998 12 17	704	0.1-	0.2+
1990 08 16	809	1.4-	0.2-	1990 08 26	809	0.4-	0.4+	1998 12 17	704	0.5-	0.7-
1990 08 20	809	1.1+	0.1+	1998 12 14	704	(2.5-	1.2+)	1998 12 17	704	0.1+	1.2+
1990 08 20	809	0.3+	0.2-	1998 12 14	704	0.6-	0.5-	1998 12 17	704	0.5+	0.9+
1990 08 20	809	0.2+	0.2+	1998 12 14	704	0.0	1.1-	1998 12 17	704	0.6+	0.1+

1990 QT₇ = 1999 EV₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	80.53820		(2000.0)	P			Q		
<i>n</i>	0.16805943	ω	183.74200	+0.41759823	-0.90856580				
<i>a</i>	3.2520768	Ω	241.57524	+0.83397626	+0.38804316				
<i>e</i>	0.1174942	<i>i</i>	0.71341	+0.36068728	+0.15469545				
<i>P</i>	5.86	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1990 08 16	809	1.1+	1.8+	1990 08 26	809	0.3+	0.6+	1999 03 06	691	0.0	0.2-
1990 08 16	809	0.5+	0.9+	1990 08 26	809	0.9+	0.0	1999 03 11	691	0.3+	0.1+
1990 08 16	809	0.7-	1.0+	1990 09 10	809	0.3-	0.5+	1999 03 11	691	0.4-	0.2+
1990 08 18	809	0.2+	0.7-	1990 09 10	809	0.1-	0.6+	1999 03 11	691	0.0	0.3-
1990 08 18	809	1.4-	1.7-	1990 09 10	809	0.3+	0.4+	1999 03 16	691	0.5+	0.5+
1990 08 18	809	0.0	1.5-	1990 09 11	809	0.2-	1.4+	1999 03 16	691	0.4+	0.1+
1990 08 24	809	0.6+	1.7-	1990 09 11	809	0.2-	1.4+	1999 03 16	691	0.7+	0.2+
1990 08 24	809	0.2+	1.8-	1990 09 11	809	0.2-	1.6+	1999 03 19	691	0.4-	0.4+
1990 08 24	809	0.3-	1.4-	1999 03 06	691	0.1+	0.1+	1999 03 19	691	0.4-	0.4+
1990 08 26	809	1.2-	0.1+	1999 03 06	691	0.1+	0.2-	1999 03 19	691	0.4-	0.2+

1990 QO₈ = 1988 CA₇ = 1988 EJ₂ = 1994 PG₂₈Id. B. G. Marsden (*MPC* 24563), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	303.15705		(2000.0)	P			Q		
<i>n</i>	0.24342789	ω	96.85068	+0.19091498	-0.97937753				
<i>a</i>	2.5403243	Ω	341.73413	+0.79656051	+0.19393250				
<i>e</i>	0.1439754	<i>i</i>	12.17750	+0.57362255	+0.05665550				
<i>P</i>	4.05	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	3		

Residuals in seconds of arc

1988 02 13	054	1.4-	0.7-	1994 09 05	809	(1.9+	5.4+)	1998 09 18	704	0.1+	1.1-
1988 02 13	054	1.1-	0.1-	1994 09 05	809	(1.8+	5.2+)	1998 09 18	704	0.4-	1.9+
1988 03 12	054	0.8+	0.9-	1994 09 06	809	(2.3+	5.5+)	1998 09 18	704	0.9-	0.2+
1988 03 12	054	0.3+	1.1-	1994 09 06	809	(2.1+	5.4+)	1998 09 21	699	0.2+	0.3+
1990 08 16	809	0.4+	2.4-	1994 09 06	809	(1.6+	5.1+)	1998 09 21	699	0.7+	0.8+
1990 08 16	809	0.5-	2.1-	1998 07 31	699	0.1+	0.6-	1998 09 21	699	0.1+	0.5+
1990 08 16	809	1.1-	1.9-	1998 07 31	699	0.2-	0.1-	1998 10 14	910	0.7-	0.4-
1990 08 18	809	0.9+	0.7-	1998 07 31	699	1.1-	0.4-	1998 10 14	910	0.0	0.0
1990 08 18	809	1.3+	0.9-	1998 08 17	704	1.1-	0.2+	1998 10 14	910	0.6-	0.2-
1990 08 18	809	0.3+	1.2-	1998 08 17	704	1.9-	0.8+	1998 10 17	699	2.0-	0.7-
1990 08 24	809	0.4-	0.8-	1998 08 17	704	1.7-	0.4-	1998 10 17	699	0.6-	0.4+
1990 08 24	809	0.0	0.5-	1998 08 17	704	0.8-	0.1-	1998 10 17	699	1.7-	0.8+
1990 08 24	809	1.0-	0.7-	1998 08 17	704	0.9-	0.7-	1998 10 20	699	1.2+	0.5+
1990 08 26	809	1.5-	1.0+	1998 08 23	704	0.7-	0.1+	1998 10 20	699	0.2+	0.6+
1990 08 26	809	0.7-	0.8+	1998 08 23	704	0.3-	0.9+	1998 10 20	699	1.5-	0.5+
1990 08 26	809	0.0	1.2+	1998 08 23	704	0.4-	1.7+	1998 10 20	910	0.3-	0.4-

1994 08 12	809	3.4+	0.5−	1998 08 23	704	0.3−	1.8+	1998 10 20	910	0.4−	0.3−
1994 08 12	809	3.3+	0.1−	1998 08 23	704	1.1+	1.6+	1998 10 20	910	0.5−	0.3−
1994 08 12	809	2.4+	0.1+	1998 08 27	699	0.3+	0.0	1998 10 21	910	0.4−	0.4−
1994 08 13	809	2.9+	0.8−	1998 08 27	699	0.1+	0.1+	1998 10 21	910	0.4−	0.2−
1994 08 13	809	3.0+	0.2+	1998 08 27	699	0.6+	0.1−	1998 10 21	910	0.5−	0.3−
1994 08 13	809	2.9+	0.3−	1998 09 18	704	0.5+	0.4+				
1994 09 05	809	(2.0+	5.0+)	1998 09 18	704	0.6+	0.1−				

1990 QT₈ = 1999 FK₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	270.14802	(2000.0)		P	Q		
<i>n</i>	0.30966995	ω	139.95994	+0.24109585	+0.96958782		
<i>a</i>	2.1637314	Ω	143.93406	−0.90771559	+0.24063491		
<i>e</i>	0.1615992	<i>i</i>	4.10063	−0.34340237	+0.04465766		
<i>P</i>	3.18	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1990 08 16	809	1.0−	0.2+	1990 08 24	809	1.1+	1.0−	1999 03 19	704	0.3+	0.1−
1990 08 16	809	0.1−	0.9+	1990 08 26	809	1.3−	0.4+	1999 03 19	704	0.6+	0.0
1990 08 16	809	1.7−	0.7+	1990 08 26	809	0.3−	0.9+	1999 03 19	704	0.2−	0.1+
1990 08 18	809	0.8+	0.9−	1990 08 26	809	0.0	0.6+	1999 03 20	704	0.4+	0.9−
1990 08 18	809	0.0	0.7−	1990 09 16	675	0.2+	0.7−	1999 03 20	704	1.2−	0.8+
1990 08 18	809	1.4+	0.8+	1990 09 16	675	1.1−	0.4−	1999 03 20	704	0.5−	1.1−
1990 08 24	809	1.4+	0.9−	1999 03 19	704	0.3−	0.3−	1999 03 20	704	0.1−	1.4+
1990 08 24	809	0.7+	0.3−	1999 03 19	704	0.9+	0.3−				

1990 RM₃ = 1999 CT₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	245.87166	(2000.0)		P	Q		
<i>n</i>	0.29186908	ω	268.92296	−0.10714870	+0.99419329		
<i>a</i>	2.2508367	Ω	354.89396	−0.86199665	−0.09787525		
<i>e</i>	0.1476071	<i>i</i>	6.41408	−0.49546031	−0.04472282		
<i>P</i>	3.38	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 09 14	675	0.8+	0.7−	1990 09 24	809	0.6+	0.0	1999 02 13	704	1.2+	1.0+
1990 09 14	675	0.6+	0.8−	1990 09 29	809	0.2+	0.2−	1999 02 13	704	1.0−	1.3+
1990 09 18	675	(2.3+	0.7−)	1990 09 29	809	0.1+	0.4−	1999 02 13	704	0.6−	0.6+
1990 09 18	675	(2.9+	0.5−)	1990 09 29	809	0.1−	0.3−	1999 02 13	704	1.0−	0.1+
1990 09 22	809	0.9−	0.6+	1999 02 10	704	0.1−	0.4−	1999 02 13	704	0.5−	0.1+
1990 09 22	809	0.4−	0.4+	1999 02 10	704	0.1+	0.4−	1999 02 18	566	(0.4+	2.1−)
1990 09 22	809	0.1−	0.5+	1999 02 10	704	0.7+	0.1+	1999 02 18	566	0.4+	1.8−
1990 09 23	809	0.8−	0.1+	1999 02 10	704	0.1−	0.8+	1999 02 18	566	0.7+	1.6−
1990 09 23	809	0.3−	0.2+	1999 02 10	704	(2.8−	0.3+)	1999 02 24	699	0.2−	0.3−
1990 09 23	809	0.2+	0.2+	1999 02 12	699	0.2+	0.1+	1999 02 24	699	0.3−	0.2−
1990 09 24	809	0.1−	0.1+	1999 02 12	699	0.1+	0.3+	1999 02 24	699	0.0	0.1+
1990 09 24	809	0.3+	0.0	1999 02 12	699	0.4+	0.1−				

1990 SZ₅ = 1999 CH₁₅₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	279.71516	(2000.0)		P	Q		
<i>n</i>	0.17736103	ω	89.47824	−0.22667361	+0.97233348		
<i>a</i>	3.1373568	Ω	166.99676	−0.96324029	−0.21521967		
<i>e</i>	0.0787185	<i>i</i>	14.52988	−0.14417773	−0.09081901		
<i>P</i>	5.56	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 09 15	809	0.7+	0.2+	1990 09 25	809	0.3+	0.1+	1999 02 14	691	0.1+	0.1+
1990 09 15	809	0.5−	0.1+	1990 09 25	809	0.4−	0.6−	1999 03 19	699	0.1+	0.2−
1990 09 15	809	1.4−	0.7+	1999 02 13	691	0.2−	0.1−	1999 03 19	699	0.4+	0.5+
1990 09 22	809	0.0	0.2−	1999 02 13	691	0.5−	0.1−	1999 03 19	699	1.6+	0.0
1990 09 22	809	0.3+	1.3+	1999 02 13	691	0.5−	0.1−	1999 03 23	699	0.9−	0.1+
1990 09 22	809	0.5+	0.1−	1999 02 14	691	0.2+	0.1+	1999 03 23	699	0.1+	0.6−
1990 09 25	809	0.4+	1.1−	1999 02 14	691	0.2+	0.2+	1999 03 23	699	0.5−	0.5+

1990 SQ₇ = 1977 DL₇ = 1999 CY₃₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	58.23722	(2000.0)		P	Q		
<i>n</i>	0.26841615	ω	338.92681	+0.54892310	−0.83404041		
<i>a</i>	2.3801096	Ω	77.74140	+0.77476733	+0.48284103		
<i>e</i>	0.2071506	<i>i</i>	3.24514	+0.31371806	+0.26691034		
<i>P</i>	3.67	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1977 02 19	381	0.4−	1.4−	1990 09 25	809	0.3−	0.7+	1999 02 12	699	0.6+	0.6−
1977 02 19	381	0.8−	1.9−	1990 09 25	809	0.1−	1.0+	1999 02 12	699	0.5−	0.0
1990 09 14	809	0.6+	0.1+	1999 01 13	699	0.7−	0.2+	1999 02 12	699	0.6+	0.7−
1990 09 14	809	0.6+	0.3+	1999 01 13	699	0.1−	0.4−	1999 02 13	704	0.6−	0.9+
1990 09 14	809	0.6−	0.6−	1999 01 13	699	0.3−	0.1+	1999 02 13	704	0.6−	1.3+
1990 09 22	809	1.0+	0.2+	1999 02 10	704	0.5+	0.1+	1999 02 13	704	1.6+	1.2+
1990 09 22	809	1.0−	1.6−	1999 02 10	704	0.4−	1.1−	1999 02 13	704	1.4+	1.1+
1990 09 22	809	0.5−	1.4−	1999 02 10	704	0.0	0.1+				
1990 09 25	809	0.3+	0.9+	1999 02 10	704	0.6−	0.6+				

1990 SB₁₃ = 1996 VY₂₆

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	187.23644	(2000.0)		P	Q		
<i>n</i>	0.18018603	ω	170.49689	+0.99602357	+0.08908052		
<i>a</i>	3.1044783	Ω	184.39303	−0.08281665	+0.92038826		
<i>e</i>	0.1290526	<i>i</i>	0.97617	−0.03283968	+0.38072315		
<i>P</i>	5.47	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1990 09 22	809	(7.7+	6.3+)	1990 09 24	809	1.7−	1.2−	1996 11 11	691	0.3+	0.7+
1990 09 22	809	(8.0+	6.4+)	1990 09 24	809	1.6−	1.1−	1996 11 11	691	0.4+	0.6+
1990 09 22	809	(7.9+	6.4+)	1990 09 24	809	1.1−	1.1−	1996 11 11	691	0.3+	0.6+
1990 09 23	809	1.1+	1.0+	1990 09 25	809	0.2+	0.5+	1996 11 18	691	0.4−	0.7−
1990 09 23	809	1.2+	0.8+	1990 09 25	809	0.4+	0.2+	1996 11 18	691	0.4−	0.7−
1990 09 23	809	0.9+	0.7+	1990 09 25	809	0.6+	0.2+	1996 11 18	691	0.3−	0.5−

1990 SM₁₄ = 1998 XV₉₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
<i>M</i>	119.31451	(2000.0)		P	Q		
<i>n</i>	0.26703224	ω	186.34830	+0.85882111	+0.51033274		
<i>a</i>	2.3883258	Ω	142.85655	−0.46669718	+0.81532079		
<i>e</i>	0.2222737	<i>i</i>	4.23343	−0.21123457	+0.27351876		
<i>P</i>	3.69	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 09 22	095	(3.9+	1.5−)	1990 09 26	809	(0.3−	2.1+)	1998 12 15	704	0.6+	0.7−
1990 09 22	095	(3.6+	1.7−)	1990 09 26	809	(0.3+	2.2+)	1998 12 15	704	0.7+	0.1−
1990 09 24	809	0.4−	0.6+	1990 09 26	809	(1.0+	2.2+)	1998 12 15	704	1.3−	0.2+
1990 09 24	809	0.1−	0.4+	1990 09 29	809	0.8−	0.3+	1998 12 15	704	0.2+	1.2+
1990 09 24	809	0.3+	0.3+	1990 09 29	809	0.2−	0.3+	1998 12 22	704	0.4−	0.2+
1990 09 25	809	0.7−	1.1−	1990 09 29	809	0.6+	0.1+	1998 12 22	704	0.8−	0.7−
1990 09 25	809	0.3+	0.8−	1990 09 29	095	0.1+	0.4+	1998 12 22	704	0.5+	1.1−
1990 09 25	809	0.9+	0.5−	1998 12 15	704	0.2+	0.3−	1998 12 22	704	0.3+	1.3+

1990 SY₁₅ = 1997 TO₈ = 1999 CR₇₉

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
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Residuals in seconds of arc

1990 09 16	675	0.6−	0.5−	1997 10 05	691	0.2+	0.1−	1999 02 12	704	0.1−	0.1−
1990 09 16	675	0.6−	0.7+	1997 10 05	691	0.5+	0.0	1999 02 16	704	0.1−	0.0
1990 09 19	675	1.7+	0.1−	1997 10 05	691	0.4+	0.1−	1999 02 16	704	0.5+	0.0
1990 09 19	675	0.4−	0.4−	1999 02 12	704	1.0−	0.0	1999 02 16	704	0.7+	1.2+
1997 10 04	691	0.4−	0.0	1999 02 12	704	1.1+	0.6+	1999 02 16	704	0.3−	0.6+
1997 10 04	691	0.4−	0.2+	1999 02 12	704	0.1+	0.8−	1999 02 16	704	0.4+	0.4−
1997 10 04	691	0.3−	0.2+	1999 02 12	704	1.3−	1.2−				

1990 TE₂ = 1999 BO₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Doppler		
<i>M</i>	336.49918	(2000.0)	P	Q	
<i>n</i>	0.27068323	ω	271.87815	−0.89311919	−0.44567903
<i>a</i>	2.3668014	Ω	241.65948	+0.43530287	−0.82222273
<i>e</i>	0.1387447	<i>i</i>	3.96740	+0.11335576	−0.35400563
<i>P</i>	3.64	<i>H</i>	16.0	<i>G</i>	0.15 <i>U</i> 6

Residuals in seconds of arc

1990 10 10	033	0.1+	0.2+	1990 10 14	033	0.4−	0.1−	1999 01 20	704	0.1−	0.6−
1990 10 11	033	0.5−	1.1−	1999 01 18	704	0.1−	1.4+	1999 01 20	704	0.4−	0.5−
1990 10 11	033	0.3+	0.7+	1999 01 18	704	1.5+	0.4+	1999 01 20	704	0.7−	0.8+
1990 10 12	033	0.8−	0.3+	1999 01 18	704	0.2−	1.1−	1999 01 20	704	1.2+	0.2+
1990 10 13	033	1.2+	0.0	1999 01 18	704	1.1−	0.6−				

1990 TX₁₁ = 1998 XT₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Doppler		
<i>M</i>	25.92924	(2000.0)	P	Q	
<i>n</i>	0.25449657	ω	126.75375	+0.64360575	−0.76474441
<i>a</i>	2.4661231	Ω	283.15614	+0.69179888	+0.59839736
<i>e</i>	0.1867532	<i>i</i>	1.80203	+0.32739264	+0.23892801
<i>P</i>	3.87	<i>H</i>	14.9	<i>G</i>	0.15 <i>U</i> 5

Residuals in seconds of arc

1990 10 11	033	0.7+	0.2−	1998 12 11	699	0.0	0.0	1998 12 17	704	0.3−	0.0
1990 10 12	033	1.1−	0.0	1998 12 11	699	0.0	1.3+	1998 12 17	704	0.6−	0.3+
1990 10 12	033	0.6−	0.6−	1998 12 14	704	0.4−	0.4−	1998 12 17	704	0.0	0.1−
1990 10 13	033	1.2+	0.6+	1998 12 14	704	0.4+	0.6−	1998 12 17	704	0.7+	0.1−
1990 10 14	033	0.2−	0.2+	1998 12 14	704	0.4−	0.0				
1998 12 11	699	0.0	0.6+	1998 12 14	704	0.7+	0.9−				

1990 UN₁ = 1977 DM₁₁ = 1995 BD₄Id. S. Nakano (*MPC* 24739), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	75.55907	(2000.0)	P	Q	
<i>n</i>	0.27093547	ω	264.65797	+0.29571166	−0.95510177
<i>a</i>	2.3653321	Ω	168.09320	+0.90783849	+0.27501034
<i>e</i>	0.2084404	<i>i</i>	5.09116	+0.29729430	+0.11022667
<i>P</i>	3.64	<i>H</i>	14.4	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1977 02 19	381	1.8−	0.6+	1997 11 29	688	0.4+	0.5+	1999 03 20	704	0.9+	0.7+
1977 02 19	381	1.0+	1.4−	1997 11 29	688	0.2+	0.7+	1999 03 20	704	0.6+	0.5−
1990 10 20	402	0.5+	2.6−	1997 12 03	910	1.0−	0.2+	1999 03 20	704	0.1+	0.3+
1990 10 20	402	2.3+	1.1+	1997 12 03	910	1.2−	0.0	1999 03 20	704	0.0	1.2−
1990 10 21	402	1.3+	1.3−	1997 12 03	910	1.0−	0.1+	1999 03 22	699	0.8+	0.3+
1990 10 21	402	1.4+	1.0+	1999 02 18	120	0.6+	0.9−	1999 03 22	699	0.2+	0.7−
1990 10 28	402	2.8−	2.5−	1999 02 18	120	0.4−	0.4+	1999 03 23	704	0.5+	0.7−
1990 10 28	402	0.5+	1.0+	1999 02 18	120	1.7−	1.4−	1999 03 23	704	0.9−	0.0
1990 11 13	402	0.2−	0.2+	1999 02 18	120	1.8−	0.2+	1999 03 23	704	0.7−	0.0
1990 11 13	402	1.0−	1.0+	1999 02 19	120	0.0	0.4−	1999 03 23	704	1.1+	0.1−
1995 01 28	400	0.1+	0.7+	1999 02 19	120	0.1+	0.7−	1999 03 23	704	0.7−	0.5+
1995 01 28	400	1.1−	1.1+	1999 02 24	120	0.9−	0.4−	1999 03 24	699	1.3+	1.1+
1995 01 30	400	0.7+	0.1−	1999 02 24	120	0.1−	0.9−	1999 03 24	699	0.4−	1.5+
1995 01 30	400	0.1−	0.7+	1999 03 20	704	0.7+	0.3−	1999 03 24	699	0.9+	0.7+

1990 VC₆ = 1972 LC₁ = 1988 JO₁ = 1998 TL₃₃

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	148.86512	(2000.0)	P	Q	
<i>n</i>	0.23660454	ω	51.58260	−0.24963999	+0.96421772
<i>a</i>	2.5889322	Ω	204.41272	−0.94206380	−0.26315556
<i>e</i>	0.1692156	<i>i</i>	12.46957	−0.22404392	+0.03214558
<i>P</i>	4.17	<i>H</i>	13.6	<i>G</i>	0.15 <i>U</i> 3

Residuals in seconds of arc

1972 06 13	095	0.0	0.0	1990 11 23	809	0.9+	0.9+	1998 10 20	699	0.1+	0.3+
1988 05 11	413	(3.5−	2.8+)	1990 11 23	809	0.8−	0.2−	1998 10 20	699	0.0	0.1−
1988 05 11	413	(8.8−	0.7+)	1990 11 23	809	1.1−	0.6−	1998 10 20	699	0.2−	0.2+
1990 11 15	809	1.2−	0.4−	1998 09 23	910	0.0	0.5+	1998 11 14	699	0.3+	0.0
1990 11 15	809	1.0−	0.4+	1998 09 23	910	0.0	0.4+	1998 11 14	699	0.4+	0.5+
1990 11 15	809	(3.2−	0.6−)	1998 09 23	910	0.1−	0.3+	1998 11 14	699	0.6+	0.8+
1990 11 17	809	1.1+	0.4+	1998 10 14	699	0.2+	0.2−	1998 11 19	699	0.2−	0.0
1990 11 17	809	1.3+	0.0	1998 10 14	699	0.4+	0.3−	1998 11 19	699	0.7−	0.8−
1990 11 17	809	0.6+	0.2−	1998 10 14	699	0.2+	0.3−	1998 11 19	699	1.1−	1.3−

1990 VE₁₂ = 1990 WQ₉ = 1999 CQ₇₀Id. S. Nakano (d, *MPC* 19274), A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Doppler		
<i>M</i>	134.82603	(2000.0)	P	Q	
<i>n</i>	0.26797567	ω	172.88058	+0.99897498	−0.04099337
<i>a</i>	2.3827170	Ω	189.53236	+0.03366822	+0.95637114
<i>e</i>	0.0271784	<i>i</i>	6.65679	+0.03025620	+0.28926422
<i>P</i>	3.68	<i>H</i>	15.7	<i>G</i>	0.15 <i>U</i> 6

Residuals in seconds of arc

1990 11 14	372	(1.2+	2.7−)	1990 11 21	809	0.2+	0.2+	1999 02 16	704	0.7−	0.1−
1990 11 14	372	0.2−	1.3−	1990 11 21	809	0.0	0.0	1999 02 16	704	0.6−	0.1+
1990 11 15	809	0.9+	0.6+	1999 02 12	704	(2.6+	2.2−)	1999 02 16	704	(1.6+	2.6+)
1990 11 15	809	0.1−	0.7+	1999 02 12	704	0.9+	0.2−	1999 02 16	704	0.5−	0.6+
1990 11 15	809	0.9−	0.1+	1999 02 12	704	0.0	0.4−	1999 02 16	704	0.8−	0.8+
1990 11 21	809	0.2+	0.3−	1999 02 12	704	1.7+	0.7−				

1990 WR₁ = 1999 EW₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	180.85747	(2000.0)	P	Q	
<i>n</i>	0.28563574	ω	222.88965	+0.98941800	+0.11921677
<i>a</i>	2.2834649	Ω	130.07391	−0.08548837	+0.93953437
<i>e</i>	0.1583627	<i>i</i>	6.20435	−0.11723375	+0.32103353
<i>P</i>	3.45	<i>H</i>	15.4	<i>G</i>	0.15 <i>U</i> 5

Residuals in seconds of arc

1990 11 11	809	0.1+	0.1+	1990 11 18	809	1.5+	0.3−	1999 03 13	426	0.4−	0.0
1990 11 11	809	0.4+	0.7+	1990 11 20	809	0.2+	0.9+	1999 03 14	426	0.6+	0.4+
1990 11 11	809	1.0−	0.5−	1990 11 20	809	1.6−	0.6−	1999 03 14	426	0.8−	1.0−
1990 11 18	809	1.3+	0.3−	1990 11 20	809	0.9−	0.7+				
1990 11 18	809	0.1+	0.6−	1999 03 13	426	0.5+	0.7+				

1990 WH₄ = 1999 CM₁₂₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	350.52146	(2000.0)	P	Q	
<i>n</i>	0.26562735	ω	84.34788	−0.94458140	−0.26648121
<i>a</i>	2.3967396	Ω	80.08683	+0.16614990	−0.89175557
<i>e</i>	0.1547104	<i>i</i>	11.22243	+0.28312574	−0.36573183
<i>P</i>	3.71	<i>H</i>	14.8	<i>G</i>	0.15 <i>U</i> 5

Residuals in seconds of arc

1990 11 14	675	0.5+	1.0+	1990 11 22	809	0.1+	0.4−	1999 02 18	704	0.2+	0.4−
1990 11 14	675	0.0	0.5+	1990 11 22	809	0.4+	1.7−	1999 02 18	704	0.4+	0.5−
1990 11 16	809	0.5+	0.9−	1999 02 11	704	0.2−	0.0	1999 02 18	704	0.1+	0.0

1999 APR. 2

M.P.C. 34181

1990 11 17	809	1.4+	0.2-	1999 02 11	704	0.1+	0.9+	1999 02 18	704	0.4+	0.2-
1990 11 21	809	0.9-	0.2+	1999 02 11	704	1.4-	0.6-	1999 02 23	699	0.4-	0.4-
1990 11 21	809	1.7-	0.6+	1999 02 11	704	0.4+	1.4+	1999 02 23	699	0.3-	0.6-
1990 11 21	809	0.1-	1.3+	1999 02 11	704	0.3+	1.7+	1999 02 23	699	0.1-	0.2-
1990 11 22	809	0.1-	0.6-	1999 02 18	704	0.5+	0.9-				

1991 BT = 1998 HH₅₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	145.26958		(2000.0)	P	Q
<i>n</i>	0.29710326	ω	281.59902	-0.66724505	-0.74327550
<i>a</i>	2.2243226	Ω	210.42940	+0.71509757	-0.62114584
<i>e</i>	0.1215367	<i>i</i>	5.46369	+0.20837345	-0.24843384
<i>P</i>	3.32	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1991 01 19	402	1.0+	0.3-	1991 01 23	402	0.2-	1.8-	1998 04 22	704	0.4+	0.6+
1991 01 19	402	1.0+	1.3+	1998 04 21	704	1.0+	1.1+	1998 04 22	704	0.1-	0.1+
1991 01 20	402	(4.1-	3.7+)	1998 04 21	704	0.1+	0.1+	1998 04 22	704	0.6-	0.6-
1991 01 20	402	(3.4-	3.8+)	1998 04 21	704	0.7-	0.6-	1998 04 22	704	0.4-	1.3-
1991 01 20	402	1.8-	0.8+	1998 04 21	704	0.2-	0.4-	1998 04 22	704	0.9-	0.4+
1991 01 23	402	(2.0+	4.1-)	1998 04 21	704	1.5+	0.7+				

1991 GO₄ = 1979 RE = 1988 VF₁₄ = 1999 CW₉₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	186.74264		(2000.0)	P	Q
<i>n</i>	0.22753951	ω	293.87279	+0.77183665	+0.62931836
<i>a</i>	2.6572444	Ω	27.39621	-0.48772216	+0.67752038
<i>e</i>	0.1920982	<i>i</i>	11.36828	-0.40791577	+0.38068956
<i>P</i>	4.33	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1979 09 01	095	0.9+	1.4-	1991 04 11	033	0.2+	0.7+	1999 02 10	704	0.3+	0.5-
1988 11 04	327	0.2+	1.0-	1991 04 11	033	0.2-	0.7+	1999 02 10	704	0.9-	0.2-
1988 11 04	327	1.0+	0.9-	1991 04 12	033	(1.0-	2.2+)	1999 02 10	704	1.7-	0.0
1991 04 08	809	(0.0	2.2-)	1991 04 15	675	1.0-	0.6-	1999 02 10	704	0.2+	1.9+
1991 04 08	809	0.1-	1.9-	1991 04 15	675	1.1-	0.3-	1999 02 13	704	0.5+	0.6+
1991 04 08	809	0.7+	1.8-	1991 04 19	809	1.9+	0.1+	1999 02 13	704	(2.4+	1.4+)
1991 04 10	809	(0.1-	2.1+)	1991 04 19	809	1.2-	0.2+	1999 02 13	704	0.1+	0.0
1991 04 10	809	0.0	1.0+	1991 04 19	809	1.3-	1.5-	1999 02 13	704	1.9+	1.4-
1991 04 10	809	0.4+	0.4+	1991 04 19	675	(0.1+	2.9-)	1999 02 13	704	0.8-	0.9-

1991 GZ₅ = 1993 VG₃ = 1999 EF₁

Id. S. Nakano, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	77.55188		(2000.0)	P	Q
<i>n</i>	0.23423599	ω	143.88968	+0.48466193	-0.87432693
<i>a</i>	2.6063554	Ω	277.10724	+0.79635454	+0.45316738
<i>e</i>	0.1412850	<i>i</i>	1.47816	+0.36183182	+0.17375773
<i>P</i>	4.21	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1991 04 08	809	1.7+	0.1+	1991 04 19	675	(0.4-	2.1+)	1999 03 11	691	0.6-	0.6-
1991 04 08	809	1.4-	1.2+	1991 04 19	675	(2.1+	0.7+)	1999 03 11	691	0.4-	0.4-
1991 04 08	809	(3.5-	0.4+)	1993 11 11	399	0.8-	0.1-	1999 03 11	691	0.2-	0.2-
1991 04 10	809	0.8-	0.3-	1993 11 11	399	0.5+	1.2+	1999 03 16	691	0.1+	1.4+
1991 04 10	809	0.1+	0.6-	1993 11 16	399	0.3+	1.1-	1999 03 16	691	0.7+	0.5+
1991 04 10	809	0.3+	0.7-	1993 11 16	399	0.0	0.1-	1999 03 16	691	1.0+	0.4+
1991 04 19	809	(2.2+	0.5-)	1999 03 06	691	0.2+	0.2-	1999 03 19	691	0.1-	0.2-
1991 04 19	809	(1.8+	2.4-)	1999 03 06	691	0.1-	0.3-	1999 03 19	691	0.3-	0.2-
1991 04 19	809	(1.6-	2.2-)	1999 03 06	691	0.0	0.2-	1999 03 19	691	0.2-	0.1+

1991 GO₆ = 1999 CK₁₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	110.02514		(2000.0)	P	Q
<i>n</i>	0.23226887	ω	191.10977	+0.85507220	-0.51074094
<i>a</i>	2.6210505	Ω	200.37034	+0.49323916	+0.85439290
<i>e</i>	0.1328177	<i>i</i>	14.88493	+0.15989580	+0.09568947
<i>P</i>	4.24	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1991 04 08	809	(2.2-	1.4+)	1991 04 19	809	0.7+	0.6+	1999 02 12	704	1.8-	0.0
1991 04 08	809	1.8-	1.4+	1991 04 19	809	1.8+	0.2-	1999 02 16	704	0.9+	0.4-
1991 04 08	809	0.1-	0.1+	1991 04 19	675	0.3-	1.4+	1999 02 16	704	0.1+	0.3+
1991 04 10	809	0.6-	0.2-	1991 04 19	675	0.7+	1.8-	1999 02 16	704	0.4+	0.7+
1991 04 10	809	0.9-	0.2-	1999 02 12	704	1.0+	0.7-	1999 02 16	704	0.8+	1.4+
1991 04 10	809	0.5+	1.2-	1999 02 12	704	0.2+	0.1+				
1991 04 19	809	(3.0+	0.5+)	1999 02 12	704	1.6-	1.3-				

1991 LF₂ = 1980 FB₈ = 1998 XY₇₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	24.32789		(2000.0)	P	Q
<i>n</i>	0.19671886	ω	230.52114	+0.54076919	-0.84116280
<i>a</i>	2.9280066	Ω	186.74594	+0.78115277	+0.50381981
<i>e</i>	0.0951306	<i>i</i>	1.81402	+0.31204012	+0.19649617
<i>P</i>	5.01	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1980 03 23	809	0.0	0.0	1991 06 08	809	0.5-	1.0-	1998 12 22	704	0.5+	0.5+
1991 06 06	809	0.6+	1.6+	1998 12 15	704	0.4-	0.3+	1998 12 22	704	0.4-	0.3-
1991 06 06	809	0.3+	0.4+	1998 12 15	704	1.4+	1.2+	1998 12 22	704	0.1-	0.4-
1991 06 06	809	0.3+	1.3+	1998 12 15	704	0.1+	0.6-	1998 12 22	704	0.6-	1.4-
1991 06 08	809	0.0	0.6-	1998 12 15	704	0.3+	0.2+				
1991 06 08	809	0.6-	1.7-	1998 12 15	704	0.8-	0.5+				

1991 NV₆ = 1998 XT₆₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	79.89918		(2000.0)	P	Q
<i>n</i>	0.17456596	ω	35.51214	+0.95595488	+0.27937160
<i>a</i>	3.1707574	Ω	308.01443	-0.28871770	+0.83981755
<i>e</i>	0.1399338	<i>i</i>	6.56017	-0.05284273	+0.46546536
<i>P</i>	5.65	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1991 07 12	809	0.1+	0.6-	1991 07 14	809	0.3+	0.5+	1998 12 14	704	1.4-	1.0+
1991 07 12	809	0.1+	0.2-	1991 07 14	809	0.6+	0.4+	1998 12 17	704	0.4+	0.4-
1991 07 12	809	0.3+	0.1-	1991 07 14	809	0.9+	0.5+	1998 12 17	704	1.2+	1.9+
1991 07 13	809	0.9-	0.3-	1998 12 14	704	1.4+	0.9-	1998 12 17	704	0.4-	0.1-
1991 07 13	809	0.9-	0.2-	1998 12 14	704	1.4-	0.2-	1998 12 23	557	0.7-	1.0-
1991 07 13	809	0.6-	0.0	1998 12 14	704	1.4+	0.3+	1998 12 23	557	0.6-	0.6-

1991 PV₅ = 1998 SQ₂₅

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	62.20606		(2000.0)	P	Q
<i>n</i>	0.28968966	ω	196.80194	+0.86586658	+0.49752704
<i>a</i>	2.2621117	Ω	133.24231	-0.45033206	+0.82073257
<i>e</i>	0.2230402	<i>i</i>	4.12208	-0.21789011	+0.28082895
<i>P</i>	3.40	<i>H</i>	16.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1991 08 06	809	0.3+	0.3-	1991 09 06	809	1.5-	0.8+	1998 09 26	704	0.5+	0.4-
1991 08 06	809	0.5+	0.5-	1991 09 07	809	3.3+	0.8+	1998 09 26	704	0.0	0.3+
1991 08 06	809	1.1-	0.6-	1991 09 07	809	0.8+	0.5+	1998 09 26	704	0.1-	1.2-
1991 08 14	809	1.1+	0.5+	1991 09 07	809	0.2+	1.0-	1998 09 26	704	0.7+	1.3-
1991 08 14	809	0.5+	0.5+	1998 09 22	699	1.5+	1.0+	1998 09 27	704	1.1-	0.7-

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1991 08 14	809	0.6−	0.3+	1998 09 22	699	0.1−	0.1−	1998 09 27	704	0.3+	0.6+
1991 09 04	809	0.7−	0.1+	1998 09 22	699	0.3−	1.2+	1998 09 27	704	1.3−	0.1+
1991 09 04	809	0.5−	0.1−	1998 09 24	699	0.4−	0.5−	1998 09 27	704	0.3+	0.4+
1991 09 04	809	2.5−	2.6−	1998 09 24	699	0.8−	0.5+	1998 09 27	704	1.8+	0.3+
1991 09 06	809	0.3+	1.0+	1998 09 24	699	1.2−	0.2−				
1991 09 06	809	0.1−	0.7+	1998 09 26	704	0.3+	0.3−				

1991 PV₉ = 1987 QV₉ = 1999 DO₆

Id. G. V. Williams, T. B. Spahr

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	301.63347		(2000.0)	P	Q		
<i>n</i>	0.23585810	ω	107.06588	+0.12457197	+0.99126978		
<i>a</i>	2.5943915	Ω	169.79508	−0.97757654	+0.13006809		
<i>e</i>	0.1784599	<i>i</i>	14.11221	−0.16978204	−0.02159879		
<i>P</i>	4.18	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1987 08 26	095	0.5+	2.8−	1991 09 08	675	0.8+	1.3+	1999 02 20	704	1.6−	1.6+
1991 08 13	675	1.5−	1.2−	1991 09 09	675	0.2+	0.3+	1999 02 23	704	2.3+	0.9−
1991 08 13	675	0.0	0.3+	1991 09 09	675	0.8+	0.9+	1999 02 23	704	0.8−	0.3−
1991 08 16	675	0.5−	0.5−	1999 02 20	704	0.9+	1.7−	1999 02 23	704	0.7+	1.7+
1991 08 16	675	0.1−	0.0	1999 02 20	704	0.2−	2.3−	1999 02 23	704	1.8−	1.1+
1991 09 08	675	0.5+	2.1+	1999 02 20	704	0.4+	0.4−				

1991 RH₂ = 1999 CN₄₁

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	116.54812		(2000.0)	P	Q		
<i>n</i>	0.18620439	ω	22.63933	+0.95243096	−0.30432209		
<i>a</i>	3.0372190	Ω	354.99358	+0.24331277	+0.79139500		
<i>e</i>	0.0840363	<i>i</i>	10.71667	+0.18350522	+0.53017168		
<i>P</i>	5.29	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 08 08	675	0.1−	0.3+	1991 09 15	675	0.2+	1.5−	1999 02 13	699	0.8+	0.9+
1991 08 08	675	0.4+	1.0−	1991 09 15	675	1.5+	0.4+	1999 02 13	699	0.4+	1.3+
1991 09 07	372	1.1−	1.5+	1991 09 17	675	0.4+	0.2−	1999 02 13	704	1.1−	0.5−
1991 09 07	372	1.3−	1.9+	1991 09 17	675	(2.0+	0.2−)	1999 02 13	699	0.7+	0.4+
1991 09 09	372	(2.6−	1.3+)	1999 02 10	704	0.4+	0.7−	1999 02 13	704	0.0	0.6+
1991 09 09	372	(2.8−	0.8+)	1999 02 10	704	0.6−	0.5−	1999 02 13	704	1.3+	1.4−
1991 09 11	675	0.2+	0.4−	1999 02 10	704	0.6−	0.3+	1999 02 13	704	0.2−	0.1+
1991 09 11	675	0.2−	1.0−	1999 02 10	704	0.2−	0.0	1999 02 13	704	0.9−	0.6−

1991 RQ₂ = 1977 UZ₂ = 1998 SU₅₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	13.05957		(2000.0)	P	Q		
<i>n</i>	0.28014505	ω	186.36629	+0.86729691	−0.49637374		
<i>a</i>	2.3132048	Ω	203.51027	+0.46076478	+0.82904020		
<i>e</i>	0.2296890	<i>i</i>	5.39971	+0.18839293	+0.25749845		
<i>P</i>	3.52	<i>H</i>	16.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1977 10 18	675	0.6−	0.2+	1991 09 13	675	1.7−	0.1−	1998 09 16	699	0.6−	0.1+
1977 10 19	675	0.3+	0.6+	1991 09 13	033	1.1+	0.5−	1998 09 16	699	0.0	0.2−
1991 09 09	033	(2.6−	0.2+)	1991 09 14	033	(2.2+	1.0+)	1998 09 25	699	0.1+	0.0
1991 09 10	033	0.5+	0.8+	1991 10 07	033	0.5+	1.4−	1998 09 25	699	0.5+	0.8+
1991 09 12	033	(1.9−	2.8+)	1991 10 07	033	0.6+	0.6−	1998 09 25	699	0.4−	0.2+
1991 09 12	033	0.3+	0.3−	1991 10 08	033	0.6−	0.1+				
1991 09 13	675	(1.4−	2.1−)	1998 09 16	699	0.2+	0.4+				

1991 RA₁₁ = 1980 XN₁ = 1999 CZ₁₂₃

Id. G. V. Williams, T. B. Spahr

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Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	8.44297		(2000.0)	P	Q		
<i>n</i>	0.17299362	ω	104.08837	−0.54647945	−0.83132160		
<i>a</i>	3.1899410	Ω	20.05904	+0.60804034	−0.47704244		
<i>e</i>	0.1218998	<i>i</i>	17.18076	+0.57588814	−0.28519276		
<i>P</i>	5.70	<i>H</i>	12.2	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1980 12 10	095	0.8−	1.1+	1991 09 16	675	0.3−	1.2−	1999 02 11	704	0.0	1.7+
1991 09 10	675	1.7−	0.9+	1991 09 16	675	0.4−	0.2−	1999 02 11	704	0.6−	0.4−
1991 09 10	675	1.9−	0.3+	1991 10 08	675	1.4+	1.8−	1999 02 18	704	0.8−	0.1−
1991 09 11	675	0.8+	0.4+	1991 10 08	675	1.0+	1.8−	1999 02 18	704	0.6−	0.1+
1991 09 11	675	0.7+	0.9+	1999 02 11	704	0.7+	0.1+	1999 02 18	704	0.4+	1.1−
1991 09 13	675	0.5+	1.4+	1999 02 11	704	0.1+	0.2+	1999 02 18	704	0.5+	0.9−
1991 09 13	675	0.8+	0.0	1999 02 11	704	0.2+	0.1−	1999 02 18	704	0.2−	0.1−

1991 SM = 1999 CQ₂₈

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	150.34745		(2000.0)	P	Q		
<i>n</i>	0.18875514	ω	218.64720	+0.93763424	+0.30660903		
<i>a</i>	3.0097946	Ω	122.73905	−0.25040247	+0.92257123		
<i>e</i>	0.1160656	<i>i</i>	11.22978	−0.24112368	+0.23420766		
<i>P</i>	5.22	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1991 09 15	675	0.4+	0.5+	1997 11 30	566	0.1−	0.8+	1999 02 10	704	0.0	0.2+
1991 09 15	675	0.3+	0.4+	1997 12 29	566	0.3+	0.8−	1999 02 10	704	0.8+	0.6−
1991 09 30	413	0.3−	0.3−	1997 12 29	566	0.1+	0.9−	1999 02 10	704	0.5−	0.1+
1991 10 01	413	0.4+	0.1−	1997 12 29	566	0.1+	0.9−	1999 02 13	704	0.5−	0.6−
1991 10 09	413	0.3−	0.3−	1998 12 26	910	0.5+	0.7+	1999 02 13	704	0.2−	0.7−
1991 10 09	413	0.7−	0.2−	1998 12 26	910	0.6+	0.6+	1999 02 13	704	1.0−	0.4−
1991 10 12	413	0.1+	0.1+	1998 12 26	910	0.5+	0.9+	1999 02 13	704	0.4−	0.1−
1997 11 30	566	0.2−	0.6+	1999 02 10	704	0.3+	0.6+	1999 02 13	704	1.1−	0.2−
1997 11 30	566	0.1−	0.6+	1999 02 10	704	1.4+	0.2+				

1991 TF₁ = 1999 CU₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	63.70398		(2000.0)	P	Q		
<i>n</i>	0.17338389	ω	274.86864	+0.06873281	−0.99643814		
<i>a</i>	3.1851525	Ω	170.75466	+0.99260004	+0.06339001		
<i>e</i>	0.1285317	<i>i</i>	17.70321	+0.10010477	+0.05561241		
<i>P</i>	5.68	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 10 12	413	0.1−	0.6−	1999 02 12	120	0.7+	0.6−	1999 02 20	699	0.8+	1.1+
1991 10 13	413	0.4−	0.0	1999 02 12	120	1.1−	0.1+	1999 02 20	699	0.5+	1.6+
1991 10 15	413	0.8+	0.1+	1999 02 12	120	1.3+	0.1+	1999 02 20	699	1.2+	0.9+
1991 10 18	413	0.3−	0.5+	1999 02 12	120	0.1−	0.3+	1999 03 10	691	0.3−	0.3−
1999 02 10	691	(0.9−	2.5−)	1999 02 13	120	(3.1−	0.7−)	1999 03 10	691	0.5−	0.5−
1999 02 10	691	(0.8−	3.7−)	1999 02 16	120	0.8−	0.1−	1999 03 10	691	0.2−	0.3−
1999 02 10	691	0.8−	1.6−	1999 02 16	120	0.7−	0.8−				

1991 VB

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	59.21482		(2000.0)	P	Q		
<i>n</i>	0.29449129	ω	134.55373	+0.85226752	−0.51170561		
<i>a</i>	2.2374555	Ω	256.50891	+0.44269091	+0.81615065		
<i>e</i>	0.4115547	<i>i</i>	6.41322	+0.27868410	+0.26843153		
<i>P</i>	3.35	<i>H</i>	17.0	<i>G</i>	0.15	<i>U</i>	2

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M.P.C. 34183

Residuals in seconds of arc

1991 09 15	675	1.1+	0.5+	1991 11 06	675	0.2-	0.6+	1992 02 02	688	0.6+	0.4+
1991 09 16	675	1.0-	0.1+	1991 11 10	675	0.1+	0.8-	1992 02 02	688	0.3+	0.8+
1991 11 01	675	1.0-	0.9-	1991 11 10	675	0.3+	0.4+	1992 02 05	688	0.6-	1.1+
1991 11 01	675	(0.4+	3.0+)	1991 12 02	675	0.3+	0.7-	1992 02 05	688	0.7+	1.4+
1991 11 02	675	(2.2-	4.9+)	1991 12 03	675	(0.8-	3.5+)	1999 02 06	568	0.3-	0.0
1991 11 02	675	(0.4+	3.8+)	1991 12 07	675	0.0	0.6+	1999 02 06	568	1.1-	0.1+
1991 11 02	675	(0.7-	4.7+)	1991 12 07	675	0.1-	1.4-	1999 02 07	568	0.1+	0.6-
1991 11 03	675	(0.0	2.7+)	1992 01 13	413	0.3-	0.4+	1999 02 07	568	1.0+	1.4-
1991 11 05	675	(0.2-	3.1+)	1992 01 13	413	0.2-	0.3-	1999 02 08	568	0.3-	0.1-
1991 11 05	675	0.8+	0.4+	1992 01 13	413	0.1-	0.4+	1999 02 08	568	0.0	0.4+

1992 BC₁ = 1999 CC₁

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	7.52813	(2000.0)	P	Q	
<i>n</i>	0.26889264	ω 273.14400	+0.60340066	-0.75003227	
<i>a</i>	2.3772970	Ω 135.70958	+0.79360952	+0.59804788	
<i>e</i>	0.3343221	<i>i</i> 22.82213	-0.07804856	+0.28247181	
<i>P</i>	3.67	<i>H</i> 14.1	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1992 01 28	691	0.4-	0.1-	1992 02 02	809	(2.4-	3.5-)	1999 02 06	557	0.6+	0.6+
1992 01 28	691	0.4-	0.1+	1992 02 02	675	(0.2+	2.8-)	1999 02 06	557	0.1+	0.2+
1992 01 28	691	0.2-	0.2+	1992 02 02	675	0.3+	0.0	1999 02 07	587	0.3+	0.3+
1992 01 28	691	0.5+	0.5+	1992 02 07	809	1.0-	1.3+	1999 02 07	587	0.5-	1.6-
1992 01 28	691	0.7+	0.0	1992 02 07	809	1.1-	0.7+	1999 02 07	587	1.2+	0.6+
1992 01 28	691	0.6+	0.1+	1992 02 07	809	1.0-	0.6-	1999 02 08	732	(3.7-	3.5-)
1992 01 30	809	1.4+	1.5+	1992 02 12	809	0.4+	0.1-	1999 02 08	732	(2.6+	2.1+)
1992 01 30	675	0.1+	0.4-	1992 02 12	809	0.5+	0.4+	1999 02 08	732	(3.5-	3.1-)
1992 01 30	675	0.4-	0.4-	1992 02 12	809	0.4-	0.3-	1999 02 09	732	0.7-	0.4-
1992 01 31	675	0.7+	1.9-	1999 02 01	699	0.3-	0.3-	1999 02 09	732	0.0	0.7+
1992 01 31	675	0.3-	0.9-	1999 02 01	699	0.1-	0.5+	1999 02 09	732	0.4-	0.2-
1992 02 02	809	(1.3-	3.2-)	1999 02 01	699	0.2+	0.0	1999 02 09	732	0.2-	0.6-
1992 02 02	809	(1.3-	3.5-)	1999 02 06	557	0.2-	0.2+				

1992 CK₃ = 1999 FC₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	63.07426	(2000.0)	P	Q	
<i>n</i>	0.29034724	ω 204.18144	+0.29039920	-0.95628323	
<i>a</i>	2.2586949	Ω 228.95607	+0.88523014	+0.28216585	
<i>e</i>	0.1173096	<i>i</i> 2.62230	+0.36336744	+0.07684279	
<i>P</i>	3.39	<i>H</i> 15.2	<i>G</i> 0.15	<i>U</i> 6	

Residuals in seconds of arc

1992 01 30	809	(4.5+	3.7+)	1992 02 07	809	0.1+	0.6-	1999 03 24	557	0.3-	0.0
1992 02 02	809	1.2+	0.2-	1992 02 12	809	0.4+	0.2-	1999 03 25	557	0.1+	0.2-
1992 02 02	809	0.8-	0.6-	1992 02 12	809	0.1-	0.1-	1999 03 25	557	0.2+	0.4-
1992 02 02	809	0.0	0.3-	1992 02 12	809	0.0	0.0	1999 03 27	557	0.1-	0.1-
1992 02 07	809	0.0	1.5+	1999 03 24	557	0.1-	0.3+	1999 03 27	557	0.1+	0.1+
1992 02 07	809	0.7-	0.5+	1999 03 24	557	0.1-	0.1+	1999 03 27	557	0.3+	0.2+

1992 CQ₃ = 1999 CC₈₁

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	281.03768	(2000.0)	P	Q	
<i>n</i>	0.29059438	ω 336.14528	-0.52291309	+0.84954418	
<i>a</i>	2.2574141	Ω 262.26041	-0.77032461	-0.50592441	
<i>e</i>	0.1081245	<i>i</i> 4.02461	-0.36491355	-0.14938265	
<i>P</i>	3.39	<i>H</i> 14.8	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1992 01 30	809	1.5+	1.7+	1999 02 12	704	0.5+	2.0-	1999 03 19	704	1.4+	1.0+
1992 02 02	809	0.5+	0.9-	1999 02 16	704	0.7-	0.2+	1999 03 19	704	1.0+	0.3-
1992 02 02	809	0.2-	0.3-	1999 02 16	704	0.9-	0.4-	1999 03 19	704	0.2-	0.0

1992 02 02	809	0.7+	0.2-	1999 02 16	704	0.9-	0.1-	1999 03 20	704	0.1-	0.3-
1992 02 12	809	0.0	0.8+	1999 02 16	704	1.0-	0.2-	1999 03 20	704	0.7-	0.4+
1992 02 12	809	0.5-	0.1+	1999 02 16	704	1.5-	0.5+	1999 03 20	704	0.5-	0.5+
1992 02 12	809	1.7-	0.0	1999 02 21	699	1.1+	0.2+	1999 03 20	704	0.3+	0.1+
1999 02 12	704	0.3-	0.5-	1999 02 21	699	0.3+	0.5+	1999 03 20	704	0.5+	0.9+
1999 02 12	704	0.2-	0.1-	1999 02 21	699	1.6+	0.2-				
1999 02 12	704	0.1-	1.3-	1999 03 19	704	0.0	0.1-				

1992 DC₁

Id. E. Bowell (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	17.52830	(2000.0)	P	Q	
<i>n</i>	0.28562138	ω 27.49290	-0.78851892	-0.60629417	
<i>a</i>	2.2835415	Ω 114.80814	+0.54133133	-0.76383790	
<i>e</i>	0.1200899	<i>i</i> 6.52665	+0.29188750	-0.22126690	
<i>P</i>	3.45	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1992 02 26	399	0.4+	0.7+	1992 03 02	399	0.3-	0.7-	1999 03 20	699	0.0	0.4-
1992 02 26	399	0.3+	0.7-	1992 03 26	399	0.2-	1.5+	1999 03 23	699	0.1+	0.7+
1992 02 28	675	0.7-	0.1+	1992 03 26	399	0.2+	1.5-	1999 03 23	699	0.0	0.2-
1992 02 28	675	0.3+	0.7+	1999 03 20	699	0.1-	0.0	1999 03 23	699	0.1+	0.0
1992 03 02	399	(2.0-	2.6+)	1999 03 20	699	0.1-	0.1-				

1992 DA₁₂ = 1979 OQ₂ = 1999 BM₁₃

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	355.45669	(2000.0)	P	Q	
<i>n</i>	0.28443671	ω 326.94284	-0.93998389	-0.34121583	
<i>a</i>	2.2898777	Ω 193.10642	+0.31441391	-0.86450714	
<i>e</i>	0.1059261	<i>i</i> 0.36115	+0.13256764	-0.36905170	
<i>P</i>	3.47	<i>H</i> 15.3	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1979 07 24	675	0.0	1.4-	1999 01 25	120	0.3-	0.6-	1999 02 12	120	0.1-	0.6-
1979 07 24	413	0.2+	0.2+	1999 01 26	120	0.1-	0.1-	1999 02 12	120	0.1-	0.9-
1992 02 25	675	0.1+	0.8-	1999 01 26	120	1.0+	0.2-	1999 02 13	120	0.6+	0.1-
1992 02 25	675	0.6+	1.1-	1999 01 28	120	0.8+	0.1+	1999 02 13	120	0.2+	0.2+
1992 02 29	691	0.4+	0.3+	1999 01 28	120	1.3-	0.7+	1999 02 13	120	0.0	0.2+
1992 02 29	691	0.1+	0.4-	1999 02 12	120	1.8-	0.2-	1999 02 13	120	1.8-	0.2-
1992 02 29	691	0.1-	0.7-	1999 02 12	120	1.0-	0.5-	1999 02 13	120	0.5+	0.7-
1992 03 06	691	0.6-	0.2+	1999 02 12	120	0.4+	0.2+	1999 02 13	120	1.0-	0.7+
1992 03 06	691	0.4-	0.5+	1999 02 12	422	0.1-	0.2-	1999 02 20	699	0.8+	0.9+
1992 03 07	809	0.1+	0.6+	1999 02 12	422	0.1+	0.1-	1999 02 20	699	1.7+	1.2+
1992 04 06	809	0.9-	0.0	1999 02 12	422	0.2+	0.1-	1999 03 24	691	0.4+	0.2+
1999 01 25	120	0.8-	0.2-	1999 02 12	422	0.0	0.0	1999 03 24	691	0.7+	0.8+
1999 01 25	120	0.3+	0.1+	1999 02 12	120	0.3+	0.0	1999 03 24	691	0.6+	0.4+

1992 DP₁₃ = 1994 PF₂₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Nakano			
<i>M</i>	182.48841	(2000.0)	P	Q	
<i>n</i>	0.21186193	ω 356.75307	-0.74227826	-0.66172088	
<i>a</i>	2.7867677	Ω 141.12947	+0.61852561	-0.73721342	
<i>e</i>	0.1250784	<i>i</i> 9.68598	+0.25777714	-0.13653517	
<i>P</i>	4.65	<i>H</i> 14.7	<i>G</i> 0.15	<i>U</i> 7	

Residuals in seconds of arc

1992 02 27	033	0.0	0.6-	1994 08 12	809	0.7+	0.0	1994 08 13	809	0.4+	1.4+
1992 02 27	033	0.9+	0.3+	1994 08 12	809	0.7-	1.2-	1994 08 13	809	1.1+	0.3+
1992 02 28	033	0.9-	0.3+	1994 08 12	809	1.0-	0.9+	1994 08 13	809	0.5-	1.3-

1992 DY₁₃ = 1930 MP = 1996 FH₁₇ = 1998 YV₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	275.83195		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.26777760	ω	215.69236	-0.92394082	+0.38240904
<i>a</i>	2.3838919	Ω	346.77997	-0.34023555	-0.83325119
<i>e</i>	0.1900783	<i>i</i>	2.46426	-0.17485174	-0.39931914
<i>P</i>	3.68	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1930 06 24	690 (64.2- 75.5+)	X	1996 03 26	809	0.2+	0.1-	1998 12 17	704	0.5-	0.2-
1992 02 29	033 0.1+	0.1+	1996 03 26	809	1.0-	0.4-	1998 12 17	704	1.9+	0.6-
1992 02 29	033 0.3+	0.5+	1996 03 26	809	1.1-	1.0-	1998 12 17	704	0.3-	1.2-
1992 03 01	033 0.2-	0.1-	1998 12 16	704	0.2-	0.3+	1998 12 17	704	0.1+	0.7-
1996 03 22	809 1.0+	0.2+	1998 12 16	704	1.5-	0.7+	1998 12 17	704	0.0	0.3-
1996 03 22	809 0.4+	0.3+	1998 12 16	704	0.3-	0.9+				
1996 03 22	809 0.4+	0.4+	1998 12 16	704	0.6+	0.5+				

1992 EO₄ = 1999 CW₅₇

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	112.69033		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.28405328	ω	276.74535	+0.82711612	-0.55494539
<i>a</i>	2.2919379	Ω	116.99763	+0.54700629	+0.75850046
<i>e</i>	0.0477311	<i>i</i>	5.73020	+0.12908543	+0.34163234
<i>P</i>	3.47	<i>H</i>	14.5	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1992 02 26	691 0.9+	0.4-	1999 02 10	704	1.4-	0.6-	1999 03 19	704	(1.7+	2.3-)
1992 02 26	691 0.7+	0.1-	1999 02 13	704	1.0+	0.4-	1999 03 19	704	0.4+	0.1+
1992 02 26	691 0.3+	0.5-	1999 02 13	704	0.3-	0.3-	1999 03 19	704	0.5-	0.2-
1992 03 01	809 (0.6-	2.6+)	1999 02 13	704	0.7+	0.1-	1999 03 19	704	0.5+	0.2+
1992 03 04	809 1.4-	1.0+	1999 02 13	704	0.2+	0.8+	1999 03 20	704	0.0	0.1+
1992 03 06	809 0.3-	0.8+	1999 02 13	704	(2.2-	0.1+)	1999 03 20	704	0.2-	1.0+
1999 02 10	704 0.4+	1.4-	1999 02 18	699	1.2+	0.6+	1999 03 20	704	0.7-	0.4-
1999 02 10	704 0.5-	0.1-	1999 02 18	699	0.3+	0.1+	1999 03 20	704	0.6-	0.9-
1999 02 10	704 1.2-	0.4+	1999 02 18	699	1.1+	0.0	1999 03 20	704	0.8-	0.3+

1992 EV₅ = 1986 QX = 1999 FW₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	289.81769		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.28286626	ω	101.37078	-0.63026018	+0.77084101
<i>a</i>	2.2983453	Ω	129.15721	-0.75074560	-0.57469571
<i>e</i>	0.0865791	<i>i</i>	6.85921	-0.19787156	-0.27482535
<i>P</i>	3.48	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1986 08 26	809 0.4-	0.2-	1992 03 02	809	0.5-	0.9-	1999 03 19	704	0.1-	1.1-
1986 08 26	809 0.1+	0.0	1992 03 05	809	0.3-	0.4+	1999 03 20	704	0.8+	0.2+
1986 08 26	809 0.4+	0.0	1992 03 07	809	0.8+	0.5+	1999 03 20	704	0.8+	1.1+
1986 08 28	809 (6.8-	18.9+)	1999 03 19	704	0.0	0.6+	1999 03 20	704	0.3+	0.3-
1986 08 28	809 (6.6-	19.0+)	1999 03 19	704	0.7-	0.4-	1999 03 20	704	0.0	0.6+
1986 08 28	809 (6.4-	18.9+)	1999 03 19	704	1.5-	0.4-	1999 03 20	704	0.3+	0.3-

1992 EE₆ = 1999 CB₃₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	10.44470		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.27887542	ω	1.44551	-0.63662317	-0.76495423
<i>a</i>	2.3202203	Ω	128.10639	+0.70628681	-0.62924777
<i>e</i>	0.0451639	<i>i</i>	7.13645	+0.30962861	-0.13744916
<i>P</i>	3.53	<i>H</i>	15.1	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1992 03 01	809 0.1-	0.8-	1999 02 10	704	1.1-	0.3+	1999 02 13	704	0.2+	0.1+
1992 03 02	809 0.2+	0.2+	1999 02 10	704	1.2-	0.3-	1999 02 13	704	0.9-	0.9-
1992 03 05	809 0.5-	0.7+	1999 02 10	704	0.3-	0.3-	1999 02 13	704	0.4-	0.0
1992 03 07	809 0.5+	0.2-	1999 02 10	704	0.8-	0.0	1999 02 13	704	0.2-	0.5+
1999 01 22	699 0.7+	0.5+	1999 02 12	699	0.6+	0.6-	1999 02 23	699	0.7+	0.0
1999 01 22	699 0.1+	0.2-	1999 02 12	699	1.2+	0.6-	1999 02 23	699	0.5+	0.4+
1999 01 22	699 0.0	0.2+	1999 02 12	699	0.1+	0.7+	1999 02 23	699	0.8+	0.1+
1999 02 10	704 0.0	0.1+	1999 02 13	704	0.1+	0.1+				

1992 EK₁₁ = 1998 XT₈₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	331.29053		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.26462110	ω	325.71848	-0.60735941	-0.79391331
<i>a</i>	2.4028117	Ω	161.62764	+0.74767421	-0.58340073
<i>e</i>	0.1420475	<i>i</i>	5.20047	+0.26851037	-0.17130452
<i>P</i>	3.72	<i>H</i>	15.5	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1992 03 06	809 0.3-	1.0+	1998 12 15	704	0.5-	0.5-	1998 12 22	704	0.6-	1.3+
1992 03 08	809 0.5+	0.4-	1998 12 15	704	0.4+	0.4+	1998 12 22	704	0.0	1.2-
1992 03 09	809 0.1-	0.1-	1998 12 15	704	0.7+	1.2+	1998 12 22	704	0.3+	1.0-
1992 04 06	809 0.0	0.5-	1998 12 15	704	0.6-	1.3+	1998 12 22	704	0.4+	1.6-

1992 EW₁₅ = 1998 HN₆₄

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	127.93584		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.17907905	ω	280.25532	-0.52970607	-0.84809374
<i>a</i>	3.1172588	Ω	201.74361	+0.79049946	-0.48842415
<i>e</i>	0.0827387	<i>i</i>	1.88499	+0.30744443	-0.20537492
<i>P</i>	5.50	<i>H</i>	13.6	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1992 03 01	809 0.0	0.5+	1998 03 31	910	0.2+	0.1-	1998 04 21	704	0.5-	0.5+
1992 03 03	809 0.7-	0.3-	1998 04 21	704	0.1-	0.3+	1998 04 22	704	0.5-	0.2-
1992 03 06	809 0.7+	0.2-	1998 04 21	704	0.0	0.6-	1998 04 22	704	0.8-	0.3+
1998 03 30	910 0.1+	0.0	1998 04 21	704	1.1+	0.3-	1998 04 22	704	0.2+	0.1-
1998 03 31	910 0.2-	0.1+	1998 04 21	704	1.7+	0.4-	1998 04 22	704	1.1-	0.5+

1992 ER₂₅ = 1995 YK₂

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	263.44461		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.19088786	ω	300.32258	+0.98878078	-0.14273547
<i>a</i>	2.9873344	Ω	67.91419	+0.14809613	+0.89827719
<i>e</i>	0.1806491	<i>i</i>	2.72389	+0.01949634	+0.41560158
<i>P</i>	5.16	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1992 02 29	809 0.6-	1.3+	1995 12 24	817	0.2+	0.7-	1995 12 26	817	0.3-	0.0
1992 02 29	691 0.1+	0.5-	1995 12 25	817	0.2+	0.1-	1995 12 29	817	0.1-	0.0
1992 02 29	691 0.0	0.6+	1995 12 25	817	0.2+	0.2-	1995 12 29	817	0.1-	0.2+
1992 02 29	691 0.1-	0.7-	1995 12 25	817	0.0	0.3-	1995 12 29	817	0.1-	0.0
1992 03 03	809 1.2+	0.1-	1995 12 25	817	0.2+	0.0	1995 12 29	817	0.2-	0.8+
1992 03 08	809 0.6-	0.6-	1995 12 25	817	0.6+	0.2+				
1992 03 09	809 (4.0-	1.0+)	1995 12 26	817	0.6-	0.1+				

1992 HF₄ = 1999 CF₁₁₅

Id. A. Doppler

1999 APR. 2

M.P.C. 34185

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	235.57073		(2000.0)	P	Q
<i>n</i>	0.26324874	ω	84.33806	+0.36614790	+0.92778336
<i>a</i>	2.4111553	Ω	207.48479	-0.90344739	+0.33593607
<i>e</i>	0.2544981	<i>i</i>	8.94885	-0.22297652	+0.16237300
<i>P</i>	3.74	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1992 04 04	809	0.1+	0.8+	1992 04 23	809	1.5-	0.4+	1999 02 12	704	(3.3-	1.1+)
1992 04 04	809	0.1-	0.1+	1992 04 25	809	0.5+	0.0	1999 02 14	699	0.1+	0.3+
1992 04 04	809	0.5-	0.7-	1992 04 25	809	1.2+	0.4-	1999 02 14	699	0.7+	0.7-
1992 04 06	809	0.5+	0.1+	1992 04 25	809	0.1+	0.2+	1999 02 14	699	0.7-	0.1+
1992 04 06	809	0.4+	0.0	1999 02 12	704	1.0-	0.3-	1999 02 16	704	0.5+	1.3+
1992 04 06	809	0.1+	0.4-	1999 02 12	704	0.5-	1.1-	1999 02 16	704	0.5+	1.0+
1992 04 23	809	1.0+	0.6-	1999 02 12	704	0.6+	0.3+	1999 02 16	704	(0.5+	3.0+)
1992 04 23	809	1.7-	0.5+	1999 02 12	704	0.4+	1.5-	1999 02 16	704	0.6-	0.5+

1992 HH₅

Id. E. Bowell (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	286.84735		(2000.0)	P	Q
<i>n</i>	0.27826698	ω	278.99095	-0.09874288	+0.99500764
<i>a</i>	2.3236012	Ω	345.31872	-0.88908372	-0.09474785
<i>e</i>	0.2115494	<i>i</i>	3.27506	-0.44696753	-0.03134712
<i>P</i>	3.54	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1992 04 05	675	0.4+	0.6+	1992 05 01	809	1.1+	0.3+	1999 03 22	699	0.4+	0.4-
1992 04 05	675	0.6-	0.2-	1992 05 01	809	1.0+	0.5+	1999 03 22	699	0.1-	0.5-
1992 04 24	809	0.2-	0.3-	1992 05 01	809	0.8+	0.8+	1999 03 24	699	0.0	0.2-
1992 04 24	809	0.0	0.3-	1992 05 01	809	1.0-	0.2+	1999 03 24	699	0.0	0.5+
1992 04 24	809	0.6-	0.0	1992 05 02	809	0.9-	0.1+	1999 03 24	699	0.1-	0.4-
1992 04 25	809	0.8+	0.8-	1992 05 02	809	0.8-	0.3-				
1992 04 25	809	0.2+	0.5-	1999 03 22	699	0.3-	1.0+				

1992 KA = 1999 CP₆₅

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	104.70933		(2000.0)	P	Q
<i>n</i>	0.25116505	ω	176.03697	+0.92325272	-0.38212698
<i>a</i>	2.4878827	Ω	206.53839	+0.34999673	+0.87926786
<i>e</i>	0.0862748	<i>i</i>	5.10954	+0.15845094	+0.28437125
<i>P</i>	3.92	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1992 05 24	372	0.0	1.4+	1996 05 22	566	0.4-	0.0	1999 02 12	704	0.3+	0.1+
1992 05 24	372	0.8-	1.7-	1997 11 29	566	0.6+	0.8-	1999 02 12	704	0.3-	0.3+
1992 05 25	372	0.9-	0.9+	1997 11 29	566	0.0	0.7-	1999 02 16	704	0.1-	0.4+
1992 05 25	372	(0.5-	2.2+)	1997 11 29	566	0.2+	0.6-	1999 02 16	704	0.5+	0.1+
1992 05 28	372	0.7+	0.9-	1997 12 25	566	0.2-	0.5+	1999 02 16	704	0.8+	0.1-
1992 05 28	372	0.4-	1.0-	1997 12 25	566	0.0	0.5-	1999 02 16	704	0.6+	0.9-
1992 06 03	372	(3.8+	1.8-)	1997 12 25	566	0.0	0.1+	1999 02 16	704	(0.2+	3.8-)
1992 06 03	372	1.1+	0.2-	1999 02 12	704	0.6-	0.3-	1999 02 18	566	0.3-	0.2-
1996 05 22	566	0.3+	0.0	1999 02 12	704	0.3-	0.0	1999 02 18	566	0.0	0.4-
1996 05 22	566	0.1+	0.0	1999 02 12	704	0.3-	0.5+	1999 02 18	566	0.4-	0.5-

1992 OL₃ = 1998 RS₂₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	41.87262		(2000.0)	P	Q
<i>n</i>	0.17039139	ω	165.85910	+0.75649211	+0.65378736
<i>a</i>	3.2223370	Ω	153.29011	-0.60360673	+0.70784847
<i>e</i>	0.1456254	<i>i</i>	2.14026	-0.25175105	+0.26741846
<i>P</i>	5.78	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1992 07 26	809	0.2+	0.2-	1992 07 30	809	0.3-	0.2+	1998 09 14	704	1.0-	1.2+
1992 07 26	809	0.5-	0.5-	1992 07 30	809	0.3-	0.2+	1998 09 14	704	0.6+	0.7+
1992 07 26	809	0.5-	0.3-	1992 07 30	809	0.5-	0.2+	1998 09 14	704	1.2-	0.5+
1992 07 26	809	1.0+	0.1+	1992 07 30	809	0.9-	0.1-	1998 09 18	704	0.3+	0.6-
1992 07 26	809	0.4+	0.5+	1992 07 30	809	0.1-	0.1+	1998 09 18	704	1.7+	1.4-
1992 07 26	809	1.0+	0.2+	1998 09 14	704	0.3-	0.6-	1998 09 18	704	0.6+	1.4-
1992 07 30	809	0.6+	0.5-	1998 09 14	704	0.5-	0.2+	1998 09 18	704	0.4-	1.5+

1992 OV₅ = 1999 CM₁₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	140.94495		(2000.0)	P	Q
<i>n</i>	0.21822029	ω	197.50169	+0.96591024	+0.23765456
<i>a</i>	2.7323687	Ω	148.18184	-0.20806817	+0.94862375
<i>e</i>	0.2692217	<i>i</i>	11.22750	-0.15402939	+0.20888585
<i>P</i>	4.52	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1992 07 26	809	0.6+	1.0-	1992 07 31	809	0.3-	0.3-	1999 02 12	704	0.2+	1.2-
1992 07 26	809	0.7-	1.2+	1999 02 12	699	0.9+	0.2-	1999 02 12	704	0.3+	1.7-
1992 07 30	809	0.5+	0.1+	1999 02 12	699	0.4+	0.4+	1999 02 13	704	0.2-	0.8+
1992 07 30	809	0.5-	0.4+	1999 02 12	699	0.5+	0.3+	1999 02 13	704	0.7-	0.2-
1992 07 30	809	0.7-	0.5-	1999 02 12	704	1.6-	0.3+	1999 02 13	704	0.0	1.4+
1992 07 31	809	0.5+	0.5+	1999 02 12	704	0.2-	0.1-	1999 02 13	704	(2.7-	0.5+)
1992 07 31	809	0.6+	0.4-	1999 02 12	704	0.4+	0.1+	1999 02 13	704	(2.9-	0.3-)

1992 OE₇ = 1999 CP₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	139.57014		(2000.0)	P	Q
<i>n</i>	0.22415407	ω	46.06526	+0.98411706	+0.06125182
<i>a</i>	2.6839328	Ω	309.69562	-0.13986126	+0.84556042
<i>e</i>	0.1609422	<i>i</i>	12.50608	+0.10932724	+0.53035440
<i>P</i>	4.40	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1992 07 24	809	0.1+	0.0	1992 07 30	809	0.8+	0.3-	1999 02 16	910	0.1-	0.0
1992 07 24	809	0.5-	0.6-	1992 07 30	809	0.5-	0.3+	1999 02 16	910	0.3-	0.3-
1992 07 24	809	1.2-	0.0	1992 07 30	809	0.5-	0.1-	1999 02 16	910	0.5-	0.1-
1992 07 26	809	0.9+	0.5+	1999 02 14	910	0.5+	0.1+	1999 02 16	910	0.3-	0.0
1992 07 26	809	0.8+	0.0	1999 02 14	910	0.6+	0.2+	1999 02 16	910	0.2-	0.0
1992 07 26	809	0.2+	0.4+	1999 02 14	910	0.4+	0.0	1999 02 16	910	0.1-	0.2+

1992 OM₈ = 1999 CF₄₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	236.20165		(2000.0)	P	Q
<i>n</i>	0.24208659	ω	105.97000	+0.11030899	+0.99389400
<i>a</i>	2.5496989	Ω	170.36202	-0.91767088	+0.10284483
<i>e</i>	0.0706832	<i>i</i>	0.88235	-0.38172252	+0.03997076
<i>P</i>	4.07	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1992 07 22	809	0.1-	0.8-	1999 02 10	704	1.4-	0.1-	1999 02 13	704	1.0+	1.6+
1992 07 22	809	0.4+	0.7-	1999 02 10	704	0.4-	0.0	1999 03 19	704	0.6+	0.9-
1992 07 22	809	0.5+	0.3-	1999 02 10	704	0.7+	1.6-	1999 03 19	704	0.4+	0.7-
1992 07 24	809	0.6-	0.8-	1999 02 10	704	0.9-	0.2-	1999 03 19	704	(1.9+	2.5-)
1992 07 24	809	0.2-	0.7-	1999 02 10	704	1.4-	0.4-	1999 03 19	704	1.7-	0.2+
1992 07 24	809	0.0	0.7-	1999 02 12	699	0.3+	0.7+	1999 03 20	704	0.4-	0.2+
1992 07 27	809	0.4-	0.2+	1999 02 12	699	0.3+	0.3+	1999 03 20	704	0.7+	0.3-
1992 07 27	809	0.1-	0.5+	1999 02 12	699	0.2+	0.5+	1999 03 20	704	1.6+	0.5+
1992 07 27	809	0.4+	0.5+	1999 02 13	704	0.8+	1.4-	1999 03 20	704	1.2-	0.5+
1992 07 31	809	0.2-	1.0+	1999 02 13	704	0.3-	0.5+	1999 03 20	704	0.0	0.7+
1992 07 31	809	0.0	0.9+	1999 02 13	704	1.6+	0.3+				
1992 07 31	809	0.3+	0.9+	1999 02 13	704	0.4-	0.2-				

1992 PC₂

Id. E. Bowell (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24661092	ω	80.70110	+0.47340205	+0.87740384		
<i>a</i>	2.5184182	Ω	217.87248	-0.84972166	+0.43161757		
<i>e</i>	0.0948100	<i>i</i>	7.28074	-0.23208533	+0.20944873		
<i>P</i>	4.00	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1992 07 31	675	0.0	0.2+	1992 08 06	675	0.1-	0.1+	1999 03 22	699	0.4-	0.2+
1992 07 31	675	0.0	0.1+	1992 08 06	675	0.1+	0.0	1999 03 24	699	0.3+	0.1-
1992 08 02	675	0.3+	0.3-	1999 03 22	699	0.2-	0.1-	1999 03 24	699	0.0	0.0
1992 08 02	675	0.4-	0.1-	1999 03 22	699	0.6+	0.0	1999 03 24	699	0.3-	0.1+

1992 PV₃ = 1977 DP₇ = 1995 HQ

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28273909	ω	194.24427	+0.50662054	+0.85933372		
<i>a</i>	2.2990345	Ω	106.23634	-0.78373193	+0.49278615		
<i>e</i>	0.1602252	<i>i</i>	4.17297	-0.35930472	+0.13677490		
<i>P</i>	3.49	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1977 02 19	381	0.3+	0.8-	1992 08 06	675	0.2+	0.7-	1997 12 08	910	0.1-	0.5-
1977 02 19	381	0.6-	0.1-	1995 04 27	399	0.0	0.5+	1997 12 08	910	0.1-	0.6-
1992 08 05	675	0.1-	0.1+	1995 04 27	399	0.5-	0.3-	1997 12 08	910	0.5-	0.6-
1992 08 05	675	0.2+	0.5-	1995 05 05	399	0.5+	0.2-				
1992 08 06	675	0.2+	0.4-	1995 05 05	399	(2.8+	0.1-)				

1992 RV₂ = 1999 CO₁₀₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21273173	ω	207.10872	+0.95672039	-0.29019709		
<i>a</i>	2.7791663	Ω	169.69054	+0.28412808	+0.91535985		
<i>e</i>	0.1252688	<i>i</i>	6.97084	+0.06290739	+0.27910927		
<i>P</i>	4.63	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1992 09 02	809	0.3-	0.3-	1992 09 23	809	0.7-	0.4+	1999 02 16	704	0.9+	1.9-
1992 09 02	809	0.2+	0.2+	1992 09 23	809	0.3+	0.8+	1999 02 16	704	1.0+	0.0
1992 09 02	809	0.1-	0.6-	1999 02 12	704	0.1+	0.0	1999 02 16	704	1.5+	1.1-
1992 09 03	809	1.6-	1.0-	1999 02 12	704	0.3-	0.2+	1999 02 20	699	1.1-	0.0
1992 09 22	809	1.2+	0.2-	1999 02 12	704	0.2+	1.2+	1999 02 20	699	1.0-	0.6+
1992 09 22	809	0.4+	0.3-	1999 02 12	704	(0.7+	3.3-)	1999 02 20	699	0.6+	0.9+
1992 09 22	809	0.3+	0.1-	1999 02 16	704	0.2-	0.3-				
1992 09 23	809	0.3+	0.8+	1999 02 16	704	1.6-	0.0				

1992 RL₃ = 1998 HM₄₂

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29586245	ω	140.36526	+0.64126411	+0.76715054		
<i>a</i>	2.2305372	Ω	169.48684	-0.72453735	+0.61229968		
<i>e</i>	0.2002268	<i>i</i>	5.07373	-0.25263801	+0.19123062		
<i>P</i>	3.33	<i>H</i>	16.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 09 02	809	1.0+	0.7+	1992 09 23	809	0.5-	0.7-	1998 05 02	691	0.1-	0.0
1992 09 02	809	1.3+	1.0+	1998 04 29	691	0.7+	0.0	1998 05 02	691	0.3+	0.2-
1992 09 02	809	0.7-	0.2+	1998 04 29	691	0.5+	0.6-	1998 05 04	691	0.6-	0.1+

1992 09 03	809	0.3-	0.8-	1998 04 30	691	0.4-	0.5-	1998 05 04	691	0.8-	0.5+
1992 09 22	809	0.7+	0.6+	1998 04 30	691	0.3-	0.4-	1998 05 04	691	0.3-	0.4+
1992 09 22	809	0.0	0.1-	1998 05 01	691	0.2-	0.7-	1998 05 27	691	0.1+	0.9+
1992 09 22	809	0.2-	0.7-	1998 05 01	691	0.5+	0.3-	1998 05 27	691	0.1-	0.7+
1992 09 23	809	0.7-	0.2+	1998 05 01	691	0.1+	0.7-	1998 05 27	691	0.2+	1.1+
1992 09 23	809	0.5-	1.0-	1998 05 02	691	0.0	0.4-				

1992 SF₁₇ = 1988 VH₃

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23442918	ω	196.29494	+0.76182738	-0.64746957		
<i>a</i>	2.6049233	Ω	204.09173	+0.59967542	+0.71662314		
<i>e</i>	0.1928867	<i>i</i>	2.81610	+0.24496618	+0.25929604		
<i>P</i>	4.20	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1988 11 01	372	0.8+	0.9+	1988 11 05	372	(9.4+	5.4+)Y	1992 09 24	033	0.0	1.2+
1988 11 01	372	1.4+	1.4-	1988 11 05	046	1.0+	1.5-	1992 09 26	033	0.3+	0.1+
1988 11 02	372	2.1-	0.4+	1988 11 05	046	1.1-	0.2-	1992 09 27	033	0.1+	0.2-
1988 11 03	372	1.0-	0.8-	1988 11 06	372	1.1+	2.6+ Y	1992 09 28	033	0.6-	0.9-
1988 11 04	046	(5.0+	0.4+)	1992 09 22	033	0.4-	1.1-				
1988 11 04	046	(5.0+	1.4+)	1992 09 24	033	0.6+	0.9+				

1992 SC₂₁ = 1997 TV₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20282697	ω	246.71033	+0.98391798	+0.17171155		
<i>a</i>	2.8689232	Ω	103.37370	-0.13976651	+0.91162215		
<i>e</i>	0.1331061	<i>i</i>	2.89872	-0.11122383	+0.37344369		
<i>P</i>	4.86	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1992 09 22	809	0.1+	0.1+	1992 09 23	809	0.6-	0.2+	1997 10 09	327	0.1+	0.4-
1992 09 22	809	0.5-	0.6-	1992 09 23	809	0.3+	0.7+	1997 10 11	327	0.5+	0.1+
1992 09 22	809	0.4-	0.1-	1997 10 09	327	0.3-	0.2+	1997 10 11	327	0.1+	0.0
1992 09 23	809	0.1+	0.3-	1997 10 09	327	0.1+	0.4+	1997 10 11	327	0.5-	0.3-

1992 SV₂₄ = 1983 VZ

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21556168	ω	161.67974	+0.90785066	-0.41083091		
<i>a</i>	2.7547890	Ω	222.88678	+0.36765237	+0.87607925		
<i>e</i>	0.2593587	<i>i</i>	7.07445	+0.20159094	+0.25239476		
<i>P</i>	4.57	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1983 11 02	046	1.4+	1.7-	1983 11 07	046	3.2+	2.0+	1992 09 30	675	0.1-	0.3-
1983 11 02	046	1.1-	2.2+	1983 11 07	046	1.7-	0.9+	1992 09 30	675	0.7+	0.5-
1983 11 06	046	0.2+	1.2-	1992 09 29	675	0.3+	0.4+	1992 10 03	675	0.6-	0.0
1983 11 06	046	2.1-	2.2-	1992 09 29	675	0.5-	0.5+	1992 10 03	675	0.2+	0.1-

1992 TJ₁ = 1999 AE₃₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22828699	ω	179.15968	+0.85944744	+0.49582589		
<i>a</i>	2.6514408	Ω	150.06897	-0.47048288	+0.86242103		
<i>e</i>	0.1819428	<i>i</i>	14.45225	-0.19998991	+0.10191492		
<i>P</i>	4.32	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 10 02	675	0.2-	0.5-	1992 10 20	675	0.3-	0.8+	1999 01 13	699	0.2+	0.6+
1992 10 02	675	0.3+	0.4-	1992 10 24	675	0.1+	0.2+	1999 01 13	699	0.4-	1.0+

1992 10 04	675	0.2−	1.1−	1992 10 25	675	1.2+	0.5+	1999 01 23	699	0.1+	0.4−
1992 10 04	675	0.3−	0.1+	1992 10 25	675	0.8+	0.0	1999 01 23	699	0.1+	0.9−
1992 10 20	675	1.2−	0.2+	1999 01 13	699	0.3−	0.1+	1999 01 23	699	0.1+	0.7−

1992 WB = 1977 ED₄ = 1999 FW₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams							
<i>M</i>	171.58336	(2000.0)		P		Q					
<i>n</i>	0.22432567	<i>ω</i>	342.25357	+0.99523057		−0.07304097					
<i>a</i>	2.6825639	<i>Ω</i>	22.23963	+0.09639584		+0.83804640					
<i>e</i>	0.1014243	<i>i</i>	9.83697	−0.01496536		+0.54068776					
<i>P</i>	4.39	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	4				

Residuals in seconds of arc

1977 03 15	381	1.1−	0.9−	1992 11 18	399	0.0	2.0+	1999 03 20	704	0.1+	0.5+
1977 03 15	381	0.0	0.8−	1992 12 13	010	0.6+	1.0−	1999 03 20	704	0.3+	0.8+
1992 10 28	399	0.4−	0.3+	1992 12 14	010	0.3+	1.5−	1999 03 20	704	0.5+	0.1−
1992 10 28	399	2.8−	1.1−	1999 03 19	704	0.3+	0.1−	1999 03 20	704	0.6−	0.2+
1992 11 16	399	1.6+	1.6+	1999 03 19	704	1.2−	0.0	1999 03 20	704	0.2+	1.2+
1992 11 16	399	1.1−	0.2+	1999 03 19	704	1.4+	0.2−				
1992 11 18	399	1.8+	0.1+	1999 03 19	704	0.5+	0.4+				

1992 WS₁ = 1999 BD₃

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams							
<i>M</i>	13.23438	(2000.0)		P		Q					
<i>n</i>	0.17856212	<i>ω</i>	25.21837	−0.20042544		−0.97393231					
<i>a</i>	3.1232721	<i>Ω</i>	76.48855	+0.87933317		−0.22664096					
<i>e</i>	0.1751775	<i>i</i>	6.27249	+0.43197548		+0.00947298					
<i>P</i>	5.52	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4				

Residuals in seconds of arc

1992 11 18	402	(3.3−	0.5+)	1998 11 14	699	0.0	0.6+	1999 02 10	704	0.0	1.1−
1992 11 18	402	0.5+	1.0+	1998 11 14	699	1.0−	0.7+	1999 02 10	704	1.3−	0.2−
1992 11 21	402	0.6−	0.6−	1998 11 14	699	1.9+	0.9−	1999 02 10	704	0.5−	0.2+
1992 11 21	402	0.2+	1.1+	1998 11 15	699	1.0−	1.2+	1999 02 12	699	0.9+	1.0+
1992 11 25	675	0.1−	0.6−	1998 11 15	699	0.3−	0.6+	1999 02 12	699	1.0+	0.0
1992 11 25	675	0.3+	0.3−	1998 11 15	699	0.1+	0.5+	1999 02 12	699	0.7+	0.4+
1992 11 27	691	0.1−	0.2+	1999 01 16	399	1.7+	1.2+	1999 02 13	704	0.3−	0.3+
1992 11 27	691	0.1−	0.4+	1999 01 16	399	0.0	0.3−	1999 02 13	704	1.0+	0.5−
1992 11 27	691	0.2−	0.2+	1999 01 17	399	1.8−	0.9+	1999 02 13	704	0.4+	0.4−
1992 11 28	675	0.0	1.5−	1999 01 17	399	1.9−	0.1+	1999 02 13	704	0.5+	1.8−
1992 11 28	675	0.4+	0.9−	1999 02 10	704	0.9+	0.3−	1999 02 13	704	0.7−	0.9−

1992 WD₃ = 1990 DD₁ = 1988 PN₄ = 1998 MW₂₉

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams							
<i>M</i>	291.43061	(2000.0)		P		Q					
<i>n</i>	0.28898669	<i>ω</i>	278.34738	+0.38485106		−0.92167936					
<i>a</i>	2.2657787	<i>Ω</i>	148.87533	+0.87971600		+0.35024645					
<i>e</i>	0.1394575	<i>i</i>	5.43480	+0.27926585		+0.16683697					
<i>P</i>	3.41	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	2				

Residuals in seconds of arc

1988 08 08	095	(2.0−	4.4−)	1992 11 21	402	0.4−	1.1−	1998 06 24	704	0.8−	0.6−
1988 08 08	095	(3.1+	9.0−)	1992 11 21	402	0.2−	0.8+	1998 06 24	704	1.1−	0.4−
1990 02 16	399	0.4−	1.4−	1995 08 19	809	0.8+	0.0	1998 06 24	704	0.5+	0.3+
1990 02 16	399	(0.4−	2.3−)	1995 08 20	809	0.3+	0.1+	1998 06 24	704	0.9+	1.4−
1990 02 23	220	(0.4−	7.1−)	1995 08 22	809	0.3−	0.4+	1998 06 24	704	0.2−	0.3+
1990 02 24	220	(0.6−	7.0−)	1995 08 26	809	0.3−	0.2−	1998 06 26	704	0.0	0.8+
1990 02 24	220	(6.6−	2.6−)	1995 08 27	809	0.8−	0.4−	1998 06 26	704	0.2+	0.1+
1992 11 18	402	1.2+	1.0−	1995 08 29	809	0.2+	0.4−	1998 06 26	704	0.8−	0.9−
1992 11 18	402	0.5−	1.1+	1995 08 30	809	0.5+	0.5−	1998 06 26	704	1.2+	1.2+

1992 WL₃ = 1975 XF₅ = 1980 TY₉ = 1982 BA₈ = 1991 PB₁₈**= 1991 RZ₃₄ = 1998 XE₈₂**

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

				(2000.0)		P		Q			
<i>M</i>	40.10720										
<i>n</i>	0.17067260	<i>ω</i>	200.61287	+0.70786769		−0.70195337					
<i>a</i>	3.2187965	<i>Ω</i>	204.53961	+0.67168331		+0.70339559					
<i>e</i>	0.0443407	<i>i</i>	10.91517	+0.21855175		+0.11178603					
<i>P</i>	5.77	<i>H</i>	11.9	<i>G</i>	0.15	<i>U</i>	1				

Residuals in seconds of arc

1975 12 03	095	0.5+	2.2−	1992 11 22	376	1.4+	0.8−	1998 12 15	704	0.6+	0.7−
1980 10 13	095	(1.7+	8.7−)	1992 11 22	376	0.4−	1.0−	1998 12 15	704	0.3−	0.3+
1982 01 23	010	0.6−	0.3+	1992 11 23	894	0.4−	1.2+	1998 12 22	704	0.4+	0.5−
1991 08 07	675	0.3+	0.4−	1992 11 23	894	1.4+	0.9−	1998 12 22	704	0.1+	0.2+
1991 08 07	675	0.3+	0.4−	1992 11 24	894	0.7−	0.1+	1998 12 22	704	0.4+	0.8+
1991 09 12	675	0.2+	0.5+	1992 11 24	894	1.2−	0.2−	1998 12 22	704	0.0	0.4+
1991 09 12	675	0.6−	0.0	1998 12 15	704	0.3+	0.2−	1998 12 22	704	0.4−	0.9+
1992 11 21	376	(1.4−	2.9+)	1998 12 15	704	0.4−	0.5−				
1992 11 21	376	0.9−	2.2+	1998 12 15	704	0.1+	0.2+				

1992 XM = 1986 RD₁₂ = 1991 PE₂₁ = 1999 CN₆₇

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

				(2000.0)		P		Q			
<i>M</i>	100.68506										
<i>n</i>	0.18961252	<i>ω</i>	134.72593	+0.88130722		−0.44844740					
<i>a</i>	3.0007147	<i>Ω</i>	252.44766	+0.37726022		+0.85756210					
<i>e</i>	0.1108979	<i>i</i>	8.98907	+0.28455633		+0.25195669					
<i>P</i>	5.20	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	1				

Residuals in seconds of arc

1986 09 09	095	1.1+	1.3+	1998 01 24	566	0.5+	0.1+	1999 02 12	704	1.0−	0.8+
1991 08 09	675	0.2−	1.8−	1998 01 24	566	0.3+	0.1−	1999 02 12	704	0.4+	1.0+
1991 08 09	675	0.1−	1.5−	1998 02 24	566	0.3+	0.1−	1999 02 16	704	0.4+	0.3−
1992 11 22	894	1.6+	0.7−	1998 02 24	566	0.1−	0.1−	1999 02 16	704	0.3+	0.2−
1992 11 22	894	0.4+	0.1+	1998 02 24	566	0.2+	0.1−	1999 02 16	704	0.5+	0.3−
1992 12 14	894	(0.3+	2.5−)	1999 01 17	699	0.4+	0.5−	1999 02 16	704	0.3−	0.7−
1992 12 15	894	1.4−	0.1−	1999 01 17	699	0.2−	1.5−	1999 02 16	704	0.3+	0.4+
1992 12 15	894	0.5−	1.3+	1999 01 17	699	1.1−	0.8−	1999 02 19	566	0.4+	0.4+
1992 12 16	894	1.2−	0.1+	1999 02 12	704	0.0	0.4−	1999 02 19	566	0.3+	0.4+
1992 12 16	894	0.5−	0.3−	1999 02 12	704	0.2−	0.3−	1999 02 19	566	0.0	0.1+
1998 01 24	566	0.4+	0.4−	1999 02 12	704	0.6−	0.4−				

1993 BG₆ = 1998 XG₆₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

M	345.15221		(2000.0)	P	Q
n	0.30763305	ω	147.90683	-0.17294707	-0.98458209
a	2.1732718	Ω	312.03808	+0.89603210	-0.14622927
e	0.0385841	i	2.02308	+0.40892027	-0.09599541
P	3.20	H	14.7	G 0.15	U 7

1993 DU₂ = 1999 FM₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.18121079	ω	179.81021	−0.93571356	−0.35150893				
<i>a</i>	3.0927632	Ω	339.53284	+0.32353965	−0.82161574				
<i>e</i>	0.1155291	<i>i</i>	4.87104	+0.14057817	−0.44876391				
<i>P</i>	5.44	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	6		
Residuals in seconds of arc									
1993 01 27	010	0.7+	0.2−	1993 02 20	010	0.1+	0.1+	1999 03 26	557 0.1− 0.3+
1993 01 27	010	0.0	0.5−	1993 02 22	010	1.2−	0.3+	1999 03 26	557 0.1+ 0.7+
1993 01 27	010	0.2−	0.7+	1993 02 23	010	0.9−	0.5−	1999 03 26	557 0.1+ 0.2+
1993 02 20	010	1.2+	0.2−	1999 03 24	557	1.0−	0.7−		
1993 02 20	010	0.4+	0.1+	1999 03 25	557	1.0+	0.5−		

1993 FV₁₆ = 1979 SA₁₅ = 1997 JD₂ = 1998 VM₂₀Id. A. Doppler (*MPC* 33233), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.26321732	ω	211.88891	+0.69859285	+0.71432531				
<i>a</i>	2.4113471	Ω	102.46232	−0.64726333	+0.65551218				
<i>e</i>	0.1720234	<i>i</i>	2.42534	−0.30498887	+0.24503701				
<i>P</i>	3.74	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc									
1979 09 20	675	0.6+	0.9−	1997 05 01	910	0.6+	0.5+	1998 11 10	704 0.7− 0.2+
1979 09 21	675	0.3+	1.4−	1997 05 01	910	0.9+	0.2+	1998 11 10	704 0.3− 0.4+
1993 03 19	809	0.5+	0.6−	1997 05 01	910	0.6+	0.3+	1998 11 10	704 0.1+ 1.5−
1993 03 20	809	0.1−	0.9−	1997 05 02	910	0.6−	0.2+	1998 11 11	704 0.0 1.3+
1993 03 23	809	0.1+	0.3−	1997 05 02	910	0.5−	0.2+	1998 11 11	704 0.8+ 0.5+
1993 03 24	691	0.9−	0.4−	1997 05 03	910	0.3−	0.2+	1998 11 11	704 0.4− 0.2+
1993 03 24	691	0.6−	0.6−	1998 11 10	704	0.4−	0.1+	1998 11 11	704 0.2− 0.2−
1993 03 24	691	0.6−	0.7−	1998 11 10	704	0.2+	0.2−	1998 11 11	704 0.7+ 0.1+

1993 FN₂₂ = 1998 UG₁₂

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.24223207	ω	88.95828	+0.22692423	+0.97377713				
<i>a</i>	2.5486779	Ω	194.18943	−0.91781664	+0.20824909				
<i>e</i>	0.2347352	<i>i</i>	3.79694	−0.32575759	+0.09159923				
<i>P</i>	4.07	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	2		
Residuals in seconds of arc									
1993 03 21	809	1.0−	0.6−	1997 05 02	910	0.1+	0.1−	1998 10 22	691 0.1+ 0.2+
1993 03 22	809	0.4+	0.3+	1997 05 02	910	0.1−	0.2−	1998 10 22	691 0.3− 0.2−
1993 03 26	809	0.1+	0.7+	1998 10 18	691	0.0	0.3+	1998 10 22	691 0.1− 0.1−
1993 03 27	809	0.6+	0.3−	1998 10 18	691	0.3+	0.2−		
1997 05 02	910	0.1−	0.1+	1998 10 18	691	0.0	0.0		

1993 FQ₂₃ = 1998 XC₈₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Doppler	
<i>n</i>	0.28947862	ω	179.94516	+0.86254549	−0.50310601				
<i>a</i>	2.2632110	Ω	210.45093	+0.46418668	+0.82915965				
<i>e</i>	0.0929774	<i>i</i>	6.09926	+0.20136040	+0.24367727				
<i>P</i>	3.40	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5		
Residuals in seconds of arc									
1993 03 21	809	0.2+	0.6−	1998 12 15	704	0.8−	0.8−	1998 12 22	704 0.4− 0.3+
1993 03 22	809	0.3−	0.4+	1998 12 15	704	0.1−	0.2−	1998 12 22	704 0.9+ 0.5+
1993 03 26	809	(1.6+ 4.0−)		1998 12 15	704	0.4−	0.7−	1998 12 22	704 0.3+ 0.4−
1993 03 27	809	(5.0+ 7.1−)		1998 12 15	704	0.3+	0.4+	1998 12 22	704 0.7+ 0.5+
1993 04 16	413	0.1+	0.1+	1998 12 15	704	0.6−	0.4+		

1993 FU₂₃ = 1998 MM₁

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.21201365	ω	18.83337	−0.70999424	+0.70255045				
<i>a</i>	2.7854380	Ω	206.00218	−0.65941535	−0.68733107				
<i>e</i>	0.0842446	<i>i</i>	6.32271	−0.24714282	−0.18438780				
<i>P</i>	4.65	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	5		
Residuals in seconds of arc									
1993 03 21	809	1.2−	1.2+	1998 06 16	691	0.1−	0.6−	1998 06 22	691 0.9+ 0.4+
1993 03 22	809	0.5−	1.1+	1998 06 16	691	0.2+	0.4−	1998 06 22	691 0.9+ 0.3−
1993 03 26	809	0.5+	1.8−	1998 06 21	691	0.8−	0.3+	1998 06 29	691 (3.8+ 3.7+)
1993 03 27	809	0.1−	0.1−	1998 06 21	691	0.8−	0.5+	1998 06 29	691 0.3− 0.4+
1993 04 16	413	1.2+	0.3−	1998 06 21	691	0.8−	0.1+	1998 06 29	691 0.3− 0.4+
1998 06 16	691	0.4+	0.5−	1998 06 22	691	0.7+	0.1−		

1993 FG₂₈ = 1998 VS₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.26294078	ω	88.83607	+0.84693284	+0.53046012				
<i>a</i>	2.4130376	Ω	239.12633	−0.50309519	+0.77741661				
<i>e</i>	0.2124823	<i>i</i>	2.42313	−0.17204646	+0.33798741				
<i>P</i>	3.75	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	7		
Residuals in seconds of arc									
1993 03 21	809	1.4−	0.9+	1998 11 10	699	0.2+	0.9+	1998 11 11	704 0.1+ 0.6+
1993 03 22	809	0.3+	0.0	1998 11 10	699	0.2+	0.9+	1998 12 08	699 0.1− 1.5−
1993 03 26	809	1.4+	0.4−	1998 11 10	699	1.6+	0.6−	1998 12 08	699 0.6− 0.7−
1998 11 10	704	0.1−	0.4−	1998 11 11	704	0.4−	0.7−	1998 12 08	699 0.1− 0.5−
1998 11 10	704	0.2+	0.9+	1998 11 11	704	0.6−	0.7−		
1998 11 10	704	0.5+	0.7+	1998 11 11	704	1.0−	1.2+		

1993 FE₃₈ = 1994 RQ₁₈

Id. G. V. Williams, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.24410956	ω	86.02299	−0.33992356	+0.94016151				
<i>a</i>	2.5355929	Ω	164.04406	−0.89312068	−0.31491586				
<i>e</i>	0.1213622	<i>i</i>	4.88641	−0.29459706	−0.13009358				
<i>P</i>	4.04	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	6		
Residuals in seconds of arc									
1993 03 19	809	1.4+	1.2−	1994 09 03	809	0.9−	0.7−	1994 09 05	809 0.1− 1.1−
1993 03 20	809	(3.1+ 1.3−)		1994 09 03	809	0.6−	0.9−	1994 09 05	809 0.5+ 0.2−
1993 03 24	809	(2.1+ 2.1−)		1994 09 03	809	0.0	0.0	1994 09 05	809 1.5− 1.8−
1993 03 24	691	0.5−	0.3+	1994 09 04	809	0.3+	0.1+	1994 09 06	809 1.5+ 1.6+
1993 03 24	691	0.5−	0.5+	1994 09 04	809	0.0	0.6−	1994 09 06	809 0.1+ 1.5+
1993 03 24	691	0.4−	0.4+	1994 09 04	809	0.8−	0.9+	1994 09 06	809 1.4+ 1.4+

1993 FS₃₈ = 1999 FY₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.17090448	ω	2.03510	+0.82907937	−0.55623706				
<i>a</i>	3.2158843	Ω	31.97173	+0.51146505	+0.71342284				
<i>e</i>	0.0855367	<i>i</i>	6.15944	+0.22590019	+0.42617858				
<i>P</i>	5.77	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5		
Residuals in seconds of arc									
1993 03 19	809	0.5−	0.1+	1993 04 29	691	0.0	0.4−	1999 03 19	691 0.2− 0.0
1993 03 20	809	0.6−	0.5+	1993 04 29	691	0.3+	0.3−	1999 03 23	691 0.6+ 0.1−
1993 03 24	809	0.4+	0.1−	1999 03 19	691	0.4−	0.2+	1999 03 23	691 0.2+ 0.0
1993 04 29	691	0.4+	0.0	1999 03 19	691	0.3−	0.1−	1999 03 23	691 0.1+ 0.1+

1993 FL₅₄ = 1990 SZ₆

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	186.13732		(2000.0)		P		Q
<i>n</i>	0.27796143	ω	254.98717	−0.07842424			+0.99437923
<i>a</i>	2.3253038	Ω	11.25931	−0.71582127			−0.00650706
<i>e</i>	0.3276132	<i>i</i>	21.36491	−0.69386565			−0.10567686
<i>P</i>	3.55	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 09 15	809	0.2−	0.0	1990 09 22	809	1.7+	0.5+	1993 03 18	809	0.3+	0.4+
1990 09 15	809	0.8−	0.4−	1990 09 25	809	1.4−	1.0−	1993 03 23	809	0.6+	0.2+
1990 09 15	809	0.2−	0.0	1990 09 25	809	0.1−	1.1−	1993 03 23	691	0.1−	0.5−
1990 09 22	809	0.5+	1.2+	1990 09 25	809	0.5−	0.1−	1993 03 23	691	0.1−	0.5−
1990 09 22	809	1.4+	0.6+	1993 03 17	809	1.1−	0.8+	1993 03 23	691	0.2+	0.7−

1993 LK₁ = 1990 SH₁₁ = 1999 CQ₁₀₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	240.21551		(2000.0)		P		Q
<i>n</i>	0.29310476	ω	56.55400	−0.12743511			+0.99097037
<i>a</i>	2.2445062	Ω	206.21961	−0.93844890			−0.13407327
<i>e</i>	0.2103752	<i>i</i>	5.41450	−0.32105132			−0.00144370
<i>P</i>	3.36	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 09 16	675	0.3−	0.0	1993 06 15	675	1.4+	0.6−	1999 02 12	704	1.0+	0.1−
1990 09 16	675	0.8+	0.0	1993 06 18	675	1.3−	0.4+	1999 02 12	704	0.3+	0.4−
1990 09 19	675	0.2−	0.0	1993 06 20	675	0.5−	1.4+	1999 02 16	704	(2.4+ 0.9−)	
1990 09 19	675	0.2−	0.0	1999 02 12	704	0.0	0.9+	1999 02 16	704	0.7−	1.5−
1993 06 14	675	(2.7− 0.3+)		1999 02 12	704	0.4−	0.2+	1999 02 16	704	0.7+	0.7+
1993 06 15	675	0.4+	1.1−	1999 02 12	704	0.4−	0.2−	1999 02 16	704	0.5−	0.5+

1993 OY₃ = 1997 TJ₁₈ = 1999 BP₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	65.39963		(2000.0)		P		Q
<i>n</i>	0.28481001	ω	314.34897	+0.00661207			−0.99932566
<i>a</i>	2.2878764	Ω	135.23421	+0.93143370			−0.00698733
<i>e</i>	0.0707502	<i>i</i>	2.93991	+0.36385098			+0.03604729
<i>P</i>	3.46	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 07 13	809	(2.3+ 3.5−)		1993 07 20	809	0.4+	0.3+	1999 01 20	910	0.1+	0.2−
1993 07 13	809	(1.3+ 2.2−)		1993 07 24	809	0.8−	1.2−	1999 01 20	910	0.1−	0.1+
1993 07 13	809	(0.8+ 3.1−)		1997 10 03	327	0.0	0.2+	1999 01 20	910	1.2−	0.5−
1993 07 13	809	(5.8+ 1.5+)		1997 10 03	327	0.1−	0.2+	1999 01 22	910	0.3+	0.1−
1993 07 13	809	(4.3+ 2.2+)		1997 10 03	327	0.2+	0.0	1999 01 22	910	0.3+	0.1−
1993 07 13	809	(3.2+ 1.0+)		1997 10 09	327	0.2+	0.4−	1999 01 22	910	0.2+	0.2−
1993 07 20	809	0.4+	0.0	1997 10 09	327	0.1−	0.4−				
1993 07 20	809	0.1+	0.3+	1997 10 09	327	0.0	0.1−				

1993 OO₄ = 7646 P-L = 1998 VK₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	96.84104		(2000.0)		P		Q
<i>n</i>	0.23562196	ω	188.71946	+0.73581301			+0.67511800
<i>a</i>	2.5961246	Ω	128.67949	−0.61714978			+0.70066995
<i>e</i>	0.0643085	<i>i</i>	3.88311	−0.27875681			+0.23081878
<i>P</i>	4.18	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1960 10 17	675	0.3−	0.2−	1993 07 20	809	0.9−	0.4−	1998 11 10	704	1.3−	0.4+
1960 10 22	675	0.6+	0.3−	1993 07 20	809	1.0−	1.1−	1998 11 11	704	0.6+	0.7+
1960 10 25	675	0.1+	0.1−	1993 07 20	809	1.3−	0.8−	1998 11 11	704	0.5+	0.0
1960 10 26	675	0.4−	0.5+	1993 07 24	809	0.2+	0.3+	1998 11 11	704	1.6+	0.4−
1993 07 13	809	(2.5+ 1.9+)		1998 11 10	704	1.5−	1.6+	1998 11 11	704	0.9+	1.5−

1993 07 13	809	1.7+	0.8+	1998 11 10	704	0.3+	0.6−
1993 07 13	809	1.4+	1.2+	1998 11 10	704	1.2−	0.3−

1993 ON₈ = 1985 BR₁ = 1999 CG₈₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	282.66554		(2000.0)		P		Q
<i>n</i>	0.28206104	ω	105.64365	−0.83720116			+0.54422253
<i>a</i>	2.3027174	Ω	107.35606	−0.52094171			−0.76351744
<i>e</i>	0.0639280	<i>i</i>	3.24333	−0.16647509			−0.34765351
<i>P</i>	3.49	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1985 01 20	691	0.1+	0.2−	1993 07 20	809	0.4+	0.3+	1999 02 10	704	0.4−	1.4−
1985 01 20	691	0.1−	0.4−	1993 07 20	809	0.4−	0.3+	1999 02 10	704	0.6−	1.1+
1985 01 20	691	0.1−	0.2+	1993 07 20	809	0.3−	0.7+	1999 02 11	699	0.5+	0.7+
1993 07 12	809	0.8−	0.5−	1993 07 23	809	0.5+	0.4+	1999 02 11	699	0.2+	1.5−
1993 07 12	809	0.1−	0.3−	1993 07 23	809	0.1−	0.5+	1999 02 11	699	0.8+	0.2−
1993 07 12	809	0.4+	0.3−	1993 07 23	809	0.2+	0.2+	1999 02 13	704	0.2+	1.0+
1993 07 13	809	(2.4+ 2.9+)		1993 07 24	809	0.4+	1.3+	1999 02 13	704	0.7−	1.7+
1993 07 13	809	(1.3+ 3.3+)		1993 07 26	809	0.9+	1.3−	1999 02 13	704	0.3−	0.6−
1993 07 13	809	1.5+	1.4+	1993 07 26	809	0.3−	1.0−	1999 02 13	704	(2.2− 0.9−)	
1993 07 19	809	1.4−	0.9−	1993 07 26	809	0.7−	1.0−	1999 02 18	566	0.3+	0.2+
1993 07 19	809	(2.3− 0.7−)		1999 02 10	704	0.6−	0.2−	1999 02 18	566	0.6+	0.0
1993 07 19	809	(2.8− 1.3−)		1999 02 10	704	0.8−	0.8−	1999 02 18	566	0.8+	0.2−

1993 QA₁ = 1998 XN₈₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	54.70688		(2000.0)		P		Q
<i>n</i>	0.22401032	ω	246.25549	+0.96337329			−0.21682888
<i>a</i>	2.6850808	Ω	125.90091	+0.25469602			+0.92395881
<i>e</i>	0.2329151	<i>i</i>	11.23261	−0.08391568			+0.31509579
<i>P</i>	4.40	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 08 19	675	0.1+	0.7−	1993 09 15	675	0.3+	0.2+	1998 12 15	704	0.1−	0.4+
1993 08 19	675	0.3+	0.5+	1993 09 15	675	1.4+	0.1+	1998 12 22	704	0.0	0.0
1993 08 22	675	0.1+	0.8+	1998 12 15	704	0.1+	0.3+	1998 12 22	704	0.8+	1.2−
1993 08 22	675	(2.2+ 3.3+)		1998 12 15	704	0.6−	0.5−	1998 12 22	704	0.0	0.2+
1993 09 13	675	0.8−	1.2−	1998 12 15	704	0.2−	0.0	1998 12 22	704	0.6−	0.4−
1993 09 13	675	1.4−	0.3+	1998 12 15	704	0.3+	0.5+	1998 12 22	704	0.3+	0.6+

1993 QL₇ = 1982 JE₂ = 1996 KR₂Id. G. V. Williams (*MPC* 23784), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	60.84619		(2000.0)		P		Q
<i>n</i>	0.20083760	ω	178.84317	+0.76168691			+0.64693580
<i>a</i>	2.8878371	Ω	140.76812	−0.59493627			+0.72038703
<i>e</i>	0.0178312	<i>i</i>	3.27705	−0.25667855			+0.25003319
<i>P</i>	4.91	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1982 05 15	675	1.1+	0.5+	1996 05 22	691	0.2−	0.1−	1998 09 18	704	0.0	1.2−
1982 05 16	675	0.5+	2.7−	1996 05 22	691	0.8−	0.1−	1998 09 18	704	0.8−	1.0−
1982 05 16	675	2.4−	0.7+	1996 05 23	691	0.9+	0.4+	1998 09 18	704	1.2+	0.7−
1982 05 17	675	0.6+	0.3−	1996 05 23	691	0.1−	0.0	1998 09 18	704	2.9−	0.5−
1993 08 15	809	0.9−	0.2−	1996 05 23	691	0.1+	0.0	1998 09 26	704	0.2−	0.9−
1993 08 15	809	1.9−	0.9−	1998 09 14	704	0.1−	1.5−	1998 09 26	704	0.3+	0.3+
1993 08 15	809	2.9−	1.0−	1998 09 14	704	1.1+	0.2+	1998 09 26	704	2.1+	1.5+
1993 08 20	809	1.2+	1.1+	1998 09 14	704	1.5−	1.1+	1998 09 26	704	0.6+	1.6−
1993 08 20	809	0.4−	1.0+	1998 09 14	704	0.6+	0.1+	1998 09 26	704	0.4+	0.6−
1993 08 20	809	0.3+	1.5+	1998 09 14	704	1.2−	0.2−	1998 09 27	704	0.7+	0.8+
1993 08 24	809	0.7+	1.4+	1998 09 17	699	0.9+	0.1−	1998 09 27	704	0.8−	0.3−
1993 08 24	809	0.4+	1.1+	1998 09 17	699	0.6+	0.5−	1998 09 27	704	1.6+	0.8+

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1993 08 24	809	0.7+	1.5+	1998 09 17	699	0.4+	0.1+	1998 09 27	704	0.4+	0.4+
1996 05 22	691	0.1-	0.1+	1998 09 18	704	1.0+	1.3-	1998 09 27	704	1.4-	0.7-

1993 RC₄ = 1998 SO₅

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 153.37415 (2000.0)				Williams			
<i>P</i>		<i>P</i>		<i>Q</i>		<i>Q</i>	
<i>n</i>	0.17038903	ω	227.94599	-0.99652320	+0.06736013		
<i>a</i>	3.2223667	Ω	315.84993	-0.03873613	-0.89561949		
<i>e</i>	0.0849817	<i>i</i>	4.03660	-0.07376337	-0.43969119		
<i>P</i>	5.78	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1993 09 15	809	1.7+	1.6+	1993 09 17	809	0.5-	1.0-	1998 09 20	691	0.5+	0.0
1993 09 15	809	0.3-	1.0+	1993 09 18	809	1.1+	0.5+	1998 09 20	691	0.1-	0.0
1993 09 15	809	0.6-	1.0+	1993 09 18	809	0.1-	0.3-	1998 09 21	691	0.1-	0.4-
1993 09 17	809	0.5-	1.3-	1993 09 18	809	0.8-	0.1+	1998 09 21	691	0.3-	0.1-
1993 09 17	809	0.0	1.6-	1998 09 20	691	0.5+	0.5+	1998 09 21	691	0.4-	0.1-

1993 RP₄ = 1999 CB₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 193.69469 (2000.0)				Doppler			
<i>P</i>		<i>P</i>		<i>Q</i>		<i>Q</i>	
<i>n</i>	0.26376152	ω	117.02525	+0.69469874	+0.71885014		
<i>a</i>	2.4080292	Ω	197.05656	-0.68687716	+0.65246188		
<i>e</i>	0.1097625	<i>i</i>	4.97926	-0.21352616	+0.23989156		
<i>P</i>	3.74	<i>H</i>	16.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 09 15	809	0.2-	0.9+	1993 09 18	809	0.5-	0.4+	1999 02 14	910	0.6+	0.7+
1993 09 15	809	0.1-	0.2-	1993 09 18	809	0.5+	0.7+	1999 02 14	910	0.4+	1.0+
1993 09 15	809	0.2-	1.4-	1993 09 18	675	0.4-	0.6-	1999 02 14	910	0.6+	0.7+
1993 09 17	809	0.1+	0.1-	1993 09 22	675	0.7-	1.3-	1999 02 16	910	0.3-	0.8-
1993 09 17	809	0.6+	0.2+	1993 09 23	809	(1.6+	3.3+)	1999 02 16	910	0.8-	0.8-
1993 09 17	809	0.2+	0.1+	1993 09 23	809	0.8+	1.2+	1999 02 16	910	0.5-	0.9-
1993 09 18	809	0.0	0.6+	1993 09 23	809	0.2-	0.4-				

1993 RH₅ = 1999 CD₅₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 86.93177 (2000.0)				Williams			
<i>P</i>		<i>P</i>		<i>Q</i>		<i>Q</i>	
<i>n</i>	0.24237091	ω	54.60255	+0.77531937	-0.63119761		
<i>a</i>	2.5477045	Ω	344.49836	+0.54998672	+0.69163507		
<i>e</i>	0.1686884	<i>i</i>	4.64995	+0.31047460	+0.35104202		
<i>P</i>	4.07	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1993 09 15	809	1.8+	0.9+	1993 09 17	809	0.5-	1.6-	1999 02 10	704	1.3-	0.9+
1993 09 15	809	0.4-	0.2+	1993 09 18	809	0.2+	1.7+	1999 02 13	704	0.9-	1.2-
1993 09 15	809	0.1-	0.8+	1993 09 18	809	0.2+	0.4+	1999 02 13	704	0.3+	0.5-
1993 09 16	809	(1.9-	4.4-)	1993 09 18	809	1.0-	0.4+	1999 02 13	704	1.1+	0.9+
1993 09 16	809	(1.9-	5.1-)	1993 09 22	675	(0.6-	4.3-)	1999 02 13	704	0.2-	0.0
1993 09 16	809	(1.9-	4.7-)	1993 09 22	675	(2.4-	4.9-)	1999 03 20	691	0.3+	0.1+
1993 09 17	809	0.4+	1.1-	1999 02 10	704	0.1-	1.5-	1999 03 20	691	0.4+	0.1+
1993 09 17	809	0.6-	1.5-	1999 02 10	704	0.1+	1.2+	1999 03 20	691	0.4+	0.1+

1993 RN₉ = 1997 SU₁₅

Id. G. V. Williams, A. Gnädig, A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 126.02502 (2000.0)				Williams			
<i>P</i>		<i>P</i>		<i>Q</i>		<i>Q</i>	
<i>n</i>	0.25803129	ω	67.99578	+0.92803842	-0.37200770		
<i>a</i>	2.4435495	Ω	313.83802	+0.33139170	+0.84769387		
<i>e</i>	0.2067293	<i>i</i>	1.49673	+0.17007125	+0.37818695		
<i>P</i>	3.82	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	3

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Residuals in seconds of arc

1993 09 14	809	(2.0+	5.2+)	1997 08 05	910	0.6-	0.6+	1997 10 22	704	0.9-	0.5+
1993 09 14	809	(2.8+	4.1+)	1997 08 05	910	0.5-	0.3+	1997 10 22	704	0.7+	0.2-
1993 09 14	809	(3.1+	4.3+)	1997 09 27	910	0.2+	0.0	1997 10 22	704	1.7+	0.5-
1993 09 19	809	(1.2+	3.9+)	1997 09 27	910	0.1+	0.1-	1997 10 22	704	0.2-	0.2-
1993 09 19	809	(0.2+	3.4+)	1997 09 27	910	0.3+	0.1-	1997 11 03	704	0.0	0.5+
1993 09 19	809	(1.0+	3.8+)	1997 09 29	910	0.1+	0.5-	1997 11 03	704	0.1-	0.8+
1993 09 20	691	0.6+	0.0	1997 09 30	910	0.6+	0.5-	1997 11 03	704	0.7-	0.1-
1993 09 20	691	0.4+	0.5+	1997 09 30	910	0.6+	0.6-	1997 11 03	704	0.7-	0.3-
1993 09 20	691	0.0	0.4+	1997 09 30	910	0.9+	0.5-	1997 11 03	704	0.4-	0.2+
1993 10 10	675	0.5-	0.7-	1997 09 30	910	0.9+	0.5-	1997 11 17	327	0.4-	0.4+
1993 10 10	675	0.9-	0.3+	1997 10 01	910	0.8+	0.4-	1997 11 17	327	0.8-	0.1+
1997 08 05	910	0.7-	0.5+	1997 10 22	704	0.7-	0.2+	1997 11 17	327	0.6-	0.1+

1993 SV₃ = 1999 CF₁₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 176.88774 (2000.0)				Williams			
<i>P</i>		<i>P</i>		<i>Q</i>		<i>Q</i>	
<i>n</i>	0.26115074	ω	297.69035	+0.67258170	+0.73227938		
<i>a</i>	2.4240517	Ω	16.06326	-0.46633147	+0.53143061		
<i>e</i>	0.2866711	<i>i</i>	22.69882	-0.57460318	+0.42585022		
<i>P</i>	3.77	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 09 18	675	0.1-	0.9-	1993 10 13	675	1.4-	2.5-	1999 02 11	704	2.1-	1.4-
1993 09 18	675	0.8+	0.1+	1993 10 13	675	1.4-	0.8-	1999 02 11	704	0.1+	1.9+
1993 09 18	675	1.0+	0.7+	1993 10 15	010	1.8+	1.4+	1999 02 11	704	0.7+	0.0
1993 09 18	675	1.0+	1.1+	1993 10 15	010	2.2+	1.7+	1999 02 18	704	0.3-	1.2+
1993 09 22	675	0.7-	1.2-	1993 10 15	010	1.0+	2.3+	1999 02 18	704	0.4+	0.7-
1993 09 22	675	0.2+	0.1+	1993 10 21	413	2.0+	2.8-	1999 02 18	704	1.3+	0.7+
1993 09 24	413	3.2-	0.7+	1993 10 21	413	3.3-	0.9+	1999 02 18	704	1.5+	0.8-
1993 09 24	413	0.2+	0.8-	1999 02 11	704	2.1-	0.2-	1999 02 18	704	0.5+	0.6-

1993 TA₃ = 1999 FX₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 241.22627 (2000.0)				Williams			
<i>P</i>		<i>P</i>		<i>Q</i>		<i>Q</i>	
<i>n</i>	0.28134683	ω	159.55204	+0.59848973	+0.80024978		
<i>a</i>	2.3066128	Ω	147.17723	-0.74431531	+0.57277291		
<i>e</i>	0.1562109	<i>i</i>	3.97282	-0.29631868	+0.17757108		
<i>P</i>	3.50	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1993 10 09	809	0.4+	0.6-	1993 10 14	675	0.4-	0.4-	1999 03 19	704	0.6-	0.4-
1993 10 09	809	0.8+	1.0-	1993 10 15	675	0.5-	0.8-	1999 03 19	704	0.5-	0.2-
1993 10 09	809	0.4+	0.7-	1993 10 15	400	1.2-	1.0+	1999 03 19	704	0.2-	0.9+
1993 10 11	809	1.2+	0.8+	1993 10 15	400	2.0-	2.3-	1999 03 20	704	0.8-	0.8+
1993 10 11	809	0.7+	1.2+	1993 10 20	809	2.3+	0.5+	1999 03 20	704	0.3+	1.7+
1993 10 11	809	0.3+	0.6+	1993 10 20	809	0.5+	0.3+	1999 03 20	704	0.3+	0.4+
1993 10 11	400	2.2-	1.0+	1993 10 20	809	0.3+	0.2+	1999 03 20	704	0.7+	0.4-
1993 10 11	400	0.7-	1.3+	1999 03 19	704	0.1+	0.8-	1999 03 20	704	1.1+	0.0
1993 10 14	675	0.0	1.0-	1999 03 19	704	0.3-	1.9-				

1993 TW₈ = 1999 CG₁₂₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 87.65478 (2000.0)				Williams			
<i>P</i>		<i>P</i>		<i>Q</i>		<i>Q</i>	
<i>n</i>	0.22674426	ω	354.48629	+0.97545541	-0.20616358		
<i>a</i>	2.6634539	Ω	17.98577	+0.21039064	+0.76894971		
<i>e</i>	0.2549935	<i>i</i>	14.50755	+0.06498095	+0.60515528		
<i>P</i>	4.35	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 10 11	691	0.5-	0.2-	1993 10 20	675	1.0+	0.1-	1999 02 18	704	0.6+	0.8+
1993 10 11	691	0.8-	0.3-	1993 10 21	675	0.2+	0.7-	1999 02 18	704	0.7-	0.3+
1993 10 11	691	0.6-	0.3-	1999 02 11	704	0.3+	1.2-	1999 02 18	704	0.9+	1.3+
1993 10 13	691	0.1-	0.3+	1999 02 11	704	0.4-	0.8-	1999 02 18	704	0.3+	0.7+
1993 10 13	691	0.2-	0.3+	1999 02 11	704	0.5+	1.0-	1999 02 18	704	0.7-	1.0+

1993 10 13 691 0.1- 0.2+ 1999 02 11 704 0.0 0.6-
 1993 10 20 675 1.1+ 0.8+ 1999 02 11 704 0.9- 0.4-

1993 TO₁₈ = 1992 JZ₁ = 1999 CE₄₂

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26471358	ω	207.11578	-0.57958053	+0.81455694		
<i>a</i>	2.4022520	Ω	27.48344	-0.73786036	-0.51196654		
<i>e</i>	0.1478316	<i>i</i>	3.00014	-0.34590246	-0.27274027		
<i>P</i>	3.72	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 05 02	809	(2.1- 1.1+)	1993 10 20	809	(2.0+ 2.4+)	1999 02 13	704	0.3- 0.3+
1992 05 02	809	1.6- 1.0+	1993 10 20	809	(0.1+ 2.8+)	1999 02 13	704	0.8+ 0.7+
1992 05 02	809	1.3- 0.8+	1993 10 20	809	0.3- 1.9+	1999 02 13	704	0.3- 1.2+
1992 05 03	809	1.5+ 0.3-	1999 02 10	704	0.6+ 0.4-	1999 02 13	704	0.2+ 1.4+
1992 05 03	809	1.7+ 0.5-	1999 02 10	704	0.2+ 0.2+	1999 02 18	566	0.9- 0.8-
1992 05 03	809	(2.3+ 0.6-)	1999 02 10	704	1.0+ 0.2+	1999 02 18	566	0.8- 0.9-
1993 10 09	809	0.3+ 0.4-	1999 02 10	704	0.1+ 0.2+	1999 02 18	566	1.0- 0.7-
1993 10 09	809	0.9- 0.9+	1999 02 10	704	1.8- 1.3+	1999 02 23	699	0.3+ 0.1-
1993 10 09	809	0.4- 0.3-	1999 02 12	699	0.3- 0.3+	1999 02 23	699	0.7+ 0.5-
1993 10 11	809	0.5+ 0.1+	1999 02 12	699	0.8+ 1.4-	1999 02 23	699	0.4+ 0.7-
1993 10 11	809	0.4- 0.4-	1999 02 12	699	0.4+ 0.6-			
1993 10 11	809	0.7+ 0.6-	1999 02 13	704	0.1+ 0.6+			

1993 TO₂₂ = 1996 HN₅

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20573166	ω	295.56778	+0.94003458	-0.33749617		
<i>a</i>	2.8418553	Ω	84.18874	+0.32801833	+0.85491892		
<i>e</i>	0.1076613	<i>i</i>	2.84093	+0.09348243	+0.39396697		
<i>P</i>	4.79	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 10 09	809	(1.0+ 3.7-)	1995 02 02	327	0.9- 1.6-	1996 04 19	691	1.1- 1.0-
1993 10 09	809	(0.3+ 2.9-)	1995 02 02	327	0.1+ 0.0	1996 04 19	691	1.4- 1.0-
1993 10 09	809	(0.6+ 3.7-)	1995 02 02	327	0.8- 0.6-	1996 04 24	691	0.7+ 0.4+
1993 10 11	809	1.1+ 0.0	1995 02 02	327	0.1- 1.3+	1996 04 24	691	0.7+ 0.4+
1993 10 11	809	0.2+ 0.4-	1995 02 02	327	1.6+ 0.8+	1996 04 24	691	0.8+ 0.4+
1993 10 11	809	0.9- 0.4-	1996 04 19	691	0.1- 0.2-			

1993 TP₂₇ = 1999 CV₅₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24350792	ω	48.60157	-0.83215324	-0.55127693		
<i>a</i>	2.5397677	Ω	97.86080	+0.48895840	-0.78055461		
<i>e</i>	0.1645814	<i>i</i>	3.47959	+0.26161169	-0.29466633		
<i>P</i>	4.05	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 10 09	809	(2.3- 0.3+)	1999 01 15	699	0.7+ 0.3+	1999 02 13	704	0.7+ 0.8-
1993 10 09	809	1.2- 0.5-	1999 01 15	699	0.2- 0.6+	1999 02 13	704	1.4+ 0.3+
1993 10 09	809	0.9- 0.4-	1999 01 23	699	0.5+ 0.4-	1999 02 13	704	0.1- 0.3+
1993 10 11	809	0.6+ 0.8+	1999 01 23	699	0.7- 0.6-	1999 02 13	704	0.6+ 0.1-
1993 10 11	809	0.4- 0.4+	1999 01 23	699	0.2- 0.6+	1999 02 13	704	1.1- 0.8+
1993 10 11	809	0.2- 0.4+	1999 02 10	704	0.1+ 0.8-	1999 03 20	699	0.5- 0.3+
1993 10 20	809	1.3+ 0.7-	1999 02 10	704	0.2+ 0.0	1999 03 20	699	0.8- 1.8-
1993 10 20	809	1.3+ 0.1+	1999 02 10	704	0.3- 0.3+	1999 03 20	699	0.2+ 0.6+
1993 10 20	809	0.3- 0.6-	1999 02 10	704	0.4- 0.0			
1999 01 15	699	0.7- 0.9+	1999 02 10	704	0.5+ 0.6-			

1993 TO₂₉ = 1998 DO₁₇

Id. A. Doppler, A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29269329	ω	203.50983	+0.88937055	-0.45713217		
<i>a</i>	2.2466092	Ω	183.71534	+0.43489858	+0.85069107		
<i>e</i>	0.1159387	<i>i</i>	6.27785	+0.14100801	+0.25952819		
<i>P</i>	3.37	<i>H</i>	16.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 10 09	809	0.1+ 0.5+	1993 10 21	809	0.7- 1.8-	1998 02 28	691	0.1- 0.1-
1993 10 09	809	0.4+ 1.0-	1993 10 21	809	(0.9- 3.2-)	1998 02 28	691	0.1- 0.1-
1993 10 09	809	0.8- 1.7-	1993 10 21	809	(1.0- 2.8-)	1998 02 28	691	0.2- 0.1-
1993 10 11	809	0.2- 1.4+	1998 02 23	691	0.1+ 0.1+	1998 03 03	691	0.3+ 0.3+
1993 10 11	809	0.7+ 1.4+	1998 02 23	691	0.2- 0.5-	1998 03 03	691	0.0 0.2+
1993 10 11	809	0.3+ 1.1+	1998 02 23	691	0.1- 0.2+	1998 03 03	691	0.3+ 0.1+

1993 TO₃₆ = 1999 CY₂₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24055001	ω	32.35720	+0.97770396	+0.08907655		
<i>a</i>	2.5605453	Ω	321.09793	-0.18697957	+0.78144050		
<i>e</i>	0.2396392	<i>i</i>	17.62614	+0.09556990	+0.61758896		
<i>P</i>	4.10	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 10 11	675	0.0 0.0	1999 02 10	704	1.0- 0.7-	1999 03 19	910	0.0 0.1-
1993 10 13	675	0.1- 0.6-	1999 02 13	704	0.3+ 0.8-	1999 03 19	910	0.3+ 0.1+
1993 10 13	675	0.0 0.2-	1999 02 13	704	1.1+ 0.0	1999 03 19	910	0.3+ 0.3-
1993 10 15	675	0.1+ 0.5+	1999 02 13	704	0.2+ 0.7+	1999 03 20	910	0.0 0.0
1993 10 15	675	0.1- 0.3+	1999 02 13	704	0.4- 0.0	1999 03 20	910	0.1- 0.1+
1999 02 10	704	0.1+ 0.6-	1999 02 13	704	0.6- 0.8+	1999 03 20	910	0.0 0.1+
1999 02 10	704	0.2+ 0.5-	1999 02 24	699	0.6+ 0.1+	1999 03 23	691	0.2- 0.5-
1999 02 10	704	0.1- 0.2-	1999 02 24	699	0.9- 1.6+	1999 03 23	691	0.0 0.2-
1999 02 10	704	0.6+ 0.3-	1999 02 24	699	0.2- 0.7+	1999 03 23	691	0.3- 0.2-

1993 TJ₃₈ = 1999 CC₆₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23541283	ω	250.07631	+0.30409571	-0.95261354		
<i>a</i>	2.5976619	Ω	182.25846	+0.92856383	+0.29811246		
<i>e</i>	0.0308505	<i>i</i>	10.67167	+0.21282627	+0.06046829		
<i>P</i>	4.19	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 10 09	809	(0.7- 2.0-)	1993 10 21	809	0.4+ 0.3+	1999 02 12	704	0.3+ 0.2-
1993 10 09	809	0.5- 1.2-	1993 10 21	809	0.1+ 0.7-	1999 02 16	704	0.4- 1.3+
1993 10 09	809	1.4- 1.6-	1993 10 21	809	0.1+ 0.0	1999 02 16	704	0.4- 0.8+
1993 10 11	809	0.6+ 1.8+	1999 02 12	704	1.5+ 0.3+	1999 02 16	704	0.5- 0.2+
1993 10 11	809	0.7+ 1.4+	1999 02 12	704	0.6+ 0.5-	1999 02 16	704	0.6- 0.1-
1993 10 11	809	(1.7+ 2.0+)	1999 02 12	704	0.5+ 1.3-	1999 02 16	704	1.1- 0.5-

1993 UZ₂ = 1999 CM₁₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22705592	ω	308.88034	+0.74160161	-0.44846347		
<i>a</i>	2.6610161	Ω	83.31619	+0.65565121	+0.64190547		
<i>e</i>	0.2548815	<i>i</i>	30.15363	-0.14194554	+0.62196292		
<i>P</i>	4.34	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1993 10 21	413	0.7- 0.8+	1993 10 27	413	0.3+ 0.8-	1999 02 11	704	0.2- 0.2+
1993 10 21	413	0.2+ 1.3+	1993 12 11	413	0.3- 0.6+	1999 02 11	704	0.7+ 0.5+
1993 10 23	413	1.2- 0.5+	1994 01 22	413	0.2+ 0.2+	1999 02 18	704	0.3+ 0.7-

1993 10 25	413	1.0+	0.1-	1994 01 22	413	0.3-	0.4-	1999 02 18	704	1.0+	0.5-
1993 10 26	413	0.2+	0.8-	1999 02 11	704	0.4-	0.2-	1999 02 18	704	1.8+	0.2-
1993 10 26	413	0.2+	0.6-	1999 02 11	704	0.5-	0.1-	1999 02 18	704	1.8-	0.4+
1993 10 27	413	0.3+	0.7-	1999 02 11	704	1.0-	0.1+	1999 02 18	704	0.1+	0.4+

1993 UZ₆ = 1998 XP₅₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
<i>M</i>	257.85735	(2000.0)		P		Q	
<i>n</i>	0.21808248	ω	69.31462	-0.96278723		+0.26022957	
<i>a</i>	2.7335196	Ω	125.70026	-0.26909505		-0.89801499	
<i>e</i>	0.0335618	<i>i</i>	5.15369	-0.02507187		-0.35475294	
<i>P</i>	4.52	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1993 10 10	809	0.7+	0.5+	1993 10 21	809	0.1-	0.6-	1998 12 16	704	0.3+	1.1-
1993 10 10	809	0.2-	0.3+	1993 10 21	809	0.5-	0.3+	1998 12 16	704	0.7-	0.5+
1993 10 10	809	0.6-	0.8-	1993 10 21	809	1.5-	0.6+	1998 12 16	704	0.2+	0.5+
1993 10 20	809	1.0+	0.3-	1998 12 15	704	0.4+	0.7+	1998 12 16	704	0.3+	0.7+
1993 10 20	809	1.2+	0.5-	1998 12 15	704	0.4-	1.6-	1998 12 16	704	0.2-	0.1+
1993 10 20	809	0.0	0.5+	1998 12 15	704	0.2+	0.2+				

1993 VP = 1980 TL₁₂ = 1999 CX₁₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	59.45300	(2000.0)		P		Q	
<i>n</i>	0.22856590	ω	36.66592	+0.41070335		-0.90450700	
<i>a</i>	2.6492834	Ω	29.59215	+0.77152875		+0.27764223	
<i>e</i>	0.1486334	<i>i</i>	13.44827	+0.48586639		+0.32370030	
<i>P</i>	4.31	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1980 10 10	095	0.1-	0.2+	1993 11 18	894	0.6-	0.3+	1999 02 11	704	0.4-	0.1+
1993 11 09	894	0.7+	1.1+	1993 12 04	894	0.4+	0.5-	1999 02 18	704	0.2+	0.6-
1993 11 09	894	0.4-	0.9+	1993 12 04	894	0.2-	0.2+	1999 02 18	704	0.1+	1.0-
1993 11 14	894	0.1-	0.4-	1993 12 07	894	0.2+	0.4-	1999 02 18	704	0.4-	1.1-
1993 11 14	894	0.4-	1.4-	1999 02 11	704	0.1-	0.6+	1999 02 18	704	(0.8-	2.6-)
1993 11 15	894	(4.1+	0.3-)	1999 02 11	704	1.3+	1.0-	1999 02 18	704	0.3-	0.9-
1993 11 15	894	(0.1-	3.1-)	1999 02 11	704	0.7-	0.2+	1999 03 13	650	0.7+	1.7+
1993 11 18	894	0.4+	0.0	1999 02 11	704	0.1+	0.8+	1999 03 13	650	0.4-	1.6+

1994 CQ₁₃ = 1997 WF₃₆ = 1999 CX₉₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	148.68699	(2000.0)		P		Q	
<i>n</i>	0.17685784	ω	285.54094	+0.90251264		+0.42352331	
<i>a</i>	3.1433048	Ω	49.46998	-0.34516916		+0.81979910	
<i>e</i>	0.1490016	<i>i</i>	5.89747	-0.25754454		+0.38543149	
<i>P</i>	5.57	<i>H</i>	12.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 02 08	809	0.2+	1.3+	1994 03 10	010	1.1-	0.6+	1997 12 04	704	0.8-	0.7-
1994 02 08	809	0.2+	0.4+	1994 03 10	010	0.1+	0.5-	1997 12 04	704	(2.6+	2.9-)
1994 02 08	809	0.4-	0.3+	1994 03 10	010	0.0	0.9-	1997 12 04	704	(2.4-	0.1-)
1994 02 10	809	1.0+	1.0+	1997 11 29	704	0.3-	0.5+	1997 12 04	704	0.4+	0.5+
1994 02 10	809	0.3-	0.2+	1997 11 29	704	0.5+	0.2+	1999 02 10	704	0.2+	0.0
1994 02 10	809	0.0	0.3+	1997 11 29	704	0.2-	0.5-	1999 02 10	704	1.9-	0.2-
1994 02 13	809	(0.8-	3.5-)	1997 11 29	704	0.2+	0.9-	1999 02 10	704	0.3-	0.6-
1994 02 13	809	(1.8-	3.7-)	1997 11 29	704	0.5-	0.4-	1999 02 10	704	0.0	1.9-
1994 02 13	809	(2.9-	4.5-)	1997 11 30	566	0.5-	0.5+	1999 02 13	704	1.2+	0.7+
1994 03 09	010	1.0-	0.4-	1997 11 30	566	0.3-	0.8+	1999 02 13	704	1.5+	1.6+
1994 03 09	010	0.5+	1.3-	1997 11 30	566	0.5-	0.6+	1999 02 13	704	0.0	0.7-
1994 03 09	010	1.0+	0.8-	1997 12 04	704	1.9+	0.8-	1999 02 13	704	0.8-	0.9+

1994 CE₁₄ = 1995 KW = 1999 CX₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	346.90890	(2000.0)		P		Q	
<i>n</i>	0.18527402	ω	21.32539	-0.84644612		-0.51166520	
<i>a</i>	3.0473782	Ω	127.04311	+0.45791996		-0.84075334	
<i>e</i>	0.0356221	<i>i</i>	10.64210	+0.27173201		-0.17701000	
<i>P</i>	5.32	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 02 08	809	1.0-	2.1+	1995 05 21	327	0.5-	0.7-	1999 02 10	704	0.9-	0.0
1994 02 08	809	1.0-	2.0+	1995 05 22	327	0.0	0.3-	1999 02 12	699	2.5-	1.1-
1994 02 08	809	1.4-	2.2+	1995 05 22	327	0.3+	0.4-	1999 02 12	699	0.5+	0.7-
1994 02 10	809	1.8+	0.2-	1995 05 22	327	0.2-	0.4-	1999 02 12	699	0.0	0.6-
1994 02 10	809	0.8+	0.5+	1995 05 22	327	0.2-	0.1+	1999 02 13	704	0.5-	0.1+
1994 02 10	809	0.1-	0.7-	1999 01 13	699	0.9+	0.1+	1999 02 13	704	0.3-	0.8-
1994 02 13	809	2.1+	1.4+	1999 01 13	699	0.3-	0.3-	1999 02 13	704	0.4+	0.5-
1994 02 13	809	0.8+	1.3+	1999 01 13	699	0.8+	0.2+	1999 02 13	704	1.6+	0.5-
1994 02 13	809	0.8+	1.4+	1999 02 10	704	0.2+	0.6-	1999 02 13	704	0.4+	0.8-
1995 05 21	327	0.3-	0.7-	1999 02 10	704	0.0	0.1+	1999 02 19	566	0.5-	1.7-
1995 05 21	327	0.1-	0.7-	1999 02 10	704	0.4-	0.0	1999 02 19	566	0.5-	1.6-
1995 05 21	327	0.2+	1.0-	1999 02 10	704	0.4+	0.0	1999 02 19	566	0.4-	2.0-

1994 CR₁₄ = 1999 CB₄₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	139.20937	(2000.0)		P		Q	
<i>n</i>	0.18742240	ω	231.02505	+0.98815751		+0.00455627	
<i>a</i>	3.0240459	Ω	128.16948	+0.03896189		+0.95934887	
<i>e</i>	0.1119240	<i>i</i>	11.24985	-0.14841397		+0.28218608	
<i>P</i>	5.26	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 02 08	809	1.5+	0.5+	1999 02 10	704	0.2-	0.2-	1999 02 13	704	0.1+	0.2-
1994 02 08	809	1.1+	0.3-	1999 02 10	704	0.4+	0.4-	1999 02 13	704	1.6+	1.2-
1994 02 08	809	0.4-	0.4+	1999 02 10	704	0.9-	0.5+	1999 02 13	704	0.9-	1.0-
1994 02 10	809	1.0+	1.4-	1999 02 10	704	0.6-	0.1-	1999 02 13	704	2.3-	0.8+
1994 02 10	809	0.7-	1.2-	1999 02 10	704	2.2-	0.5+	1999 02 18	566	0.5+	0.1+
1994 02 10	809	0.9-	1.1-	1999 02 12	699	0.1-	0.9+	1999 02 18	566	0.8+	0.0
1994 02 13	809	0.3+	0.4+	1999 02 12	699	0.7+	0.3-	1999 02 18	566	0.8+	0.0
1994 02 13	809	1.1-	0.9+	1999 02 12	699	1.1+	0.7+				
1994 02 13	809	0.8-	1.7+	1999 02 13	704	1.0+	0.0				

1994 CD₁₈ = 1989 SG₈

Id. G. V. Williams, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
<i>M</i>	310.73516	(2000.0)		P		Q	
<i>n</i>	0.30366436	ω	20.63598	+0.94521639		-0.32642050	
<i>a</i>	2.1921663	Ω	358.39972	+0.27614202		+0.80596667	
<i>e</i>	0.1919071	<i>i</i>	8.13857	+0.17410213		+0.49382930	
<i>P</i>	3.25	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1989 09 27	675	0.1-	1.2+	1994 02 08	809	1.5+	1.1-	1994 02 10	809	1.2-	0.6+
1989 09 28	675	0.3-	0.2-	1994 02 08	809	0.9+	1.1-	1994 02 13	809	0.3-	0.3+
1989 09 28	675	0.5+	0.5+	1994 02 08	809	0.9+	1.1-	1994 02 13	809	0.8-	1.0+
1989 09 29	675	0.2-	0.7-	1994 02 10	809	(0.0	2.3+)	1994 02 13	809	0.4-	0.2+
1989 09 29	675	0.2+	0.7-	1994 02 10	809	0.5-	1.2+				

1994 GD₁₀ = 1988 DK₃ = 1999 CA₈₆

Id. A. Doppler

1999 APR. 2

M.P.C. 34193

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	338.30466		(2000.0)	P	Q
<i>n</i>	0.18116899	ω	88.84910	-0.90002700	-0.43484038
<i>a</i>	3.0932389	Ω	65.37515	+0.38589824	-0.82645783
<i>e</i>	0.1242482	<i>i</i>	1.85429	+0.20256839	-0.35760494
<i>P</i>	5.44	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1988 02 16	809	0.8-	1.3-	1997 09 01	910	0.3-	0.8+	1999 02 10	704	(0.9+	2.1+)
1988 02 16	809	0.1+	1.7-	1997 09 01	910	0.3-	1.0+	1999 02 13	704	0.9+	1.2+
1988 02 16	809	0.1+	1.8-	1997 09 01	910	0.3-	0.8+	1999 02 13	704	0.8-	0.7+
1994 04 03	033	0.3+	1.5+	1999 02 10	704	0.8-	1.3-	1999 02 13	704	0.4-	1.0+
1994 04 03	033	0.6+	0.3+	1999 02 10	704	0.8+	0.3-	1999 02 13	704	0.6-	0.6+
1994 04 03	033	0.9-	0.1-	1999 02 10	704	1.0+	0.8+				
1994 04 04	033	0.7+	0.1+	1999 02 10	704	0.9+	0.9+				

1994 GF₁₀ = 1996 VK₂ = 1999 EU₄

Id. S. Nakano, A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	318.06758		(2000.0)	P	Q
<i>n</i>	0.20090893	ω	114.33581	-0.74614067	+0.66542509
<i>a</i>	2.8871535	Ω	107.38715	-0.61889649	-0.68103539
<i>e</i>	0.0851735	<i>i</i>	1.32037	-0.24544091	-0.30561452
<i>P</i>	4.91	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1994 04 03	033	0.9+	0.5+	1996 11 11	684	0.3+	0.0	1999 03 15	727	0.5-	0.9-
1994 04 03	033	0.3+	0.7+	1996 11 11	684	0.0	0.1-	1999 03 16	727	0.7-	0.7-
1994 04 03	033	0.2+	0.3+	1996 11 12	684	0.0	0.1+	1999 03 16	727	0.9+	0.0
1994 04 04	033	0.7-	0.2+	1996 11 12	684	0.0	0.0	1999 03 16	727	0.6-	0.2-
1996 11 10	684	0.1-	0.2-	1996 11 12	684	0.0	0.1+	1999 03 24	699	0.7+	0.1-
1996 11 10	684	0.1-	0.1-	1999 03 15	727	0.4-	0.3-	1999 03 24	699	0.1-	0.6+
1996 11 11	684	0.0	0.1-	1999 03 15	727	1.0-	1.0-	1999 03 24	699	0.7+	0.8+

1994 NV₁ = 1998 BY₁₇

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	313.02224		(2000.0)	P	Q
<i>n</i>	0.18621539	ω	158.79647	+0.30857548	+0.94718842
<i>a</i>	3.0370993	Ω	129.06978	-0.88808235	+0.31974708
<i>e</i>	0.2793858	<i>i</i>	6.45372	-0.34072116	+0.02441110
<i>P</i>	5.29	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1994 07 05	010	0.2+	0.2+	1994 07 08	010	0.5+	1.1+	1998 01 22	691	0.3+	0.0
1994 07 05	010	1.1-	1.9-	1994 07 14	010	1.3-	0.3+	1998 01 22	691	0.3+	0.2-
1994 07 05	010	(0.9-	2.6-)	1994 07 14	010	0.5-	1.0-	1998 01 28	691	0.1-	0.2+
1994 07 08	010	0.3+	1.3+	1994 07 14	010	1.2+	0.0	1998 01 28	691	0.3-	0.1-
1994 07 08	010	0.6+	0.0	1998 01 22	691	0.1+	0.0	1998 01 28	691	0.3-	0.0

1994 PU₈ = 1999 CO₈₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	29.83380		(2000.0)	P	Q
<i>n</i>	0.30204168	ω	115.70685	+0.05311670	-0.99652695
<i>a</i>	2.2000107	Ω	331.02789	+0.86217475	+0.07816726
<i>e</i>	0.1484365	<i>i</i>	7.60801	+0.50381873	-0.02870401
<i>P</i>	3.26	<i>H</i>	15.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1994 08 10	809	(2.3+	2.6-)	1999 02 10	704	0.0	0.1+	1999 02 18	566	0.0	0.4-
1994 08 10	809	(2.5+	2.1-)	1999 02 10	704	0.4+	0.1+	1999 02 23	699	0.5-	0.6+
1994 08 10	809	(1.5+	2.5-)	1999 02 10	704	1.4-	0.1+	1999 02 23	699	0.8-	0.1+
1994 08 11	809	(1.7+	3.9-)	1999 02 10	704	0.1-	0.1-	1999 02 23	699	0.5-	0.2+
1994 08 11	809	(1.0+	3.1-)	1999 02 10	704	0.3-	0.4-	1999 03 16	910	0.7-	0.1-

1994 08 11	809	(0.9+	2.9-)	1999 02 11	699	1.3+	0.2+	1999 03 16	910	0.7-	0.2-
1994 09 03	809	0.1-	0.3-	1999 02 11	699	0.4+	0.8+	1999 03 16	910	0.5-	0.1-
1994 09 03	809	0.9+	0.4+	1999 02 11	699	0.6+	0.4+	1999 03 20	910	0.7+	0.4+
1994 09 03	809	0.0	0.1-	1999 02 13	704	0.4+	0.1-	1999 03 20	910	0.8+	0.5+
1994 09 04	809	0.6-	0.7+	1999 02 13	704	0.6-	0.5+	1999 03 20	910	0.8+	0.3+
1994 09 04	809	0.3-	0.1-	1999 02 13	704	(2.6+	0.9+)	1999 03 23	691	0.1+	0.7-
1994 09 04	809	0.3-	0.0	1999 02 13	704	1.0+	0.2+	1999 03 23	691	0.4+	0.3-
1999 01 22	699	0.3-	0.9-	1999 02 13	704	0.6+	0.5+	1999 03 23	691	0.1-	0.2-
1999 01 22	699	0.6-	0.3-	1999 02 18	566	0.2-	0.2-				
1999 01 22	699	0.4+	0.5-	1999 02 18	566	0.4-	0.3-				

1994 PH₁₄ = 1999 CL₁₀₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	47.56959		(2000.0)	P	Q
<i>n</i>	0.29178387	ω	221.77779	+0.40993206	-0.91206321
<i>a</i>	2.2512749	Ω	204.02660	+0.84311095	+0.38300436
<i>e</i>	0.2347381	<i>i</i>	1.38177	+0.34802246	+0.14645258
<i>P</i>	3.38	<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 04	809	1.5-	0.8-	1999 02 12	699	0.4+	0.5+
1994 08 10	809	0.8-	0.3-	1999 01 22	699	0.9-	0.1-	1999 02 12	704	0.7-	0.1-
1994 08 10	809	0.6-	0.0	1999 01 22	699	0.6-	0.8-	1999 02 12	699	1.8+	0.1-
1994 08 11	809	0.4-	1.1-	1999 01 22	699	0.8-	0.1-	1999 02 12	699	1.6+	0.5+
1994 08 11	809	0.2-	1.1-	1999 02 09	691	0.4-	0.0	1999 02 16	704	0.1+	0.3-
1994 08 11	809	1.0-	0.7-	1999 02 09	691	0.6-	0.1+	1999 02 16	704	0.1-	0.6-
1994 09 03	809	1.0+	1.7+	1999 02 09	691	0.6-	0.1+	1999 02 16	704	0.3-	0.1+
1994 09 03	809	1.7+	1.9+	1999 02 12	704	0.3+	0.2+	1999 02 16	704	0.1+	0.5+
1994 09 03	809	1.6+	1.7+	1999 02 12	704	0.1-	0.3-	1999 02 16	704	0.6+	0.6+
1994 09 04	809	1.1-	1.2-	1999 02 12	704	0.3-	0.0				
1994 09 04	809	0.2-	0.6-	1999 02 12	704	0.3+	0.2-				

1994 PN₂₅ = 1991 VE₁₁ = 1997 GL₄₁Id. B. G. Marsden (*MPC* 24901), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	163.97775		(2000.0)	P	Q
<i>n</i>	0.26539606	ω	119.04413	-0.75934700	+0.64957050
<i>a</i>	2.3981319	Ω	101.49218	-0.60969275	-0.68984326
<i>e</i>	0.1331387	<i>i</i>	2.22719	-0.22730353	-0.31964737
<i>P</i>	3.71	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1991 11 06	691	0.1-	1.6+	1994 09 06	809	(2.8+	1.2+)	1998 09 14	704	0.4+	0.3+
1991 11 06	691	0.3-	1.2+	1994 09 06	809	(2.6+	1.3+)	1998 09 14	704	0.6-	0.7-
1991 11 06	691	0.3-	1.2+	1994 09 09	675	0.1+	1.4-	1998 09 18	704	0.3+	1.1+
1991 11 07	691	0.1-	1.0+	1997 04 09	809	0.1+	1.0+	1998 09 18	704	1.2+	1.3+
1991 11 07	691	0.6-	0.6+	1997 04 09	809	0.2+	0.0	1998 09 18	704	0.2-	0.2+
1991 11 07	691	0.5-	0.6+	1997 04 09	809	0.3+	0.2+	1998 09 18	704	1.6+	1.0+
1994 08 12	809	1.0-	1.2-	1997 04 10	809	1.1+	1.6+	1998 09 26	704	1.1-	0.7+
1994 08 12	809	(2.0-	0.9-)	1997 04 10	809	0.7+	1.2+	1998 09 26	704	0.7-	1.1+
1994 08 12	809	1.0-	1.2-	1997 04 10	809	0.9+	0.8+	1998 09 26	704	0.2-	1.2-
1994 08 13	809	0.8-	0.5+	1997 04 11	809	0.1-	0.7+	1998 09 26	704	0.3+	0.2-
1994 08 13	809	1.0-	1.0+	1997 04 11	809	0.8+	0.1+	1998 09 26	704	0.6+	1.8-
1994 08 13	809	0.8-	1.0+	1997 04 11	809	0.0	0.2+	1998 09 27	704	0.7-	0.2+
1994 09 05	809	1.5+	0.4+	1997 04 12	809	1.7-	1.3+	1998 09 27	704	0.3-	1.5+
1994 09 05	809	1.4+	0.3-	1997 04 12	809	0.0	0.2-	1998 09 27	704	(1.3-	2.6+)
1994 09 05	809	1.6+	0.4+	1997 04 12	809	0.7+	1.0+	1998 09 27	704	1.9-	0.7-
1994 09 06	809	(2.9+	1.9+)	1998 09 14	704	0.0	1.1+	1998 09 27	704	0.3-	0.2+

1994 VU₂ = 1977 UH₂ = 1987 SA₃₀ = 1999 CB₈₈

Id. A. Doppler

M.P.C. 34194

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	133.64712	(2000.0)	P		Q	
<i>n</i>	0.28959269	ω	313.28433	+0.94079450	+0.33463482	
<i>a</i>	2.2626167	Ω	27.29869	-0.26671875	+0.82923700	
<i>e</i>	0.1941067	<i>i</i>	6.77258	-0.20920522	+0.44764442	
<i>P</i>	3.40	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1977 10 20	033	0.2-	2.3-	1994 11 26	400	1.4-	1.4+	1999 02 10	704	0.8-	1.3-
1987 09 27	095	1.5+	0.0	1994 11 26	400	(2.8+	1.2+)	1999 02 10	704	1.1-	0.3-
1994 11 04	400	(3.2+	0.7-)	1997 08 02	566	0.2-	0.2+	1999 02 13	704	0.4-	0.0
1994 11 04	400	(4.2+	1.0-)	1997 08 02	566	1.2-	1.2+	1999 02 13	704	1.3+	1.9+
1994 11 06	400	1.3+	0.8+	1997 08 02	566	0.5+	0.3-	1999 02 13	704	1.6+	1.1+
1994 11 06	400	0.9-	0.9-	1999 02 10	704	0.9+	1.0-	1999 02 13	704	0.2+	0.0
1994 11 07	399	(3.2-	0.5+)	1999 02 10	704	(1.3-	2.1-)	1999 02 13	704	1.3-	0.1+
1994 11 07	399	0.6-	1.1+	1999 02 10	704	0.3+	0.0				

1994 VW₆ = 1999 CZ₁₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	158.18771	(2000.0)	P		Q	
<i>n</i>	0.29140247	ω	245.96697	+0.69641859	+0.70825035	
<i>a</i>	2.2532388	Ω	68.70149	-0.60503787	+0.66615763	
<i>e</i>	0.1918053	<i>i</i>	7.13245	-0.38591491	+0.23369950	
<i>P</i>	3.38	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1994 11 01	400	1.2+	0.4+	1997 11 29	566	0.2+	0.0	1999 02 10	704	0.6-	0.4-
1994 11 01	400	0.2+	0.2+	1997 11 29	566	0.0	0.3-	1999 02 10	704	0.1-	0.6+
1994 11 03	400	0.0	0.8+	1997 11 29	566	0.5-	0.4-	1999 02 10	704	1.7+	0.6-
1994 11 03	400	1.3-	1.6-	1997 11 29	566	0.6+	0.2-	1999 02 10	704	0.3-	0.6-
1994 11 26	400	(7.1-	1.6+)	1998 11 15	699	0.4-	1.4+	1999 02 13	704	1.4+	1.0-
1994 11 26	400	0.1-	0.3+	1998 11 15	699	0.8-	0.9+	1999 02 13	704	0.1+	0.2+
1997 11 29	566	0.1-	0.0	1998 11 15	699	0.2+	0.8+	1999 02 13	704	0.8-	0.5-
1997 11 29	566	0.2+	0.4-	1999 02 10	704	0.2+	0.4-	1999 02 13	704	0.7-	0.1+

1994 WO₃ = 1999 CO₁₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	88.09803	(2000.0)	P		Q	
<i>n</i>	0.27617311	ω	295.37580	+0.89545882	-0.22664865	
<i>a</i>	2.3353311	Ω	79.69015	+0.39014644	+0.81400851	
<i>e</i>	0.3028074	<i>i</i>	22.91787	-0.21433448	+0.53480888	
<i>P</i>	3.57	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1994 11 29	391	0.7-	2.4-	1994 12 08	391	0.1+	0.2-	1999 02 11	704	0.1-	0.9+
1994 11 29	391	2.1+	0.3-	1994 12 08	391	0.8+	0.0	1999 02 11	704	0.5-	0.1-
1994 11 30	391	1.8-	0.5+	1994 12 08	391	1.8+	1.0-	1999 02 11	704	1.0-	1.3-
1994 11 30	391	0.0	0.6-	1994 12 10	893	0.3-	0.1+	1999 02 11	704	0.6-	2.1+
1994 12 03	893	0.1-	0.8+	1994 12 10	893	0.9-	0.2+	1999 02 11	704	0.7+	1.0+
1994 12 03	893	0.1-	0.8+	1994 12 20	893	0.1-	0.1+	1999 02 18	704	0.0	0.7-
1994 12 04	893	0.8+	0.9+	1994 12 20	893	0.3+	0.0	1999 02 18	704	0.1+	0.4+
1994 12 04	893	0.4+	1.0+	1994 12 21	893	0.0	0.7-	1999 02 18	704	0.4+	0.4-
1994 12 06	893	0.9-	0.4+	1994 12 21	893	0.5+	0.2-	1999 02 18	704	0.1+	1.0-
1994 12 06	893	0.7-	0.0	1994 12 22	893	0.2+	0.5-	1999 02 18	704	1.0+	0.7-
1994 12 06	893	1.0-	0.5+	1994 12 22	893	0.3-	0.5+				

1994 WP₁₃ = 1997 MC

Id. A. Milani

1999 APR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	15.14352	(2000.0)	P		Q	
<i>n</i>	0.23499874	ω	248.49394	+0.86560735	-0.48017182	
<i>a</i>	2.6007126	Ω	139.82460	+0.50068620	+0.83347383	
<i>e</i>	0.2111143	<i>i</i>	12.71392	-0.00610275	+0.27341617	
<i>P</i>	4.19	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1994 11 28	675	0.0	0.6-	1997 06 23	132	0.7-	0.3+	1997 06 27	132	2.1+	0.7+
1994 11 28	675	1.0+	0.2+	1997 06 23	132	0.6+	0.3+	1997 06 27	132	1.3+	0.3+
1994 11 30	675	0.6-	0.5+	1997 06 23	132	1.6-	0.8+	1997 06 27	132	1.2+	0.6-
1994 11 30	675	0.1+	0.5+	1997 06 24	124	0.6-	0.2-	1997 07 01	132	2.2-	1.8+
1994 12 02	675	0.1-	0.4-	1997 06 24	124	0.7+	0.8-	1997 07 01	132	0.5-	1.5-
1994 12 02	675	0.4-	0.2-	1997 06 24	124	0.3-	1.2-				

1994 YC₄ = 1993 TV₄₇ = 1999 CK₆₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	267.27428	(2000.0)	P		Q	
<i>n</i>	0.26819980	ω	317.15200	-0.27914561	+0.95993301	
<i>a</i>	2.3813894	Ω	296.62502	-0.87339215	-0.26447020	
<i>e</i>	0.1754459	<i>i</i>	1.57842	-0.39907879	-0.09265058	
<i>P</i>	3.67	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1993 10 12	809	0.4+	0.4+	1995 01 08	691	0.3-	0.1-	1999 02 12	704	(2.2-	0.0)
1993 10 12	809	0.1+	0.2+	1995 01 08	691	0.4-	0.0	1999 02 16	704	0.8-	0.0
1993 10 12	809	0.8-	0.2+	1995 01 08	691	0.2-	0.4-	1999 02 16	704	0.4-	1.7+
1993 10 22	809	(4.7+	1.2-)	1995 01 08	691	0.3-	0.1-	1999 02 16	704	0.1+	0.4+
1993 10 22	809	(4.4+	0.7-)	1995 01 09	691	0.2+	0.1+	1999 02 16	704	0.5+	0.2-
1993 10 22	809	(3.8+	0.2+)	1995 01 09	691	0.2+	0.0	1999 02 16	704	0.8+	0.5-
1994 12 31	691	0.1-	0.0	1995 01 09	691	0.4+	0.2+	1999 02 23	699	0.7+	0.5+
1994 12 31	691	0.2-	0.7+	1999 02 09	691	(2.9+	3.5-)	1999 02 23	699	1.4+	0.1-
1994 12 31	691	0.2-	0.2+	1999 02 09	691	0.4-	0.1+	1999 02 23	699	1.1+	0.7+
1995 01 07	691	0.9+	1.7-	1999 02 09	691	0.3-	0.0	1999 03 12	691	0.0	0.8-
1995 01 07	691	0.1-	0.2-	1999 02 12	704	0.3-	0.0	1999 03 12	691	0.4-	0.7-
1995 01 07	691	0.2-	0.1-	1999 02 12	704	0.8-	0.6+	1999 03 12	691	0.2+	0.8-
1995 01 08	691	0.1-	0.1+	1999 02 12	704	0.8-	0.4+				
1995 01 08	691	0.1-	0.1-	1999 02 12	704	0.1+	0.1+				

1995 AX₃ = 1998 XF₇₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	357.56240	(2000.0)	P		Q	
<i>n</i>	0.24149454	ω	7.27428	-0.18150041	-0.96875558	
<i>a</i>	2.5538644	Ω	93.28924	+0.89350176	-0.23424795	
<i>e</i>	0.1446638	<i>i</i>	9.74748	+0.41074592	+0.08148937	
<i>P</i>	4.08	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1995 01 02	010	0.7+	1.0+	1998 11 23	704	0.0	0.2+	1998 12 22	704	0.1-	0.4+
1995 01 02	010	1.9+	0.5+	1998 12 15	704	0.5+	1.0+	1998 12 22	704	0.0	0.2-
1995 01 03	010	1.0-	0.3+	1998 12 15	704	0.9+	0.3+	1998 12 22	704	1.0+	0.4+
1995 01 04	010	1.0+	0.1-	1998 12 15	704	0.3+	0.3+	1998 12 22	704	0.3+	0.6+
1995 01 05	033	1.3-	1.5-	1998 12 15	704	0.1+	0.0	1998 12 22	704	0.3-	0.6+
1995 01 05	033	1.2-	0.8-	1998 12 16	704	0.2-	0.6-	1999 01 16	704	0.0	0.1-
1998 11 23	704	1.0-	0.5-	1998 12 16	704	0.3+	0.9-	1999 01 16	704	0.3-	0.5+
1998 11 23	704	0.5-	1.2-	1998 12 16	704	0.8-	0.2-	1999 01 16	704	0.1+	0.3-
1998 11 23	704	0.4+	0.6+	1998 12 16	704	1.1-	0.6+	1999 01 16	704	0.9-	1.2-
1998 11 23	704	1.0+	0.7-	1998 12 16	704	(3.0-	0.4-)	1999 01 16	704	0.1+	0.8+

1995 BC₄ = 1999 CT₃₃

Id. A. Doppler

1999 APR. 2

M.P.C. 34195

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	46.39611		(2000.0)	P	Q
n	0.25181323	ω	289.70865	+0.30360949	-0.95097217
a	2.48361116	Ω	142.45504	+0.90638935	+0.26920015
e	0.1975872	i	5.54979	+0.29373394	+0.15226035
P	3.91	H	14.3	G 0.15	U 4

Residuals in seconds of arc

1995 01 27	905	0.8+	0.2+	1999 02 07	691	0.2-	0.2-	1999 02 12	691	0.1+	0.3-
1995 01 27	905	0.5+	0.3+	1999 02 10	704	0.0	0.4-	1999 02 13	704	0.6+	0.5-
1995 01 28	905	1.2-	0.0	1999 02 10	704	0.3-	1.2-	1999 02 13	704	0.0	0.5+
1995 01 28	905	0.0	1.4+	1999 02 10	704	0.3-	0.1-	1999 02 13	704	0.7-	0.6-
1995 02 02	905	0.1+	0.6-	1999 02 10	704	0.1+	0.3-	1999 02 13	704	0.6-	0.3-
1995 02 02	905	0.1+	0.6+	1999 02 10	704	0.0	1.0-	1999 02 13	704	0.7-	0.7-
1998 12 16	699	0.0	0.0	1999 02 12	699	0.2+	0.5+	1999 03 21	699	0.2-	0.5+
1998 12 16	699	0.6-	0.1-	1999 02 12	699	0.7+	0.3+	1999 03 21	699	0.7+	0.6+
1998 12 16	699	0.9+	0.0	1999 02 12	699	0.4+	0.7+	1999 03 21	699	0.1-	1.6+
1999 02 07	691	0.5-	0.1-	1999 02 12	691	0.3+	0.2-				
1999 02 07	691	0.4-	0.2-	1999 02 12	691	0.2+	0.1-				

1995 DE₁ = 1976 SD₂ = 1991 NY₁ = 1992 UU₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

M	154.19852		(2000.0)	P	Q
n	0.18836894	ω	304.22186	+0.41824825	+0.90790860
a	3.0139070	Ω	350.38117	-0.76916206	+0.33774660
e	0.0912036	i	9.56163	-0.48317505	+0.24825229
P	5.23	H	12.4	G 0.15	U 1

Residuals in seconds of arc

1976 09 24	095	1.2-	1.9+	1992 10 22	399	1.3+	0.1-	1995 02 22	372	0.9-	1.0-
1991 07 14	675	0.4+	0.3+	1992 10 22	399	0.1+	0.0	1995 02 22	372	0.4+	1.3-
1991 07 14	675	1.0+	0.5-	1992 11 02	399	1.1+	0.1-	1995 02 24	033	0.2+	1.0-
1991 07 17	675	0.6-	1.7-	1992 11 02	399	0.0	1.7-	1995 03 05	033	0.1-	0.8-
1991 07 17	675	0.3-	0.5-	1995 02 21	372	1.5-	0.8+	1995 03 05	033	0.6+	0.4-
1992 10 19	399	0.9+	0.1+	1995 02 21	372	1.7+	1.6+	1995 03 07	033	0.2-	0.1-
1992 10 19	399	1.2-	2.3-	1995 02 22	372	1.7-	0.1-				

1995 EU

Id. V. S. Casulli (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	272.05246		(2000.0)	P	Q
n	0.24400921	ω	106.67637	-0.38248593	+0.92206565
a	2.5362880	Ω	140.67142	-0.87930631	-0.34359021
e	0.0253055	i	5.35582	-0.28376915	-0.17815922
P	4.04	H	14.1	G 0.15	U 6

Residuals in seconds of arc

1995 03 05	596	0.1-	0.0	1995 03 22	596	0.9-	0.4+	1999 02 25	596	0.4+	0.2-
1995 03 05	596	0.6-	0.1+	1995 03 27	675	0.1+	0.0	1999 02 25	596	0.3+	0.8-
1995 03 05	596	0.5+	1.7-	1995 03 28	596	0.2+	0.9-	1999 02 25	596	0.7+	0.2-
1995 03 09	596	0.9+	0.4+	1995 03 28	596	0.8+	0.6-	1999 03 12	596	0.7-	0.6+
1995 03 09	596	1.3+	0.4+	1995 03 28	596	1.2+	0.5-	1999 03 12	596	0.4-	0.3+
1995 03 09	596	(2.8+	0.5+)	1995 04 02	596	0.9-	1.6-	1999 03 12	596	0.2-	0.3+
1995 03 22	596	1.3-	1.3+	1995 04 02	596	0.2-	1.3+				
1995 03 22	596	1.1-	1.1+	1999 02 25	596	0.2-	0.0				

1995 EO₈ = 1991 DE₁ = 1991 EO₆ = 1999 ES₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	338.05233		(2000.0)		P	Q	
n	0.25239457	ω	176.37685		-0.98058494	+0.19355025	
a	2.4797965	Ω	14.89604		-0.18285228	-0.84449206	
e	0.1007136	i	7.03578		-0.07083942	-0.49937106	
P	3.91	H	14.3	G	0.15	U	5

Residuals in seconds of arc

1991 02 20	372	1.5-	1.4-	1995 03 05	033	0.4+	0.6-	1999 03 15	625	1.4-	0.2+
1991 02 20	372	1.1+	0.6+	1995 03 07	033	0.9+	0.8+	1999 03 22	699	1.1+	0.0
1991 02 22	372(93.3+	0.6-)		1995 03 23	033	0.1-	0.0	1999 03 22	699	0.5+	0.0
1991 02 22	372(97.5+	2.0+)		1995 03 23	033	0.8-	0.0	1999 03 22	699	0.1+	0.3+
1991 03 06	372	1.1-	0.6-	1999 03 12	625	1.5-	0.0	1999 03 23	699	1.4+	0.6-
1991 03 06	372	1.3+	1.2+	1999 03 12	625	1.3-	0.1+	1999 03 23	699	1.4+	0.4-
1995 03 04	033	0.3+	0.4+	1999 03 15	625	0.9-	0.0	1999 03 23	699	0.1+	0.1+

1995 FQ₁₄ = 1999 EZ₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	148.02222		(2000.0)	P	Q
n	0.23079289	ω	193.67341	+0.99068108	-0.13437382
a	2.6322134	Ω	173.91643	+0.13611239	+0.97081639
e	0.1882239	i	12.11442	+0.00494082	+0.19864345
P	4.27	H	16.4	G 0.15	U 5

Residuals in seconds of arc

1995 03 27	691	0.1+	0.0	1995 04 07	691	0.0	0.3+	1999 03 18	691	0.4+	0.1-
1995 03 27	691	0.2+	0.2+	1995 04 07	691	0.1-	0.7+	1999 03 18	691	0.1+	0.1-
1995 03 27	691	0.1-	0.2+	1995 04 07	691	0.2-	0.3-	1999 03 18	691	0.5+	0.5+
1995 04 04	691	0.3+	0.3-	1999 03 14	691	0.1-	0.4+	1999 03 24	691	0.1-	0.6-
1995 04 04	691	0.2-	0.2-	1999 03 14	691	0.0	0.3+	1999 03 24	691	0.6-	0.2+
1995 04 04	691	0.1-	0.5-	1999 03 14	691	0.2+	0.9-	1999 03 24	691	0.4-	0.2+

1995 GC₇ = 1987 TV = 1998 XZ₂₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

M	5.01761		(2000.0)	P	Q
n	0.18762976	ω	73.50435	+0.22861020	-0.97346629
a	3.0218175	Ω	3.32970	+0.81423831	+0.18554496
e	0.0927540	i	9.95164	+0.53362286	+0.13392701
P	5.25	H	12.9	G 0.15	U 5

Residuals in seconds of arc

1987 10 02	095	0.0	0.0	1998 12 14	704	1.3-	0.7+	1998 12 17	704	0.0	0.0
1995 04 01	905	0.8-	1.5+	1998 12 14	704	0.3-	0.2-	1998 12 17	704	0.8+	0.3-
1995 04 01	905	0.0	0.0	1998 12 14	704	1.0+	0.5-	1998 12 17	704	0.6-	0.4-
1995 04 03	905	0.1+	1.0-	1998 12 14	704	0.0	0.1+	1998 12 17	704	1.2-	0.1-
1995 04 03	905	0.6+	0.4-	1998 12 14	704	(2.5+	1.1-)	1998 12 17	704	1.7+	0.6+

1995 GH₇ = 1999 DX₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	334.23743		(2000.0)		P	Q
n	0.25188360	ω	79.21315		-0.72869953	+0.68027922
a	2.4831491	Ω	143.57543		-0.66870783	-0.68197068
e	0.1437054	i	7.63115		-0.14773908	-0.26858178
P	3.91	H	13.9	G	0.15	U 5

Residuals in seconds of arc

1995 04 04	400	0.5+	1.8+	1995 04 20	400	0.2+	0.9+	1999 02 23	704	1.2+	0.6-
1995 04 04	400	0.9+	1.4-	1999 02 14	699	0.3-	0.8+	1999 02 23	704	(0.1-	2.2-)
1995 04 07	400	1.4-	0.5+	1999 02 14	699	0.0	1.2-	1999 02 26	704	0.0	0.1+
1995 04 07	400	(3.1-	0.6+)	1999 02 14	699	0.7+	1.1+	1999 02 26	704	0.9-	1.3-
1995 04 11	400	0.4+	0.5-	1999 02 23	704	0.8+	0.8-	1999 02 26	704	0.5-	0.5-
1995 04 11	400	0.2+	0.8-	1999 02 23	704	1.6-	1.2+	1999 02 26	704	(5.5-	1.3+)
1995 04 20	400	0.6-	0.0	1999 02 23	704	0.5+	0.3+				

1995 SQ₂₉ = 2141 T-1

Id. G. V. Williams, A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	346.16356		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.26028741	ω	291.99134	+0.88447204	+0.46455646
<i>a</i>	2.4294088	Ω	40.36265	-0.39944935	+0.80212543
<i>e</i>	0.1914303	<i>i</i>	3.85572	-0.24114194	+0.37520939
<i>P</i>	3.79	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 5
Residuals in seconds of arc					
1971 03 24	675	3.3-	0.7-	1995 09 26	114 1.2- 1.3- 1995 10 16 114 0.1+ 0.4+
1971 03 25	675	0.4-	0.5+	1995 09 28	114 0.2+ 0.2- 1995 10 17 114 0.9+ 0.3-
1971 03 25	675	0.1+	1.3+	1995 09 29	114 0.5+ 0.6+ 1995 10 18 114 0.3+ 0.5+
1971 03 26	675	1.2+	0.2-	1995 10 01	114 0.4+ 0.6+ 1995 10 19 114 1.4+ 0.3-
1971 04 02	675	2.4+	0.9-	1995 10 01	114 0.1- 0.5+ 1995 10 19 114 0.3+ 0.1-
1995 09 26	114	1.0+	0.1+	1995 10 16	114 3.8- 0.6-

1995 UB₄₇ = 1990 VU₁₅ = 1998 KU₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	204.29725		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.19105690	ω	207.94038	+0.50259703	-0.85971645
<i>a</i>	2.9855721	Ω	212.13098	+0.82165821	+0.50776221
<i>e</i>	0.0932961	<i>i</i>	9.85343	+0.26883825	+0.05536393
<i>P</i>	5.16	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 4
Residuals in seconds of arc					
1990 11 11	809	0.7-	0.9-	1995 10 28	399 0.7+ 0.9+ 1998 05 24 704 1.8+ 0.1+
1990 11 11	809	0.9+	0.1+	1998 05 22	704 0.6+ 0.3+ 1998 05 24 704 0.1- 0.6-
1990 11 11	809	0.2-	0.9+	1998 05 22	704 1.2+ 0.8- 1998 05 24 704 1.3- 0.2-
1995 10 27	399	0.1+	1.2+	1998 05 22	704 (0.3- 2.7+) 1998 05 24 704 1.0- 0.4-
1995 10 27	399	0.4-	1.9-	1998 05 22	704 (2.6+ 2.1-) 1998 05 24 704 1.1- 1.2+
1995 10 28	399	0.4-	0.1-	1998 05 22	704 0.1- 0.6+

1995 WU₆ = 1999 CJ₁₂₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	138.14328		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.36739157	ω	280.11188	+0.85843171	+0.40244850
<i>a</i>	1.9307080	Ω	56.84453	-0.17335490	+0.81114215
<i>e</i>	0.0988312	<i>i</i>	22.32464	-0.48274536	+0.42436260
<i>P</i>	2.68	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 5
Residuals in seconds of arc					
1995 11 16	399	1.4+	0.7+	1995 12 14	399 0.7+ 0.8- 1999 02 11 704 0.3- 0.9+
1995 11 16	399	1.7+	0.9-	1995 12 17	399 0.3+ 1.6- 1999 02 11 704 0.2+ 1.3+
1995 11 18	399	1.4-	1.0+	1995 12 17	399 0.3+ 0.2- 1999 02 11 704 1.4+ 0.2+
1995 11 18	399	1.2+	1.4-	1996 02 03	658 0.7+ 0.2+ 1999 02 18 704 0.3- 2.3-
1995 11 25	399	2.2-	0.5+	1996 02 03	658 0.5+ 0.1+ 1999 02 18 704 1.6- 0.6-
1995 11 25	399	0.7-	2.2+	1996 02 03	658 1.4+ 0.8- 1999 02 18 704 1.4+ 0.1-
1995 11 25	399	0.5-	0.2-	1999 02 11	704 0.2- 0.6+ 1999 02 18 704 0.1+ 0.4+
1995 12 14	399	1.8-	0.6+	1999 02 11	704 0.7- 0.2- 1999 02 18 704 0.2+ 0.6+

1995 YW₄ = 4774 P-L

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	254.08380		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.20011035	ω	194.02956	+0.85351736	-0.52096562
<i>a</i>	2.8948297	Ω	197.37872	+0.48128307	+0.79566695
<i>e</i>	0.0429074	<i>i</i>	1.94660	+0.19968654	+0.30904519
<i>P</i>	4.93	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 4
Residuals in seconds of arc					
1960 09 24	675	0.3-	0.1-	1995 12 16	691 0.1+ 0.1+ 1996 01 14 691 0.2+ 0.0
1960 09 26	675	0.4-	0.5-	1995 12 16	691 0.1- 0.2+ 1996 01 14 691 0.0 0.2+
1960 09 27	675	0.3+	1.0+	1995 12 28	691 0.1+ 0.4- 1996 01 14 691 0.3- 0.1+
1960 09 28	675	0.4+	0.4-	1995 12 28	691 0.2+ 0.1-
1995 12 16	691	0.2-	0.2+	1995 12 28	691 0.0 0.3-

1996 CQ = 1996 CU = 1986 UQ₁ = 1987 YS₅ = 1998 XO₇₀Id. G. V. Williams (d, *MPC* 26884; unpublished), A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	188.81685		(2000.0)		<i>P</i>		<i>Q</i>			
<i>n</i>	0.25763792	ω	223.30492		-0.22425462		+0.97279511			
<i>a</i>	2.4460361	Ω	33.85863		-0.86323272		-0.17060572			
<i>e</i>	0.1272449	<i>i</i>	5.98926		-0.45226004		-0.15672700			
<i>P</i>	3.83	<i>H</i>	14.3		<i>G</i>	0.15	<i>U</i>		1	
Residuals in seconds of arc										
1986 10 27	010	(10.1- 0.3-)	1996 02 01	327	0.1+	0.2+	1996 02 03	327	0.2+	0.0
1986 10 27	010	1.4+ 0.2+	1996 02 01	327	0.1-	0.1-	1996 02 03	327	0.2-	0.3-
1986 10 27	010	0.6+ 1.3-	1996 02 02	327	0.3+	0.1+	1997 10 29	566	0.6-	0.3+
1987 12 24	010	0.9- 0.3-	1996 02 02	327	0.4-	0.9+	1997 10 29	566	0.2-	0.1+
1987 12 24	010	0.4- 2.2+	1996 02 02	327	1.3+	1.5+	1997 10 29	566	0.6-	0.1+
1996 01 28	327	0.0 0.6-	1996 02 02	327	0.4-	0.4-	1998 12 14	704	0.2+	0.5+
1996 01 28	327	0.0 0.2+	1996 02 02	327	0.2-	0.6+	1998 12 14	704	(0.8+ 2.4-)	
1996 01 28	327	0.1- 0.8-	1996 02 02	327	0.6-	0.6-	1998 12 14	704	0.8-	0.5-
1996 01 28	327	0.5- 0.1-	1996 02 03	327	0.6-	0.6-	1998 12 17	704	0.0	0.2-
1996 01 28	327	0.2- 0.7-	1996 02 03	327	0.4+	0.2+	1998 12 17	704	0.9-	0.5+
1996 02 01	327	1.6+ 0.2+	1996 02 03	327	0.1-	0.0	1998 12 17	704	0.7+	0.9-
1996 02 01	327	0.0 0.2-	1996 02 03	327	0.1+	0.7-	1998 12 17	704	0.4+	0.2-
1996 02 01	327	0.8+ 0.3-	1996 02 03	327	0.5-	0.2+	1998 12 17	704	0.1+	1.7+
1996 02 01	327	0.2- 0.3-	1996 02 03	327	0.4-	0.7-				

1996 CG₇ = 1994 PP₃₈ = 1998 XA₉₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	336.54707		(2000.0)		P		Q			
<i>n</i>	0.31215451	ω	261.23866		-0.75672988		-0.65370708			
<i>a</i>	2.1522347	Ω	237.93947		+0.60216580		-0.69393077			
<i>e</i>	0.0845161	<i>i</i>	0.35096		+0.25447248		-0.30187273			
<i>P</i>	3.16	<i>H</i>	14.6		<i>G</i> 0.15		<i>U</i> 5			
Residuals in seconds of arc										
1994 08 10	809	1.6+	0.9+	1996 02 10	327	0.5-	0.1+	1998 12 15	704	0.7- 0.4-
1994 08 10	809	1.3+	0.1+	1996 02 10	327	0.6-	0.1-	1998 12 15	704	0.5- 1.2-
1994 08 10	809	0.7+	0.7+	1996 02 10	327	0.9-	0.5+	1998 12 15	704	1.2+ 1.2-
1994 08 11	809	1.6-	1.3-	1996 02 12	327	0.3+	0.5-	1998 12 15	704	1.3- 0.5-
1994 08 11	809	0.3-	1.4-	1996 02 12	327	0.3-	0.3-	1998 12 22	704	1.2- 1.4+
1994 08 11	809	0.6-	1.4-	1996 02 12	327	0.9-	0.3+	1998 12 22	704	0.1- 0.7+
1996 02 02	327	0.2+	1.0-	1996 02 15	566	(2.7+	3.7-)	1998 12 22	704	1.2+ 0.6+
1996 02 02	327	0.9+	0.7-	1996 02 15	566	(2.5+	3.2-)	1998 12 22	704	0.9+ 1.1+
1996 02 02	327	1.0+	1.7-	1996 02 15	566	(2.2+	3.3-)			
1996 02 10	327	0.2-	0.5+	1998 12 15	704	0.6+	0.3+			

1996 EP₁ = 1973 QL = 1998 XW₇₇

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	53.30401		(2000.0)		P		Q			
n	0.24085696	ω	184.63247		+0.98859152		-0.15049638			
a	2.5583694	Ω	184.03870		+0.14084057		+0.93806967			
e	0.2246686	i	4.99827		+0.05339240		+0.31205150			
P	4.09	H	13.8		G	0.15	U	5		
Residuals in seconds of arc										
1973 08 27	095	(2.9+ 7.3+)	1996 03 18	566	0.3-	0.1+	1998 12 15	704	0.4+	0.2-
1973 08 31	095	1.2- 1.4-	1996 03 18	566	0.2-	0.2-	1998 12 15	704	1.0-	1.4+
1973 09 05	095	1.2+ 1.5+	1996 03 19	566	0.8+	0.1-	1998 12 16	699	0.1+	0.4+
1996 03 15	566	0.7- 0.1+	1996 03 19	566	0.8+	0.1+	1998 12 16	699	0.1+	0.4+
1996 03 15	566	0.5- 0.3+	1996 03 19	566	0.4+	0.2+	1998 12 16	699	0.2-	0.3+
1996 03 15	566	0.5- 0.1-	1996 03 20	098	1.6+	0.9-	1998 12 22	704	0.8+	0.5-
1996 03 15	566	0.7- 0.4+	1996 03 20	098	(0.8+ 3.5-)		1998 12 22	704	1.4+	1.4-
1996 03 15	566	0.8- 0.0	1998 12 15	704	0.9-	1.4+	1998 12 22	704	0.3-	0.5-
1996 03 15	566	0.4- 0.2+	1998 12 15	704	0.0	0.5+	1998 12 22	704	0.5-	1.1-
1996 03 18	566	0.6+ 0.2+	1998 12 15	704	1.0+	0.4+	1998 12 22	704	0.7-	1.2-

1996 FK₂ = 1999 CY₁₀₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	33.40270		(2000.0)	P	Q
<i>n</i>	0.30055319	ω	251.54781	+0.04317171	-0.99886248
<i>a</i>	2.2072685	Ω	196.01833	+0.94208570	+0.04744752
<i>e</i>	0.1142819	<i>i</i>	4.20783	+0.33258193	-0.00474176
<i>P</i>	3.28	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 03 20	691	0.4+	0.9+	1999 01 14	699	(4.4-	0.2-)	1999 02 14	699	0.6+	0.3-
1996 03 20	691	0.2+	0.7+	1999 01 14	699	0.3-	0.1-	1999 02 14	699	0.4+	0.3+
1996 03 20	691	0.6+	0.6+	1999 01 14	699	0.1+	0.2+	1999 02 14	699	1.0+	0.7-
1996 03 21	566	0.6-	0.2+	1999 01 14	699	0.8-	0.1+	1999 02 16	704	0.2-	1.0-
1996 03 21	566	0.5+	0.2+	1999 01 14	699	0.7+	0.0	1999 02 16	704	0.5-	0.5+
1996 03 21	566	0.2+	0.8+	1999 02 12	704	0.3+	0.2-	1999 02 16	704	0.3-	0.2+
1996 03 22	566	0.9-	1.0-	1999 02 12	704	0.5-	0.1+	1999 02 16	704	0.7-	0.4-
1996 03 22	566	0.9-	0.7-	1999 02 12	704	0.1-	0.2+	1999 02 16	704	0.0	0.0
1996 03 22	566	0.6+	1.7-	1999 02 12	704	0.1+	0.4+				
1999 01 14	699	0.1+	0.3-	1999 02 12	704	0.4+	0.8+				

1996 FY₂ = 1982 TC₁ = 1998 YZ₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	218.71484		(2000.0)	P	Q
<i>n</i>	0.25634438	ω	301.50781	-0.44134103	+0.89584934
<i>a</i>	2.4542578	Ω	302.21664	-0.80118390	-0.41933794
<i>e</i>	0.1550964	<i>i</i>	3.50289	-0.40413173	-0.14700223
<i>P</i>	3.84	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1982 10 14	095	0.0	0.1-	1996 03 25	327	(1.4+	3.0+)	1998 12 17	704	0.1-	1.2+
1996 03 23	566	0.2-	1.3-	1996 03 25	327	(1.5+	2.6+)	1998 12 17	704	0.6+	1.2-
1996 03 23	566	0.4-	0.9-	1996 03 25	327	1.9+	1.6+	1998 12 17	704	0.1+	0.8+
1996 03 23	566	0.3-	0.9-	1998 12 16	704	1.0+	1.4-	1998 12 17	704	0.9-	0.6+
1996 03 24	566	0.6-	0.8+	1998 12 16	704	0.8+	0.9-	1998 12 17	704	0.4-	1.0+
1996 03 24	566	0.2-	0.5+	1998 12 16	704	0.4-	0.2+				
1996 03 24	566	0.2-	0.2+	1998 12 16	704	0.8-	0.1-				

1996 HN₁ = 1999 FD₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	234.73981		(2000.0)	P	Q
<i>n</i>	0.28670475	ω	98.22038	+0.30476681	+0.95225912
<i>a</i>	2.2777853	Ω	189.58112	-0.91066825	+0.28585457
<i>e</i>	0.1300744	<i>i</i>	6.16753	-0.27892745	+0.10719023
<i>P</i>	3.44	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 04 13	691	0.4-	0.3+	1996 04 23	358	1.4-	0.3-	1999 03 24	557	0.2+	0.1-
1996 04 13	691	0.3-	0.2+	1996 04 23	358	(0.5-	2.5+)	1999 03 24	557	0.0	0.1+
1996 04 13	691	0.0	0.2-	1996 05 13	358	0.7+	0.1-	1999 03 25	557	0.2-	0.3-
1996 04 21	358	0.1-	0.5+	1996 05 13	358	0.8+	1.6-	1999 03 25	557	0.1-	0.3-
1996 04 21	358	0.4+	1.0+	1996 05 21	358	1.7-	1.5+	1999 03 27	557	0.1-	0.3+
1996 04 22	358	1.2+	1.1-	1996 05 21	358	1.2+	0.8-	1999 03 27	557	0.3+	0.1-
1996 04 22	358	0.4-	0.7+	1999 03 24	557	0.0	0.1+	1999 03 27	557	0.1-	0.1+

1996 HC₁₆ = 1999 CJ₂₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	5.47404		(2000.0)	P	Q
<i>n</i>	0.27592395	ω	74.57921	-0.47406322	-0.87737068
<i>a</i>	2.3367367	Ω	43.96796	+0.76140117	-0.45073313
<i>e</i>	0.1089908	<i>i</i>	6.12363	+0.44219036	-0.16450028
<i>P</i>	3.57	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 04 04	809	0.7-	1.7-	1996 05 19	809	1.2+	0.5+	1999 02 10	704	1.4+	1.2-
1996 04 18	809	(2.9-	1.1-)	1996 05 19	809	1.8+	0.4-	1999 02 13	704	0.7-	0.9-
1996 04 18	809	(1.9-	2.0-)	1996 05 19	809	1.9+	0.8-	1999 02 13	704	0.2-	1.2+
1996 04 18	809	(3.0-	2.5-)	1996 05 22	809	1.8-	0.5+	1999 02 13	704	0.3-	1.5+
1996 04 20	809	0.8+	1.2+	1996 05 22	809	0.1+	0.2+	1999 02 13	704	0.2-	0.8+
1996 04 20	809	0.4+	1.3+	1996 05 22	809	0.8-	0.6-	1999 02 13	704	0.3+	0.2+
1996 04 20	809	0.2-	0.3+	1999 02 10	704	0.5-	0.4-	1999 02 18	699	0.4+	0.3-
1996 05 16	566	1.1-	0.4-	1999 02 10	704	0.4-	0.3-	1999 02 18	699	0.4+	0.4+
1996 05 16	566	1.0-	0.4-	1999 02 10	704	0.4+	0.5-	1999 02 18	699	0.2-	0.0
1996 05 16	566	1.0-	0.5-	1999 02 10	704	0.3-	0.4+				

1996 HM₁₈ = 1979 FC₄ = 1980 PU₂ = 1997 UG₁₁ = 1999 CF₁₂₁

Id. A. Milani, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	155.51656		(2000.0)	P	Q
<i>n</i>	0.23792051	ω	277.85010	+0.77113906	+0.60780491
<i>a</i>	2.5793768	Ω	44.97359	-0.42519752	+0.71321665
<i>e</i>	0.1608468	<i>i</i>	15.55392	-0.47386878	+0.34913495
<i>P</i>	4.14	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1979 03 22	033	(4.2+	0.0)	1996 04 20	809	1.0+	0.2+	1997 11 01	670	0.3+	0.0
1979 03 22	033	1.0+	0.0	1996 04 20	809	0.3+	0.6+	1999 02 11	704	0.0	0.0
1980 08 04	413	(5.1+	2.0+)	1996 04 20	809	0.3-	0.1-	1999 02 11	704	0.2-	0.7+
1980 08 06	413	0.7-	0.3+	1996 05 16	566	0.8-	0.4+	1999 02 11	704	0.2+	2.3+
1980 08 08	413	1.8-	1.6+	1996 05 16	566	1.1-	0.1+	1999 02 11	704	0.2-	1.7+
1980 08 09	413	2.2-	2.0+	1996 05 16	566	0.9-	0.2+	1999 02 11	704	0.1+	0.4+
1980 08 10	413	0.1-	3.6+	1997 10 29	566	0.1+	0.1+	1999 02 18	704	1.7+	1.2+
1980 08 11	413	1.2+	3.4+	1997 10 29	566	0.4+	0.0	1999 02 18	704	0.7+	2.4+
1996 04 18	809	1.3-	0.5-	1997 10 29	566	0.1+	0.1+	1999 02 18	704	1.0-	1.4+
1996 04 18	809	0.8+	0.9-	1997 11 01	670	0.6+	0.3-	1999 02 18	704	0.9+	1.5+
1996 04 18	809	0.6+	0.1-	1997 11 01	670	0.4+	0.0	1999 02 18	704	0.3-	1.6+

1996 HJ₂₄ = 1999 CF₆₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	227.57344		(2000.0)	P	Q
<i>n</i>	0.27217928	ω	78.42957	+0.05494629	+0.99832965
<i>a</i>	2.3581206	Ω	194.75543	-0.94124573	+0.04582013
<i>e</i>	0.0503375	<i>i</i>	4.02001	-0.33322271	+0.03519119
<i>P</i>	3.62	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 04 20	809	0.2+	0.0	1996 05 23	809	0.2-	0.5-	1999 02 16	704	0.3-	0.1-
1996 04 20	809	0.3+	0.3-	1999 01 15	699	1.5-	0.6-	1999 02 16	704	0.2+	0.5-
1996 04 20	809	0.1-	0.5+	1999 01 15	699	0.5+	0.6+	1999 02 16	704	0.7-	0.2-
1996 04 21	809	1.1-	0.4+	1999 01 15	699	0.8-	0.1-	1999 02 16	704	1.1-	0.4-
1996 04 21	809	1.4-	0.2+	1999 02 08	120	1.4+	0.4-	1999 02 16	704	0.7-	0.5+
1996 04 21	809	(2.7-	0.6+)	1999 02 08	120	1.8+	0.6-	1999 02 18	566	0.9+	0.6-
1996 05 22	809	0.5+	0.1+	1999 02 12	704	0.3-	0.4+	1999 02 18	566	0.6+	0.3-
1996 05 22	809	0.3-	0.6+	1999 02 12	704	0.3+	0.7-	1999 02 18	566	0.4+	0.9-
1996 05 22	809	0.1-	0.1-	1999 02 12	704	1.4-	0.3+	1999 02 20	699	0.3+	1.2+
1996 05 23	809	0.8+	1.0-	1999 02 12	704	0.9-	0.6+	1999 02 20	699	1.5+	0.6+
1996 05 23	809	1.3+	0.1-	1999 02 12	704	0.1-	1.2+	1999 02 20	699	0.1-	0.1+

1996 KG = 1999 EW₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	44.78773		(2000.0)	P	Q
<i>n</i>	0.28898778	ω	280.25953	-0.38852633	-0.92137103
<i>a</i>	2.2657730	Ω	192.62050	+0.86400785	-0.36010660
<i>e</i>	0.0536684	<i>i</i>	2.90623	+0.32021514	-0.14628282
<i>P</i>	3.41	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 03 24	566	0.3−	0.1−	1996 05 24	120	0.3+	0.7+	1999 03 11	120	0.4+	0.0
1996 03 24	566	0.0	0.1−	1996 05 24	120	0.2+	0.4+	1999 03 12	120	0.2−	0.6+
1996 03 24	566	0.2−	0.4−	1996 06 05	120	0.0	1.4−	1999 03 12	120	0.7−	0.0
1996 05 16	120	0.3+	0.0	1996 06 05	120	(2.7−	1.1−)	1999 03 12	120	0.4−	0.1−
1996 05 16	120	0.7+	0.2+	1996 06 05	120	1.1−	1.7−	1999 03 13	120	0.4+	1.7−
1996 05 20	120	0.5+	1.1+	1996 06 17	120	1.3−	0.3+	1999 03 13	120	0.3−	0.0
1996 05 20	120	0.9+	0.6+	1996 06 17	120	0.5−	0.1+	1999 03 13	120	1.0+	0.3+
1996 05 20	120	0.0	0.1+	1996 06 17	120	1.2−	0.3−	1999 03 22	699	0.2+	0.6+
1996 05 20	120	1.2+	0.6+	1999 03 08	120	0.0	0.1+	1999 03 22	699	0.1+	0.1+
1996 05 21	120(18.2−	6.6+)		1999 03 08	120	0.8−	0.1−	1999 03 22	699	0.3+	0.1−
1996 05 21	120(19.0−	6.0+)		1999 03 11	120	0.6+	0.3−				
1996 05 21	120(19.3−	6.3+)		1999 03 11	120	0.7−	0.4+				

1996 KT₈ = 1979 OH₉ = 1997 SH₃₄ = 1999 CC₇₂

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	258.64901		(2000.0)		P		Q
<i>n</i>	0.28454619	ω	34.88555	−0.22014703		+0.97315492	
<i>a</i>	2.2892903	Ω	222.50901	−0.91605207		−0.22989453	
<i>e</i>	0.1458635	<i>i</i>	5.70058	−0.33523707		−0.01086337	
<i>P</i>	3.46	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1979 07 24	413	0.1−	0.2−	1996 05 22	809	0.2+	0.6−	1999 02 12	704	0.3+	0.1+
1979 07 26	675	0.3−	1.0+	1996 05 22	809	0.8+	0.3−	1999 02 12	704	0.2−	0.7+
1979 07 28	413	0.2+	0.4−	1996 05 23	809	0.8+	0.7−	1999 02 12	704	0.6−	0.2−
1996 05 19	809	0.4+	1.0−	1996 05 23	809	0.7+	0.9−	1999 02 16	704	0.5−	0.1−
1996 05 19	809	0.2−	0.4−	1996 05 23	809	0.4+	1.1−	1999 02 16	704	0.2+	0.2−
1996 05 19	809	0.2−	1.2−	1997 09 29	910	0.2+	1.0−	1999 02 16	704	0.0	0.5+
1996 05 19	566	(1.2−	2.3+)	1997 09 30	910	0.0	1.0−	1999 02 16	704	0.7+	0.4−
1996 05 19	566	1.4−	1.4+	1997 09 30	910	0.4+	0.4−	1999 02 16	704	0.1−	0.2+
1996 05 19	566	(1.1−	2.4+)	1997 09 30	910	0.0	0.5−	1999 02 21	699	0.4+	0.1−
1996 05 19	566	1.4−	1.1+	1997 09 30	910	0.0	0.5−	1999 02 21	699	0.5−	0.0
1996 05 19	566	(1.1−	2.5+)	1997 10 01	910	0.1+	0.4−	1999 02 21	699	1.1+	0.1+
1996 05 19	566	1.1−	1.6+	1999 02 12	704	0.4−	1.1−				
1996 05 22	809	0.6+	0.9−	1999 02 12	704	0.5−	0.1−				

1996 PL

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	242.38047		(2000.0)		P		Q
<i>n</i>	0.23113593	ω	61.62368	+0.19043057		+0.97229580	
<i>a</i>	2.6296084	Ω	220.09608	−0.95818532		+0.15404537	
<i>e</i>	0.1873676	<i>i</i>	12.15029	−0.21358160		+0.17581495	
<i>P</i>	4.26	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 08 08	596	0.6−	0.3+	1996 08 22	596	0.7+	0.9−	1996 09 14	596	0.1+	1.1+
1996 08 08	596	0.1+	0.0	1996 08 22	596	(3.1−	1.1−)	1996 10 03	596	0.6+	0.0
1996 08 08	596	0.2+	0.0	1996 08 23	596	0.6+	0.8−	1996 10 03	596	0.5+	0.2+
1996 08 09	596	0.1+	0.1+	1996 08 23	596	0.5+	0.6+	1996 10 03	596	0.5+	0.1−
1996 08 09	596	0.5+	0.2+	1996 09 04	596	0.7−	0.9−	1999 02 18	589	0.2+	0.1−
1996 08 09	596	0.8−	0.4+	1996 09 04	596	0.5−	0.5−	1999 02 18	589	0.4+	0.5−
1996 08 12	596	0.1+	1.0−	1996 09 04	596	0.4−	0.8−	1999 02 18	589	0.4+	0.2+
1996 08 12	596	0.2+	0.2+	1996 09 09	596	0.0	0.6+	1999 03 07	595	0.2−	0.0
1996 08 20	596	1.0−	0.3−	1996 09 09	596	0.1+	0.7+	1999 03 07	595	0.9−	0.1+
1996 08 20	596	0.4−	0.7+	1996 09 14	596	(0.2+	2.2+)				

1996 PN = 1999 FK₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	283.79339		(2000.0)		P		Q
<i>n</i>	0.27937301	ω	268.62912	−0.19257100		+0.97912733	
<i>a</i>	2.3174645	Ω	349.56283	−0.69528472		−0.18289481	
<i>e</i>	0.2567187	<i>i</i>	21.02962	−0.69245618		−0.08865192	
<i>P</i>	3.53	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 08 09	424	0.1−	0.4−	1996 08 20	424	0.4−	0.2−	1999 03 20	704	0.9−	0.4+
1996 08 09	424	1.3+	0.0	1996 08 20	424	0.6−	0.4+	1999 03 20	704	0.4+	0.4+
1996 08 09	424	0.6+	0.3+	1999 02 22	699	0.0	0.1+	1999 03 20	704	1.4+	0.2+
1996 08 10	424	0.2−	0.1+	1999 02 22	699	0.2+	0.0	1999 03 20	704	0.1−	1.5−
1996 08 10	424	0.4−	0.2−	1999 02 22	699	0.7−	0.2+	1999 03 23	704	0.5+	0.5−
1996 08 11	424	0.6−	0.4+	1999 03 19	704	0.1+	0.1+	1999 03 23	704	0.8−	0.2−
1996 08 11	424	1.2+	0.2−	1999 03 19	704	0.4+	0.6+	1999 03 23	704	(2.5+	0.6+)
1996 08 16	424	0.4+	0.0	1999 03 19	704	0.6−	0.2−	1999 03 23	704	(2.2−	2.3+)
1996 08 16	424	1.3−	0.0	1999 03 19	704	1.0−	0.9+				
1996 08 16	424	(3.1−	1.3+)	1999 03 20	704	1.2+	0.3−				

1996 PH₁ = 1999 EJ₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	249.78317		(2000.0)		P		Q
<i>n</i>	0.24259364	ω	152.28632	+0.19961366		+0.97909979	
<i>a</i>	2.5461448	Ω	129.20139	−0.90806217		+0.19977949	
<i>e</i>	0.0599065	<i>i</i>	2.88190	−0.36820849		+0.03810205	
<i>P</i>	4.06	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 08 11	816	0.1−	0.2+	1996 08 13	684	0.2+	0.7−	1999 03 21	859	0.3+	0.1+
1996 08 11	816	0.2−	0.1+	1996 08 18	816	0.1+	0.4−	1999 03 21	859	0.5+	0.2+
1996 08 11	816	0.2−	0.2+	1996 08 18	816	0.2+	0.3+	1999 03 22	859	0.4−	0.4+
1996 08 11	816	0.2−	0.1+	1999 03 14	859	1.2−	0.8−	1999 03 22	859	0.5+	0.6+
1996 08 12	816	0.2−	0.7+	1999 03 14	859	0.5−	0.1+	1999 03 22	859	0.1+	0.5+
1996 08 13	684	0.2+	0.4−	1999 03 14	859	0.0	1.4−				
1996 08 13	684	0.4+	0.4−	1999 03 21	859	0.7+	0.2+				

1996 PS₈ = 1999 FH₁₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	350.67562		(2000.0)		P		Q
<i>n</i>	0.23841006	ω	212.01494	−0.99884656		−0.03593685	
<i>a</i>	2.5758446	Ω	325.88161	+0.04629711		−0.89667632	
<i>e</i>	0.1061296	<i>i</i>	3.25467	−0.01273300		−0.44122570	
<i>P</i>	4.13	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 08 08	809	0.5+	1.0−	1996 08 15	566	1.2−	0.4+	1999 03 22	699	0.4−	0.4−
1996 08 08	809	1.0−	1.5−	1996 08 15	566	0.6+	0.6+	1999 03 22	699	0.1+	0.4+
1996 08 08	809	0.9−	2.3−	1996 09 18	381	0.1+	0.0	1999 03 22	699	0.0	0.2+
1996 08 09	809	1.2+	1.2+	1996 09 18	381	0.4+	0.3−	1999 03 24	699	0.2−	0.0
1996 08 09	809	1.0+	1.0+	1996 09 18	381	0.2−	0.0	1999 03 24	699	0.2+	0.5+
1996 08 09	809	0.9+	0.9+	1996 09 18	381	0.1+	0.2−	1999 03 24	699	0.2+	0.7−
1996 08 15	566	1.8−	1.2+	1996 09 18	381	0.1+	0.2−				

1996 RK₃ = 1999 FC₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	271.39562		(2000.0)		P		Q
<i>n</i>	0.28308990	ω	183.70594	+0.25263107		+0.96358434	
<i>a</i>	2.2971347	Ω	100.94232	−0.88541031		+0.26676010	
<i>e</i>	0.2072652	<i>i</i>	5.12187	−0.39016166		+0.01855436	
<i>P</i>	3.48	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 09 15	684	0.1+	0.3+	1996 10 01	684	0.2-	0.5-	1999 03 19	704	1.3+	1.4-
1996 09 15	684	0.1+	0.1+	1996 10 01	684	0.4-	0.2-	1999 03 19	704	1.0-	1.5-
1996 09 15	684	0.4+	0.2-	1996 10 01	684	0.3-	0.2-	1999 03 19	704	2.2-	1.5-
1996 09 16	684	0.4-	0.1+	1996 10 02	684	0.4+	0.3-	1999 03 20	704	1.1+	0.3-
1996 09 16	684	0.1+	0.1+	1996 10 02	684	0.4-	0.4-	1999 03 20	704	0.8-	0.3+
1996 09 16	684	0.3-	0.1+	1996 10 02	684	0.3-	0.4-	1999 03 20	704	0.9+	2.6+
1996 09 19	684	0.2+	0.0	1996 10 17	684	0.1-	0.5+	1999 03 20	704	0.7+	1.8+
1996 09 19	684	0.3+	0.2+	1996 10 17	684	0.6+	0.4+				
1996 09 19	684	0.2+	0.1+	1996 10 17	684	0.1-	0.4+				

1996 RT₃ = 1999 CN₁₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	282.75469		(2000.0)	P	Q
<i>n</i>	0.22937780	ω	262.22533	-0.17212632	+0.98503040
<i>a</i>	2.6430282	Ω	357.79651	-0.78030889	-0.14214082
<i>e</i>	0.0808555	<i>i</i>	14.09183	-0.60124085	-0.09752484
<i>P</i>	4.30	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 09 13	566	0.1+	0.2-	1996 09 16	566	0.7-	0.3+	1999 02 13	120	0.5-	0.5-
1996 09 13	566	0.3-	0.2-	1996 09 16	566	0.0	0.1-	1999 02 13	120	0.9+	0.3+
1996 09 13	566	0.3+	0.2-	1996 09 17	566	0.8+	0.1+	1999 02 18	120	0.3+	3.6+
1996 09 16	566	0.2-	0.0	1996 09 17	566	0.3+	0.2-	1999 02 19	120	1.1-	0.7-
1996 09 16	566	0.2-	0.3+	1996 09 17	566	0.1+	0.0	1999 02 19	120	0.4-	0.2+
1996 09 16	566	0.3-	0.3+	1999 02 13	120	0.4-	1.6-	1999 02 24	120	0.5-	0.5-
1996 09 16	566	0.1+	0.0	1999 02 13	120	0.7+	0.4+	1999 02 24	120	1.0+	1.1-

1996 RO₆ = 1999 FF₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	165.45147		(2000.0)	P	Q
<i>n</i>	0.19250775	ω	22.35919	+0.99582265	+0.09085519
<i>a</i>	2.9705525	Ω	332.42326	-0.08646394	+0.90631377
<i>e</i>	0.0742991	<i>i</i>	1.12487	-0.02934700	+0.41272350
<i>P</i>	5.12	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 09 05	691	0.1+	0.1-	1996 09 15	691	0.1-	0.2+	1999 03 16	691	0.4-	0.0
1996 09 05	691	0.2+	0.2-	1996 09 15	691	0.1+	0.1-	1999 03 16	691	0.0	0.4-
1996 09 05	691	0.0	0.4+	1996 09 15	691	0.2+	0.1-	1999 03 16	691	0.1-	0.1-
1996 09 13	566	0.3-	0.6-	1996 09 19	691	0.0	0.2+	1999 03 18	691	0.4+	0.5+
1996 09 13	566	0.5-	0.2-	1996 09 19	691	0.2+	0.1+	1999 03 18	691	0.2+	0.1+
1996 09 13	566	0.1+	0.3+	1996 09 19	691	0.0	0.0	1999 03 18	691	0.1-	0.2-

1996 SC₆ = 1999 FT₂₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	245.71601		(2000.0)	P	Q
<i>n</i>	0.21080713	ω	114.49397	+0.49816529	+0.86702861
<i>a</i>	2.7960559	Ω	185.41435	-0.82789828	+0.47232274
<i>e</i>	0.0367786	<i>i</i>	5.85763	-0.25771259	+0.15865883
<i>P</i>	4.68	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 09 18	327	0.4-	0.2-	1996 09 23	327	0.0	0.4-	1999 03 19	704	0.4+	0.7-
1996 09 18	327	0.4-	0.5+	1996 10 29	327	0.6-	0.1+	1999 03 19	704	0.4-	0.7-
1996 09 18	327	0.5+	0.2+	1996 10 29	327	0.7+	0.0	1999 03 19	704	0.1-	0.1+
1996 09 21	327	0.1+	0.1-	1996 10 29	327	0.1+	0.1-	1999 03 19	704	0.1-	0.5+
1996 09 21	327	0.1+	0.3+	1996 10 29	327	0.5+	0.2+	1999 03 20	704	0.3+	0.7-
1996 09 21	327	0.2-	0.3-	1996 11 01	327	0.5-	0.1-	1999 03 20	704	0.4-	1.3+
1996 09 23	327	0.1-	0.1-	1996 11 01	327	0.3+	0.0	1999 03 20	704	0.1+	1.0+
1996 09 23	327	0.3+	0.2-	1996 11 01	327	0.3-	0.2-	1999 03 20	704	0.7-	0.8-
1996 09 23	327	0.0	0.1-	1999 03 19	704	0.8+	0.4-				

1996 SF₆ = 1999 FM

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	275.91236		(2000.0)	P	Q
<i>n</i>	0.23998105	ω	85.82699	+0.11643331	+0.99280183
<i>a</i>	2.5645908	Ω	190.97898	-0.95967565	+0.10517821
<i>e</i>	0.1828016	<i>i</i>	8.47501	-0.25586312	+0.05728936
<i>P</i>	4.11	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 09 18	327	0.5+	0.0	1996 10 29	327	0.2+	0.1-	1999 03 19	557	0.0	0.2+
1996 09 18	327	0.2-	0.4-	1996 10 29	327	0.0	0.1+	1999 03 21	120	0.5+	0.5-
1996 09 18	327	0.3+	0.5+	1996 11 01	327	0.2+	0.2-	1999 03 21	120	0.5-	1.5-
1996 09 21	327	0.0	0.1-	1996 11 01	327	0.5+	0.1-	1999 03 21	120	1.3-	0.0
1996 09 21	327	0.1-	0.0	1996 11 01	327	0.5+	0.1-	1999 03 24	699	0.6+	0.2+
1996 09 21	327	0.4-	0.2-	1999 03 18	557	0.1+	0.1+	1999 03 24	699	1.0+	0.4+
1996 10 29	327	1.4-	0.2+	1999 03 18	557	0.1+	0.2+	1999 03 24	699	0.5-	0.8+
1996 10 29	327	0.1+	0.3+	1999 03 19	557	0.0	0.2+				

1996 TC₁₂ = 1998 BV₂₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	192.37469		(2000.0)	P	Q
<i>n</i>	0.21049985	ω	230.14463	+0.99284338	+0.11917600
<i>a</i>	2.7987763	Ω	123.00952	-0.10657938	+0.91326423
<i>e</i>	0.0805075	<i>i</i>	0.52525	-0.05387813	+0.38954527
<i>P</i>	4.68	<i>H</i>	16.4	<i>G</i> 0.15	<i>U</i> 7

Residuals in seconds of arc

1996 10 03	327	0.2+	0.2-	1996 10 05	327	0.2-	0.3+	1998 01 22	691	0.1+	0.1-
1996 10 03	327	0.9-	0.7+	1996 10 14	327	0.1+	1.0-	1998 01 22	691	0.0	0.1-
1996 10 03	327	0.1-	0.6+	1996 10 14	327	0.8+	1.4-	1998 01 29	691	0.1-	0.3-
1996 10 05	327	0.5+	0.7+	1996 10 14	327	0.2+	0.8-	1998 01 29	691	0.2+	0.1-
1996 10 05	327	0.7-	1.1+	1998 01 22	691	0.0	1.2+	1998 01 29	691	0.1-	0.4-

1996 TS₃₂ = 1999 FG₂₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	322.89073		(2000.0)	P	Q
<i>n</i>	0.22720133	ω	9.98473	-0.77712815	+0.62003315
<i>a</i>	2.6598805	Ω	209.20698	-0.59158188	-0.77815953
<i>e</i>	0.1160930	<i>i</i>	12.76843	-0.21471545	-0.10013316
<i>P</i>	4.34	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 10 02	809	0.2+	0.6-	1996 10 10	691	0.4+	0.9+	1999 03 19	704	0.5-	1.3+
1996 10 02	809	0.4-	0.4-	1996 10 21	691	0.3+	0.7-	1999 03 20	704	0.1+	0.4+
1996 10 02	809	0.2+	0.2-	1996 10 21	691	0.1+	0.0	1999 03 20	704	0.8+	0.7-
1996 10 03	809	0.9-	0.3-	1996 10 21	691	0.1-	0.3-	1999 03 20	704	0.5+	0.0
1996 10 03	809	0.0	0.1+	1999 03 19	704	0.1-	0.2-	1999 03 20	704	0.1-	0.0
1996 10 03	809	0.6-	0.1+	1999 03 19	704	0.6-	0.9-	1999 03 20	704	0.1-	0.1+
1996 10 10	691	0.4+	0.7+	1999 03 19	704	0.1+	0.2-				
1996 10 10	691	0.4+	0.6+	1999 03 19	704	0.1-	0.0				

1996 TP₃₄ = 1982 UN₄ = 1989 VJ₅ = 1998 FJ₈₆

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	267.00999		(2000.0)	P	Q
<i>n</i>	0.28338198	ω	319.29759	+0.97554655	+0.19789402
<i>a</i>	2.2955560	Ω	29.70119	-0.11523811	+0.83105133
<i>e</i>	0.1728226	<i>i</i>	11.12937	-0.18716067	+0.51979962
<i>P</i>	3.48	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1982 10 20	033	0.5+	0.2+	1996 10 11	691	0.1-	0.1-	1998 03 24	704	1.5-	0.5-
1989 11 03	675	1.1-	0.6+	1996 10 11	691	0.3-	0.1+	1998 03 25	704	0.9+	0.9-

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1989 11 03	675	0.2+	0.7−	1996 10 12	691	0.7+	0.0	1998 03 25	704	1.0+	1.7+
1989 11 04	675	0.1−	0.4+	1996 10 12	691	0.8+	0.0	1998 03 25	704	0.7+	0.5+
1989 11 04	675	0.2−	0.6−	1996 10 12	691	0.8+	0.0	1998 03 25	704	0.3+	0.7−
1996 10 10	691	0.6−	0.1−	1998 03 24	704	1.0−	0.3−	1998 03 25	704	0.2−	0.3−
1996 10 10	691	0.4−	0.1−	1998 03 24	704	1.4+	0.5−				
1996 10 11	691	0.1−	0.1+	1998 03 24	704	1.4−	0.9+				

1996 TA₃₉ = 1999 AQ₁₂

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 252.23996 (2000.0)				P Williams Q			
<i>n</i>	0.19090600	ω	124.75956	−0.36693296	+0.92901235		
<i>a</i>	2.9871451	Ω	123.64399	−0.87119236	−0.32512130		
<i>e</i>	0.1963621	<i>i</i>	3.29982	−0.32616572	−0.17672630		
<i>P</i>	5.16	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 6		

Residuals in seconds of arc

1996 10 07	809	0.7−	1.3+	1996 10 08	809	0.0	0.2+	1999 01 07	691	0.3+	0.3+
1996 10 07	809	1.4−	0.3+	1996 10 10	809	1.4+	0.7−	1999 01 07	691	0.5+	0.5+
1996 10 07	809	1.4−	0.8+	1996 10 10	809	1.3+	1.0−	1999 01 15	691	0.1−	0.5−
1996 10 08	809	0.1+	0.1−	1996 10 10	809	1.0+	1.1−	1999 01 15	691	0.2−	0.3−
1996 10 08	809	0.3−	0.1+	1999 01 07	691	0.4+	0.3+	1999 01 15	691	0.8−	0.3−

1996 TO₃₉ = 1998 BY₂₂

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 194.94092 (2000.0)				P Williams Q			
<i>n</i>	0.24584955	ω	289.79059	+0.93288046	−0.35630225		
<i>a</i>	2.5236150	Ω	91.11160	+0.34705806	+0.85000571		
<i>e</i>	0.1828715	<i>i</i>	3.02443	+0.09635746	+0.38799356		
<i>P</i>	4.01	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 6		

Residuals in seconds of arc

1996 10 07	809	1.1+	0.0	1996 10 08	809	0.1−	0.6−	1998 01 23	691	0.2−	0.0
1996 10 07	809	0.6+	0.4−	1996 10 10	809	0.2+	0.6+	1998 01 23	691	0.6−	0.4−
1996 10 07	809	0.0	0.2+	1996 10 10	809	0.2+	1.3+	1998 01 29	691	0.3+	0.1+
1996 10 08	809	0.4−	0.0	1996 10 10	809	0.4−	0.3+	1998 01 29	691	0.4+	0.0
1996 10 08	809	1.2−	1.4−	1998 01 23	691	0.3−	0.1+	1998 01 29	691	0.4+	0.1+

1996 TX₆₂ = 1998 FW₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 140.05017 (2000.0)				P Doppler Q			
<i>n</i>	0.28833694	ω	88.80991	−0.34844258	−0.93680011		
<i>a</i>	2.2691813	Ω	21.66457	+0.82245887	−0.32169610		
<i>e</i>	0.0604859	<i>i</i>	4.89743	+0.44961002	−0.13753971		
<i>P</i>	3.42	<i>H</i>	16.3	<i>G</i> 0.15	<i>U</i> 6		

Residuals in seconds of arc

1996 10 06	809	0.8+	0.2−	1996 10 11	566	0.4−	0.1+	1998 03 22	704	0.1−	1.6−
1996 10 06	809	0.2−	0.0	1996 10 11	566	0.4−	0.6+	1998 03 22	704	(2.4+	1.3−)
1996 10 06	809	0.4−	0.4−	1998 03 20	704	1.0−	1.6−	1998 03 22	704	1.0+	0.1+
1996 10 07	809	0.1+	0.4+	1998 03 20	704	0.5−	1.1+	1998 03 22	704	0.2−	1.0+
1996 10 07	809	0.4+	0.1−	1998 03 20	704	1.6+	0.6−	1998 03 22	704	(0.8−	2.5−)
1996 10 07	809	(2.3+	1.8−)	1998 03 20	704	0.6+	1.0+				
1996 10 11	566	0.0	0.4−	1998 03 20	704	1.4−	0.5+				

1996 UQ₃ = 1977 EP₃ = 1999 FZ₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 297.85935 (2000.0)				P Williams Q			
<i>n</i>	0.22545298	ω	248.52411	−0.12772910	+0.99058717		
<i>a</i>	2.6736141	Ω	14.40182	−0.82089771	−0.07773912		
<i>e</i>	0.1730134	<i>i</i>	11.41313	−0.55660778	−0.11266630		
<i>P</i>	4.37	<i>H</i>	12.8	<i>G</i> 0.15	<i>U</i> 4		

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Residuals in seconds of arc

1977 03 15	381	0.5+	0.2−	1996 11 07	966	0.9+	0.5−	1999 03 19	704	1.2−	0.2−
1977 03 15	381	1.0−	0.5−	1996 11 09	966	0.0	0.1−	1999 03 20	704	0.4+	0.4−
1996 10 19	966	0.8−	0.5+	1996 11 09	966	0.3−	0.6+	1999 03 20	704	1.3+	0.8+
1996 10 19	966	0.4+	0.5−	1999 03 19	704	1.5+	0.0	1999 03 20	704	1.3−	0.3+
1996 11 01	966	0.7−	0.7+	1999 03 19	704	0.1+	0.4−	1999 03 20	704	0.3+	0.3+
1996 11 01	966	0.2−	0.2+	1999 03 19	704	0.5+	0.3+				
1996 11 07	966	0.4+	0.2−	1999 03 19	704	0.6−	0.6+				

1996 VW₇ = 1985 DQ₂ = 1989 AN₉ = 1998 HW₇₀Id. G. V. Williams (*MPC* 31976), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 158.56410 (2000.0)				P Williams Q			
<i>n</i>	0.23516301	ω	259.51724	+0.02615855	−0.99947376		
<i>a</i>	2.5995013	Ω	189.04998	+0.95824400	+0.03053605		
<i>e</i>	0.2572283	<i>i</i>	7.00450	+0.28475282	−0.01094354		
<i>P</i>	4.19	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1985 02 24	675	2.5−	1.1+	1996 11 06	399	0.6+	1.2+	1998 04 22	704	0.3+	0.8+
1985 02 24	675	2.0+	1.0−	1996 11 15	399	1.2+	0.6+	1998 04 22	704	0.3+	0.1−
1985 02 27	675	0.6−	0.6+	1996 11 15	399	0.6+	0.5+	1998 04 22	704	0.4−	0.1−
1985 02 27	675	0.9+	1.1−	1998 04 21	704	0.8+	0.1−	1998 04 22	704	0.8+	1.0+
1989 01 05	675	0.1−	0.1+	1998 04 21	704	0.3−	0.6−	1998 04 28	566	0.5−	0.1+
1989 01 05	675	0.2+	0.1+	1998 04 21	704	0.3−	0.6−	1998 04 28	566	0.6−	0.1+
1996 11 03	399	2.0−	0.1−	1998 04 21	704	0.0	0.3−	1998 04 28	566	0.0	0.4+
1996 11 03	399	1.6−	2.4−	1998 04 21	704	0.2−	0.5+				
1996 11 06	399	1.2+	0.8+	1998 04 22	704	0.3+	0.1−				

1996 VA₃₀ = 1981 UU

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 234.29155 (2000.0)				P Williams Q			
<i>n</i>	0.26450353	ω	161.92530	+0.94537882	−0.29823865		
<i>a</i>	2.4035237	Ω	216.27404	+0.26485249	+0.93807332		
<i>e</i>	0.1569323	<i>i</i>	12.84952	+0.19003169	+0.17627294		
<i>P</i>	3.73	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1981 10 24	675	0.9+	0.2+	1996 11 07	399	(1.1+	2.5−)	1998 04 01	704	0.2−	1.5+
1981 10 25	675	0.4+	1.0−	1996 11 12	399	0.0	1.0−	1998 04 19	704	1.0+	0.9−
1981 10 26	675	0.0	1.2−	1996 11 12	399	1.7−	1.4−	1998 04 19	704	(0.3−	2.4+)
1981 10 26	704	0.2−	1.3+	1996 11 15	399	0.9+	1.4+	1998 04 19	704	0.2+	1.0+
1981 10 26	704	1.4−	0.9−	1996 11 15	399	0.9+	0.7+	1998 04 19	704	0.3−	0.2−
1981 10 27	704	0.2+	2.1+	1998 04 01	704	1.2+	0.2−	1998 04 19	704	(2.4−	1.4−)
1981 10 30	704	(2.3+	3.9−)	1998 04 01	704	0.7−	0.0				
1996 11 07	399	(0.8−	3.8−)	1998 04 01	704	1.1−	1.0−				

1996 XJ₃₂ = 1998 FG₁₃₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 141.82162 (2000.0)				P Nakano Q			
<i>n</i>	0.17446902	ω	347.53515	+0.42443060	−0.90512424		
<i>a</i>	3.1719317	Ω	77.34597	+0.83289975	+0.37958480		
<i>e</i>	0.1515039	<i>i</i>	1.44902	+0.35515726	+0.19148235		
<i>P</i>	5.65	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 7		

Residuals in seconds of arc

1996 12 04	098	0.1+	0.1−	1996 12 08	098	1.3+	0.6+	1998 03 26	704	0.2+	0.1+
1996 12 04	098	1.1−	0.2+	1998 03 20	704	0.3+	1.8−	1998 03 26	704	0.5−	0.2+
1996 12 06	098	0.5−	0.5+	1998 03 20	704	0.4−	0.8+	1998 03 26	704	0.1−	0.3+
1996 12 06	098	0.4+	0.7−	1998 03 20	704	(1.6+	5.1−)				
1996 12 08	098	0.2−	0.4−	1998 03 20	704	0.5+	0.4+				

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M.P.C. 34201

1997 AN₁₆ = 1998 FT₄₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	350.56176		(2000.0)	P	Q
<i>n</i>	0.17564949	ω	262.94982	-0.04782789	+0.99874674
<i>a</i>	3.1577043	Ω	4.39041	-0.82344774	-0.03106850
<i>e</i>	0.2005604	<i>i</i>	11.10614	-0.56537272	-0.03923902
<i>P</i>	5.61	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1997 01 14	046	0.7-	0.3+	1997 01 16	046	0.1-	0.1+	1998 03 20	704	0.2-	1.1-
1997 01 14	046	0.5-	0.0	1997 01 16	046	0.3+	0.6-	1998 03 20	704	0.7+	0.0
1997 01 14	046	0.0	0.3-	1997 01 17	046	1.0+	0.1+	1998 03 20	704	0.4-	0.2+
1997 01 14	046	0.2+	0.4+	1997 01 17	046	0.3+	0.2-	1998 03 20	704	(4.5-	0.1+)
1997 01 14	046	0.8-	0.0	1997 01 17	046	0.2-	0.0	1998 03 22	704	(2.0+	1.9-)
1997 01 15	046	0.3+	0.3-	1997 01 17	046	0.8-	0.3+	1998 03 22	704	0.7+	0.2+
1997 01 15	046	0.5+	0.8-	1997 01 17	046	0.3+	0.2+	1998 03 22	704	0.8-	0.2+
1997 01 15	046	0.0	1.1-	1997 01 17	046	0.3-	0.5+	1998 03 22	704	0.2+	0.0
1997 01 15	046	0.5+	0.4+	1997 01 17	046	0.6-	0.6+	1998 03 22	704	(4.2-	0.1+)
1997 01 16	046	0.4+	0.2+	1998 03 20	704	0.2-	0.5+				

1997 ED₂₅ = 1998 KX₄₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	300.01268		(2000.0)	P	Q
<i>n</i>	0.21270385	ω	272.40283	+0.99201480	-0.05508237
<i>a</i>	2.7794091	Ω	90.77029	+0.09580104	+0.91418648
<i>e</i>	0.0594206	<i>i</i>	6.51525	-0.08202927	+0.40153334
<i>P</i>	4.63	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1997 03 07	691	0.2-	0.4+	1997 03 13	691	0.4-	0.2-	1998 05 24	704	(0.2-	2.7-)
1997 03 07	691	0.4-	0.3+	1997 03 13	691	0.6-	0.2-	1998 05 24	704	0.0	0.8-
1997 03 12	691	0.8+	0.0	1998 05 22	704	1.1+	0.3+	1998 05 24	704	1.4-	0.9+
1997 03 12	691	0.6+	0.0	1998 05 22	704	1.0-	0.0	1998 05 24	704	0.2+	0.5+
1997 03 12	691	0.6+	0.2-	1998 05 22	704	1.0+	0.3-				
1997 03 13	691	0.5-	0.1-	1998 05 22	704	0.0	0.6-				

1997 EF₄₁ = 1982 UK₄ = 1998 QE₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	40.61371		(2000.0)	P	Q
<i>n</i>	0.30181496	ω	129.77713	+0.82817949	+0.55997950
<i>a</i>	2.2011123	Ω	196.21148	-0.53632924	+0.77977944
<i>e</i>	0.1052080	<i>i</i>	4.78205	-0.16269504	+0.27994103
<i>P</i>	3.27	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1982 10 20	033	0.0	0.1-	1997 03 12	704	0.5-	0.6+	1998 08 23	704	0.2-	0.3+
1997 03 10	704	0.4+	0.0	1998 08 17	704	(3.0-	0.5+)	1998 08 23	704	0.5-	0.3+
1997 03 10	704	0.2-	1.3-	1998 08 17	704	0.3-	0.7-	1998 08 23	704	1.2+	0.6+
1997 03 11	704	0.2-	0.5+	1998 08 17	704	0.4+	0.6-	1998 08 23	704	1.0+	0.8+
1997 03 11	704	0.2+	0.2-	1998 08 17	704	0.4-	0.2-	1998 08 23	704	0.7-	0.2-
1997 03 12	704	0.3+	0.2+	1998 08 17	704	0.4-	0.3-				

1997 GK₁₆ = 1989 UK₇

Id. M. E. Sansaturio

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	355.49820		(2000.0)	P	Q
<i>n</i>	0.20089446	ω	225.60113	+0.97128175	+0.23685963
<i>a</i>	2.8872922	Ω	120.68538	-0.21016178	+0.89851802
<i>e</i>	0.2073447	<i>i</i>	1.50370	-0.11155175	+0.36954414
<i>P</i>	4.91	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1989 10 23	033	0.2-	0.8+	1997 04 03	704	0.3-	0.5+	1997 04 06	704	0.5-	0.4+
1989 10 23	033	0.0	0.3+	1997 04 03	704	0.5-	0.1+	1997 04 07	704	0.9+	0.2-
1989 10 25	033	0.2+	0.7-	1997 04 05	704	0.6+	0.0	1997 04 07	704	0.4-	0.3+
1989 10 25	033	0.6+	0.1-	1997 04 05	704	0.4-	1.3-				
1989 10 27	033	0.6-	0.2-	1997 04 06	704	0.5+	0.3+				

1997 GQ₄₁ = 1993 BO₁₃ = 1998 QN₁₉

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	253.06376		(2000.0)	P	Q
<i>n</i>	0.27806801	ω	35.26190	-0.55701780	-0.82930649
<i>a</i>	2.3247095	Ω	88.62742	+0.75137786	-0.52606048
<i>e</i>	0.1246663	<i>i</i>	2.55231	+0.35378309	-0.18844393
<i>P</i>	3.54	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1993 01 22	399	0.1+	1.0-	1997 04 09	809	0.5-	1.5-	1998 08 17	704	0.0	0.7-
1993 01 22	399	1.2-	0.0	1997 04 10	809	0.6+	0.1-	1998 08 17	704	0.9+	0.7-
1993 02 10	399	(4.4-	0.9+)	1997 04 10	809	0.6+	0.5+	1998 08 17	704	0.8+	0.7-
1993 02 10	399	(3.9-	0.7-)	1997 04 10	809	0.4+	0.1+	1998 08 17	704	0.3-	1.2+
1993 02 13	399	1.3+	0.3+	1997 04 11	809	0.9-	0.6+	1998 08 23	704	0.7+	0.3+
1993 02 13	399	0.3-	0.4+	1997 04 11	809	1.4+	0.4+	1998 08 23	704	0.1-	0.1-
1997 04 09	809	0.4-	0.9-	1997 04 11	809	1.0-	1.2+	1998 08 23	704	0.5-	0.2-
1997 04 09	809	0.4-	0.5-	1998 08 17	704	0.4+	0.2+	1998 08 23	704	1.7-	0.2+

1997 LO₁₇ = 1998 VY₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	19.17987		(2000.0)	P	Q
<i>n</i>	0.28779833	ω	233.04504	+0.77796144	-0.62801382
<i>a</i>	2.2720115	Ω	165.82480	+0.59866891	+0.73155560
<i>e</i>	0.0273755	<i>i</i>	4.53334	+0.19071324	+0.26537717
<i>P</i>	3.42	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1997 06 08	809	0.5-	0.5-	1997 06 09	809	0.4+	0.1-	1998 11 11	704	0.3-	0.1-
1997 06 08	809	0.3-	1.1+	1998 11 10	704	0.4-	1.4+	1998 11 11	704	0.2+	0.3-
1997 06 08	809	0.1-	0.3-	1998 11 10	704	0.1+	0.1+	1998 11 11	704	0.3+	1.0-
1997 06 09	809	0.6+	0.3-	1998 11 10	704	0.3+	0.7-	1998 11 11	704	0.5+	0.5-
1997 06 09	809	0.1-	0.1+	1998 11 11	704	0.6-	1.1+				

1997 MP₃ = 1999 AD₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	155.81728		(2000.0)	P	Q
<i>n</i>	0.30922316	ω	186.04918	+0.62803587	+0.77449095
<i>a</i>	2.1658151	Ω	122.88273	-0.71013695	+0.61019438
<i>e</i>	0.1661087	<i>i</i>	5.17370	-0.31823962	+0.16681305
<i>P</i>	3.19	<i>H</i>	16.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 06 28	704	0.1+	0.1+	1997 07 02	704	0.1-	1.5+	1999 01 10	327	1.1+	0.7+
1997 06 28	704	0.2-	0.2+	1997 07 02	704	0.1-	0.7+	1999 01 13	327	0.4-	0.1+
1997 06 28	704	0.2-	0.4+	1997 07 02	704	0.1+	0.3-	1999 01 13	327	0.1+	0.3-
1997 06 29	704	0.1+	0.1-	1997 07 02	704	0.2-	1.5-	1999 01 13	327	0.5-	1.5+
1997 06 29	704	0.0	0.5-	1999 01 09	327	(3.1-	1.2-)	1999 01 14	327	0.5+	0.2-
1997 06 29	704	0.3+	0.6-	1999 01 09	327	0.3-	0.4-	1999 01 14	327	0.0	0.3-
1997 06 29	704	0.4+	0.0	1999 01 09	327	0.1+	0.4-	1999 01 14	327	0.1-	0.9-
1997 06 29	704	0.2-	0.2+	1999 01 10	327	0.2-	0.1-				
1997 07 02	704	0.0	0.0	1999 01 10	327	0.4-	0.1+				

1997 NP = 1998 XD₂₉

Id. A. Doppler

M.P.C. 34202

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	24.06071		(2000.0)	P		Q	
<i>n</i>	0.19853430	ω	114.90684	+0.63091223		−0.77228225	
<i>a</i>	2.9101297	Ω	295.76940	+0.67871636		+0.59581677	
<i>e</i>	0.1006012	<i>i</i>	4.73660	+0.37589075		+0.22041440	
<i>P</i>	4.96	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 07 01	691	0.3−	0.5+	1998 12 11	699	0.7+	1.1−	1998 12 17	704	0.1+	0.4−
1997 07 01	691	0.4−	0.2−	1998 12 11	699	0.5+	0.2+	1998 12 17	704	0.3+	0.2+
1997 07 01	691	0.0	0.3+	1998 12 11	699	1.0−	0.6−	1998 12 17	704	1.1−	0.1−
1997 07 02	691	0.3+	0.4+	1998 12 14	704	1.0+	0.0	1998 12 17	704	0.4−	0.2−
1997 07 02	691	0.2−	0.5+	1998 12 14	704	0.3+	0.4−	1999 01 06	699	0.2−	0.3+
1997 07 02	691	0.2−	0.1+	1998 12 14	704	0.9−	0.6+	1999 01 06	699	0.4+	0.1+
1997 07 07	691	0.2+	0.4−	1998 12 14	704	0.1−	0.3−	1999 01 06	699	0.2−	0.2−
1997 07 07	691	0.5+	1.0−	1998 12 14	704	0.7+	1.8+				
1997 07 07	691	0.1+	0.1−	1998 12 17	704	0.0	0.3+				

1997 PY = 1996 HR₁₄ = 1998 XS

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	155.06098		(2000.0)	P		Q	
<i>n</i>	0.19685148	ω	63.18058	−0.05566631		+0.99839417	
<i>a</i>	2.9266914	Ω	203.63537	−0.92510933		−0.05553225	
<i>e</i>	0.0592191	<i>i</i>	1.50139	−0.37559818		−0.01119153	
<i>P</i>	5.01	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 04 17	809	1.1+	1.6+	1997 08 02	910	0.1+	0.3+	1997 08 06	910	0.5−	0.0
1996 04 17	809	0.3+	1.6+	1997 08 02	910	0.5+	0.0	1998 12 07	910	0.0	0.0
1996 04 17	809	0.6+	0.9+	1997 08 04	910	0.2−	0.2−	1998 12 07	910	0.1+	0.4+
1996 04 18	809	0.6−	1.4−	1997 08 04	910	0.3+	0.2−	1998 12 07	910	0.0	0.1+
1996 04 18	809	0.4−	0.8−	1997 08 04	910	0.4−	0.0	1998 12 08	910	0.1−	0.0
1996 04 18	809	0.8−	1.1−	1997 08 06	910	0.3−	0.2+	1998 12 08	910	0.0	0.2+
1997 08 02	910	0.5+	0.1+	1997 08 06	910	0.1−	0.0	1998 12 08	910	0.1−	0.2+

1997 PD₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	118.20109		(2000.0)	P		Q	
<i>n</i>	0.31344996	ω	247.23931	+0.85317765		−0.52097463	
<i>a</i>	2.1463007	Ω	144.14341	+0.49335663		+0.78979660	
<i>e</i>	0.0948220	<i>i</i>	2.53898	+0.16937278		+0.32373871	
<i>P</i>	3.14	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 08 10	557	0.1+	0.1−	1997 08 25	557	0.1−	0.3−	1997 10 05	557	0.3+	0.3−
1997 08 10	557	0.0	0.1+	1997 08 26	557	0.4−	0.2−	1997 10 05	557	0.0	0.1−
1997 08 10	557	0.2−	0.0	1997 08 26	557	0.3−	0.0	1997 10 05	557	0.1+	0.2−
1997 08 11	557	0.2+	0.0	1997 08 31	557	0.2−	0.1−	1997 10 27	557	0.1−	0.3+
1997 08 11	557	0.2−	0.4+	1997 08 31	557	0.2−	0.2−	1997 10 27	557	0.0	0.3+
1997 08 11	557	0.4−	0.4+	1997 09 06	557	0.4+	0.0	1997 10 28	557	0.3−	0.3+
1997 08 12	557	0.3−	0.4−	1997 09 06	557	0.1+	0.1+	1997 10 28	557	0.1+	0.5+
1997 08 12	557	0.1−	0.2−	1997 09 12	557	0.1+	0.3−	1999 02 21	557	0.2−	0.6+
1997 08 14	557	0.1+	0.1+	1997 09 12	557	0.0	0.3−	1999 02 21	557	0.0	0.4+
1997 08 14	557	0.3+	0.4+	1997 09 26	557	0.1−	0.1+	1999 03 13	557	0.1+	0.2−
1997 08 14	557	0.1+	0.1+	1997 09 26	557	0.0	0.0	1999 03 13	557	0.3−	0.2−
1997 08 16	557	0.3+	0.7+	1997 09 26	557	0.0	0.2+	1999 03 24	557	0.5+	0.2+
1997 08 16	557	0.2+	0.1−	1997 09 26	557	0.1−	0.1−	1999 03 24	557	0.3+	0.3+

1997 QR₂ = 1999 CJ₆₆

Id. A. Doppler

1999 APR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	45.65051		(2000.0)	P		Q	
<i>n</i>	0.22976660	ω	279.51648	+0.23782971		−0.96676356	
<i>a</i>	2.6400457	Ω	156.08366	+0.95699947		+0.21670979	
<i>e</i>	0.1492715	<i>i</i>	13.38332	+0.16609948		+0.13566536	
<i>P</i>	4.29	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 08 29	596	0.7−	1.0+	1997 09 04	596	0.9−	1.5−	1999 02 12	704	0.1+	0.4−
1997 08 29	596	1.6−	0.2−	1997 09 04	596	0.8+	0.1−	1999 02 12	704	0.1+	0.3−
1997 08 31	596	(2.2+	0.8+)	1997 09 11	596	0.6+	0.2−	1999 02 12	704	0.2−	0.3+
1997 08 31	596	0.3+	0.3−	1997 09 11	596	0.5+	0.9+	1999 02 12	704	0.5+	0.9+
1997 08 31	596	0.3−	0.1−	1997 09 11	596	(2.7−	0.5−)	1999 02 16	704	0.3−	1.1+
1997 09 01	596	1.0+	0.1−	1999 01 15	699	0.0	0.1+	1999 02 16	704	0.4+	0.0
1997 09 01	596	0.2+	0.7+	1999 01 15	699	0.5+	0.2−	1999 02 16	704	0.1−	0.1+
1997 09 01	596	(0.7−	2.2−)	1999 01 15	699	0.3−	0.3−	1999 02 16	704	0.1−	0.7−
1997 09 04	596	(0.0	2.7−)	1999 02 12	704	0.5−	0.0	1999 02 16	704	0.1−	0.3−

1997 QV₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	130.94793		(2000.0)	P		Q	
<i>n</i>	0.28979513	ω	78.47073	+0.97967047		−0.18604585	
<i>a</i>	2.2615628	Ω	292.21587	+0.13741919		+0.89489592	
<i>e</i>	0.1827625	<i>i</i>	4.65005	+0.14615657		+0.40564544	
<i>P</i>	3.40	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 08 30	557	0.0	0.2−	1997 09 08	557	0.1+	0.1−	1997 10 17	557	0.5−	0.3−
1997 08 30	557	0.0	0.1+	1997 09 13	557	0.1+	0.1−	1997 10 28	557	0.3−	0.2−
1997 08 30	557	0.2−	0.0	1997 09 13	557	0.1+	0.1−	1997 10 28	557	0.1+	0.3+
1997 08 31	557	0.0	0.0	1997 09 13	557	0.1+	0.1−	1997 11 20	557	0.3+	0.2+
1997 09 02	557	0.1+	0.0	1997 09 21	557	0.0	0.3−	1997 11 20	557	0.3+	0.2+
1997 09 02	557	0.4−	0.4+	1997 09 21	557	0.1−	0.4−	1999 02 21	557	0.1−	0.2−
1997 09 02	557	0.2+	0.4−	1997 09 28	557	0.7+	0.1+	1999 02 21	557	0.1+	0.4+
1997 09 02	557	0.1+	0.1−	1997 09 28	557	0.7+	0.3+	1999 02 21	557	0.1−	0.7−
1997 09 06	557	0.0	0.1−	1997 10 06	557	0.2−	0.1+	1999 03 13	557	0.1−	0.1−
1997 09 06	557	0.1+	0.4+	1997 10 06	557	0.0	0.1+	1999 03 13	557	0.0	0.2−
1997 09 08	557	0.0	0.0	1997 10 17	557	0.8−	0.3−	1999 03 13	557	0.0	0.2+

1997 QP₃ = 1993 SY₅ = 1996 FU₁₉Id. G. V. Williams (*MPC* 30679), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	173.51084		(2000.0)	P		Q	
<i>n</i>	0.25709028	ω	129.54554	+0.73951666		+0.67308274	
<i>a</i>	2.4495085	Ω	188.16201	−0.63476484		+0.69302766	
<i>e</i>	0.1933234	<i>i</i>	3.49086	−0.22402837		+0.25820976	
<i>P</i>	3.83	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1993 09 17	809	0.5+	3.2+	1996 03 24	809	0.1−	1.8+	1997 09 09	910	0.7−	0.3+
1993 09 17	809	0.8−	3.9+	1996 03 24	809	0.4+	1.4+	1997 09 12	910	0.8−	0.9+
1993 09 17	809	0.8−	3.3+	1996 03 24	809	0.2+	1.5+	1997 09 12	910	0.7−	0.9+
1993 09 18	809	1.0−	2.0+	1996 03 26	809	0.5+	0.8−	1997 09 12	910	0.7−	0.8+
1993 09 18	809	0.9−	2.4+	1996 03 26	809	0.3+	1.4+	1997 10 29	704	1.3+	1.1−
1993 09 18	809	0.9−	2.6+	1996 03 26	809	0.3+	0.5−	1997 10 29	704	0.7+	0.1+
1993 09 22	809	2.0+	0.1−	1997 08 30	910	0.4−	0.1−	1997 10 29	704	1.8+	0.7−
1993 09 22	809	0.5+	1.1−	1997 08 30	910	0.1−	0.2−	1997 10 29	704	1.4+	0.6−
1993 09 22	809	0.1−	0.4−	1997 08 30	910	0.4−	0.0	1997 10 29	704	0.6+	0.8−
1993 09 22	675	0.8+	1.0+	1997 09 01	910	0.4−	0.1−	1999 02 12	704	1.4+	1.1+
1993 09 22	675	0.3+	0.4−	1997 09 01	910	0.5−	0.3−	1999 02 12	704	1.8−	1.8+
1993 09 24	809	0.3−	2.7−	1997 09 01	910	0.4−	0.2−	1999 02 12	704	0.3−	1.4+
1993 09 24	809	0.9−	3.4−	1997 09 09	910	0.8−	0.4+	1999 02 12	704	1.1+	0.9+
1993 09 24	809	1.0−	3.3−	1997 09 09	910	0.6−	0.2+	1999 02 12	704	0.2+	0.4+

1997 QU₄ = 1986 RA₁₄ = 3080 P-L

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P	Q
<i>n</i>	0.26525762	ω	52.27102	+0.92468199	-0.37591522
<i>a</i>	2.3989663	Ω	329.67266	+0.30071049	+0.81840230
<i>e</i>	0.2104594	<i>i</i>	6.87273	+0.23353034	+0.43463252
<i>P</i>	3.72	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1960 09 25	675	0.3-	0.3+	1997 08 27	358	0.9-	1.1-	1999 01 15	910	0.1-	0.2-
1960 09 27	675	0.1+	0.0	1997 08 27	358	0.9-	0.6+	1999 01 15	910	0.1-	0.1+
1960 09 28	675	0.3+	0.5+	1997 09 04	358	0.7+	1.6-	1999 01 15	910	0.1-	0.4-
1960 09 29	675	0.5-	0.2+	1997 09 04	358	1.2+	0.6+	1999 01 15	910	0.0	0.0
1986 09 11	095	0.4+	1.3-	1997 09 04	358	0.1+	0.6+	1999 01 15	910	0.0	0.0
1997 08 24	358	(4.4-	0.5+)	1997 09 26	327	0.4+	0.5+	1999 01 15	910	0.0	0.0
1997 08 24	358	1.5-	0.6-	1997 09 26	327	0.4+	0.4+				
1997 08 24	358	0.7+	0.2+	1997 09 26	327	0.2+	0.5+				

1997 RL₃ = 1999 CU₈₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P	Q
<i>n</i>	0.24160636	ω	1.98001	+0.95251355	+0.30082343
<i>a</i>	2.5530764	Ω	340.31371	-0.28125821	+0.80987800
<i>e</i>	0.1519611	<i>i</i>	8.04596	-0.11666943	+0.50359000
<i>P</i>	4.08	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 09 04	327	0.2-	0.1-	1997 09 13	327	0.4+	0.0	1999 02 10	704	0.9+	0.3-
1997 09 04	327	0.0	0.1-	1997 09 13	327	0.2+	0.1-	1999 02 13	704	1.3-	0.8+
1997 09 04	327	0.3-	0.1-	1997 09 13	327	0.2+	0.0	1999 02 13	704	(0.5+	2.7+)
1997 09 07	327	0.4-	0.1-	1997 09 13	327	0.5+	0.2-	1999 02 13	704	1.2-	1.2+
1997 09 07	327	0.2-	0.1+	1999 02 10	704	0.0	0.5-	1999 02 13	704	(0.2-	2.8+)
1997 09 07	327	0.1-	0.3+	1999 02 10	704	1.6+	0.7-	1999 02 13	704	0.9-	0.4+
1997 09 07	327	0.1-	0.3+	1999 02 10	704	0.9+	0.9-				

1997 RK₉ = 1999 FN₁₀

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P	Q
<i>n</i>	0.25931178	ω	112.92385	-0.15041521	-0.98824524
<i>a</i>	2.4354986	Ω	345.64653	+0.86186856	-0.11754025
<i>e</i>	0.1712034	<i>i</i>	6.32803	+0.48431172	-0.09775290
<i>P</i>	3.80	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 11	608	0.1-	0.0	1997 11 01	327	0.6-	0.3+	1999 03 23	120	0.2+	0.1-
1997 09 11	608	0.1-	0.1+	1997 11 01	327	0.1+	0.0	1999 03 23	120	0.3-	0.9-
1997 09 12	608	0.1+	0.1+	1997 11 01	327	0.2+	0.0	1999 03 24	699	0.0	1.7+
1997 09 12	608	0.2+	0.0	1999 03 21	120	0.4+	0.4+	1999 03 24	699	0.3+	0.4+
1997 10 31	327	0.2-	0.1+	1999 03 21	120	(2.6-	0.1-)	1999 03 24	699	1.1+	0.8-
1997 10 31	327	0.2+	0.1-	1999 03 21	120	1.5-	0.3-				
1997 10 31	327	0.2+	0.2-	1999 03 23	120	0.1-	0.3-				

1997 RQ₉ = 1999 AA₂₇

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P	Q
<i>n</i>	0.27404220	ω	358.77359	+0.69787690	+0.71536042
<i>a</i>	2.3474215	Ω	315.48182	-0.65669079	+0.61958466
<i>e</i>	0.0900951	<i>i</i>	2.86403	-0.28587591	+0.32307016
<i>P</i>	3.60	<i>H</i>	16.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 09 04	327	0.1-	0.2+	1997 09 19	327	0.5+	0.3-	1999 01 10	691	0.4+	0.3+
1997 09 04	327	0.0	0.0	1997 09 20	327	0.4+	0.0	1999 01 16	691	0.2-	0.2+
1997 09 04	327	0.1-	0.1+	1997 09 20	327	0.1-	0.4-	1999 01 16	691	0.4+	0.3-
1997 09 19	327	0.2-	0.8+	1997 09 20	327	0.1-	0.6+	1999 01 16	691	0.6-	0.1-
1997 09 19	327	0.2-	0.9-	1999 01 10	691	0.0	0.1-				

1997 SJ₁ = 1992 EJ₃₆ = 1999 CO₉₅

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P	Q
<i>n</i>	0.27848552	ω	104.26201	+0.18085534	-0.98338247
<i>a</i>	2.3223855	Ω	335.30150	+0.88712851	+0.17005525
<i>e</i>	0.0727714	<i>i</i>	2.16975	+0.42461082	+0.06356199
<i>P</i>	3.54	<i>H</i>	16.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1992 03 07	809	0.1+	0.6-	1997 09 26	046	0.1-	0.1-	1999 02 10	704	0.6-	0.8+
1992 03 11	691	0.1-	0.5-	1997 09 26	046	0.8-	0.1+	1999 02 10	704	(0.1+	2.3+)
1992 03 11	691	0.2-	0.1+	1997 09 26	046	0.2+	0.2-	1999 02 10	704	0.8-	1.7-
1992 03 11	691	0.2-	0.1-	1997 09 27	046	0.1-	0.1-	1999 02 11	691	0.8-	0.3-
1997 09 22	046	1.2+	0.1-	1997 09 27	046	0.5-	0.2-	1999 02 11	691	0.6-	0.1-
1997 09 22	046	(2.2+	0.2-)	1997 09 27	046	0.0	0.2-	1999 02 11	691	0.8-	0.3-
1997 09 22	046	0.7+	0.2-	1997 09 28	046	0.0	0.2-	1999 02 12	699	1.3+	1.7+
1997 09 22	046	0.4+	0.4-	1997 09 28	046	0.5+	0.0	1999 02 12	699	(2.5+	0.3-)
1997 09 22	046	0.7+	0.0	1997 10 05	046	0.1+	0.0	1999 02 12	699	0.1+	0.2-
1997 09 23	046	0.5-	0.1-	1997 10 05	046	0.2+	0.4-	1999 02 13	704	0.1-	1.3-
1997 09 23	046	0.2-	0.0	1997 10 05	046	0.3-	0.3+	1999 02 13	704	0.2-	0.1+
1997 09 23	046	0.3+	0.1-	1997 10 06	046	0.2-	0.0	1999 02 13	704	0.6-	0.9+
1997 09 24	046	0.6-	0.1+	1997 10 06	046	0.5+	0.1+	1999 02 13	704	1.9+	0.8+
1997 09 24	046	0.1+	0.6+	1997 10 06	046	0.1+	0.1+	1999 03 10	691	0.4-	0.2-
1997 09 24	046	0.5-	0.1+	1999 02 07	691	0.0	0.1-	1999 03 10	691	0.1-	0.2-
1997 09 25	046	0.2+	0.3+	1999 02 07	691	0.0	0.0	1999 03 10	691	0.2-	0.2-
1997 09 25	046	0.3-	0.3+	1999 02 07	691	0.1+	0.1-	1999 03 12	046	0.2+	0.5+
1997 09 25	046	0.1-	0.5-	1999 02 10	704	0.4+	0.2+	1999 03 12	046	0.3+	0.2+
1997 09 26	046	1.0-	0.0	1999 02 10	704	1.3+	0.5-	1999 03 12	046	0.3-	0.3+

1997 SB₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P	Q
<i>n</i>	0.30517169	ω	122.87252	-0.78760257	-0.61582239
<i>a</i>	2.1849418	Ω	19.14258	+0.54166909	-0.70827171
<i>e</i>	0.0534631	<i>i</i>	3.68825	+0.29372910	-0.34512891
<i>P</i>	3.23	<i>H</i>	15.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 23	557	0.2+	0.2-	1997 10 04	691	0.4+	0.1-	1997 10 21	557	0.4+	0.2+
1997 09 23	557	0.5-	0.2-	1997 10 04	691	0.4+	0.2+	1997 10 23	691	0.2-	0.3+
1997 09 23	557	0.5+	0.0	1997 10 04	691	0.4+	0.0	1997 10 23	691	0.1-	0.0
1997 09 25	557	0.3+	0.5+	1997 10 05	557	0.5-	0.3+	1997 11 03	557	0.0	0.1-
1997 09 25	557	0.1-	0.4+	1997 10 05	557	0.3-	0.2-	1997 11 03	557	0.2+	0.0
1997 09 25	557	0.2+	0.1-	1997 10 11	557	0.0	0.2-	1999 03 13	557	0.1+	0.2-
1997 09 27	557	0.7+	0.5-	1997 10 11	557	0.4-	0.3-	1999 03 13	557	0.5-	0.0
1997 09 27	557	0.8+	0.6-	1997 10 11	691	0.0	0.1-	1999 03 25	557	0.2+	0.0
1997 09 30	691	0.5-	0.0	1997 10 11	691	0.2-	0.0	1999 03 25	557	0.0	0.2-
1997 09 30	691	0.6-	0.0	1997 10 11	691	0.3-	0.2-				
1997 09 30	691	0.8-	0.0	1997 10 21	557	0.4+	0.3+				

1997 SZ₂ = 1998 YE₂₁ = 1999 CH₈₅

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	16.96099		(2000.0)	P	Q
<i>n</i>	0.17763184	ω	131.26035	-0.08913479	-0.99593600
<i>a</i>	3.1341672	Ω	323.84739	+0.90716595	-0.07582819
<i>e</i>	0.1405878	<i>i</i>	1.25318	+0.41122369	-0.04859591
<i>P</i>	5.55	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 23	595	0.9-	0.5-	1998 12 26	691(31.7+	16.2-)	1999 02 13	704	0.8+	0.3-	
1997 09 23	595	0.2+	1.0-	1998 12 28	691	0.2+	0.4-	1999 02 13	704	0.5-	1.1+
1997 09 24	595	0.5-	0.5+	1998 12 28	691	0.1+	0.2-	1999 02 13	704	0.6-	0.9-
1997 09 24	595	0.1+	0.4+	1998 12 28	691	0.2+	0.0	1999 02 13	704	0.0	1.6-
1997 10 11	595	0.2-	0.3-	1999 02 10	704	(1.0+	3.9+)	1999 03 12	595	0.1-	0.5-
1997 10 11	595	1.2+	1.0+	1999 02 10	704	(0.1-	2.2+)	1999 03 12	595	0.1+	0.5-
1998 12 26	691(31.5+	16.4-)		1999 02 10	704	0.2-	0.6+	1999 03 13	595	0.6+	0.3+
1998 12 26	691(32.0+	17.4-)		1999 02 10	704	0.3-	1.3+	1999 03 13	595	0.2-	1.0+

1997 SD₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	100.29808		(2000.0)	P	Q
<i>n</i>	0.17909462	ω	160.39050	+0.99175309	-0.12274025
<i>a</i>	3.1170781	Ω	206.74214	+0.10390290	+0.93850099
<i>e</i>	0.1630039	<i>i</i>	4.70211	+0.07503333	+0.32272391
<i>P</i>	5.50	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 27	557	0.0	0.1+	1997 10 04	557	0.7-	0.5-	1997 10 28	557	0.1+	0.1+
1997 09 27	557	0.2-	0.1+	1997 10 04	557	0.4+	0.2-	1997 10 28	557	0.2+	0.2+
1997 09 28	557	0.2-	0.0	1997 10 05	557	0.1+	0.2-	1997 11 04	557	0.0	0.0
1997 09 28	557	0.0	0.2+	1997 10 07	557	0.2+	0.2-	1997 11 04	557	0.0	0.1+
1997 10 03	691	0.1+	0.0	1997 10 07	557	0.3-	0.1-	1999 02 15	557	0.0	0.1-
1997 10 03	691	0.5+	0.3+	1997 10 19	557	0.4-	0.3+	1999 02 15	557	0.7+	0.4+
1997 10 03	691	0.2+	0.4-	1997 10 20	557	0.1-	0.0	1999 03 11	557	0.8-	0.4-

1997 SK₄ = 1999 CM₁₅₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	103.43463		(2000.0)	P	Q
<i>n</i>	0.22628563	ω	73.33793	+0.94723294	-0.31831704
<i>a</i>	2.6670515	Ω	305.20814	+0.27367996	+0.86440616
<i>e</i>	0.1080496	<i>i</i>	2.64716	+0.16688033	+0.38919950
<i>P</i>	4.36	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 09 27	411	0.7+	0.7-	1997 10 05	411	0.3+	1.3+	1999 02 08	691	0.0	0.1-
1997 09 27	411	0.7+	0.2-	1997 10 05	411	0.2-	1.4+	1999 02 08	691	0.2-	0.0
1997 09 28	411	0.5-	0.2-	1997 10 12	411	0.5+	0.9-	1999 02 08	691	0.2-	0.1-
1997 09 28	411	0.4-	0.4-	1997 10 12	411	0.1-	0.1-	1999 02 16	691	0.4+	0.1-
1997 09 30	411	0.3-	0.1+	1997 10 26	411	0.1-	0.1-	1999 02 16	691	0.2-	0.3+
1997 09 30	411	0.7-	0.4+	1997 10 26	411	0.1+	0.5-	1999 02 16	691	0.3+	0.2+

1997 ST₁₀ = 1999 FZ₂₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	144.86578		(2000.0)	P	Q
<i>n</i>	0.28029850	ω	353.56355	+0.89627868	-0.43904460
<i>a</i>	2.3123604	Ω	32.71048	+0.41188979	+0.77170116
<i>e</i>	0.1511719	<i>i</i>	6.65693	+0.16441207	+0.46012732
<i>P</i>	3.52	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 07	910	1.1-	0.2-	1997 09 29	327	0.0	0.3+	1999 03 19	704	0.7+	0.6+
1997 09 07	910	0.8-	0.1-	1997 09 29	327	0.1+	0.1+	1999 03 19	704	0.7+	0.6+
1997 09 07	910	0.7-	0.1+	1997 10 06	327	0.1-	0.4+	1999 03 19	704	0.0	0.4+
1997 09 26	327	0.6+	0.8+	1997 10 06	327	0.0	0.4+	1999 03 19	704	0.2-	1.5-
1997 09 26	327	0.7+	0.7+	1997 10 06	327	0.2-	0.2+	1999 03 20	704	1.2+	0.5+

1997 09 26	327	0.7+	0.7+	1997 11 01	411	0.2+	1.1-	1999 03 20	704	1.6-	0.9-
1997 09 29	327	0.1+	0.1+	1997 11 01	411	0.3-	0.9-	1999 03 20	704	0.3-	1.3+

1997 SN₁₂ = 1999 CA₈₈

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	19.20102		(2000.0)	P	Q
<i>n</i>	0.18472966	ω	107.62210	-0.21585993	-0.97634207
<i>a</i>	3.0533620	Ω	354.79413	+0.83452623	-0.17773549
<i>e</i>	0.1229761	<i>i</i>	8.03003	+0.50692254	-0.12315135
<i>P</i>	5.34	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 09 27	691	0.0	0.0	1997 10 05	691	0.3-	0.3+	1999 02 10	704	0.8-	0.8+
1997 09 27	691	0.0	0.3-	1997 10 05	691	0.1+	0.4-	1999 02 13	704	1.9+	1.0-
1997 09 30	691	0.2+	0.1+	1999 02 10	704	1.3+	1.5+	1999 02 13	704	0.7-	0.5-
1997 09 30	691	0.1+	0.1+	1999 02 10	704	0.5-	1.0+	1999 02 13	704	0.4-	0.0
1997 09 30	691	0.0	0.1-	1999 02 10	704	0.5+	1.2-	1999 02 13	704	0.5-	0.5+
1997 10 05	691	0.2-	0.3+	1999 02 10	704	0.9-	1.2-				

1997 SL₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	74.76556		(2000.0)	P	Q
<i>n</i>	0.26144615	ω	79.24957	+0.33269633	-0.94264443
<i>a</i>	2.4222254	Ω	351.17383	+0.78140699	+0.29165166
<i>e</i>	0.2330155	<i>i</i>	10.17447	+0.52793586	+0.16236004
<i>P</i>	3.77	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 27	104	0.2-	0.4-	1997 10 03	108	(2.0-	3.8-)	1997 11 13	104	0.1-	0.8-
1997 09 27	104	0.3+	0.0	1997 10 05	104	0.3-	0.3+	1997 11 13	104	0.5-	0.4-
1997 09 27	104	1.3+	0.6-	1997 10 05	104	0.1-	0.3+	1997 11 13	104	0.4-	0.3-
1997 09 27	104	0.4+	0.2-	1997 10 05	104	0.1+	0.2+	1997 12 12	104	0.6-	1.0-
1997 09 29	104	0.6-	0.6-	1997 10 17	104	0.2+	0.7-	1997 12 12	104	0.6-	1.0-
1997 09 29	104	0.4-	0.7-	1997 10 17	104	0.2+	0.6-	1997 12 12	104	0.5-	0.9-
1997 09 29	104	0.3-	1.2-	1997 10 17	104	0.1-	0.2-	1997 12 24	104	0.8+	0.4+
1997 09 30	104	0.6-	1.2+	1997 10 17	104	0.2-	0.3-	1997 12 24	104	0.3+	0.3+
1997 09 30	104	0.4-	1.1+	1997 10 26	104	0.3-	0.8+	1997 12 24	104	0.8+	0.3+
1997 09 30	104	0.2-	0.8+	1997 10 26	104	0.3-	0.8+	1999 03 14	104	(2.4+	1.1+)
1997 10 03	104	0.1+	0.1-	1997 10 26	104	0.0	0.8+	1999 03 14	104	0.8+	0.9+
1997 10 03	104	0.1+	0.2+	1997 11 03	104	0.1+	1.0+	1999 03 21	104	0.6-	0.0
1997 10 03	104	0.1-	0.3+	1997 11 03	104	0.1+	1.1+	1999 03 21	104	0.4-	0.4-
1997 10 03	108	1.5+	1.1-	1997 11 03	104	0.2+	1.3+	1999 03 21	104	0.4+	0.1-

1997 SV₂₃ = 1999 EA₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	66.68950		(2000.0)	P	Q
<i>n</i>	0.25671965	ω	78.46632	-0.10456937	-0.99441661
<i>a</i>	2.4518655	Ω	17.55484	+0.89316123	-0.10017013
<i>e</i>	0.1450097	<i>i</i>	2.69311	+0.43741086	-0.03318950
<i>P</i>	3.84	<i>H</i>	15.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 29	691	0.0	0.1-	1997 10 10	691	0.1+	0.2-	1999 03 12	691	0.5-	0.4+
1997 09 29	691	0.0	0.1+	1997 10 10	691	0.1+	0.3-	1999 03 17	691	0.0	0.2+
1997 09 29	691	0.0	0.0	1997 10 31	910	0.2-	0.0	1999 03 17	691	0.1+	0.4-
1997 10 04	691	0.4-	0.3-	1997 10 31	910	0.1-	0.1+	1999 03 17	691	0.3+	0.1-
1997 10 04	691	0.4-	0.0	1997 10 31	910	0.2-	0.1+	1999 03 24	691	1.3+	0.1-
1997 10 04	691	0.5-	0.1-	1999 03 12	691	0.7-	0.1-	1999 03 24	691	0.4-	0.0
1997 10 10	691	1.7+	0.6+	1999 03 12	691	0.2-	0.2-	1999 03 24	691	0.0	0.2+

1997 SP₂₄ = 1999 CQ₃₈

Id. A. Doppler

1999 APR. 2

M.P.C. 34205

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	292.07284		(2000.0)	P	Q
<i>n</i>	0.27528656	ω	216.93605	-0.74996663	+0.66146869
<i>a</i>	2.3403423	Ω	4.47954	-0.59721320	-0.67512501
<i>e</i>	0.1168689	<i>i</i>	2.22967	-0.28440544	-0.32659669
<i>P</i>	3.58	<i>H</i>	16.0	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1997 09 30	691	0.0	0.2-	1997 10 11	691	0.4-	0.2+	1999 02 13	704	0.3+	0.6+
1997 09 30	691	0.3-	0.1-	1999 02 10	704	0.6+	0.3-	1999 02 13	704	0.3-	0.0
1997 09 30	691	0.2-	0.1+	1999 02 10	704	0.3-	0.3+	1999 02 13	691	0.5+	0.7-
1997 10 04	691	0.6+	0.0	1999 02 10	704	0.1+	0.5-	1999 02 13	704	1.0-	1.2+
1997 10 04	691	0.7+	0.3-	1999 02 10	704	1.0-	0.0	1999 02 13	691	0.5+	0.6-
1997 10 04	691	0.3+	0.0	1999 02 10	704	0.8-	1.5+	1999 02 13	691	0.7+	0.3-
1997 10 11	691	0.3-	0.1+	1999 02 13	704	0.7+	0.9-				
1997 10 11	691	0.5-	0.0	1999 02 13	704	0.1+	0.2-				

1997 SO₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	49.15474		(2000.0)	P	Q
<i>n</i>	0.29512581	ω	208.26095	-0.56619213	-0.82285601
<i>a</i>	2.2342474	Ω	276.26285	+0.76511575	-0.50284755
<i>e</i>	0.0962337	<i>i</i>	2.78603	+0.30663391	-0.26467399
<i>P</i>	3.34	<i>H</i>	15.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 28	557	0.6+	0.1-	1997 10 07	557	0.2+	0.5-	1997 10 31	557	0.3-	0.1+
1997 09 28	557	0.1-	0.4-	1997 10 07	557	0.1+	0.1+	1997 11 20	557	0.4-	0.3-
1997 09 29	557	0.1+	0.4-	1997 10 19	557	0.2-	0.6-	1997 11 20	557	0.9-	0.1+
1997 09 29	557	0.3+	0.2-	1997 10 19	557	0.1-	0.4-	1999 03 25	557	0.1+	0.1-
1997 10 02	557	0.9-	1.7+	1997 10 30	704	0.1+	0.8+	1999 03 25	557	0.4+	0.1+
1997 10 02	557	0.3+	0.9+	1997 10 30	704	0.5+	0.1+	1999 03 27	557	0.2-	0.2+
1997 10 04	557	0.6-	0.0	1997 10 30	704	0.9+	0.3-	1999 03 27	557	0.0	0.0
1997 10 04	557	0.3-	0.4+	1997 10 30	704	0.2+	0.1-	1999 03 27	557	0.1-	0.2+
1997 10 04	557	0.1-	0.4-	1997 10 31	557	0.2+	0.1-				

1997 SA₃₄ = 1964 EU = 1999 FX₂₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	65.16699		(2000.0)	P	Q
<i>n</i>	0.19797322	ω	51.21640	+0.03184304	-0.99419081
<i>a</i>	2.9156256	Ω	37.35090	+0.85642533	-0.02589212
<i>e</i>	0.2112384	<i>i</i>	9.75672	+0.51528795	+0.10447115
<i>P</i>	4.98	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1964 03 11	033	0.5-	0.9-	1997 11 21	138	0.3+	0.1+	1997 12 06	704	0.0	0.1+
1964 03 12	033	(10.1+	3.8-)	1997 11 21	138	0.7+	0.0	1997 12 06	704	1.1-	1.3-
1997 09 16	327	0.0	0.5-	1997 11 21	138	0.5+	0.4+	1999 03 19	704	0.9+	0.7+
1997 09 16	327	0.9+	0.4-	1997 11 22	138	0.6-	0.3+	1999 03 19	704	0.3+	1.0-
1997 09 16	327	0.3-	0.7-	1997 11 22	132	1.4+	0.0	1999 03 19	704	0.6+	1.7+
1997 09 30	327	0.4+	0.1-	1997 11 22	132	0.4-	0.1-	1999 03 19	704	1.0-	0.2-
1997 09 30	327	0.0	0.6+	1997 11 26	566	0.2-	0.6+	1999 03 20	704	0.1+	0.2-
1997 09 30	327	0.1+	0.4+	1997 11 26	566	0.1-	0.5+	1999 03 20	704	0.4+	0.2-
1997 11 01	411	0.0	0.3+	1997 11 26	566	0.7-	0.4+	1999 03 20	704	0.5+	0.8-
1997 11 01	411	0.4-	0.1+	1997 12 06	704	0.0	0.7-	1999 03 20	704	1.0-	0.4+
1997 11 03	411	0.6-	0.5-	1997 12 06	704	1.0+	0.9+	1999 03 20	704	0.3-	0.5+
1997 11 03	411	0.7-	0.2+	1997 12 06	704	0.1+	0.7-				

1997 SB₃₄ = 1997 XP₁₃ = 1981 US₂₀ = 1992 AA₁ = 1999 FR₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	167.98907		(2000.0)	P	Q
<i>n</i>	0.30833857	ω	339.92138	+0.97730733	-0.20557586
<i>a</i>	2.1699554	Ω	32.07725	+0.20510558	+0.85811917
<i>e</i>	0.1647084	<i>i</i>	5.51927	+0.05293471	+0.47049978
<i>P</i>	3.20	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1981 10 28	095	0.0	0.4-	1997 10 12	327	0.2+	0.3+	1997 12 17	327	0.4+	0.4+
1992 01 04	877	0.0	0.4-	1997 10 28	327	0.5+	0.7+	1997 12 17	327	0.8+	0.4+
1992 01 04	877	0.5+	0.2-	1997 10 28	327	0.7+	0.5+	1997 12 22	327	0.6+	0.3+
1997 09 07	910	0.8-	1.1-	1997 10 28	327	0.6+	0.5+	1997 12 22	327	0.5+	0.1+
1997 09 07	910	0.8-	1.1-	1997 11 01	327	0.7+	0.5+	1997 12 22	327	0.6+	0.2+
1997 09 07	910	0.9-	1.1-	1997 11 01	327	0.6+	0.5+	1999 03 19	704	1.1+	0.0
1997 09 17	327	1.7+	0.9+	1997 11 01	327	0.7+	0.4+	1999 03 19	704	0.1+	0.7-
1997 09 17	327	1.5+	1.0+	1997 11 26	704	3.3-	1.0-	1999 03 19	704	1.0-	0.9+
1997 09 17	327	1.6+	0.8+	1997 11 26	704	3.5-	1.4-	1999 03 19	704	1.4+	1.0-
1997 09 29	327	0.6+	0.5+	1997 11 26	704	3.6-	0.1-	1999 03 20	704	0.0	0.1+
1997 09 29	327	0.2+	0.4+	1997 12 08	327	0.3+	0.8-	1999 03 20	704	0.1+	0.1+
1997 09 29	327	0.7+	0.3+	1997 12 08	327	0.2+	0.5-	1999 03 20	704	0.0	1.6+
1997 10 12	327	0.4+	0.5+	1997 12 08	327	0.2+	1.2-	1999 03 20	704	0.4-	1.4+
1997 10 12	327	0.3+	0.3+	1997 12 17	327	0.4+	0.2+	1999 03 20	704	0.7-	1.1-

1997 TE

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	78.38835		(2000.0)	P	Q
<i>n</i>	0.23158421	ω	35.55843	+0.46348827	-0.88294936
<i>a</i>	2.6262139	Ω	27.06103	+0.77027178	+0.35979912
<i>e</i>	0.1894682	<i>i</i>	9.44973	+0.43801826	+0.30157091
<i>P</i>	4.26	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 10 01	552	0.7-	0.1+	1997 11 02	552	0.4+	0.3-	1999 02 23	699	0.7+	0.6-
1997 10 01	552	0.7-	0.0	1997 11 02	552	0.0	0.6+	1999 02 23	699	0.2+	0.0
1997 10 01	552	0.9-	0.1-	1997 11 18	552	0.4+	0.0	1999 02 23	699	1.5+	0.4+
1997 10 03	552	0.1-	0.3+	1997 11 18	552	0.6+	0.0	1999 03 18	552	0.8-	0.0
1997 10 03	552	0.1-	0.0	1997 12 06	552	0.3+	0.2+	1999 03 18	552	0.8-	0.7+
1997 10 05	552	0.3+	0.6+	1997 12 06	552	1.1+	0.0	1999 03 18	552	0.2-	0.1+
1997 10 05	552	0.2+	0.2-	1997 12 14	552	0.4-	0.7-	1999 03 19	552	0.1-	0.2+
1997 10 29	552	0.4-	0.0	1997 12 14	552	0.5+	0.2+	1999 03 19	552	0.3+	0.2+
1997 10 29	552	0.4-	0.2+	1997 12 14	552	0.1+	0.4-				

1997 TC₁ = 1999 CJ₁₃₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	118.47587		(2000.0)	P	Q
<i>n</i>	0.29685372	ω	39.33159	+0.98580223	-0.16459202
<i>a</i>	2.2255689	Ω	330.09218	+0.13230804	+0.88323548
<i>e</i>	0.1161627	<i>i</i>	3.81995	+0.10338539	+0.43909516
<i>P</i>	3.32	<i>H</i>	16.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 10 01	910	0.1+	0.1+	1997 10 03	910	0.1-	0.0	1999 02 07	691	0.1-	0.1+
1997 10 01	910	0.2-	0.0	1997 10 04	910	0.1+	0.1-	1999 02 07	691	0.0	0.1+
1997 10 01	910	0.2-	0.1-	1997 10 04	910	0.1-	0.0	1999 02 13	691	0.1-	0.1+
1997 10 03	910	0.1+	0.1-	1997 10 04	910	0.1+	0.2+	1999 02 13	691	0.2+	0.3-
1997 10 03	910	0.3+	0.2-	1999 02 07	691	0.0	0.3+	1999 02 13	691	0.0	0.3-

1997 TO₁₂ = 1999 CX₁₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	137.89047	ω	15.05703	+0.98900370	+0.14741863						
<i>a</i>	2.5552238	Ω	336.45584	−0.13855865	+0.89572525						
<i>e</i>	0.1772659	<i>i</i>	1.69391	−0.05170278	+0.41945683						
<i>P</i>	4.08	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1997 10 02	691	0.1+	0.1−	1997 10 09	691	0.4−	0.2−	1999 02 07	691	0.6−	0.2−
1997 10 02	691	0.2+	0.0	1997 10 12	691	0.2+	0.3+	1999 02 12	691	0.1+	0.5+
1997 10 02	691	0.2+	0.2+	1997 10 12	691	0.2+	0.1+	1999 02 12	691	0.3+	0.2+
1997 10 09	691	0.3−	0.1−	1997 10 12	691	0.2+	0.1+	1999 02 12	691	0.4+	0.1−
1997 10 09	691	0.5−	0.3−	1999 02 07	691	0.2−	0.4−				

1997 TA₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	0.24339747	ω	73.71885	+0.93563644	−0.34463206						
<i>a</i>	2.5405360	Ω	306.37858	+0.27675673	+0.85036996						
<i>e</i>	0.1549785	<i>i</i>	5.43404	+0.21906656	+0.39761750						
<i>P</i>	4.05	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	3				
Residuals in seconds of arc											
1997 10 09	557	0.4+	0.5−	1997 10 19	557	0.0	0.2−	1997 11 04	557	0.5−	0.1−
1997 10 09	557	0.2+	0.5−	1997 10 19	557	0.2+	0.0	1997 11 04	557	0.2−	0.1+
1997 10 09	557	0.2+	0.5−	1997 10 30	566	0.0	0.4+	1997 11 19	557	0.4−	1.1+
1997 10 10	557	0.2+	0.5−	1997 10 30	566	0.2+	0.5+	1997 12 30	557	0.5+	0.6+
1997 10 10	557	0.2+	0.4−	1997 10 30	566	0.2−	0.6+	1999 03 12	557	0.7−	0.5−
1997 10 10	557	0.5+	0.2−	1997 11 01	557	0.6−	0.1−	1999 03 13	557	0.0	0.4−
1997 10 12	557	0.3+	0.4−	1997 11 01	557	0.0	0.3+	1999 03 13	557	0.0	0.2+
1997 10 12	557	0.1+	0.3−	1997 11 04	557	0.7−	0.4−	1999 03 13	557	0.2+	0.3−

1997 TD₁₇ = 1999 FD₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	115.14636	ω	276.60416	+0.72470180	−0.68464627						
<i>a</i>	2.3035897	Ω	126.63790	+0.66433738	+0.66421108						
<i>e</i>	0.1678917	<i>i</i>	5.57035	+0.18292935	+0.30013852						
<i>P</i>	3.50	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1997 10 06	905	0.5−	1.1+	1997 10 21	886	1.2−	0.0	1999 03 19	704	1.3+	0.1−
1997 10 06	905	0.3−	0.6+	1997 10 25	886	0.2−	0.3−	1999 03 19	704	1.2+	0.4−
1997 10 10	385	0.1−	0.3+	1997 10 25	886	0.6−	0.3−	1999 03 20	704	0.1−	1.4−
1997 10 10	385	0.1+	0.1+	1997 12 05	385	0.6+	0.3−	1999 03 20	704	1.1−	1.7+
1997 10 20	905	1.7+	0.1−	1997 12 05	385	0.4+	0.3+	1999 03 20	704	1.6−	0.0
1997 10 20	905	0.5+	0.5−	1999 03 19	704	0.5+	0.7+	1999 03 20	704	0.9−	0.3+
1997 10 21	886	0.5−	0.0	1999 03 19	704	1.2+	0.3+				

1997 TV₂₂ = 1999 FQ₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	75.79114	ω	76.97983	−0.00164189	−0.99965524						
<i>a</i>	2.3679027	Ω	13.19847	+0.86724729	−0.01447030						
<i>e</i>	0.1325175	<i>i</i>	6.59041	+0.49787493	+0.02190913						
<i>P</i>	3.64	<i>H</i>	16.2	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1997 10 06	691	0.0	0.2−	1997 10 25	910	0.4+	0.6+	1999 03 19	910	0.2+	0.2+
1997 10 06	691	0.1+	0.6−	1997 10 25	910	0.3+	0.6+	1999 03 19	910	0.4+	0.1−
1997 10 06	691	0.0	0.4−	1997 11 21	691	0.3−	0.1+	1999 03 19	910	0.3−	0.1−
1997 10 11	691	0.0	0.0	1997 11 21	691	0.5−	0.2−	1999 03 21	910	0.2+	0.3+
1997 10 11	691	0.3−	0.2−	1997 11 29	691	0.2+	0.7−	1999 03 21	910	0.2−	0.2−

1997 10 11	691	0.2−	0.1−	1997 11 29	691	0.1+	0.0	1999 03 21	910	0.4−	0.3−
1997 10 25	910	0.2+	0.5+	1997 11 29	691	0.0	0.2+				

1997 TX₂₃ = 1999 CJ₁₃₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	107.62682	ω	122.43209	+0.99916429	−0.03977534						
<i>a</i>	3.0686463	Ω	239.84905	+0.03288592	+0.91906310						
<i>e</i>	0.1349750	<i>i</i>	0.62386	+0.02427420	+0.39209814						
<i>P</i>	5.38	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1997 10 11	691	0.3+	0.2+	1997 10 23	691	0.3−	0.1+	1999 02 09	691	0.2−	0.4−
1997 10 11	691	0.2−	0.1+	1997 10 23	691	0.0	0.1−	1999 02 09	691	0.0	0.2−
1997 10 11	691	0.1−	0.0	1997 10 23	691	0.1−	0.1−	1999 02 09	691	0.4−	0.1+
1997 10 12	691	0.4+	0.4−	1997 11 01	691	0.0	0.3−	1999 02 12	691	0.2+	0.3+
1997 10 12	691	0.1+	0.0	1997 11 01	691	0.4+	0.4+	1999 02 12	691	0.3+	0.0
1997 10 12	691	0.1−	0.0	1997 11 01	691	0.2−	0.1+	1999 02 12	691	0.0	0.2+

1997 TR₂₅ = 1999 FC₂₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	110.21547	ω	13.52429	+0.67269148	−0.73668457						
<i>a</i>	2.5631328	Ω	34.27770	+0.66693310	+0.56320452						
<i>e</i>	0.2825436	<i>i</i>	7.05277	+0.32044722	+0.37429468						
<i>P</i>	4.10	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	3				
Residuals in seconds of arc											
1997 10 12	327	0.0	0.0	1997 11 23	327	0.0	0.0	1999 03 19	704	0.1−	1.1−
1997 10 12	327	0.1−	0.0	1997 11 23	327	0.1−	0.1−	1999 03 19	704	0.3−	1.1+
1997 10 12	327	0.1+	0.0	1997 11 26	704	0.5−	2.5+	1999 03 19	704	1.1+	1.4−
1997 10 15	327	0.0	0.0	1997 11 26	704	0.6−	0.2−	1999 03 19	704	0.4+	0.3−
1997 10 15	327	0.2−	0.0	1997 11 26	704	0.9−	2.3+	1999 03 19	704	0.5−	0.2−
1997 10 15	327	0.0	0.1+	1997 11 26	704	0.1−	0.8−	1999 03 20	704	0.5+	1.1+
1997 10 22	327	0.1+	0.0	1997 11 26	704	0.7−	0.7+	1999 03 20	704	0.4−	0.2+
1997 10 22	327	0.0	0.1−	1997 11 26	704	0.7+	1.2−	1999 03 20	704	0.5−	0.2+
1997 10 22	327	0.2+	0.0	1997 11 28	327	0.6+	1.0−	1999 03 20	704	0.3+	0.2+
1997 11 23	327	0.1+	0.0	1997 11 28	327	0.2+	1.0−	1999 03 20	704	0.4−	0.4+
1997 11 23	327	0.0	0.1−	1997 11 28	327	1.3+	1.0−				

1997 UV = 1999 CG₂₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	354.22003		(2000.0)		P		Q				
<i>n</i>	0.17646486	ω	357.75093		−0.79913087		−0.60109659				
<i>a</i>	3.1479698	Ω	145.29602		+0.55178444		−0.73905585				
<i>e</i>	0.1213680	<i>i</i>	0.85838		+0.23858705		−0.30410416				
<i>P</i>	5.59	<i>H</i>	14.2		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1997 10 21	557	0.5−	0.7−	1997 11 06	704	(4.3−	0.8−)	1999 02 13	704	0.5+	0.1+
1997 10 21	557	0.2−	0.4+	1997 11 06	704	(6.0−	0.9−)	1999 02 13	704	0.1−	0.8+
1997 10 22	557	0.2−	0.1−	1997 11 06	704	(5.2−	0.9−)	1999 02 13	704	0.2−	0.7+
1997 10 22	557	0.2−	0.1−	1997 11 10	557	0.4+	0.3−	1999 02 13	704	0.5−	0.4−
1997 10 28	557	0.2+	0.3+	1997 11 10	557	0.1−	0.7−	1999 02 14	691	0.5−	0.5−
1997 10 28	557	0.1−	0.2+	1997 11 20	557	0.1+	0.4−	1999 02 14	691	0.4−	0.3−
1997 10 31	704	0.4+	1.3−	1997 11 20	557	1.2+	1.1+	1999 02 23	691	0.3−	0.4−
1997 10 31	704	0.9+	1.2+	1999 02 10	704	0.5+	0.7−	1999 02 23	691	0.4−	0.2−
1997 10 31	704	1.1−	0.4+	1999 02 10	704	0.1+	0.3+	1999 02 23	691	0.3−	0.4−
1997 10 31	704	1.0−	0.2+	1999 02 10	704	0.9+	0.4+	1999 03 11	557	0.2+	0.1−
1997 11 01	557	0.0	0.2+	1999 02 10	704	1.1+	0.1+	1999 03 11	557	0.5−	0.2+
1997 11 01	557	0.2+	0.4−	1999 02 10	704	0.0	0.3+	1999 03 17	557	0.6−	0.7+
1997 11 06	704	(4.9−	0.6−)	1999 02 13	704	0.1+	0.7−	1999 03 17	557	0.5+	0.2+

1999 APR. 2

M.P.C. 34207

1997 UY₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	126.87865		(2000.0)	P	Q
<i>n</i>	0.28103110	ω	181.05201	+0.72314100	-0.67971103
<i>a</i>	2.3083401	Ω	222.65064	+0.63502073	+0.72415692
<i>e</i>	0.2389692	<i>i</i>	10.43549	+0.27169057	+0.11657476
<i>P</i>	3.51	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 10 25	684	0.1+	0.2-	1997 10 31	684	0.0	0.1+	1997 11 29	704	0.6+	0.1+
1997 10 25	684	0.1+	0.0	1997 10 31	684	0.1+	0.1+	1997 11 29	704	0.1+	0.1+
1997 10 26	684	0.2+	0.1-	1997 11 01	400	0.4-	0.6-	1997 11 29	704	0.2+	0.2+
1997 10 26	684	0.2+	0.1+	1997 11 01	400	0.6-	0.5+	1997 11 29	704	0.6+	0.1+
1997 10 26	684	0.1+	0.0	1997 11 02	400	0.0	0.2-	1997 12 19	684	0.0	0.6+
1997 10 26	411	0.4+	0.0	1997 11 02	400	0.2+	0.3-	1997 12 19	684	0.1+	0.6+
1997 10 26	411	0.1-	0.4+	1997 11 09	400	0.1+	0.3-	1997 12 19	684	0.4+	0.7+
1997 10 27	684	0.0	0.4+	1997 11 09	400	0.2+	0.6-	1997 12 25	684	0.1+	0.3+
1997 10 27	684	0.2-	0.2+	1997 11 21	684	0.3-	0.5-	1997 12 25	684	0.1+	0.2+
1997 10 27	684	0.0	0.2+	1997 11 21	684	0.1-	0.5-	1997 12 25	684	0.1+	0.3+
1997 10 27	411	0.3-	1.0-	1997 11 21	684	0.2-	0.6-	1999 03 12	684	0.0	0.3-
1997 10 27	411	1.3-	0.5+	1997 11 22	684	0.4-	0.2-	1999 03 12	684	0.4+	0.4-
1997 10 29	566	0.2+	0.1-	1997 11 22	684	0.3-	0.4-	1999 03 13	684	0.1-	0.5-
1997 10 29	566	0.0	0.1+	1997 11 22	684	0.2-	0.3-	1999 03 13	684	0.5-	0.5-
1997 10 29	566	0.3+	0.2-	1997 11 29	704	0.1+	0.2+				

1997 UT₃ = 1999 CK₁₃₇

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	70.02671		(2000.0)	P	Q
<i>n</i>	0.17185604	ω	204.23064	+0.53163145	-0.84695192
<i>a</i>	3.2040025	Ω	213.65462	+0.77894645	+0.49186520
<i>e</i>	0.1352562	<i>i</i>	0.65750	+0.33258145	+0.20184416
<i>P</i>	5.74	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 08 31	910	0.7-	0.2-	1997 11 29	704	0.4+	1.4-	1999 02 09	691	0.1-	0.3-
1997 08 31	910	0.6-	0.2-	1997 11 29	704	0.3+	0.9-	1999 02 12	699	0.6+	0.9+
1997 08 31	910	0.8-	0.2-	1997 11 29	704	0.6-	0.8-	1999 02 12	699	0.6+	0.2+
1997 10 26	411	1.0+	0.7+	1997 11 30	411	1.0-	0.1-	1999 02 12	699	1.1+	0.1-
1997 10 26	411	0.7+	0.4-	1997 11 30	411	0.6-	0.6+	1999 02 12	691	1.0-	0.2+
1997 10 27	411	0.9+	0.2-	1997 12 04	704	0.6-	1.2-	1999 02 12	691	0.8-	0.1+
1997 10 27	411	0.1+	0.3-	1997 12 04	704	1.4+	1.0+	1999 02 12	691	1.0-	1.0+
1997 10 29	566	0.3+	0.4+	1997 12 04	704	1.8+	0.1-	1999 03 06	691	0.6-	0.2-
1997 10 29	566	0.1+	0.3+	1997 12 04	704	0.1-	0.2+	1999 03 06	691	0.3-	0.3-
1997 10 29	566	0.1-	0.2+	1997 12 04	704	0.3+	1.3-	1999 03 06	691	0.4-	0.2-
1997 11 01	411	0.6+	0.5+	1998 01 17	910	0.1-	0.3+	1999 03 12	691	0.7+	0.2-
1997 11 01	411	0.0	0.1-	1998 01 17	910	0.0	0.3+	1999 03 12	691	0.4+	0.1-
1997 11 06	411	0.2+	0.1-	1998 01 17	910	0.2-	0.6+	1999 03 12	691	0.2+	0.2-
1997 11 06	411	0.1+	0.3-	1998 01 27	910	0.9-	0.6+	1999 03 20	691	0.0	0.4-
1997 11 19	411	0.9-	0.9+	1998 01 27	910	0.7-	0.7+	1999 03 20	691	0.1+	0.3-
1997 11 19	411	1.0-	0.1-	1998 01 27	910	0.9-	0.8+	1999 03 20	691	0.1+	0.7-
1997 11 29	704	0.3-	0.9+	1999 02 09	691	0.2+	0.1-				
1997 11 29	704	0.6+	0.4-	1999 02 09	691	0.1+	0.0				

1997 UB₇ = 1999 CF₁₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	122.96673		(2000.0)	P	Q
<i>n</i>	0.21302879	ω	306.69075	+0.97186232	+0.10141839
<i>a</i>	2.7765821	Ω	48.54680	+0.03430693	+0.83199239
<i>e</i>	0.2849352	<i>i</i>	16.47844	-0.23303792	+0.54543833
<i>P</i>	4.63	<i>H</i>	12.8	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 10 25	691	0.4+	0.3-	1997 10 29	704	0.3-	0.0	1999 02 11	704	0.3+	0.2+
1997 10 25	691	0.4+	0.2-	1997 11 05	905	0.9-	0.8+	1999 02 11	704	0.4+	0.2-

1997 10 25	691	0.5+	0.3-	1997 11 05	905	0.7+	0.2+	1999 02 11	704	0.5+	0.3-
1997 10 28	691	0.1-	0.3-	1997 11 08	905	0.4-	0.0	1999 02 18	704	0.2+	0.3+
1997 10 28	691	0.1-	0.6-	1997 11 08	905	0.1+	0.1-	1999 02 18	704	0.3-	0.3+
1997 10 28	691	0.2-	0.5-	1997 11 30	566	0.0	0.7-	1999 02 18	704	0.9-	0.4+
1997 10 29	704	0.6+	0.3-	1997 11 30	566	0.4-	0.4+	1999 02 18	704	0.2+	0.4+
1997 10 29	704	0.2-	0.0	1997 11 30	566	1.0+	0.0	1999 02 18	704	0.2+	0.2-
1997 10 29	704	0.5-	1.2+	1999 02 11	704	0.3-	0.3-				
1997 10 29	704	0.5-	0.8+	1999 02 11	704	0.2-	0.6-				

1997 UT₇ = 1998 XH₃₈

Id. A. Doppler

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Williams

<i>M</i>	245.14590		(2000.0)	P	Q
<i>n</i>	0.27458708	ω	253.21012	-0.76392585	+0.64458337
<i>a</i>	2.3443151	Ω	326.90588	-0.56875523	-0.69487408
<i>e</i>	0.1127217	<i>i</i>	3.20099	-0.30485207	-0.31884524
<i>P</i>	3.59	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 10 27	557	0.0	0.1-	1997 10 30	557	0.1+	0.6+	1998 12 14	704	1.2-	0.2-
1997 10 27	557	0.4-	0.0	1997 10 31	557	0.3+	0.2-	1998 12 17	704	0.7-	0.5+
1997 10 27	557	0.0	0.3+	1997 10 31	557	1.1-	0.4+	1998 12 17	704	1.1-	1.0-
1997 10 28	557	0.3+	0.4-	1997 11 20	557	0.2+	0.7-	1998 12 17	704	0.5+	0.6+
1997 10 28	557	0.0	0.2+	1997 11 20	557	0.6+	0.6-	1999 03 18	557	0.6+	0.0
1997 10 30	557	0.5+	0.0	1998 12 14	704	0.4+	1.1+	1999 03 18	557	0.4-	0.5+
1997 10 30	557	0.1+	0.3+	1998 12 14	704	0.8+	1.4-				
1997 10 30	557	0.7-	0.1+	1998 12 14	704	1.1+	0.1+				

1997 UW₇ = 1999 CJ₁₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	161.76330		(2000.0)	P	Q
<i>n</i>	0.26601046	ω	313.62549	+0.89897999	+0.43796661
<i>a</i>	2.3944379	Ω	20.40157	-0.39804251	+0.82122811
<i>e</i>	0.2272018	<i>i</i>	0.73903	-0.18274881	+0.36574532
<i>P</i>	3.71	<i>H</i>	16.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 10 28	557	0.2-	0.1+	1997 10 30	704	0.3+	1.6-	1997 11 20	691	1.0+	0.5+
1997 10 28	557	0.7-	0.9+	1997 10 30	704	0.4+	0.7-	1997 11 25	691	0.6-	0.1-
1997 10 29	557	0.2-	0.2+	1997 11 01	557	0.2-	0.1-	1997 11 25	691	0.9-	0.1+
1997 10 29	557	0.3-	0.1-	1997 11 01	557	0.1+	0.0	1997 11 25	691	0.9-	0.3+
1997 10 29	704	0.9-	0.5-	1997 11 03	691	0.9-	0.3+	1999 02 07	691	0.0	0.0
1997 10 29	704	1.2+	0.5+	1997 11 03	691	1.0-	0.5+	1999 02 07	691	0.1+	0.2-
1997 10 29	704	0.9+	0.7-	1997 11 03	691	0.9-	0.3+	1999 02 07	691	0.2+	0.1-
1997 10 29	704	0.6+	1.0-	1997 11 03	557	0.1+	0.6+	1999 02 12	691	0.0	0.2-
1997 10 30	704	0.5-	1.4-	1997 11 03	557	0.0	0.5+	1999 02 12	691	0.5-	0.1+
1997 10 30	704	1.4+	0.0	1997 11 20	691	0.6+	0.5+	1999 02 12	691	0.0	0.0
1997 10 30	704	0.7+	0.2+	1997 11 20	691	0.9+	0.8+				

1997 UO₈ = 1999 CL₁₂₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	67.46119		(2000.0)	P	Q
<i>n</i>	0.24076830	ω	39.33023	+0.20165772	-0.96466506
<i>a</i>	2.5589974	Ω	39.88102	+0.81870325	+0.07098022
<i>e</i>	0.0816148	<i>i</i>	15.33522	+0.53764222	+0.25373829
<i>P</i>	4.09	<i>H</i>	13.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 10 23	399	1.7+	1.2+	1997 12 21	327	0.0	0.3+	1999 02 11	704	1.2+	0.2+
1997 10 23	399	0.0	0.6-	1997 12 21	327	0.1+	0.3+	1999 02 11	704	0.6+	0.7-
1997 10 25	399	(1.3+	3.1+)	1997 12 21	327	0.1-	0.3+	1999 02 11	704	0.2-	0.6-
1997 10 25	399	(1.5+	4.2+)	1997 12 23	327	0.4+	0.0	1999 02 11	704	0.6-	0.6+
1997 11 01	399	(2.8-	0.5-)	1997 12 23	327	0.1+	0.0	1999 02 18	704	0.3-	0.3-
1997 11 01	399	0.7+	0.6-	1997 12 23	327	0.4+	0.0	1999 02 18	704	0.4+	0.1-
1997 11 02	399	0.4+	0.6+	1997 12 24	327	0.2+	0.0	1999 02 18	704	0.0	0.1-

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1997 11 02	399	0.2−	0.8−	1997 12 24	327	0.1+	0.0	1999 02 18	704	0.4−	1.0+
1997 11 03	704	0.7−	0.1+	1997 12 24	327	0.3+	0.0	1999 02 18	704	0.3−	0.1−
1997 11 03	704	1.3−	1.1+	1998 01 26	566	0.6−	0.1+	1999 02 23	699	0.7−	0.0
1997 11 03	704	0.1+	1.3−	1998 01 26	566	0.5−	0.0	1999 02 23	699	0.3−	0.0
1997 11 03	704	0.5−	0.8−	1998 01 26	566	0.8−	0.1+	1999 02 23	699	0.3−	0.1+
1997 11 03	704	(1.6−	3.3−)	1999 02 11	704	0.6+	0.3−				

1997 UU₈ = 1999 CK₄₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17357117	ω	23.03673	−0.48755411	−0.87182199		
<i>a</i>	3.1828609	Ω	96.17187	+0.79349383	−0.46495875		
<i>e</i>	0.1496334	<i>i</i>	2.71477	+0.36422319	−0.15407720		
<i>P</i>	5.68	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 25	400	1.0+	0.6−	1997 11 06	704	(3.1−	1.0+)	1999 02 10	704	0.3−	0.6−
1997 10 25	400	(0.1+	2.0−)	1997 11 06	704	0.8−	1.5+	1999 02 10	704	0.5+	0.4+
1997 10 28	400	(1.0+	2.4−)	1997 11 06	704	(2.5−	0.0)	1999 02 10	704	0.0	0.0
1997 10 28	400	0.4+	1.1−	1997 11 06	704	0.3−	0.2+	1999 02 13	704	0.8−	0.2−
1997 10 28	327	0.1+	0.6−	1997 11 06	704	1.6−	0.7+	1999 02 13	704	0.3+	0.3+
1997 10 28	327	0.7+	0.5−	1997 11 06	704	0.3−	0.8+	1999 02 13	704	0.3+	0.7+
1997 10 28	327	0.2+	0.8−	1997 11 06	704	1.8−	0.6+	1999 02 13	704	0.0	1.0+
1997 10 31	704	(2.5+	0.5−)	1997 11 06	704	0.6+	0.5+	1999 02 13	704	1.1−	1.0−
1997 10 31	704	1.3+	0.9−	1997 11 06	704	(2.5−	1.4+)	1999 02 18	566	0.2−	0.3+
1997 10 31	704	(4.0+	1.8+)	1999 01 22	699	0.9−	1.0+	1999 02 18	566	0.3−	0.4+
1997 10 31	704	(2.5+	1.8+)	1999 01 22	699	0.3−	1.2−	1999 02 18	566	0.3−	0.4+
1997 11 02	400	0.8+	1.2−	1999 01 22	699	0.7+	0.3−	1999 02 23	699	0.5+	0.5−
1997 11 02	400	(1.8+	2.8−)	1999 02 10	704	0.3−	0.8−	1999 02 23	699	0.6+	0.1−
1997 11 06	704	0.2−	1.2+	1999 02 10	704	0.3+	0.7+	1999 02 23	699	1.1+	0.6−

1997 UL₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23412989	ω	73.06275	−0.32866421	−0.93255987		
<i>a</i>	2.6071428	Ω	37.21594	+0.74498604	−0.35319995		
<i>e</i>	0.2181121	<i>i</i>	14.29821	+0.58049603	−0.07471201		
<i>P</i>	4.21	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 28	557	0.4−	0.3+	1997 10 30	704	1.0+	0.9−	1997 11 20	557	0.8−	0.0
1997 10 28	557	0.5−	0.2+	1997 10 30	557	0.6−	0.2−	1997 11 20	557	0.3−	0.4+
1997 10 29	704	1.9+	0.5−	1997 10 30	557	0.3−	0.3−	1997 11 20	557	1.1−	1.0+
1997 10 29	704	1.1+	1.9+	1997 11 01	557	0.5−	0.1−	1997 12 30	557	0.8+	0.1−
1997 10 29	704	0.3−	0.2+	1997 11 01	557	0.9−	0.1−	1997 12 30	557	0.6−	0.1+
1997 10 29	704	0.2−	0.2+	1997 11 01	557	0.5−	0.1−	1998 01 10	557	1.4−	1.3+
1997 10 29	704	0.0	1.2+	1997 11 03	704	0.6+	0.6−	1998 01 10	557	0.4−	0.1+
1997 10 29	566	0.4−	0.0	1997 11 03	704	0.1−	1.2+	1998 01 31	557	0.1−	0.6−
1997 10 29	566	0.4−	0.1−	1997 11 03	704	0.3−	0.5−	1998 01 31	557	0.4+	1.2−
1997 10 29	566	0.6−	0.0	1997 11 03	704	0.5+	1.0−	1999 03 13	557	0.1+	0.7−
1997 10 30	704	(2.4+	0.1+)	1997 11 03	557	0.2−	0.5−	1999 03 13	557	0.3−	0.7−
1997 10 30	704	2.0+	0.5−	1997 11 03	557	0.2−	0.5−	1999 03 18	557	0.4−	0.3+
1997 10 30	704	1.6+	1.2−	1997 11 10	557	0.2−	0.4+	1999 03 18	557	0.1−	0.1−
1997 10 30	704	1.7+	0.8−	1997 11 10	557	0.3−	0.2+				

1997 UU₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25996346	ω	112.85464	−0.70567691	−0.70804026		
<i>a</i>	2.4314267	Ω	22.09898	+0.62158432	−0.63655797		
<i>e</i>	0.1473366	<i>i</i>	4.03012	+0.34007798	−0.30573345		
<i>P</i>	3.79	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

1999 APR. 2

Residuals in seconds of arc

1997 10 30	557	0.4−	0.4+	1997 11 03	557	0.3+	0.4+	1998 01 31	557	0.6+	0.1−
1997 10 30	557	0.1−	0.1+	1997 11 10	557	0.3−	0.5+	1998 01 31	557	1.4−	0.1−
1997 10 31	557	0.6−	0.3+	1997 11 10	557	0.2+	0.4+	1998 02 20	557	0.4+	0.5+
1997 10 31	557	0.4−	0.2+	1997 11 20	557	1.0+	1.1−	1998 02 20	557	1.1+	0.6−
1997 11 03	704	0.8−	0.6+	1997 11 20	557	0.1+	1.0−	1998 02 20	557	1.0−	0.8−
1997 11 03	704	0.1−	0.3−	1998 01 10	557	0.1−	0.6−	1998 03 13	557	0.2+	0.4+
1997 11 03	704	1.0+	0.7+	1998 01 10	557	0.7+	0.1−	1999 03 13	557	0.2−	0.0
1997 11 03	704	0.6−	0.5−	1998 01 10	557	1.5+	0.1+	1999 03 18	557	0.3−	0.3+
1997 11 03	704	0.6−	0.0	1998 01 17	557	0.5−	0.1+	1999 03 18	557	0.7+	0.3+
1997 11 03	557	0.4+	0.2+	1998 01 17	557	0.4−	1.4+				

1997 UB₁₅ = 1975 VE₇ = 1999 FV₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26897921	ω	14.41145	+0.35573663	−0.93431569		
<i>a</i>	2.3767869	Ω	54.75468	+0.85471725	+0.31550930		
<i>e</i>	0.0631266	<i>i</i>	1.57775	+0.37803423	+0.16585556		
<i>P</i>	3.66	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1975 11 06	095	1.0−	2.9+	1997 11 04	905	0.4+	1.3−	1997 11 18	886	1.0+	1.9−
1997 09 07	910	0.3+	0.4−	1997 11 04	905	1.0+	0.5−	1998 01 02	385	0.7+	1.2−
1997 09 07	910	0.3+	0.4−	1997 11 06	704	2.0−	0.3+	1998 01 02	385	0.5+	0.7−
1997 09 07	910	0.1−	0.1−	1997 11 06	704	1.9−	0.7+	1999 03 19	704	0.6+	1.3−
1997 10 26	905	1.4−	0.3+	1997 11 06	704	2.0−	0.1+	1999 03 19	704	0.4+	0.4+
1997 10 26	905	1.5+	1.6+	1997 11 06	704	1.6−	0.7+	1999 03 19	704	0.2+	1.5+
1997 10 28	905	2.0+	0.1+	1997 11 06	704	2.5−	0.7+	1999 03 19	704	0.2−	0.8−
1997 10 28	905	2.2+	0.8+	1997 11 07	886	2.4+	1.2+	1999 03 20	704	0.4+	1.0−
1997 10 31	704	0.1+	1.0−	1997 11 07	886	0.8−	0.3−	1999 03 20	704	0.4+	1.3+
1997 10 31	704	0.1−	0.8−	1997 11 08	385	0.2+	0.6+	1999 03 20	704	1.0−	0.5−
1997 10 31	704	0.2+	1.7−	1997 11 10	557	0.7+	0.6+	1999 03 20	704	0.3−	1.3+
1997 10 31	704	1.6+	1.0+	1997 11 10	557	0.8+	0.7+				
1997 10 31	704	1.7−	0.6−	1997 11 18	886	1.6+	1.4−				

1997 UE₁₅ = 1999 CW₁₁₇

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24613080	ω	309.54657	−0.98866790	−0.06732723		
<i>a</i>	2.5216922	Ω	227.04635	+0.10258611	−0.95554399		
<i>e</i>	0.0849430	<i>i</i>	10.56334	−0.10959869	−0.28705876		
<i>P</i>	4.00	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 31	046	0.2+	0.0	1997 11 04	046	0.1+	0.3+	1999 02 16	704	1.1−	1.6−
1997 10 31	046	0.1−	0.1−	1997 11 04	046	0.1+	0.2+	1999 02 16	704	1.3+	0.7−
1997 10 31	046	0.0	0.0	1997 11 04	046	0.2+	0.0	1999 02 16	704	0.6−	0.3+
1997 10 31	046	0.4+	0.1+	1997 11 04	046	0.2−	0.2−	1999 02 16	704	0.8−	0.1−
1997 10 31	046	0.5−	0.0	1997 11 04	046	0.1+	0.4+	1999 03 12	046	0.2−	0.4+
1997 11 02	046	0.3+	0.1−	1997 11 04	046	0.3−	0.2−	1999 03 12	046	0.2−	0.6+
1997 11 02	046	0.5+	0.0	1997 11 10	046	0.2+	0.1−	1999 03 12	046	0.4−	0.3+
1997 11 02	046	0.2+	0.1−	1997 11 10	046	0.4−	0.0	1999 03 14	046	0.2+	0.9+
1997 11 02	046	0.5+	0.0	1997 11 10	046	1.0−	0.4+	1999 03 14	046	0.2+	1.0+
1997 11 02	046	0.1−	0.2+	1999 02 12	704	0.3+	0.1+	1999 03 14	046	0.4+	0.7+
1997 11 02	046	0.2−	0.1−	1999 02 12	704	0.6+	1.7−	1999 03 24	046	0.3+	0.8+
1997 11 02	046	0.3−	0.4+	1999 02 12	704	1.2−	1.1−	1999 03 24	046	0.2+	0.3+
1997 11 02	046	0.3+	0.1−	1999 02 16	704	0.8+	0.1−	1999 03 24	046	0.5+	0.2+

1997 UM₂₁

Id. E. Bowell (1999 observations)

1999 APR. 2

M.P.C. 34209

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	352.48034		(2000.0)	P		Q		Williams	
<i>n</i>	0.29826544	ω	141.83580	−0.98077633	−0.19055404				
<i>a</i>	2.2185408	Ω	27.26774	+0.14875885	−0.86954092				
<i>e</i>	0.0741656	<i>i</i>	5.26429	+0.12628778	−0.45561798				
<i>P</i>	3.30	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1997 10 29	867	0.6−	0.0	1997 11 07	867	0.3−	0.2+	1999 03 22	699	0.1+	0.4+
1997 10 29	867	0.1−	0.1−	1997 11 07	867	0.1+	0.4+	1999 03 22	699	0.2−	0.4−
1997 10 29	867	0.8+	0.6−	1997 11 07	867	0.2−	0.4+	1999 03 22	699	0.6+	0.5+
1997 10 29	867	0.0	0.8−	1997 12 05	867	0.4+	0.0	1999 03 23	699	0.1−	0.2−
1997 11 05	867	0.1+	0.0	1997 12 05	867	0.3+	0.4+	1999 03 23	699	1.0−	0.3−
1997 11 05	867	0.1+	0.2+	1997 12 05	867	0.1−	0.2+	1999 03 23	699	0.7+	0.0
1997 11 05	867	0.1+	0.5+	1998 01 02	867	0.2+	0.2−				
1997 11 07	867	0.4−	0.1−	1998 01 02	867	0.3−	0.5−				

1997 UG₂₂ = 1999 FB₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	87.70935		(2000.0)	P		Q		Williams	
<i>n</i>	0.27103710	ω	15.62580	+0.24822063	−0.96195312				
<i>a</i>	2.3647409	Ω	60.12218	+0.87406596	+0.17160536				
<i>e</i>	0.0817508	<i>i</i>	7.56552	+0.41760655	+0.21259773				
<i>P</i>	3.64	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1997 10 26	369	0.2+	0.9+	1997 11 01	369	0.3+	0.3+	1997 11 19	369	1.2+	0.1+
1997 10 26	369	0.8−	0.1+	1997 11 01	369	0.2+	0.1−	1999 03 19	704	0.0	0.8+
1997 10 29	704	2.0+	1.4−	1997 11 03	704	1.5−	0.1−	1999 03 19	704	0.1+	0.9−
1997 10 29	704	1.1+	0.2+	1997 11 03	704	1.0−	0.3+	1999 03 19	704	0.2+	0.6+
1997 10 29	704	1.9+	0.7+	1997 11 03	704	1.1−	0.7−	1999 03 19	704	0.2+	2.5−
1997 10 29	704	1.9+	2.9−	1997 11 03	704	0.6−	0.3−	1999 03 19	704	0.1+	0.6−
1997 10 29	704	0.5+	0.1−	1997 11 03	704	1.1−	0.6−	1999 03 20	704	0.5−	0.9−
1997 10 30	566	1.3−	1.2+	1997 11 06	369	0.4−	1.0+	1999 03 20	704	1.2+	1.4+
1997 10 30	566	1.4−	1.2+	1997 11 06	369	0.0	0.5−	1999 03 20	704	0.7−	1.2+
1997 10 30	566	1.0−	1.1+	1997 11 19	369	1.0+	0.2−	1999 03 20	704	0.6−	0.9+

1997 UE₂₅ = 1991 RF₃₆ = 1999 CU₁₉

Id. A. Doppler, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	91.16185		(2000.0)	P		Q		Williams	
<i>n</i>	0.17780682	ω	276.18254	+0.93909413	−0.33891819				
<i>a</i>	3.1321107	Ω	103.63937	+0.33389864	+0.86065436				
<i>e</i>	0.1579664	<i>i</i>	3.35617	+0.08132592	+0.38001122				
<i>P</i>	5.54	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	3		

Residuals in seconds of arc

1991 09 14	675	0.6+	1.1−	1997 11 01	894	0.2+	1.7+	1999 02 10	704	0.5−	0.7−
1991 09 14	675	0.1+	0.7−	1997 11 05	894	(0.0	2.9−)	1999 02 10	704	0.2+	0.1−
1997 10 27	894	0.2−	0.9+	1997 11 05	894	(2.5−	0.5+)	1999 02 10	704	0.7−	0.6+
1997 10 27	894	(1.8−	3.1+)	1997 11 06	894	0.4−	0.1+	1999 02 10	704	1.1−	1.1+
1997 10 29	894	0.3+	0.6−	1997 11 06	894	0.6−	1.3−	1999 02 13	704	0.3+	1.0−
1997 10 29	894	0.7−	0.9+	1998 10 20	910	0.0	1.5−	1999 02 13	704	0.2−	0.1+
1997 10 30	566	0.6+	0.1−	1998 10 20	910	0.3−	0.4−	1999 02 13	704	0.9+	0.9+
1997 10 30	566	0.4+	0.1+	1998 10 20	910	0.2−	0.5−	1999 02 13	704	1.0+	0.4−
1997 10 30	566	0.2+	0.2−	1999 02 10	704	0.1+	0.5−				

1997 VJ = 1999 CA₁₂₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	180.33190		(2000.0)	P		Q		Williams	
<i>n</i>	0.27969484	ω	283.27075	+0.81445933	+0.49912999				
<i>a</i>	2.3156864	Ω	47.71934	−0.24001095	+0.75403755				
<i>e</i>	0.2291753	<i>i</i>	23.57001	−0.52825254	+0.42696209				
<i>P</i>	3.52	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1997 11 01	411	0.2+	0.3+	1997 11 12	658	0.2−	0.3−	1999 02 11	704	1.8−	1.1+
1997 11 01	411	0.0	0.3+	1997 11 12	658	0.2−	0.4−	1999 02 11	704	0.3+	0.4−
1997 11 02	411	0.0	0.2−	1997 11 23	411	0.3+	0.1−	1999 02 18	704	1.3+	0.3−
1997 11 02	411	0.7+	0.4+	1997 11 23	411	0.1+	0.2+	1999 02 18	704	0.2−	1.5−
1997 11 08	411	0.4−	0.0	1997 12 02	411	0.2−	0.4+	1999 02 18	704	0.9+	0.7+
1997 11 08	411	0.0	0.0	1999 02 11	704	0.5+	0.2+	1999 02 18	704	1.0+	0.8+
1997 11 12	658	0.2−	0.5−	1999 02 11	704	1.1−	1.2−	1999 02 18	704	1.1−	0.6+

1997 VO₁ = 1999 CK₁₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	133.47743		(2000.0)	P		Q		Williams	
<i>n</i>	0.22497314	ω	307.45991	+0.97668440	+0.11875179				
<i>a</i>	2.6774144	Ω	46.50525	−0.00314336	+0.84089844				
<i>e</i>	0.1780424	<i>i</i>	14.27252	−0.21465719	+0.52800363				
<i>P</i>	4.38	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1997 10 25	399	0.7−	1.3−	1997 10 30	566	0.8−	0.5+	1997 11 06	704	1.9+	0.8+
1997 10 25	399	0.9−	0.4−	1997 10 31	704	0.3−	0.4−	1997 11 21	691	0.1+	0.2−
1997 10 29	704	0.0	0.3−	1997 10 31	704	0.6−	0.1+	1997 11 21	691	0.0	0.2−
1997 10 29	704	0.9+	0.0	1997 10 31	704	0.8−	0.9−	1997 11 21	691	0.1−	0.0
1997 10 29	704	0.4+	0.4−	1997 10 31	704	1.6−	0.0	1997 11 28	691	0.4−	0.3−
1997 10 29	704	0.2+	0.7+	1997 10 31	704	1.1−	0.5−	1997 11 28	691	0.1−	0.3−
1997 10 29	704	0.9+	0.9−	1997 11 01	399	(0.3+	2.3−)	1997 11 28	691	0.4−	0.2−
1997 10 29	704	0.3−	0.2−	1997 11 01	399	1.5−	0.6−	1999 02 11	704	(2.3−	0.4+)
1997 10 29	704	0.2+	0.1+	1997 11 02	399	1.1+	1.3−	1999 02 11	704	0.9−	0.1−
1997 10 29	704	0.1−	0.8+	1997 11 02	399	(2.0+	2.2−)	1999 02 11	704	0.9−	1.3−
1997 10 29	704	1.0+	0.1+	1997 11 03	704	0.9−	0.9+	1999 02 11	704	1.1+	0.6−
1997 10 29	704	0.5−	0.9+	1997 11 03	704	1.1−	0.4+	1999 02 11	704	0.1+	0.7−
1997 10 30	704	(2.5+	4.6−)	1997 11 03	704	1.3−	0.1+	1999 02 18	704	0.8+	0.6+
1997 10 30	704	1.5+	0.9−	1997 11 03	704	0.6−	0.8+	1999 02 18	704	0.2+	0.1−
1997 10 30	704	1.1+	0.6−	1997 11 03	704	0.5−	0.3+	1999 02 18	704	0.5−	0.2+
1997 10 30	704	0.8+	0.1−	1997 11 06	704	1.3+	1.3+	1999 02 18	704	1.1+	1.1+
1997 10 30	704	1.2+	0.0	1997 11 06	704	(2.2+	0.6+)	1999 02 18	704	1.0−	1.0+
1997 10 30	566	0.6−	0.3+	1997 11 06	704	1.4+	0.6+				
1997 10 30	566	0.4−	0.3+	1997 11 06	704	1.8+	1.1+				

1997 VP₁ = 1999 CF₁₅₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	84.16485		(2000.0)	P		Q		Williams	
<i>n</i>	0.23385733	ω	325.43022	+0.39416467	−0.91891711				
<i>a</i>	2.6091681	Ω	101.35183	+0.84662222	+0.35669895				
<i>e</i>	0.1090313	<i>i</i>	0.87771	+0.35758220	+0.16839598				
<i>P</i>	4.21	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1997 10 29	704	1.7+	0.2−	1997 10 31	704	0.4+	1.3+	1997 11 25	691	0.7−	0.6+
1997 10 29	704	0.1−	1.3−	1997 10 31	704	0.9+	1.5+	1997 11 25	691	0.5−	0.6+
1997 10 29	704	0.6−	1.3−	1997 10 31	704	0.3+	1.4+	1999 02 13	691	0.5−	0.4−
1997 10 29	704	0.1+	1.1−	1997 11 01	399	(3.0−	0.3+)	1999 02 13	691	0.4−	0.5−
1997 10 29	704	0.2−	1.0−	1997 11 01	399	1.2−	0.6−	1999 02 13	691	0.3−	0.5−
1997 10 29	566	0.9−	0.2+	1997 11 02	399	(2.9−	1.1−)	1999 02 14	691	0.1−	0.2−
1997 10 29	566	1.1−	0.1+	1997 11 02	399	1.2−	0.2−	1999 02 14	691	0.0	0.3−
1997 10 29	566	1.0−	0.2+	1997 11 06	704	(3.6−	1.6+)	1999 02 14	691	0.1−	0.2−
1997 10 30	704	1.0+	1.5−	1997 11 06	704	(4.2−	1.2+)	1999 03 19	691	0.1+	0.3+
1997 10 30	704	1.1+	1.2−	1997 11 06	704	(4.2−	0.5+)	1999 03 19	691	0.2+	0.1+

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1997 10 30	704	0.1+	1.6−	1997 11 06	704	(4.9−	0.8+)	1999 03 19	691	0.0	0.2+
1997 10 30	704	(1.1+	2.2−)	1997 11 24	399	0.2+	1.1+	1999 03 24	691	0.1+	0.4+
1997 10 31	704	0.9+	0.8+	1997 11 24	399	(0.5+	2.8+)	1999 03 24	691	0.4+	0.0
1997 10 31	704	1.2+	1.1+	1997 11 25	691	0.4−	1.0+	1999 03 24	691	0.3+	0.6+

1997 VP₂

Id. F. B. Zoltowski (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23759180	ω	264.22151	−0.32682010	−0.93866481		
<i>a</i>	2.5817554	Ω	205.71151	+0.93598002	−0.30535503		
<i>e</i>	0.1659118	<i>i</i>	14.68579	+0.13088172	−0.16020823		
<i>P</i>	4.15	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 03	704	0.0	0.2−	1997 11 15	426	0.4+	0.2+	1997 12 18	426	0.5+	0.3+
1997 11 03	704	0.8−	0.5−	1997 11 15	426	0.1+	0.2+	1997 12 19	426	0.2−	0.1−
1997 11 03	704	1.2−	1.2+	1997 11 15	426	0.7+	0.4−	1997 12 19	426	0.4−	0.3−
1997 11 03	704	0.4+	0.1−	1997 11 18	426	0.0	0.6−	1997 12 19	426	0.5−	0.9+
1997 11 03	704	0.1−	1.7+	1997 11 18	426	0.0	0.4−	1999 03 13	426	0.2−	0.2−
1997 11 04	426	0.9+	0.8+	1997 11 18	426	0.4+	1.2−	1999 03 13	426	0.2−	0.2+
1997 11 04	426	0.0	0.3+	1997 12 02	426	0.4+	0.1−	1999 03 13	426	0.4+	0.1−
1997 11 04	426	0.3+	0.2+	1997 12 02	426	0.5−	0.3+	1999 03 14	426	0.0	0.0
1997 11 05	426	0.0	1.3−	1997 12 02	426	1.2+	0.8−	1999 03 14	426	0.3+	0.1+
1997 11 05	426	0.8−	0.9−	1997 12 18	426	0.1+	0.5+	1999 03 14	426	0.4−	0.1+
1997 11 05	426	0.1−	0.4+	1997 12 18	426	0.8−	0.0				

1997 VT₂ = 1999 FS₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26603768	ω	221.33007	−0.61856038	+0.78566171		
<i>a</i>	2.3942745	Ω	10.47459	−0.70424062	−0.54820010		
<i>e</i>	0.0535000	<i>i</i>	3.43601	−0.34846548	−0.28672690		
<i>P</i>	3.70	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 11 01	327	0.1+	0.1−	1997 11 28	327	0.7+	0.2+	1999 03 19	704	0.6+	0.4+
1997 11 01	327	0.1+	0.3−	1997 11 28	327	1.0+	0.1+	1999 03 19	704	0.1+	1.6−
1997 11 01	327	0.5+	0.1−	1997 11 29	704	0.2+	0.1+	1999 03 19	704	2.0+	0.7+
1997 11 02	327	0.1+	0.6+	1997 11 29	704	1.3−	1.2−	1999 03 19	704	0.6−	1.2−
1997 11 02	327	0.6+	0.1+	1997 11 29	704	2.7+	1.5+	1999 03 19	704	1.3−	1.2+
1997 11 02	327	0.2+	0.3+	1997 11 29	704	2.1+	0.2−	1999 03 20	704	1.0+	0.8+
1997 11 26	704	2.7−	0.9−	1997 11 29	704	2.5−	1.2−	1999 03 20	704	0.6+	0.9+
1997 11 26	704	2.5−	0.3−	1997 12 07	327	0.8+	0.2+	1999 03 20	704	1.6−	1.1−
1997 11 26	704	2.4−	0.9−	1997 12 07	327	0.9+	0.8+	1999 03 20	704	0.9−	0.1−
1997 11 28	327	0.6+	0.3+	1997 12 07	327	1.1+	1.0+				

1997 VR₃ = 1999 FG₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23481317	ω	133.88600	+0.98860994	−0.15000142		
<i>a</i>	2.6020827	Ω	234.74470	+0.13342568	+0.91118657		
<i>e</i>	0.2108932	<i>i</i>	0.85926	+0.06962740	+0.38371684		
<i>P</i>	4.20	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 11 06	411	0.9+	0.3+	1997 11 19	411	0.3−	0.2+	1999 03 18	691	0.1+	0.3−
1997 11 06	411	1.0+	0.2+	1997 11 30	411	0.1−	0.2+	1999 03 18	691	0.6+	0.2+
1997 11 07	411	0.1−	0.0	1997 11 30	411	0.3−	0.0	1999 03 18	691	0.5+	0.2−
1997 11 07	411	0.2−	0.5−	1997 12 04	704	1.5+	0.9+	1999 03 22	691	0.8−	0.0
1997 11 09	411	0.7−	0.2+	1997 12 04	704	0.2−	0.1−	1999 03 22	691	0.1−	0.1+
1997 11 09	411	0.7−	0.3−	1997 12 04	704	0.3+	0.8−	1999 03 22	691	0.3−	0.3+
1997 11 19	411	0.6−	0.5+	1997 12 04	704	0.4−	0.7−				

1999 APR. 2

1997 VJ₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24074573	ω	83.94383	−0.00444128	−0.99995489		
<i>a</i>	2.5591574	Ω	6.32888	+0.88471028	−0.00784277		
<i>e</i>	0.1124280	<i>i</i>	4.36813	+0.46612015	+0.00535806		
<i>P</i>	4.09	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 11 09	587	0.0	0.1+	1997 11 11	557	0.0	0.3+	1998 01 11	557	0.3+	0.9−
1997 11 09	587	0.6−	0.1−	1997 11 19	557	0.4+	0.3−	1998 01 11	557	0.0	0.6−
1997 11 09	587	0.3−	0.1+	1997 11 19	557	0.4+	0.1−	1999 03 13	557	0.5+	0.1+
1997 11 09	587	0.3−	0.3+	1997 12 16	557	0.1+	0.4+	1999 03 13	557	0.1−	0.1+
1997 11 09	557	0.1+	0.3+	1997 12 16	557	0.0	0.5+	1999 03 25	557	0.1+	0.4−
1997 11 09	557	0.0	0.3+	1997 12 16	557	0.1−	0.2−	1999 03 25	557	0.2+	0.1+
1997 11 09	557	0.1−	0.3+	1997 12 16	595	1.0+	0.0	1999 03 26	557	0.0	0.2+
1997 11 09	557	0.0	0.2+	1997 12 16	595	0.2+	0.6−	1999 03 26	557	0.1−	0.4+
1997 11 10	557	0.1−	0.5+	1997 12 16	595	0.6−	0.2+	1999 03 27	557	0.0	0.0
1997 11 10	557	0.1−	0.4+	1997 12 30	557	0.0	0.6−	1999 03 27	557	0.0	0.6+
1997 11 11	557	0.1−	0.5+	1997 12 30	557	0.0	0.4−				

1997 VT₆

Id. R. A. Tucker (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19149611	ω	305.59663	−0.18484659	−0.96724516		
<i>a</i>	2.9810053	Ω	153.39249	+0.97947464	−0.19579688		
<i>e</i>	0.1403001	<i>i</i>	22.85823	+0.08038140	+0.16155615		
<i>P</i>	5.15	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 11 09	683	0.3−	0.3+	1997 11 21	683	0.7+	0.2−	1997 12 27	683	0.8−	0.4−
1997 11 09	683	1.0−	0.4−	1997 11 25	683	(3.7−	1.4+)	1997 12 31	683	0.3+	0.4−
1997 11 09	683	0.6−	0.3−	1997 11 25	683	0.6+	1.0+	1997 12 31	683	0.3−	0.5+
1997 11 09	683	0.3+	0.5+	1997 11 25	683	0.3+	0.5−	1997 12 31	683	0.2−	0.2−
1997 11 09	683	1.4−	0.7−	1997 11 29	683	0.4+	0.3−	1999 03 21	683	0.3−	0.4+
1997 11 10	683	0.2−	0.1+	1997 11 29	683	0.4+	0.1−	1999 03 21	683	0.2−	0.0
1997 11 10	683	(5.1−	0.4+)	1997 11 29	683	1.6+	0.0	1999 03 21	683	0.1+	0.2+
1997 11 21	683	0.6+	0.0	1997 12 27	683	0.9−	0.6+	1999 03 22	683	0.1−	0.5−
1997 11 21	683	0.7+	0.4−	1997 12 27	683	0.5−	0.7+	1999 03 22	683	0.5+	0.2−

1997 VX₈ = 1991 DG₂ = 1999 CH₁₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22998838	ω	303.51525	+0.96051260	−0.16787274		
<i>a</i>	2.6383483	Ω	67.02101	+0.25650172	+0.84324768		
<i>e</i>	0.1867553	<i>i</i>	13.94633	−0.10780729	+0.51063890		
<i>P</i>	4.29	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1991 02 23	493	0.4−	0.1+	1997 11 26	566	0.6+	1.0−	1998 01 05	409	1.0+	0.2−
1991 02 23	493	0.2−	0.6−	1997 11 26	566	0.4−	0.6−	1999 02 11	704	0.9+	1.6+
1991 02 23	493	0.0	0.3−	1997 11 26	566	0.7+	1.1−	1999 02 11	704	0.3+	0.9+
1997 11 09	408	0.3−	0.4+	1997 11 26	566	0.6−	0.6−	1999 02 11	704	0.0	0.0
1997 11 09	408	0.6−	0.3+	1997 11 26	566	0.6+	1.4−	1999 02 11	704	0.6+	0.7−
1997 11 09	408	0.5−	0.1+	1997 11 29	704	0.4−	0.1+	1999 02 11	704	0.7+	1.0+
1997 11 19	409	(3.9+	2.9+)	1997 11 29	704	0.2+	0.9+	1999 02 18	704	0.7−	0.8−
1997 11 19	409	1.7+	0.2−	1997 11 29	704	0.8−	0.4+	1999 02 18	704	0.4−	0.3−
1997 11 19	409	1.7+	0.1+	1997 11 29	704	0.2−	0.3+	1999 02 18	704	0.2+	0.3−
1997 11 19	409	0.9−	1.4+	1997 11 29	704	1.2−	0.2−	1999 02 18	704	0.4−	0.1−
1997 11 24	409	0.8−	0.4+	1997 12 26	566	0.7+	0.2−	1999 02 18	704	1.0−	0.2+
1997 11 24	409	0.3−	0.4+	1997 12 26	566	0.9+	0.4−	1999 03 21	699	0.1+	0.3−
1997 11 24	409	0.2−	1.3+	1997 12 26	566	0.8+	0.2−	1999 03 21	699	0.1+	0.1−
1997 11 26	566	0.7−	0.5−	1998 01 05	409	0.1+	0.1−	1999 03 21	699	0.1+	0.2−

1999 APR. 2

M.P.C. 34211

1997 WQ = 1999 CU₁₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	191.61671	(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.22981984	ω	257.01980	+0.64558094	+0.74227720	
<i>a</i>	2.6396380	Ω	54.66868	-0.58714496	+0.63278974	
<i>e</i>	0.1979866	<i>i</i>	12.71634	-0.48835032	+0.22045794	
<i>P</i>	4.29	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1997 11 18	411	0.2-	0.3-	1997 12 04	704	1.1+	0.8-	1999 02 11	704	0.1+	0.1-
1997 11 18	411	0.4+	0.1-	1997 12 04	704	1.6+	0.7-	1999 02 11	704	1.2+	0.5-
1997 11 19	411	0.1+	0.3-	1997 12 04	704	0.7-	1.3+	1999 02 11	704	(3.1-	0.4+)
1997 11 19	411	0.2+	0.1-	1997 12 04	704	1.3+	0.3+	1999 02 18	704	0.9-	0.2+
1997 11 24	411	0.6-	0.0	1997 12 04	411	0.8+	0.0	1999 02 18	704	0.8-	0.8+
1997 11 24	411	0.4+	0.1+	1997 12 04	411	0.8+	0.3-	1999 02 18	704	1.2-	1.0+
1997 11 29	704	0.3-	1.3+	1997 12 21	411	0.6-	0.5+	1999 02 18	704	0.8+	0.2+
1997 11 29	704	1.5-	0.4-	1997 12 21	411	0.1+	0.2+	1999 02 18	704	0.2-	1.4-
1997 11 29	704	0.6-	0.4-	1997 12 30	566	0.4-	0.2-	1999 02 22	699	0.5+	0.5-
1997 11 29	704	1.3-	0.7+	1997 12 30	566	0.1-	0.2-	1999 02 22	699	0.8+	0.1-
1997 11 29	704	1.3-	0.0	1997 12 30	566	0.4-	0.1+	1999 02 22	699	0.7+	1.1+
1997 12 04	704	1.1+	0.4-	1999 02 11	704	1.0-	0.7-				

1997 WM₁ = 1999 CQ₁₁₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	63.61415	(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.18380404	ω	166.76582	+0.16569147	-0.97519956	
<i>a</i>	3.0636044	Ω	273.55248	+0.89088490	+0.21182680	
<i>e</i>	0.0663069	<i>i</i>	8.45432	+0.42293076	-0.06415009	
<i>P</i>	5.36	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1997 11 19	327	0.1-	0.2+	1997 11 26	704	0.5-	0.1-	1999 02 14	699	0.4+	0.2+
1997 11 19	327	0.1-	0.1+	1997 11 26	704	1.0-	0.1+	1999 02 16	704	0.2+	0.5-
1997 11 19	327	0.0	0.2+	1997 12 01	327	0.6+	0.4+	1999 02 16	704	0.7-	0.0
1997 11 20	327	0.0	0.1-	1997 12 01	327	0.3+	0.3-	1999 02 16	704	0.2+	0.4-
1997 11 20	327	0.1+	0.2-	1997 12 01	327	0.2+	0.7-	1999 02 16	704	0.2-	0.0
1997 11 20	327	0.4+	0.1+	1999 02 12	704	0.1-	0.8+	1999 02 16	704	0.7-	0.4-
1997 11 23	327	0.3+	0.0	1999 02 12	704	0.4+	1.1+	1999 03 22	699	0.1-	0.6+
1997 11 23	327	0.1+	0.1-	1999 02 12	704	0.0	0.0	1999 03 22	699	0.2+	0.5-
1997 11 23	327	0.3+	0.1+	1999 02 12	704	0.6-	0.8-	1999 03 22	699	0.1-	0.3-
1997 11 23	327	0.1+	0.1+	1999 02 14	699	0.7+	0.8+				
1997 11 26	704	0.7-	0.2+	1999 02 14	699	0.4+	0.6-				

1997 WK₂ = 1999 CS₃₁

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	189.57370	(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.17761943	ω	233.88982	+0.62441863	+0.77124242	
<i>a</i>	3.1343132	Ω	75.22164	-0.66924920	+0.60988409	
<i>e</i>	0.1361010	<i>i</i>	7.34644	-0.40274915	+0.18228143	
<i>P</i>	5.55	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1997 11 23	411	0.5-	0.8-	1997 12 05	411	0.5+	0.2-	1999 02 13	704	(2.6-	0.6-)
1997 11 23	411	0.3+	1.4+	1997 12 21	411	0.0	0.1+	1999 02 13	704	0.4+	0.6+
1997 11 24	411	0.1+	0.5-	1997 12 21	411	0.5-	0.5+	1999 02 13	704	1.3-	1.7+
1997 11 24	411	0.3-	0.4+	1999 02 10	704	0.2-	0.3-	1999 02 13	704	0.7-	1.4-
1997 11 30	411	0.2+	0.4-	1999 02 10	704	0.6+	0.9-	1999 02 20	699	0.3-	0.8-
1997 11 30	411	0.7-	0.0	1999 02 10	704	0.7-	1.9-	1999 02 20	699	1.0+	0.5+
1997 12 05	411	0.9+	0.4-	1999 02 10	704	0.9+	1.3+	1999 02 20	699	0.3+	1.2+

1997 WU₂ = 1999 CZ₁₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	7.25754	(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.17407321	ω	65.43051	-0.74314556	-0.55014277	
<i>a</i>	3.1767382	Ω	78.96935	+0.38119291	-0.81590697	
<i>e</i>	0.0684349	<i>i</i>	22.83384	+0.54993330	-0.17787284	
<i>P</i>	5.66	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1997 11 23	411	2.1+	0.6-	1997 12 05	411	0.7-	0.4-	1999 02 11	704	1.2-	0.7-
1997 11 23	411	0.5+	0.2+	1997 12 05	411	0.1-	0.9+	1999 02 11	704	0.7+	1.3-
1997 11 24	411	0.7+	0.6-	1997 12 21	411	1.0-	1.4+	1999 02 11	704	0.9-	0.6+
1997 11 24	411	0.4+	0.3-	1997 12 21	411	0.2-	2.3+	1999 02 18	704	0.8+	0.1-
1997 11 27	411	0.6+	0.2-	1997 12 31	704	1.5+	0.7-	1999 02 18	704	0.7+	0.1+
1997 11 27	411	0.0	0.2+	1997 12 31	704	0.6+	0.9-	1999 02 18	704	0.1+	0.7+
1997 12 04	704	1.0-	0.6+	1997 12 31	704	0.9+	0.2-	1999 02 18	704	0.4+	1.2+
1997 12 04	704	1.4-	0.5-	1997 12 31	704	0.4+	0.6-	1999 02 18	704	0.4+	1.2+
1997 12 04	704	1.1-	0.3-	1999 02 11	704	0.3+	1.1-				
1997 12 04	704	2.0-	0.2-	1999 02 11	704	1.4-	0.6-				

1997 WE₃ = 1999 FG₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	133.89362	(2000.0)	Williams		<i>P</i>	<i>Q</i>
<i>n</i>	0.20264888	ω	88.07776	+0.90977580	-0.41483994	
<i>a</i>	2.8706037	Ω	296.43123	+0.37402756	+0.83459275	
<i>e</i>	0.0428976	<i>i</i>	0.94000	+0.18003159	+0.36244002	
<i>P</i>	4.86	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1997 11 23	411	0.8-	0.6+	1997 12 04	704	0.1-	0.4+	1999 03 18	691	0.4+	0.1-
1997 11 23	411	0.3-	0.5-	1997 12 04	704	0.6+	1.0-	1999 03 18	691	0.6+	0.3-
1997 11 24	411	0.2-	0.3-	1997 12 04	704	1.5+	0.4-	1999 03 18	691	0.7+	0.1+
1997 11 24	411	1.1+	0.3-	1997 12 05	411	0.4+	0.2-	1999 03 19	691	0.6-	0.0
1997 11 30	411	0.3-	0.0	1997 12 05	411	0.3+	1.2+	1999 03 19	691	0.5-	0.2+
1997 11 30	411	0.6+	0.2-	1997 12 21	411	0.1-	1.1-	1999 03 19	691	0.5-	0.2+
1997 12 04	704	2.7-	1.5+	1997 12 21	411	0.0	0.3+				

1997 WR₅ = 1986 EL₄ = 1999 CZ₅₃

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	306.71707	(2000.0)	Marsden		<i>P</i>	<i>Q</i>
<i>n</i>	0.22534761	ω	116.10141	-0.90450162	+0.42347883	
<i>a</i>	2.6744475	Ω	88.98841	-0.40708084	-0.82207739	
<i>e</i>	0.0105264	<i>i</i>	2.89072	-0.12712993	-0.38059749	
<i>P</i>	4.37	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1986 03 12	809	0.1-	0.2-	1997 11 29	704	0.5+	1.3-	1998 02 16	327	0.1-	0.6+
1996 08 12	566	0.2+	0.3-	1997 11 29	704	0.5+	0.1-	1998 02 16	327	0.2+	0.3-
1996 08 12	566	0.4-	0.3+	1997 11 29	704	1.5+	1.5-	1998 02 16	327	1.0+	1.5+
1996 08 12	566	0.2+	0.1+	1997 11 30	691	0.8-	0.2-	1999 02 10	704	0.3-	0.2-
1997 10 30	566	0.5-	0.5+	1997 11 30	691	0.6-	0.3+	1999 02 10	704	0.7-	1.3+
1997 10 30	566	0.5-	0.4+	1997 11 30	691	0.7-	0.3+	1999 02 10	704	0.1-	0.3+
1997 10 30	566	0.3-	0.5+	1997 12 04	704	0.5-	0.2+	1999 02 10	704	1.2-	1.2+
1997 11 23	691	0.2-	0.5+	1997 12 04	704	0.1+	0.6+	1999 02 10	704	(2.4-	0.1-)
1997 11 23	691	0.0	0.5+	1997 12 04	704	0.3-	0.6-	1999 02 13	704	1.4+	1.0-
1997 11 23	691	0.1-	0.4+	1997 12 04	704	0.4-	1.3-	1999 02 13	704	0.5+	0.2+
1997 11 25	691	0.5-	0.4+	1997 12 04	704	0.5-	0.6+	1999 02 13	704	1.1+	0.3+
1997 11 25	691	0.3-	0.3+	1997 12 06	691	1.2+	0.5-	1999 02 13	704	(2.2+	0.6+)
1997 11 25	691	0.2-	0.4+	1997 12 06	691	0.8+	0.3-	1999 03 20	684	0.2-	0.8-
1997 11 29	704	0.4+	1.1-	1997 12 06	691	1.0+	0.4-	1999 03 20	684	0.3-	1.0-

1997 WP₇ = 1999 FD₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30772960	ω	12.99881	+0.94529827	+0.32616069		
<i>a</i>	2.1728173	Ω	327.96359	−0.30021143	+0.86323142		
<i>e</i>	0.1884897	<i>i</i>	0.59543	−0.12760987	+0.38529302		
<i>P</i>	3.20	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 28	704	1.5+	0.0	1997 11 29	704	0.6+	0.7−	1998 01 19	385	0.5−	1.0−
1997 10 28	704	1.8−	1.3−	1997 12 04	704	0.3−	0.1−	1998 01 20	385	0.8+	0.4+
1997 10 28	704	1.1+	0.3+	1997 12 04	704	0.2−	0.5−	1999 03 20	704	0.6+	1.1+
1997 10 28	704	0.6−	0.3+	1997 12 04	704	1.3−	0.2−	1999 03 20	704	1.4−	0.8−
1997 11 19	905	0.3−	0.4−	1997 12 04	704	0.1−	1.1−	1999 03 20	704	0.4+	1.4+
1997 11 19	905	0.6+	0.3+	1997 12 04	704	0.4−	0.4−	1999 03 20	704	0.3+	0.1+
1997 11 23	905	0.5−	0.1+	1997 12 04	905	0.9+	1.1+	1999 03 23	704	1.7−	1.2−
1997 11 23	905	0.4+	0.0	1997 12 04	905	0.6+	0.1+	1999 03 23	704	0.5+	0.5+
1997 11 29	704	1.0+	0.0	1998 01 02	385	0.7−	0.3−	1999 03 23	704	1.1+	1.8−
1997 11 29	704	0.1+	0.7+	1998 01 02	385	0.3+	0.6+				
1997 11 29	704	0.7−	0.3+	1998 01 19	385	0.4−	2.2+				

1997 WM₁₅ = 1999 CL₁₃₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17696295	ω	276.34606	+0.80759295	−0.58892297		
<i>a</i>	3.1420600	Ω	119.73891	+0.55422525	+0.73991854		
<i>e</i>	0.1688361	<i>i</i>	2.04853	+0.20156386	+0.32510043		
<i>P</i>	5.57	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 11 23	691	0.6−	0.1−	1997 11 29	691	0.0	0.6−	1999 02 07	691	0.3+	0.1+
1997 11 23	691	0.6−	0.0	1997 11 29	691	0.1+	0.7−	1999 02 07	691	0.1+	0.1+
1997 11 23	691	0.9+	0.3+	1997 11 29	691	0.4+	0.2−	1999 02 11	691	0.7−	0.2−
1997 11 29	704	0.2+	0.1+	1997 12 06	691	0.5−	0.1−	1999 02 11	691	0.2−	0.2−
1997 11 29	704	0.8+	2.0+	1997 12 06	691	0.0	0.1+	1999 02 11	691	0.7+	0.1−
1997 11 29	704	0.5−	0.0	1997 12 06	691	0.1+	0.2+				
1997 11 29	704	0.3−	1.1−	1999 02 07	691	0.1−	0.4+				

1997 WM₂₄ = 1990 SV₇

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28697033	ω	343.30240	+0.96204212	−0.26674290		
<i>a</i>	2.2763798	Ω	32.34558	+0.26107981	+0.83810337		
<i>e</i>	0.1728342	<i>i</i>	6.18543	+0.07944987	+0.47584762		
<i>P</i>	3.43	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 09 14	809	0.6+	0.8+	1990 09 25	809	0.1+	0.9+	1997 12 04	691	0.7+	0.1−
1990 09 14	809	0.3+	0.0	1990 09 25	809	0.0	0.8+	1997 12 04	691	0.7+	0.3−
1990 09 14	809	0.4+	0.3+	1990 09 25	809	0.5−	1.0+	1997 12 04	691	0.9+	0.2−
1990 09 22	809	0.4−	0.7−	1997 11 28	691	0.4−	0.0	1997 12 06	691	0.3−	0.1+
1990 09 22	809	0.2−	1.5−	1997 11 28	691	0.2−	0.2+	1997 12 06	691	0.4−	0.1+
1990 09 22	809	0.4−	1.3−	1997 11 28	691	0.6−	0.2+	1997 12 06	691	0.3−	0.1−

1997 WN₂₄ = 1999 FX₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27541515	ω	23.66422	+0.56627774	−0.82282095		
<i>a</i>	2.3396138	Ω	31.90540	+0.74099244	+0.48278635		
<i>e</i>	0.2043797	<i>i</i>	5.20080	+0.36091514	+0.29980497		
<i>P</i>	3.58	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 31	910	0.7+	0.5−	1997 12 04	691	0.1+	0.6+	1999 03 23	691	0.3−	0.3−
1997 10 31	910	0.6+	0.4−	1997 12 04	691	0.2+	0.2−	1999 03 24	691	0.1+	0.3−
1997 10 31	910	0.6+	0.5−	1997 12 04	691	0.1+	0.1+	1999 03 24	691	0.3−	0.0
1997 11 28	691	1.0−	0.2−	1997 12 06	691	0.4+	0.0	1999 03 24	691	0.3−	0.5−
1997 11 28	691	0.8−	0.1−	1997 12 06	691	0.3+	0.4+				
1997 11 28	691	1.1−	0.1+	1999 03 23	691	0.2+	0.1+				

1997 WQ₂₈

Id. M. Armstrong (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22888586	ω	89.28735	−0.13752899	−0.99004764		
<i>a</i>	2.6468139	Ω	8.78796	+0.81317273	−0.13006724		
<i>e</i>	0.1587247	<i>i</i>	11.26965	+0.56554035	−0.05374175		
<i>P</i>	4.31	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 30	960	0.6−	0.1+	1997 12 27	960	0.2+	0.1+	1999 02 23	960	0.8+	0.7+
1997 11 30	960	0.3+	0.4−	1997 12 31	960	0.1−	0.6−	1999 02 23	960	0.8−	0.7−
1997 11 30	960	0.1−	0.3−	1997 12 31	960	1.0+	0.2+	1999 03 19	704	0.0	0.6−
1997 12 03	966	0.1+	1.4−	1997 12 31	960	0.9+	0.3−	1999 03 19	704	0.4+	1.2−
1997 12 03	966	0.4+	0.2+	1998 01 02	960	0.9+	0.7−	1999 03 19	704	1.1+	0.3+
1997 12 03	960	1.6−	0.2−	1998 01 02	960	0.2+	0.1+	1999 03 19	704	0.5−	0.0
1997 12 03	960	0.6−	1.2+	1998 01 02	960	1.0+	0.3+	1999 03 19	704	0.7−	0.6+
1997 12 05	970	0.5+	1.4+	1998 01 19	960	0.4+	0.1+	1999 03 20	704	0.3+	0.4+
1997 12 06	970	0.7+	1.5+	1998 01 19	960	1.3−	0.4+	1999 03 20	704	0.0	0.4+
1997 12 06	970	0.8+	0.9+	1998 01 19	960	0.9−	0.2+	1999 03 20	704	1.4−	0.5+
1997 12 08	960	0.6−	0.3+	1998 01 20	960	(2.6−	0.4+)	1999 03 20	704	0.2+	1.0+
1997 12 08	960	0.7−	0.3−	1998 01 20	960	0.6−	0.0	1999 03 20	704	1.2+	0.8+
1997 12 08	970	0.2−	0.2+	1998 01 24	970	0.5+	0.7−	1999 03 24	699	0.2+	0.2−
1997 12 27	960	2.0−	1.4−	1999 02 22	960	0.1+	0.5−	1999 03 24	699	0.5+	0.2−
1997 12 27	960	1.2+	0.7−	1999 02 22	960	0.9−	1.0−	1999 03 24	699	0.3−	0.1+

1997 WA₃₀ = 1976 UJ

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23036178	ω	244.43582	−0.48176007	−0.86006830		
<i>a</i>	2.6354965	Ω	235.39053	+0.85926540	−0.42604357		
<i>e</i>	0.1605018	<i>i</i>	11.77078	+0.17195989	−0.28065887		
<i>P</i>	4.28	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1976 10 24	809	0.8+	1.1−	1997 11 26	704	0.5+	0.8+	1997 12 04	704	0.3−	0.1−
1976 10 24	809	0.4+	0.5−	1997 11 26	704	0.2+	0.7+	1997 12 04	704	0.1+	0.8+
1976 10 25	809	2.3−	1.3+	1997 11 26	704	0.1−	0.8+	1997 12 04	704	0.8−	0.2+
1976 10 31	809	0.2−	0.0	1997 11 29	704	1.1−	1.1−	1997 12 04	704	0.1+	0.4+
1976 10 31	809	0.4+	0.5−	1997 11 29	704	1.1−	0.8−	1997 12 04	704	0.4−	1.0+
1976 11 01	809	0.5+	0.1−	1997 11 29	704	1.3−	1.1−	1997 12 05	399	0.5+	0.8+
1976 11 02	809	0.2+	0.5+	1997 11 29	704	2.2−	1.2−	1997 12 28	566	0.2+	0.0
1976 11 02	809	0.0	0.1+	1997 11 29	704	1.2−	1.3−	1997 12 28	566	0.5+	0.2−
1997 11 24	399	1.5+	0.2−	1997 12 03	399	1.1+	0.7+	1997 12 28	566	0.4+	0.1+
1997 11 24	399	4.0+	0.2−	1997 12 03	399	0.4−	0.3−				

1997 WP₃₂ = 1999 CT₁₄₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18175794	ω	324.66210	−0.35737721	−0.93377430		
<i>a</i>	3.0865534	Ω	146.26601	+0.86442518	−0.33825685		
<i>e</i>	0.1446586	<i>i</i>	1.92251	+0.35362500	−0.11682409		
<i>P</i>	5.42	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	4

1999 APR. 2

M.P.C. 34213

Residuals in seconds of arc

1997 11 29	704	1.0−	0.3+	1997 12 04	704	0.4+	0.1−	1998 02 27	327	0.1−	0.5+
1997 11 29	704	0.1+	0.7−	1997 12 04	704	1.5+	0.2−	1999 02 08	691	0.0	0.3−
1997 11 29	704	0.1+	0.6+	1997 12 04	704	0.2−	1.7−	1999 02 08	691	0.3+	0.3+
1997 11 29	704	0.2+	0.5+	1997 12 04	704	0.0	0.0	1999 02 08	691	0.1+	0.1−
1997 11 29	704	0.4−	0.1−	1998 02 22	327	0.2−	0.0	1999 02 14	691	0.2−	0.1−
1997 11 30	691	0.1−	0.6+	1998 02 22	327	0.2−	0.3−	1999 02 14	691	0.0	0.0
1997 11 30	691	0.1−	0.3+	1998 02 22	327	0.3+	0.3+	1999 02 14	691	0.2−	0.1+
1997 11 30	691	0.1−	0.4+	1998 02 27	327	0.2+	0.0				
1997 12 04	704	0.3−	0.4−	1998 02 27	327	0.3−	0.4+				

1997 WE₃₆ = 1999 CY₃₉

Id. A. Doppler, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	101.49499		(2000.0)	P	Q
<i>n</i>	0.16958952	ω	338.42591	+0.87777632	−0.47277792
<i>a</i>	3.2324864	Ω	50.02603	+0.45298775	+0.76650556
<i>e</i>	0.1151088	<i>i</i>	5.79628	+0.15591929	+0.43468409
<i>P</i>	5.81	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 09 13	566	0.3+	0.6−	1997 11 29	704	1.1+	0.2−	1999 02 10	704	0.8+	0.7−
1996 09 13	566	0.0	0.8−	1997 11 29	704	1.1−	0.4−	1999 02 10	704	1.7+	1.4−
1996 09 13	566	0.5+	0.6−	1997 11 30	566	0.3−	0.1+	1999 02 10	704	0.3−	0.7+
1997 11 26	704	0.8−	0.2−	1997 11 30	566	0.2−	0.1+	1999 02 10	704	(3.2+ 1.6+)	
1997 11 26	704	0.9−	0.1−	1997 11 30	566	0.1−	0.1+	1999 02 10	704	0.5−	0.2−
1997 11 26	704	0.5−	0.5+	1997 12 04	704	1.1+	0.1−	1999 02 13	704	0.0	0.0
1997 11 29	704	0.3+	0.4+	1997 12 04	704	0.4−	0.9−	1999 02 13	704	0.1−	0.4+
1997 11 29	704	1.0+	0.0	1997 12 04	704	(3.1− 0.5+)		1999 02 13	704	1.2−	1.1−
1997 11 29	704	0.7+	0.6−	1997 12 04	704	0.3−	1.5+	1999 02 13	704	1.2−	0.2+

1997 WN₃₆ = 1999 CA₁₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	84.92206		(2000.0)	P	Q
<i>n</i>	0.17663577	ω	343.11763	+0.59356840	−0.71468258
<i>a</i>	3.1459388	Ω	68.87290	+0.77659348	+0.38803098
<i>e</i>	0.0324647	<i>i</i>	23.37018	+0.21113769	+0.58194567
<i>P</i>	5.58	<i>H</i>	12.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 11 26	704	1.3−	0.4+	1997 12 05	704	1.6−	1.0+	1998 01 04	327	0.7−	0.3+
1997 11 26	704	1.7−	0.1+	1997 12 05	704	0.6−	0.6−	1998 01 04	327	0.7−	0.6+
1997 11 26	704	3.2−	0.7+	1997 12 05	704	0.1+	0.8−	1998 01 04	327	0.1+	0.1+
1997 11 29	704	0.7+	0.3+	1997 12 05	704	3.0+	1.0+	1999 02 11	704	0.4−	0.5−
1997 11 29	704	0.5+	0.6−	1997 12 05	704	1.9−	0.1−	1999 02 11	704	0.7−	0.4−
1997 11 29	704	0.9+	0.0	1997 12 31	704	0.2+	0.5+	1999 02 11	704	1.4+	1.7+
1997 11 29	704	0.4+	0.4−	1997 12 31	704	0.3−	0.3+	1999 02 11	704	1.7+	0.3−
1997 11 29	704	0.6−	1.2−	1997 12 31	704	0.7+	0.4+	1999 02 11	704	0.4+	0.9+
1997 12 04	704	1.4+	0.3+	1997 12 31	704	0.5−	0.4+	1999 02 18	704	0.7−	0.1−
1997 12 04	704	1.2+	0.9+	1998 01 02	704	1.3−	0.2+	1999 02 18	704	0.2+	0.4−
1997 12 04	704	1.6+	0.4+	1998 01 02	704	0.1−	0.0	1999 02 18	704	0.9−	0.0
1997 12 04	704	1.6+	0.2−	1998 01 02	704	0.4+	2.4−	1999 02 18	704	0.4−	0.4−
1997 12 04	704	1.2+	1.6−	1998 01 02	704	0.3+	0.1−	1999 02 18	704	0.7−	0.7−

1997 WL₃₇ = 1978 RJ₁₆ = 1993 RF₄

Id. A. Milani, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	122.98410		(2000.0)	P	Q
<i>n</i>	0.26486012	ω	210.66492	+0.66939268	−0.74277829
<i>a</i>	2.4013659	Ω	197.32768	+0.69073841	+0.62917499
<i>e</i>	0.1686842	<i>i</i>	2.67948	+0.27348473	+0.22895250
<i>P</i>	3.72	<i>H</i>	15.9	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1978 09 10	809	0.5−	0.9−	1993 09 18	809	0.1+	0.7+	1997 11 29	704	1.3+	1.5−
1978 09 10	809	0.0	1.8−	1993 09 18	809	0.5−	0.0	1997 11 29	704	(3.2− 1.5−)	
1978 09 10	809	1.2+	0.8+	1993 09 18	675	0.0	1.3+	1997 11 29	704	0.5−	0.6+
1993 09 15	809	1.6−	0.7−	1993 09 22	675	0.5−	0.8−	1997 12 04	704	0.2−	0.6+
1993 09 15	809	2.0−	1.0−	1993 09 22	675	0.6−	1.5−	1997 12 04	704	0.5+	1.5+
1993 09 15	809	(3.4− 1.3−)		1993 09 23	809	0.6+	1.3+	1997 12 04	704	0.8+	0.6+
1993 09 16	809	0.8+	0.1−	1993 09 23	809	0.2+	0.2−	1997 12 04	704	1.0+	0.3−
1993 09 16	809	0.3+	0.5−	1993 09 23	809	0.5−	0.3+	1997 12 04	704	0.1+	0.0
1993 09 16	809	0.3+	0.8−	1997 11 26	704	(6.1− 0.3+)		1999 03 21	691	0.3+	0.7+
1993 09 17	809	0.9+	1.4+	1997 11 26	704	(5.9− 0.0)		1999 03 21	691	0.3+	0.6+
1993 09 17	809	0.6+	2.0+	1997 11 26	704	(6.2− 0.7+)		1999 03 21	691	0.1+	1.1+
1993 09 17	809	0.8−	0.9+	1997 11 29	704	1.3−	1.1−				
1993 09 18	809	1.4+	1.3+	1997 11 29	704	1.7−	0.4−				

1997 WC₄₅ = 1999 CA₆₅

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	151.88987		(2000.0)	P	Q
<i>n</i>	0.19211141	ω	106.86762	+0.93483011	+0.32997269
<i>a</i>	2.9746368	Ω	234.05360	−0.35476923	+0.88372288
<i>e</i>	0.1147619	<i>i</i>	9.32585	+0.01521364	+0.33189138
<i>P</i>	5.13	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 11 26	704	0.5+	0.3+	1997 12 04	704	0.2−	1.5−	1999 02 16	704	1.2−	0.5−
1997 11 26	704	0.6+	0.1+	1997 12 04	704	0.8+	0.0	1999 02 16	704	0.1+	0.4+
1997 11 26	704	0.9+	0.2−	1997 12 04	704	1.5+	0.1−	1999 02 16	704	0.4−	0.2+
1997 11 29	704	1.2−	0.1−	1999 02 12	704	0.2+	1.2−	1999 02 18	566	0.7−	0.4−
1997 11 29	704	1.2−	0.0	1999 02 12	704	0.6−	0.5−	1999 02 18	566	0.4−	0.4−
1997 11 29	704	1.5−	0.0	1999 02 12	704	0.3+	0.4+	1999 02 18	566	0.6−	0.1+
1997 11 29	704	1.8−	0.9+	1999 02 12	704	1.0+	0.4+	1999 02 21	699	0.0	0.7+
1997 12 04	704	1.6+	0.7+	1999 02 16	704	0.4+	1.1−	1999 02 21	699	0.3+	0.4+
1997 12 04	704	(3.1+ 0.5+)		1999 02 16	704	1.7+	0.5+	1999 02 21	699	0.1−	0.9+

1997 XX₃ = 1977 RG₂₀ = 1997 EV₃₉Id. G. V. Williams (*MPC* 31124), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	301.04835		(2000.0)	P	Q
<i>n</i>	0.12573581	ω	137.81032	+0.45339968	+0.89068102
<i>a</i>	3.9460574	Ω	159.08409	−0.84072194	+0.43981423
<i>e</i>	0.1887361	<i>i</i>	5.36953	−0.29599890	+0.11511195
<i>P</i>	7.84	<i>H</i>	12.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 02 07	691	0.1−	0.4−	1998 01 08	910	0.3+	1.6−	1998 03 22	704	0.5−	1.4+
1997 02 07	691	0.0	0.2−	1998 01 08	910	0.0	1.1−	1998 03 28	704	0.1−	0.2+
1997 02 07	691	0.1−	0.4−	1998 01 09	910	1.1−	0.7−	1998 03 28	704	0.1−	1.3+
1997 03 05	704	0.4−	0.1+	1998 01 09	910	0.1−	1.2−	1998 03 28	704	1.0−	0.1−
1997 03 05	704	0.8+	0.2+	1998 01 09	910	0.0	1.1−	1998 03 28	704	0.7−	0.2+
1997 03 06	704	0.5+	0.3+	1998 02 25	566	0.8−	0.5−	1998 03 28	704	1.5−	1.3−
1997 03 06	704	0.3+	0.6+	1998 02 25	566	0.4−	0.5−	1998 03 29	704	0.9−	0.6+
1997 03 15	327	0.4−	0.6+	1998 02 25	566	1.2−	0.3−	1998 03 29	704	0.1+	1.3+
1997 03 15	327	0.5−	0.4+	1998 03 20	704	0.4−	0.4+	1998 03 29	704	0.5−	0.0
1997 03 15	327	0.3+	0.8+	1998 03 20	704	1.2+	0.3+	1998 03 29	704	0.4−	0.2+
1997 12 04	910	0.1+	0.4−	1998 03 20	704	1.8+	0.5+	1998 03 29	704	0.1−	0.6−
1997 12 04	910	0.5−	0.2−	1998 03 20	704	1.5+	0.7−	1998 04 19	704	1.0+	0.6−
1997 12 04	910	0.1+	0.5−	1998 03 20	704	1.0+	1.1+	1998 04 19	704	1.8+	0.2+
1997 12 06	910	0.5−	0.1−	1998 03 22	704	0.3+	2.0+	1998 04 19	704	0.7+	0.6−
1997 12 06	910	0.1+	0.6−	1998 03 22	704	0.2+	1.2+	1998 04 19	704	0.5−	1.4−
1997 12 06	910	0.3−	0.2−	1998 03 22	704	0.4+	0.9+	1998 04 19	704	0.1−	0.5−
1998 01 08	910	0.2+	1.2−	1998 03 22	704	0.1+	0.9+				

1997 XF₁₀ = 1999 FS₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	81.26022		(2000.0)	P		Q					
<i>n</i>	0.27302467	ω	47.06431	+0.38450360		−0.92178528					
<i>a</i>	2.3532503	Ω	20.48377	+0.80021218		+0.30598930					
<i>e</i>	0.1851072	<i>i</i>	8.16293	+0.46023629		+0.23808075					
<i>P</i>	3.61	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1997 12 05	709	0.1+	0.1+	1997 12 13	709	0.4−	0.4−	1997 12 29	709	0.7+	0.7+
1997 12 05	709	0.6+	0.4+	1997 12 13	709	0.5+	0.0	1997 12 29	709	0.7+	0.7+
1997 12 05	709	0.5+	0.4+	1997 12 16	709	1.4−	0.5−	1997 12 29	709	0.3−	0.4−
1997 12 05	709	0.4+	0.3+	1997 12 16	709	0.9−	0.6−	1999 03 24	159	0.1−	0.1−
1997 12 05	709	0.0	0.1−	1997 12 16	709	0.2−	0.8−	1999 03 24	159	0.6−	0.4−
1997 12 06	709	0.2+	0.5+	1997 12 16	709	0.5−	1.2−	1999 03 24	159	1.1+	0.4+
1997 12 06	709	0.1−	0.4+	1997 12 16	709	0.9−	0.6−	1999 03 24	159	0.4−	0.9+
1997 12 06	709	0.2−	0.7+	1997 12 18	709	0.2−	1.1+	1999 03 25	159	0.1+	0.3−
1997 12 06	709	0.3+	0.4+	1997 12 18	709	0.2+	0.9−	1999 03 25	159	0.4+	0.5+
1997 12 06	709	0.2−	0.6+	1997 12 18	709	0.8+	0.5+	1999 03 25	159	0.3−	0.1+
1997 12 13	709	0.0	0.2−	1997 12 18	709	0.2−	0.0	1999 03 25	159	1.2−	0.3−
1997 12 13	709	0.4−	0.7−	1997 12 29	709	0.9+	0.3−	1999 03 25	159	0.2−	0.6−
1997 12 13	709	0.2−	0.3−	1997 12 29	709	0.1+	0.2+	1999 03 25	159	1.3+	0.1−

1997 XL₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	104.63938		(2000.0)	P		Q					
<i>n</i>	0.19165324	ω	330.77590	+0.72464104		−0.66268256					
<i>a</i>	2.9793757	Ω	72.00903	+0.66456531		+0.59940316					
<i>e</i>	0.1073976	<i>i</i>	11.46615	+0.18234120		+0.44896289					
<i>P</i>	5.14	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1997 11 29	704	1.3−	0.1+	1997 12 07	098	1.0−	0.3−	1998 01 07	699	0.7−	1.6+
1997 11 29	704	0.6−	0.3+	1997 12 08	098	0.2−	0.9−	1998 01 07	699	1.1−	0.9−
1997 11 29	704	0.9−	0.8−	1997 12 08	098	0.1+	1.3+	1998 01 07	699	0.2+	1.0+
1997 11 29	704	1.0−	0.1−	1997 12 24	108	0.2+	0.7−	1999 02 23	699	0.0	0.0
1997 12 04	704	0.3−	0.2−	1997 12 24	108	1.0+	1.3−	1999 02 23	699	0.3+	0.3+
1997 12 04	704	0.5+	0.3−	1997 12 24	108	0.0	0.5−	1999 02 23	699	0.4+	0.7+
1997 12 04	704	0.5+	0.2+	1997 12 27	098	1.0+	0.6+	1999 03 20	108	1.5−	1.0+
1997 12 04	704	0.4+	0.1+	1997 12 27	098	0.2+	0.2+	1999 03 20	108	0.5−	0.2−
1997 12 04	704	0.3+	0.5+	1997 12 29	108	0.5+	0.1+	1999 03 20	108	1.8−	0.6−
1997 12 05	704	1.9+	0.0	1997 12 29	108	0.3−	1.5+	1999 03 21	108	1.0+	0.9+
1997 12 05	704	0.6+	0.4−	1997 12 29	108	0.2−	1.3+	1999 03 21	108	0.4+	0.2+
1997 12 05	704	0.3+	0.1+	1998 01 01	108	(0.5+	2.5−)	1999 03 21	108	1.6+	1.0−
1997 12 05	704	1.2+	1.0+	1998 01 01	108	0.5−	1.0−	1999 03 21	108	0.2+	1.3−
1997 12 05	704	0.2−	0.6+	1998 01 01	108	(2.2−	1.2−)				
1997 12 07	098	0.1+	1.5−	1998 01 01	108	0.8−	1.7−				

1997 YQ₁ = 1999 FG₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	60.64874		(2000.0)	P		Q					
n	0.25959867	ω	84.15971	−0.25050634		−0.96775467					
a	2.4337039	Ω	20.40674	+0.85556198		−0.23406631					
e	0.1571986	i	4.34382	+0.45305660		−0.09307986					
P	3.80	H	15.1	G	0.15	U	5				
Residuals in seconds of arc											
1997 12 20	327	0.7+	0.2−	1997 12 24	327	0.5−	0.0	1999 03 17	910	0.1+	0.3+
1997 12 20	327	0.5+	0.2−	1997 12 24	327	0.0	0.1−	1999 03 17	910	0.1+	0.4+
1997 12 20	327	0.5−	0.2+	1997 12 24	327	0.2−	0.1−	1999 03 17	910	0.0	0.3+
1997 12 21	327	0.3+	0.1+	1997 12 30	327	0.1−	0.3+	1999 03 19	910	0.2−	0.3−
1997 12 21	327	0.2−	0.3−	1997 12 30	327	0.2−	0.1−	1999 03 19	910	0.0	0.4−
1997 12 21	327	0.1−	0.1+	1997 12 30	327	0.4+	0.3+	1999 03 19	910	0.0	0.3−

1997 YA₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	77.65227			(2000.0)			P		Q		
<i>n</i>	0.21490793	<i>ω</i>		180.23919			+0.03154305		−0.95841142		
<i>a</i>	2.7603729	<i>Ω</i>		267.96306			+0.91749618		+0.14033826		
<i>e</i>	0.1498512	<i>i</i>		16.48839			+0.39649185		−0.24850095		
<i>P</i>	4.59	<i>H</i>		13.4	<i>G</i>	0.15		<i>U</i>	3		
Residuals in seconds of arc											
1997 12 06	704	0.1−	0.2+	1997 12 27	426	0.1+	0.1−	1998 01 27	426	0.7−	1.0−
1997 12 06	704	0.6+	0.2+	1998 01 01	426	0.2−	0.1−	1998 01 27	426	0.5+	1.1−
1997 12 06	704	0.2−	0.2−	1998 01 01	426	0.7−	0.4−	1998 01 27	426	0.1+	0.8−
1997 12 06	704	0.4−	0.0	1998 01 01	426	0.3−	0.2−	1998 02 17	426	0.4−	0.3+
1997 12 06	704	0.0	0.0	1998 01 06	426	0.1−	0.2−	1998 02 17	426	0.0	0.0
1997 12 24	426	0.1+	0.2+	1998 01 06	426	0.2−	0.0	1998 02 17	426	0.6−	0.1+
1997 12 24	426	0.3+	0.2+	1998 01 06	426	0.6+	0.1−	1999 03 13	426	0.3−	0.2+
1997 12 24	426	0.3+	0.2+	1998 01 08	699	0.3−	0.2+	1999 03 13	426	0.5+	0.2+
1997 12 26	426	0.0	0.1+	1998 01 08	699	0.0	0.6+	1999 03 13	426	0.4−	0.0
1997 12 26	426	0.3−	0.3−	1998 01 08	699	0.3+	0.8+	1999 03 14	426	0.1+	0.2+
1997 12 26	426	0.1+	0.0	1998 01 19	426	0.7+	0.2+	1999 03 14	426	0.3+	0.3−
1997 12 27	426	0.1+	0.2+	1998 01 19	426	0.4+	0.3+	1999 03 14	426	0.0	0.0
1997 12 27	426	0.1−	0.2+	1998 01 19	426	0.1+	0.6+				

1997 YE₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	177.43509		(2000.0)	P		Q					
<i>n</i>	0.25930994	ω	190.97169	+0.97764867	−0.21022914						
<i>a</i>	2.4355101	Ω	181.17366	+0.20124201	+0.93929830						
<i>e</i>	0.1625394	<i>i</i>	7.30671	+0.06086651	+0.27115015						
<i>P</i>	3.80	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1997 12 22	327	0.4−	0.1+	1998 01 02	684	0.0	0.2−	1998 02 17	684	0.1+	0.0
1997 12 22	327	0.1+	0.4+	1998 01 02	684	0.5+	0.4−	1998 02 26	684	0.1+	0.1−
1997 12 22	327	0.6−	0.3−	1998 01 18	684	0.2−	0.4−	1998 02 26	684	0.2+	0.3+
1997 12 28	684	0.1−	0.5+	1998 01 18	684	0.0	0.4−	1999 03 18	684	0.3+	0.2−
1997 12 28	684	0.5+	1.1+	1998 01 18	684	0.0	0.5−	1999 03 18	684	0.3+	0.0
1997 12 28	684	0.7+	0.8+	1998 01 19	684	0.6−	0.3−	1999 03 19	684	0.1+	0.1+
1997 12 29	684	0.2+	0.0	1998 01 19	684	0.3−	0.3−	1999 03 19	684	0.7−	0.3+
1997 12 29	684	0.1+	0.0	1998 01 19	684	0.7−	0.3−				
1997 12 29	684	0.3+	0.1+	1998 02 17	684	0.2+	0.0				

1997 YW₁₁ = 1999 FE₃₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	203.47869		(2000.0)	P		Q					
n	0.21035871	ω	248.72953	+0.94819500	+0.30686358						
a	2.8000281	Ω	93.32606	−0.25230867	+0.88467164						
e	0.0990615	i	4.72446	−0.19304552	+0.35098551						
P	4.69 <th>H</th> <td>13.4<th>G</th><td>0.15<th>U</th><td>4</td></td></td>	H	13.4 <th>G</th> <td>0.15<th>U</th><td>4</td></td>	G	0.15 <th>U</th> <td>4</td>	U	4				
Residuals in seconds of arc											
1997 11 24	910	0.1−	0.0	1998 01 06	470	0.3+	0.1+	1999 03 19	704	1.5+	1.8−
1997 11 24	910	0.2+	0.1−	1998 01 06	470	1.0−	0.7+	1999 03 19	704	0.1+	0.0
1997 11 24	910	0.1+	0.1−	1998 01 24	721	0.2+	0.2−	1999 03 19	704	2.2+	0.7+
1997 12 31	721	0.4−	0.2−	1998 01 24	721	0.7−	1.1+	1999 03 19	704	0.2+	0.1−
1997 12 31	721	0.1+	0.7−	1998 01 25	704	0.3+	0.4−	1999 03 20	704	0.3−	0.8−
1998 01 01	721	0.1+	0.2+	1998 01 25	704	0.4+	0.2+	1999 03 20	704	2.0−	1.4+
1998 01 01	721	0.4+	0.1−	1998 01 25	704	0.2+	0.0	1999 03 20	704	0.4+	0.8+
1998 01 02	721	0.3−	0.1−	1998 01 25	704	0.1−	0.5−	1999 03 20	704	1.6−	0.0
1998 01 02	721	0.1+	0.4+	1998 01 25	704	0.2−	0.2−	1999 03 20	704	0.4−	0.3−

1999 APR. 2

M.P.C. 34215

1997 YP₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	173.59280		(2000.0)	P	Q
<i>n</i>	0.19996326	ω	48.00109	+0.94468998	-0.32782368
<i>a</i>	2.8962491	Ω	331.13176	+0.29470725	+0.86139352
<i>e</i>	0.0735994	<i>i</i>	1.14127	+0.14390439	+0.38798561
<i>P</i>	4.93	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 12 31	684	0.5+	0.2-	1998 01 18	684	0.1-	0.1-	1998 03 25	910	0.1-	0.8-
1997 12 31	684	0.8+	0.1+	1998 01 18	684	0.0	0.0	1999 03 12	684	0.2+	0.1+
1998 01 02	684	0.4-	0.4+	1998 02 19	684	0.2+	0.1+	1999 03 12	684	0.0	0.2+
1998 01 02	684	0.3-	0.4+	1998 02 19	684	0.4+	0.1+	1999 03 13	684	0.1-	0.0
1998 01 17	684	0.1-	0.0	1998 02 24	684	0.1+	0.1+	1999 03 13	684	0.1-	0.1+
1998 01 17	684	0.1-	0.1+	1998 03 25	910	0.5-	0.3-				
1998 01 18	684	0.4-	0.1+	1998 03 25	910	0.0	0.5-				

1997 YW₁₆ = 1985 VW

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	132.27296		(2000.0)	P	Q
<i>n</i>	0.17860060	ω	275.87903	+0.90156411	-0.33185293
<i>a</i>	3.1228235	Ω	103.75447	+0.41230675	+0.85342868
<i>e</i>	0.2366038	<i>i</i>	16.60575	-0.13109271	+0.40191183
<i>P</i>	5.52	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1985 11 01	809	0.2+	1.6+	1998 01 03	327	0.9+	0.2-	1998 01 05	327	0.5+	0.1+
1985 11 03	809	0.2-	1.7+	1998 01 03	327	0.9+	0.7-	1998 01 07	691	0.7-	0.4-
1985 11 04	809	0.5-	2.3-	1998 01 03	327	0.2+	0.7-	1998 01 07	691	0.6-	0.5-
1985 11 05	809	0.4-	1.7-	1998 01 04	327	0.6-	0.0	1998 01 07	691	0.7-	0.3-
1985 11 07	809	0.9+	0.6+	1998 01 04	327	0.8+	0.4+	1998 01 07	327	0.8-	0.3-
1997 12 29	327	0.3-	0.2+	1998 01 04	327	0.3+	0.5+	1998 01 07	327	1.0-	0.1-
1997 12 29	327	0.7+	0.0	1998 01 05	327	0.1+	1.8+	1998 01 07	327	0.3-	0.3-
1997 12 29	327	0.2+	0.3+	1998 01 05	327	0.4+	0.1+				

1998 AC₄ = 1999 FG₂₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	237.07088		(2000.0)	P	Q
<i>n</i>	0.25717715	ω	221.62679	+0.76670278	+0.63895087
<i>a</i>	2.4489568	Ω	98.54935	-0.57105863	+0.72323566
<i>e</i>	0.1969044	<i>i</i>	3.62475	-0.29335796	+0.26205335
<i>P</i>	3.83	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 11 24	910	0.1-	0.1-	1998 01 02	691	0.7-	0.1+	1999 03 19	704	1.8-	1.3+
1997 11 24	910	0.4-	0.0	1998 01 02	691	0.7-	0.0	1999 03 19	704	1.4+	0.7-
1997 11 24	910	0.2-	0.1+	1998 01 08	691	0.6+	0.0	1999 03 20	704	1.8+	1.8-
1997 11 28	910	0.3+	0.0	1998 01 08	691	0.6+	0.0	1999 03 20	704	0.7+	1.4+
1997 11 28	910	0.1+	0.2-	1998 01 08	691	0.4+	0.0	1999 03 20	704	0.6-	0.2+
1997 11 28	910	0.5+	0.1-	1999 03 19	704	0.1+	0.7-				
1998 01 02	691	0.6-	0.0	1999 03 19	704	1.4-	0.3+				

1998 AW₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	112.15244		(2000.0)	P	Q
<i>n</i>	0.29156471	ω	200.48231	+0.43837370	-0.89690883
<i>a</i>	2.2524029	Ω	223.57235	+0.83592664	+0.43063406
<i>e</i>	0.1178762	<i>i</i>	4.84066	+0.33023500	+0.10054282
<i>P</i>	3.38	<i>H</i>	15.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 10 22	704	0.2-	0.8+	1997 10 31	704	(2.9+	2.2+)	1998 01 15	557	1.0+	0.2-
1997 10 22	704	1.3-	1.1+	1997 10 31	704	1.2+	0.7+	1998 01 15	557	0.1+	0.9+

1997 10 22	704	0.9+	1.4+	1997 10 31	704	1.2+	0.4+	1998 01 17	557	0.7-	0.5-
1997 10 22	704	0.2-	0.2-	1997 10 31	704	1.6+	0.1+	1998 01 17	557	1.4+	0.1-
1997 10 29	704	0.8-	0.2-	1997 11 01	691	0.4-	0.7+	1998 01 30	327	0.5-	1.1-
1997 10 29	704	1.2+	0.4+	1997 11 01	691	0.3-	0.7+	1998 01 30	327	0.2-	0.0
1997 10 29	704	0.8-	0.8-	1997 11 01	691	0.4-	0.8+	1998 01 30	327	0.4-	0.4+
1997 10 29	704	0.1+	0.3-	1997 11 06	704	0.2+	0.2-	1998 01 30	327	0.4-	0.0
1997 10 29	704	0.4+	0.3+	1997 11 06	704	0.8-	0.4-	1998 01 31	557	0.7-	0.3-
1997 10 29	566	0.6+	1.0+	1997 11 06	704	1.2-	0.9-	1998 01 31	557	1.3+	0.1-
1997 10 29	566	0.8+	0.7+	1997 11 06	704	1.7-	1.4-	1998 02 20	557	0.5+	1.6-
1997 10 29	566	0.5+	0.9+	1997 11 06	704	1.1-	1.4-	1999 03 25	557	0.8-	0.6+
1997 10 30	704	(2.6+	0.9-)	1998 01 14	557	0.5+	0.1-	1999 03 25	557	0.0	1.2+
1997 10 30	704	(2.9+	1.0-)	1998 01 14	557	0.5-	0.1-	1999 03 27	557	0.3+	0.8+
1997 10 30	704	(2.8+	1.1-)	1998 01 14	557	0.3-	0.0	1999 03 27	557	0.8+	1.0+
1997 10 30	704	(2.9+	0.6-)	1998 01 15	557	1.4-	0.9+	1999 03 27	557	0.8+	0.5+

1998 AX₈ = 1981 UQ₁₄ = 1986 QZ₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	101.74987		(2000.0)	P	Q
<i>n</i>	0.18407470	ω	96.41165	+0.99821907	-0.04739970
<i>a</i>	3.0606005	Ω	266.30939	+0.02924688	+0.91805556
<i>e</i>	0.2933315	<i>i</i>	2.08008	+0.05199340	+0.39360801
<i>P</i>	5.35	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1981 10 23	095	0.8-	1.6+	1997 10 30	704	(3.1+	1.0-)	1998 01 17	557	0.5-	0.6+
1986 08 31	095	0.3-	2.0+	1997 10 30	704	(3.6+	1.0-)	1998 01 17	557	0.4-	1.4-
1997 10 22	704	1.0+	0.3-	1997 11 03	704	0.4+	0.6+	1998 01 17	557	0.3+	1.4-
1997 10 22	704	0.8-	0.6-	1997 11 03	704	0.1+	0.3-	1998 01 27	557	0.2+	0.9+
1997 10 22	704	1.6-	0.2+	1997 11 03	704	1.2+	0.7+	1998 01 27	557	0.5+	1.2+
1997 10 22	704	1.2-	1.0-	1997 11 03	704	1.1+	0.7+	1998 02 01	557	0.9-	0.1+
1997 10 22	704	1.1-	0.4-	1997 11 03	704	0.0	0.3+	1998 02 01	557	0.2-	1.8+
1997 10 29	704	0.4-	1.2-	1997 12 05	691	0.6-	0.4+	1998 02 10	557	0.5+	1.3+
1997 10 29	704	0.0	0.8-	1997 12 05	691	0.5-	0.2+	1998 02 10	557	1.0+	0.5+
1997 10 29	704	0.2+	1.1-	1997 12 05	691	0.3-	0.0	1999 02 15	557	0.2-	1.2+
1997 10 29	704	0.2-	0.6-	1998 01 14	557	0.4+	0.3+	1999 02 15	557	0.3-	1.0+
1997 10 29	704	0.5-	0.8-	1998 01 14	557	1.1+	0.9-	1999 03 11	557	0.1-	0.3-
1997 10 30	704	(3.1+	1.0-)	1998 01 14	557	0.8+	0.3+	1999 03 11	557	0.8+	0.7+
1997 10 30	704	(3.1+	1.1-)	1998 01 15	557	1.7+	0.2+	1999 03 11	557	0.3-	1.2-
1997 10 30	704	(3.2+	1.2-)	1998 01 15	557	1.3+	0.1-				

1998 BM = 1954 CS = 1999 EH₃

Id. G. V. Williams, S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	250.24498		(2000.0)	P	Q
<i>n</i>	0.17695332	ω	311.73825	+0.49413630	+0.86883541
<i>a</i>	3.1421741	Ω	347.76332	-0.74811618	+0.40684004
<i>e</i>	0.0808333	<i>i</i>	8.38089	-0.44288993	+0.28214572
<i>P</i>	5.57	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1954 02 10	675	1.8+	0.8-	1998 01 26	411	0.4+	0.5-	1999 03 10	428	0.2+	0.3-
1954 02 10	675	1.5-	1.3+	1998 01 26	411	0.1-	1.2+	1999 03 10	428	0.4+	0.2-
1997 12 29	566	0.7+	0.5-	1998 01 31	411	0.1+	0.6+	1999 03 12	428	0.3+	0.2-
1997 12 29	566	0.5+	0.6-	1998 01 31	411	0.1-	0.0	1999 03 14	428	0.5+	0.2-
1997 12 29	566	0.6+	0.5-	1998 02 18	411	0.3-	0.3-	1999 03 14	428	0.1-	0.1-
1998 01 18	411	0.4-	0.2+	1998 02 18	411	0.2-	0.7-	1999 03 18	428	0.8-	0.4+
1998 01 18	411	1.0+	0.8+	1998 02 26	566	0.6-	0.4+	1999 03 18	428	0.7-	0.3+
1998 01 19	411	0.6-	0.6-	1998 02 26	566	0.3-	0.5+				
1998 01 19	411	0.9-	0.7-	1998 02 26	566	0.0	0.2+				

1998 BP₆

Id. S. Sposetti (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	72.62696		(2000.0)	P	Q
<i>n</i>	0.18482944	ω	340.61649	+0.21466239	-0.95465218
<i>a</i>	3.0522630	Ω	96.56580	+0.92127519	+0.12777983
<i>e</i>	0.2334726	<i>i</i>	11.98532	+0.32430245	+0.26890805
<i>P</i>	5.33	<i>H</i>	12.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 01 22	132	0.4-	0.6-	1998 01 26	132	0.2-	0.4+	1998 02 23	958	0.4+	0.6+
1998 01 22	132	0.6+	0.5+	1998 01 27	958	0.0	0.8-	1999 03 20	143	1.6+	0.0
1998 01 22	132	0.3+	0.3-	1998 01 27	958	0.4+	0.1+	1999 03 20	143	1.2+	0.1+
1998 01 24	132	0.2-	0.1-	1998 01 27	958	0.4+	0.9-	1999 03 20	143	0.7-	1.0-
1998 01 24	132	0.4+	0.5-	1998 02 20	958	0.3+	1.4-	1999 03 22	143	1.2-	0.3-
1998 01 24	132	0.2-	0.3+	1998 02 20	958	0.4-	0.0	1999 03 22	143	1.5-	0.1-
1998 01 26	132	0.3-	1.1+	1998 02 23	958	0.3-	1.4+	1999 03 22	143	0.2-	0.2+
1998 01 26	132	0.3-	0.1+	1998 02 23	958	0.6-	0.3+	1999 03 22	143	0.7+	1.0+

1998 BE₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	77.35993		(2000.0)	P	Q
<i>n</i>	0.18048475	ω	298.44570	+0.71941125	-0.65077194
<i>a</i>	3.1010520	Ω	103.26938	+0.69190717	+0.64077519
<i>e</i>	0.5062693	<i>i</i>	14.44451	+0.06092555	+0.40731198
<i>P</i>	5.46	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1998 01 24	566	0.1-	0.2+	1998 02 10	118	0.0	0.4-	1998 03 01	118	0.9+	0.6-
1998 01 24	566	0.2-	0.3+	1998 02 10	046	0.8-	0.2-	1998 03 02	360	1.0+	0.8-
1998 01 24	566	0.4-	0.4+	1998 02 10	046	0.1-	0.4-	1998 03 02	360	0.5+	0.9-
1998 01 25	566	0.6+	1.7+	1998 02 10	046	0.6-	0.1-	1998 03 02	360	0.7+	0.8-
1998 01 25	566	0.3+	1.4+	1998 02 11	402	0.7-	0.5-	1998 03 02	587	1.1+	1.7-
1998 01 25	566	0.2+	1.4+	1998 02 11	402	0.6-	0.6+	1998 03 02	587	1.4+	0.8-
1998 01 26	566	0.9+	1.5+	1998 02 11	402	0.3-	0.0	1998 03 11	118	0.2+	0.2+
1998 01 26	566	1.0+	1.4+	1998 02 13	402	1.7-	1.5-	1998 03 11	118	0.4+	0.5+
1998 01 26	566	0.8+	1.4+	1998 02 13	402	2.0-	0.6-	1998 03 16	587	1.0+	0.2+
1998 01 29	566	0.1-	0.5+	1998 02 13	402	1.7-	1.3-	1998 03 17	587	0.0	0.2+
1998 01 29	566	0.1-	0.4+	1998 02 14	587	0.0	0.2+	1998 03 17	587	0.4+	0.5-
1998 01 29	566	0.0	0.8+	1998 02 14	587	0.5-	0.3-	1998 04 15	658	0.1-	1.0-
1998 01 30	046	1.0-	0.3-	1998 02 15	360	0.6-	0.0	1998 04 15	658	0.0	1.0-
1998 01 30	046	1.1-	0.2-	1998 02 15	360	0.7-	0.3+	1998 04 15	658	0.1+	0.9-
1998 01 30	046	0.9-	0.1+	1998 02 15	360	0.5-	0.1-	1998 04 15	360	0.9+	0.1+
1998 01 30	046	0.2+	0.1-	1998 02 18	046	0.6-	0.4-	1998 04 15	360	0.5+	0.9-
1998 01 30	046	0.6+	0.1+	1998 02 18	046	0.3-	0.2-	1998 04 15	360	1.3+	0.9-
1998 01 31	118	0.1+	1.0-	1998 02 18	046	0.3-	0.3-	1999 01 20	104	0.1+	0.5-
1998 01 31	118	0.2-	1.1-	1998 02 22	566	0.1-	0.2+	1999 01 20	104	0.0	0.5+
1998 02 06	046	0.1+	0.3+	1998 02 22	566	0.2+	0.4+	1999 01 20	104	1.4+	1.2+
1998 02 06	046	0.7+	0.5+	1998 02 22	566	0.3-	0.4+	1999 03 14	104	1.2+	0.0
1998 02 06	046	0.6-	0.7+	1998 02 23	118	0.1+	0.1+	1999 03 14	104	0.1-	0.2+
1998 02 10	118	0.3+	0.4-	1998 02 23	118	0.5+	0.1-	1999 03 14	104	0.0	1.1+
1998 02 10	118	0.3+	0.0	1998 03 01	118	0.8+	0.6-	1999 03 14	104	1.0-	1.4+

1998 BC₈ = 1991 EH₂

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	54.89428		(2000.0)	P	Q
<i>n</i>	0.27949441	ω	222.22264	-0.90506373	+0.42498195
<i>a</i>	2.3167934	Ω	342.90693	-0.37439118	-0.81385582
<i>e</i>	0.1826174	<i>i</i>	3.08364	-0.20171986	-0.39626890
<i>P</i>	3.53	<i>H</i>	15.9	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1991 03 10	809	0.7-	0.1-	1991 03 15	809	0.2-	0.9+	1998 01 28	691	0.4+	0.1+
1991 03 10	809	0.2-	0.2-	1998 01 24	566	0.3-	0.4+	1998 01 28	691	0.1+	0.0
1991 03 10	809	0.5+	0.1-	1998 01 24	566	0.4-	0.4+	1998 01 28	691	0.4+	0.3+
1991 03 12	809	0.2-	0.4-	1998 01 24	566	0.5-	0.1+	1998 02 25	566	0.4-	0.4-

1991 03 12	809	0.6+	0.4-	1998 01 25	411	0.2-	0.5-	1998 02 25	566	0.2-	0.6-
1991 03 12	809	0.8+	0.3-	1998 01 25	411	0.6+	0.7-	1998 02 25	566	0.1-	0.4-
1991 03 15	809	0.2-	0.4+	1998 01 26	411	0.0	0.4+				
1991 03 15	809	0.3-	0.8+	1998 01 26	411	0.6+	0.4+				

1998 BN₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	190.10097		(2000.0)	P	Q
<i>n</i>	0.19665637	ω	237.33629	+0.93535648	+0.30499909
<i>a</i>	2.9286268	Ω	104.36241	-0.22948893	+0.90865099
<i>e</i>	0.1320415	<i>i</i>	10.65521	-0.26915254	+0.28518229
<i>P</i>	5.01	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 01 26	046	0.0	0.1-	1998 02 01	046	0.0	0.5+	1998 03 25	046	0.4+	0.2-
1998 01 26	046	0.2-	0.3+	1998 02 01	046	0.4+	0.3-	1998 03 25	046	0.4-	0.7-
1998 01 26	046	0.3+	0.1+	1998 02 02	046	0.4-	0.0	1998 03 25	046	0.1-	0.9-
1998 01 27	046	0.7+	0.2-	1998 02 02	046	1.1-	0.1+	1998 03 26	046	0.3-	0.4-
1998 01 27	046	0.6+	0.4-	1998 02 02	046	0.1-	0.1+	1998 03 26	046	0.5+	0.3+
1998 01 27	046	0.1+	0.1-	1998 02 05	046	0.0	0.7-	1999 03 18	046	0.4+	0.1+
1998 01 29	046	0.1+	0.4+	1998 02 05	046	0.2-	0.3+	1999 03 18	046	0.8+	1.0-
1998 01 29	046	0.1-	0.1+	1998 02 18	046	0.7+	0.0	1999 03 18	046	0.4-	0.4+
1998 01 29	046	0.6+	0.0	1998 02 18	046	0.6+	0.4-	1999 03 24	046	0.5-	0.4-
1998 01 31	046	0.1-	0.1+	1998 02 18	046	0.5+	0.4+	1999 03 24	046	0.6-	0.9+
1998 01 31	046	0.9-	0.3+	1998 02 26	046	0.1+	0.7-	1999 03 24	046	0.3+	0.1+
1998 01 31	046	0.4-	0.1+	1998 02 26	046	0.6-	0.8+				
1998 02 01	046	0.8-	0.4-	1998 02 26	046	0.4+	1.2+				

1998 BB₁₉

Id. A. Testa (1999 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	199.37640		(2000.0)	P	Q
<i>n</i>	0.17705890	ω	331.67196	+0.92704700	+0.37450072
<i>a</i>	3.1409249	Ω	6.41616	-0.30575227	+0.78324553
<i>e</i>	0.1769679	<i>i</i>	9.39915	-0.21702396	+0.49626167
<i>P</i>	5.57	<i>H</i>	12.3	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 01 27	587	1.1-	0.8+	1998 02 05	587	1.0+	0.5+	1998 03 17	587	0.5-	0.3+
1998 01 27	587	0.5+	1.2-	1998 02 05	587	0.0	1.0+	1998 03 17	587	1.6-	0.9+
1998 01 27	587	0.1-	0.1+	1998 02 05	587	0.1+	0.0	1998 03 17	587	0.1+	0.4-
1998 01 28	587	0.1+	0.2+	1998 02 14	587	0.2-	0.2-	1999 03 14	587	0.1-	0.3+
1998 01 28	587	0.6-	0.3-	1998 02 14	587	0.4+	0.4+	1999 03 14	587	0.9+	0.0
1998 01 28	587	0.3+	0.1+	1998 02 25	587	0.1-	1.1-	1999 03 14	587	0.6+	0.3-
1998 02 04	587	0.5+	0.3-	1998 02 25	587	0.3+	0.7-	1999 03 15	587	0.6-	0.8+
1998 02 04	587	0.4+	0.5+	1998 03 16	587	0.4+	0.5+	1999 03 20	587	1.3-	0.6-
1998 02 04	587	1.1-	0.1-	1998 03 16	587	1.1+	1.4-	1999 03 20	587	0.5+	0.1-

1998 BG₄₂ = 1999 FZ₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	125.16358		(2000.0)	P	Q
<i>n</i>	0.30407201	ω	51.07392	+0.75717138	-0.65309559
<i>a</i>	2.1902066	Ω	349.68054	+0.57553184	+0.67609236
<i>e</i>	0.1513729	<i>i</i>	4.01933	+0.30895729	+0.34112355
<i>P</i>	3.24	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 10 30	704	0.0	0.9-	1998 01 22	327	0.7-	0.4-	1998 02 16	327	0.1+	0.3+
1997 10 30	704	0.0	0.8-	1998 01 22	327	0.0	0.2+	1999 03 19	704	0.3-	1.3-
1997 10 30	704	1.0-	0.9+	1998 01 22	327	0.2-	0.0	1999 03 19	704	0.0	0.1+
1997 10 30	704	0.7+	0.1-	1998 02 09	327	0.1+	0.4+	1999 03 19	704	0.2-	1.3-
1997 10 30	704	0.6-	0.3-	1998 02 09	327	0.3-	0.0	1999 03 19	704	0.1+	0.3+
1997 10 30	566	0.6+	0.1-	1998 02 09	327	0.3-	0.2-	1999 03 19	704	1.3-	0.0
1997 10 30	566	0.5+	0.0	1998 02 15	327	0.2-	0.1+	1999 03 20	704	0.1-	0.8+
1997 10 30	566	0.3+	0.2+	1998 02 15	327	0.2-	0.1+	1999 03 20	704	1.1+	0.1+

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1998 01 20	327	0.7+	0.1+	1998 02 15	327	0.1−	0.0	1999 03 20	704	0.1+	0.0
1998 01 20	327	0.6+	0.4−	1998 02 16	327	0.0	0.2+	1999 03 20	704	0.1−	0.1−
1998 01 20	327	0.7+	0.1+	1998 02 16	327	0.1−	0.3+	1999 03 20	704	0.1+	0.2+

1998 CL₂ = 1999 BV₆

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	85.42690		(2000.0)	P	Q
<i>n</i>	0.23599483	ω	326.80859	+0.27958926	−0.95543560
<i>a</i>	2.5933893	Ω	106.80218	+0.90103637	+0.22702913
<i>e</i>	0.2140327	<i>i</i>	5.67862	+0.33160715	+0.18868118
<i>P</i>	4.18	<i>H</i>	15.4	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 02 15	327	0.1+	0.5−	1998 02 22	327	0.4+	1.4+	1999 01 21	910	0.1+	0.0
1998 02 15	327	0.5+	0.3−	1998 02 22	327	0.8+	0.5+	1999 01 22	910	0.3−	0.2−
1998 02 15	327	0.3−	0.4−	1998 02 22	327	0.9+	0.5−	1999 01 22	910	0.1+	0.1−
1998 02 16	327	0.4−	0.2+	1998 02 26	327	0.7−	0.9−	1999 01 22	910	0.0	0.0
1998 02 16	327	0.6−	0.2+	1998 02 26	327	0.5−	0.7−	1999 01 26	910	0.3−	0.1+
1998 02 16	327	0.3−	0.5−	1998 02 26	327	0.7−	0.7−	1999 01 26	910	0.1+	0.2−
1998 02 16	327	0.2−	0.0	1999 01 21	910	0.2+	0.1+	1999 01 26	910	0.1+	0.3+
1998 02 22	327	1.0+	2.3+	1999 01 21	910	0.1−	0.0				

1998 DZ₂ = 1982 BJ₁₁ = 1989 WJ₆ = 1999 CS₁₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	142.64686		(2000.0)	P	Q
<i>n</i>	0.23909907	ω	275.72149	+0.96160456	−0.02658264
<i>a</i>	2.5708937	Ω	86.01961	+0.13867018	+0.90595780
<i>e</i>	0.1424206	<i>i</i>	15.89104	−0.23682748	+0.42253264
<i>P</i>	4.12	<i>H</i>	12.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1982 01 20	095	0.1+	1.1−	1998 02 21	327	0.0	0.1−	1998 02 27	327	0.0	0.5−
1989 11 25	095	(2.5−	5.0+)	1998 02 22	327	0.4+	0.0	1998 02 27	327	0.2+	0.5−
1997 10 30	566	0.5−	0.2+	1998 02 22	327	0.4+	0.1−	1998 03 01	327	0.2−	0.2−
1997 10 30	566	0.6−	0.2+	1998 02 22	327	0.4+	0.0	1998 03 01	327	0.3−	0.4−
1997 10 30	566	0.5−	0.1+	1998 02 23	327	0.0	0.0	1998 03 01	327	0.3−	0.3−
1997 12 28	566	0.4−	0.8+	1998 02 23	327	0.3+	0.1−	1999 02 11	704	0.5+	0.4+
1997 12 28	566	0.4−	0.7+	1998 02 23	327	0.2+	0.1−	1999 02 11	704	0.6+	0.5+
1997 12 28	566	0.5−	0.8+	1998 02 23	327	0.1+	0.2−	1999 02 11	704	0.2−	0.1+
1998 01 29	691	0.4+	0.4−	1998 02 24	327	0.3+	0.0	1999 02 11	704	0.1+	0.4+
1998 01 29	691	0.5+	0.0	1998 02 24	327	0.4+	0.2−	1999 02 11	704	0.5+	0.6+
1998 02 15	327	0.2+	0.2+	1998 02 24	327	0.2+	0.2−	1999 02 18	704	0.3−	0.4−
1998 02 15	327	0.3+	0.3+	1998 02 24	327	0.1+	0.3−	1999 02 18	704	0.0	0.7−
1998 02 15	327	0.2+	0.2+	1998 02 26	327	0.2+	0.3−	1999 02 18	704	0.1−	0.0
1998 02 21	327	0.1−	0.3+	1998 02 26	327	0.0	0.1−	1999 02 18	704	0.1−	0.6+
1998 02 21	327	0.0	0.1+	1998 02 26	327	0.0	0.2+	1999 02 18	704	0.2−	0.5+
1998 02 21	327	0.1+	0.1+	1998 02 27	327	0.0	0.5−				

1998 EK₉ = 1987 BA

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	138.37835		(2000.0)	P	Q
<i>n</i>	0.26742718	ω	297.29464	+0.38368195	−0.85257062
<i>a</i>	2.3859739	Ω	125.57033	+0.92319642	+0.36339533
<i>e</i>	0.1308616	<i>i</i>	25.86435	−0.02228315	+0.37558910
<i>P</i>	3.69	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1987 01 22	809	(0.1+	7.5+)	1987 01 30	809	0.6+	0.5−	1998 03 11	327	0.1+	0.3+
1987 01 22	809	0.5+	2.2+	1987 01 30	809	0.9+	0.4−	1998 03 11	327	0.1+	0.3+
1987 01 22	809	0.6−	0.3−	1987 01 30	809	0.1−	0.7+	1998 03 12	327	0.3−	0.3+
1987 01 23	809	2.5−	2.0−	1987 01 30	809	0.5+	0.7+	1998 03 12	327	0.0	0.2+
1987 01 23	809	1.0−	3.1−	1987 01 30	552	2.6−	1.5+	1998 03 12	327	0.3−	0.3+
1987 01 23	552	0.2+	0.4+	1987 01 30	552	(7.1−	1.7−)	1998 03 14	327	0.2+	0.2+

1987 01 23	552	0.2+	1.0−	1987 01 31	809	0.5−	0.3−	1998 03 14	327	0.7+	0.4+
1987 01 24	552	1.4−	2.6+	1987 01 31	809	0.3+	0.8−	1998 03 14	327	0.0	0.0
1987 01 24	552	3.0+	2.3−	1987 01 31	552	0.8−	1.2−	1998 03 16	327	0.4−	0.4−
1987 01 25	552	2.7+	2.7+	1987 01 31	552	1.3−	1.3−	1998 03 16	327	0.3+	0.1−
1987 01 25	552	0.3+	3.1+	1987 02 01	809	1.2−	1.2+	1998 03 19	327	0.1+	0.4−
1987 01 28	809	0.7+	0.6+	1987 02 01	809	0.5−	1.0+	1998 03 19	327	0.3−	0.4−
1987 01 28	809	1.8+	0.4−	1987 02 01	552	0.7−	0.7−	1998 03 19	327	0.0	0.6−
1987 01 29	809	0.2+	0.1−	1987 02 01	552	0.5+	1.4−				
1987 01 29	809	1.1+	1.4−	1998 03 11	327	0.1−	0.5+				

1998 FJ₁₄ = 1996 RQ₂₇

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	31.64288		(2000.0)	P	Q
<i>n</i>	0.37903419	ω	99.06905	+0.10186999	+0.99456085
<i>a</i>	1.8909663	Ω	176.54760	−0.99387172	+0.10269223
<i>e</i>	0.0945213	<i>i</i>	21.12930	−0.04291286	−0.01740737
<i>P</i>	2.60	<i>H</i>	16.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 09 10	809	1.0+	0.2+	1998 03 22	704	0.9+	0.4+	1998 03 28	704	2.7−	0.6+
1996 09 13	809	0.7+	0.3+	1998 03 22	704	1.2−	0.9+	1998 03 29	704	1.2+	1.0−
1996 09 14	809	0.5−	0.1−	1998 03 22	704	1.2+	0.6−	1998 03 29	704	1.0+	1.4+
1996 09 14	809	0.5−	0.1+	1998 03 22	704	0.8−	0.4−	1998 03 29	704	0.6−	0.5+
1996 09 14	809	0.6−	0.5+	1998 03 28	704	0.3−	0.4−	1998 03 29	704	0.9+	0.3−
1996 09 15	809	0.2−	0.4−	1998 03 28	704	0.9+	0.1+	1998 03 29	704	(4.7−	0.9−)
1996 09 15	809	0.0	0.5−	1998 03 28	704	0.5−	1.2−				

1998 FS₁₅ = 1990 KF₁

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	356.46458		(2000.0)	P	Q
<i>n</i>	0.23542042	ω	80.69819	+0.12126903	+0.99021743
<i>a</i>	2.5976061	Ω	196.74523	−0.97853983	+0.10759021
<i>e</i>	0.1518338	<i>i</i>	13.85960	−0.16659421	+0.08884702
<i>P</i>	4.19	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1990 05 20	413	0.0	0.0	1998 03 28	910	0.8+	0.8−	1998 03 29	704	0.6−	0.8−
1990 05 20	413	(4.2+	2.0−)	1998 03 28	704	0.8−	0.2+	1998 03 29	704	0.7−	0.6+
1990 05 26	413	(4.8−	2.5−)	1998 03 28	704	0.2−	1.6+	1998 03 29	704	0.5−	0.2−
1990 05 26	413	(3.4−	0.9−)	1998 03 28	704	0.3−	0.1+	1998 03 29	704	0.0	0.1−
1990 05 29	413	(4.5+	7.7−)	1998 03 28	704	0.8−	0.6−	1998 04 01	704	0.0	0.1−
1998 03 23	691	0.4−	0.6+	1998 03 28	704	0.2−	0.4+	1998 04 01	704	0.3+	0.3+
1998 03 23	691	0.5−	0.6+	1998 03 28	910	1.0+	1.0−	1998 04 01	704	0.3+	0.9+
1998 03 23	691	0.3−	0.9+	1998 03 28	910	0.8+	1.0−	1998 04 01	704	0.1+	0.8+
1998 03 28	910	1.3+	1.1−	1998 03 29	910	0.7+	1.0−	1998 04 01	704	1.1−	1.0+
1998 03 28	910	1.0+	0.9−	1998 03 29	704	0.1−	0.2−				

1998 FQ₆₀ = 1992 DC₁₄ = 1995 SS₄₆Id. G. V. Williams (*MPC* 31996), A. Milani

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Williams

<i>M</i>	138.92156		(2000.0)	P	Q
<i>n</i>	0.17983760	ω	87.08771	+0.08902635	−0.99602911
<i>a</i>	3.1084869	Ω	357.80445	+0.90790930	+0.08138222
<i>e</i>	0.1662412	<i>i</i>	0.84097	+0.40960349	+0.03609629
<i>P</i>	5.48	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 02 29	033	0.1−	0.3−	1998 03 22	704	0.5+	0.2+	1998 04 01	704	0.7−	1.5+
1992 02 29	033	0.3+	0.6−	1998 03 22	704	0.4−	0.3−	1998 04 01	704	0.3−	0.9+
1992 03 01	033	0.5−	0.3+	1998 03 22	704	0.5−	1.1−	1998 04 01	704	0.3+	0.2+
1995 09 26	691	0.3+	0.1−	1998 03 22	704	0.5−	0.9−	1998 04 19	704	0.2−	0.5−
1995 09 26	691	0.1+	0.1+	1998 03 22	704	0.2−	0.5+	1998 04 19	704	(2.5−	1.3−)

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1995 09 26	691	0.3−	0.3−	1998 03 25	699	0.4+	0.0	1998 04 19	704	0.1−	0.9−
1995 10 02	691	0.3−	0.1+	1998 03 25	699	0.1−	1.0+	1998 04 19	704	(0.9−	2.4−)
1995 10 02	691	0.1+	0.1+	1998 03 25	699	0.6+	0.4+	1998 04 20	704	1.4+	1.2−
1995 10 02	691	0.2+	0.0	1998 03 28	704	(7.2−	1.0+)	1998 04 20	704	0.4+	0.2−
1998 03 20	704	(2.7+	1.0+)	1998 03 28	704	1.1−	0.1−	1998 04 20	704	0.9+	1.0−
1998 03 20	704	(1.4−	2.2+)	1998 03 28	704	0.4+	1.1+	1998 04 20	704	1.0+	1.6−
1998 03 20	704	0.2−	1.4+	1998 03 28	704	0.9−	0.8+	1998 04 20	704	1.9−	1.5−
1998 03 20	704	1.1+	0.8+	1998 04 01	704	0.2+	0.3+				
1998 03 20	704	1.0−	0.3+	1998 04 01	704	1.1+	0.1+				

1998 FQ₈₇ = 1995 UP₁₄ = 1998 HY₁₂Id. A. Doppler (d, *MPC* 34061; unpublished)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17059885	<i>ω</i>	234.19942	−0.18350939	+0.97812965		
<i>a</i>	3.2197241	<i>Ω</i>	25.75419	−0.81347834	−0.09518557		
<i>e</i>	0.0844778	<i>i</i>	13.02272	−0.55188522	−0.18493806		
<i>P</i>	5.78	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 10 17	691	0.0	0.1−	1998 03 24	704	0.2+	0.7−	1998 04 03	809	(2.4+	1.1+)
1995 10 17	691	0.1+	0.1+	1998 03 24	704	0.4−	1.0−	1998 04 03	809	1.3+	1.3+
1995 10 17	691	1.0−	0.4+	1998 03 25	704	0.4−	0.2−	1998 04 18	704	0.5+	0.1+
1995 10 24	691	0.2+	0.1−	1998 03 25	704	0.3−	0.0	1998 04 18	704	0.0	0.6−
1995 10 24	691	0.3+	0.1−	1998 03 25	704	0.7−	0.6+	1998 04 18	704	1.0−	1.3+
1995 10 24	691	0.4+	0.2−	1998 03 25	704	0.8−	0.0	1998 04 18	704	0.8+	0.1+
1998 02 25	566	0.4+	0.0	1998 03 25	704	0.5−	0.5−	1998 04 19	704	0.2−	0.3+
1998 02 25	566	0.3+	0.1+	1998 04 02	809	(2.4+	4.1+)	1998 04 19	704	0.7+	0.4+
1998 02 25	566	0.5+	0.3+	1998 04 02	809	(2.2+	3.6+)	1998 04 19	704	0.2+	0.2−
1998 03 24	704	0.4−	0.5+	1998 04 02	809	(2.1+	4.4+)	1998 04 19	704	1.2−	1.2−
1998 03 24	704	0.5+	0.9−	1998 04 03	809	(2.1+	1.8+)	1998 04 19	704	0.6+	0.3+

1998 HS₄ = 1995 YE₁₈

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18071001	<i>ω</i>	31.40059	−0.43307005	+0.89906007		
<i>a</i>	3.0984744	<i>Ω</i>	213.06294	−0.84950397	−0.43098054		
<i>e</i>	0.1063806	<i>i</i>	6.77426	−0.30131933	−0.07711525		
<i>P</i>	5.45	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 12 22	691	0.2−	0.2−	1998 04 22	704	1.1+	0.6+	1998 04 23	046	0.2+	0.1−
1995 12 22	691	0.3−	0.1+	1998 04 22	704	0.4+	0.8+	1998 04 23	046	0.2+	0.2−
1995 12 27	691	0.2−	0.0	1998 04 22	704	0.8−	0.7−	1998 04 23	046	0.5+	0.2−
1995 12 27	691	0.4+	0.0	1998 04 22	704	0.0	0.5+	1998 04 28	566	0.9−	0.0
1995 12 27	691	0.2+	0.1+	1998 04 23	046	0.7+	0.5−	1998 04 28	566	1.0−	0.1−
1998 04 21	704	0.1+	1.1+	1998 04 23	046	0.3−	0.5−	1998 04 28	566	1.0−	0.1+
1998 04 21	704	1.0−	0.7−	1998 04 23	046	0.0	0.3−	1998 05 01	046	0.7+	0.2+
1998 04 21	704	1.0+	0.7−	1998 04 23	046	0.7+	0.5−	1998 05 01	046	0.4+	0.2+
1998 04 21	704	1.6−	1.0+	1998 04 23	046	0.1+	0.2−	1998 05 01	046	0.6+	0.0

1998 HH₅₂ = 1983 VF₇

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.31153803	<i>ω</i>	327.35518	+0.99604008	−0.05146944		
<i>a</i>	2.1550731	<i>Ω</i>	35.81290	+0.08037958	+0.86975856		
<i>e</i>	0.2380834	<i>i</i>	7.11653	−0.03799048	+0.49078605		
<i>P</i>	3.16	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1983 10 28	330	0.6−	0.1+	1998 04 21	704	0.5−	0.2−	1998 04 30	699	0.6+	0.4−
1983 11 01	330	2.0+	1.1+	1998 04 21	704	0.2+	0.0	1998 04 30	699	0.9+	0.5+

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1983 11 04	688	0.7+	0.2−	1998 04 21	704	0.8−	0.2+	1998 04 30	699	0.5+	0.5+
1983 11 04	688	1.1−	1.5−	1998 04 22	704	0.6+	0.2−	1998 05 01	699	0.8−	1.0+
1983 11 07	688	2.8−	0.7+	1998 04 22	704	0.2+	0.3−	1998 05 01	699	0.1+	0.2−
1983 11 07	688	1.7+	0.1+	1998 04 22	704	0.2−	0.8−	1998 05 01	699	0.8−	0.1+
1998 04 21	704	0.4+	0.3−	1998 04 22	704	0.3−	0.1−				
1998 04 21	704	0.5+	0.2−	1998 04 22	704	0.3−	0.7+				

1998 JN₁

Id. K. J. Lawrence (1994 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25920297	<i>ω</i>	101.30659	−0.76625292	−0.62129170		
<i>a</i>	2.4361801	<i>Ω</i>	40.58299	+0.44596557	−0.69784610		
<i>e</i>	0.1073009	<i>i</i>	14.58960	+0.46257018	−0.35638105		
<i>P</i>	3.80	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 04 11	675	0.1−	0.3+	1998 05 01	566	0.3−	0.0	1998 05 22	704	0.9+	0.3+
1994 04 11	675	(2.5+	0.7+)	1998 05 01	566	0.5−	0.2−	1998 05 22	704	0.4−	0.3−
1994 04 14	675	0.1−	0.1+	1998 05 01	566	0.7−	0.0	1998 05 24	704	(3.2+	0.2−)
1994 04 14	675	0.2+	0.3−	1998 05 02	566	0.5−	0.1−	1998 05 24	704	1.0+	0.5−
1994 05 05	675	0.6−	1.0+	1998 05 02	566	0.4−	0.2−	1998 05 24	704	1.1+	0.4+
1994 05 05	675	0.8+	0.9−	1998 05 02	566	0.2−	0.4−	1998 05 24	704	1.0−	0.1+
1998 04 25	699	0.1−	0.2−	1998 05 22	704	0.6+	0.6−	1998 05 24	704	0.6−	0.3+
1998 04 25	699	0.1+	0.0	1998 05 22	704	0.8+	0.5−				
1998 04 25	699	0.1+	0.9+	1998 05 22	704	0.2+	0.8+				

1998 KK₁₇

Id. K. J. Lawrence (1992 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.57902226	<i>ω</i>	333.87134	−0.43338074	−0.89313146		
<i>a</i>	1.4256269	<i>Ω</i>	141.48242	+0.85701526	−0.44975837		
<i>e</i>	0.5246780	<i>i</i>	11.14790	+0.27875792	−0.00579784		
<i>P</i>	1.70	<i>H</i>	16.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 08 29	675	0.3+	1.6+	1998 05 30	046	0.4−	0.3+	1998 06 09	046	0.0	0.1−
1992 08 29	675	0.2−	1.1+	1998 05 30	557	0.5+	0.7+	1998 06 09	046	0.1−	0.3+
1992 09 01	675	0.5−	1.3−	1998 05 30	557	0.3−	1.2+	1998 06 09	046	0.1+	0.3+
1992 09 01	675	0.2+	1.2−	1998 05 30	557	0.1−	0.2−	1998 06 09	046	0.2+	0.1+
1998 05 29	704	0.7−	0.3−	1998 05 31	557	0.3+	0.1−	1998 06 12	658	0.4−	0.4+
1998 05 29	704	0.2−	0.3+	1998 05 31	670	0.4−	0.8+	1998 06 12	658	0.5+	0.7+
1998 05 29	704	0.5−	0.7+	1998 05 31	670	0.3−	0.5+	1998 06 12	658	0.7−	0.1+
1998 05 29	704	0.2−	0.8+	1998 05 31	670	0.1−	0.1+	1998 06 14	046	0.2−	0.3+
1998 05 29	704	0.4−	1.2+	1998 05 31	422	0.4−	0.0	1998 06 14	046	0.2+	0.9+
1998 05 29	046	0.2−	0.1−	1998 05 31	422	0.3−	0.1+	1998 06 14	046	0.4−	0.6+
1998 05 29	046	0.4−	0.2−	1998 05 31	422	0.2+	0.6+	1998 06 14	046	0.2+	0.3+
1998 05 29	046	(2.5+	1.1+)	1998 05 31	426	0.3−	0.2−	1998 06 14	557	0.5−	0.7+
1998 05 29	046	0.4−	0.1−	1998 05 31	426	0.0	0.4−	1998 06 14	557	0.2+	0.5+
1998 05 29	046	0.3−	0.2−	1998 05 31	426	0.2−	0.1−	1998 06 16	658	0.5−	0.2+
1998 05 29	557	0.3+	0.4−	1998 05 31	426	0.2−	0.1−	1998 06 16	658	0.4−	0.3+
1998 05 29	557	0.3−	0.1−	1998 05 31	046	0.4+	0.8−	1998 06 16	658	0.6−	0.1−
1998 05 29	557	0.0	0.3−	1998 05 31	046	0.2−	0.5−	1998 06 16	426	0.1−	0.4−
1998 05 30	711	0.1−	0.0	1998 05 31	046	0.2−	0.2−	1998 06 16	426	0.1−	0.6−
1998 05 30	711	0.0	0.1+	1998 06 01	422	0.4+	0.9−	1998 06 16	426	0.6−	0.4−
1998 05 30	711	0.0	0.1+	1998 06 01	422	0.4+	0.3−	1998 06 17	704	0.8+	1.4+
1998 05 30	670	0.6−	0.4+	1998 06 01	422	0.3+	0.1−	1998 06 17	704	0.2−	1.3−
1998 05 30	670	0.6−	0.5−	1998 06 01	046	0.8+	0.0	1998 06 17	704	0.8−	1.0+
1998 05 30	670	0.3−	0.3+	1998 06 01	046	0.8+	0.2−	1998 06 17	704	1.9+	1.9−
1998 05 30	670	1.0−	0.4+	1998 06 01	046	0.9+	0.1−	1998 06 17	704	0.6−	0.2−
1998 05 30	734	0.3−	0.6−	1998 06 01	118	0.2+	0.4−	1998 06 17	360	0.1−	0.2−
1998 05 30	734	0.7+	0.7−	1998 06 01	118	0.2+	0.3−	1998 06 17	360	0.1−	0.1−
1998 05 30	734	0.3−	1.1−	1998 06 01	557	0.3+	0.1−	1998 06 17	360	0.2−	0.2−
1998 05 30	422	0.1+	0.3+	1998 06 01	557	0.1+	0.2−	1998 06 19	587	0.1+	0.0
1998 05 30	422	0.5+	0.2−	1998 06 02	046	1.0+	0.0	1998 06 19	587	0.3+	0.2+

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1998 05 30	422	0.7+	0.2+	1998 06 02	046	1.0+	0.0	1998 06 19	587	0.3-	0.3+
1998 05 30	402	0.1+	0.1+	1998 06 02	046	0.6+	0.0	1998 06 22	046	0.2-	0.1+
1998 05 30	402	0.1-	0.2+	1998 06 02	046	0.9+	0.1-	1998 06 22	046	0.9+	0.4-
1998 05 30	402	0.0	0.5+	1998 06 02	118	0.4+	0.3+	1998 06 22	046	0.7+	0.5-
1998 05 30	108	1.0+	1.2-	1998 06 02	118	0.0	0.5+	1998 06 22	046	0.2-	0.4-
1998 05 30	108	0.1-	1.6-	1998 06 03	046	0.5-	0.2+	1998 06 27	557	0.8-	0.3+
1998 05 30	108	0.1+	0.0	1998 06 03	046	0.3-	0.1-	1998 06 27	557	1.1-	0.1-
1998 05 30	609	0.9+	0.5-	1998 06 03	046	0.8-	0.3+	1998 06 27	557	1.5-	0.2+
1998 05 30	609	0.1+	0.3+	1998 06 07	658	0.8-	0.3-	1998 06 29	046	0.4+	0.1-
1998 05 30	609	0.1-	0.0	1998 06 07	658	0.8-	0.5-	1998 06 29	046	0.6+	1.5+
1998 05 30	609	0.2-	0.1+	1998 06 07	658	0.3-	0.0	1998 06 29	046	1.3+	0.4+
1998 05 30	046	(4.3-	1.6+)	1998 06 07	118	0.3+	0.0	1998 07 19	046	0.0	0.6-
1998 05 30	046	0.0	0.3+	1998 06 07	118	0.2-	0.3+	1998 07 19	046	0.4-	0.6-
1998 05 30	046	0.1+	0.6+	1998 06 08	860	1.3+	0.4-	1998 07 19	046	0.6-	1.0-
1998 05 30	046	0.0	0.2-	1998 06 08	860	0.5+	0.4+	1998 07 19	046	0.8+	0.5-

1998 MF₄₁ = 1978 NJ

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	50.17951		(2000.0)	P	Q
<i>n</i>	0.29497528	ω	8.30651	+0.51842193	+0.84458958
<i>a</i>	2.2350074	Ω	293.01467	-0.79268012	+0.41594158
<i>e</i>	0.2025468	<i>i</i>	8.35986	-0.32077551	+0.33713653
<i>P</i>	3.34	<i>H</i>	16.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1978 07 10	675	0.7-	1.1+	1998 06 24	704	1.1+	1.1-	1998 06 28	809	0.3-	0.6+
1978 07 11	675	0.4-	0.3+	1998 06 24	704	0.4+	1.0+	1998 07 01	809	0.1-	0.1-
1978 07 12	675	0.3-	0.4+	1998 06 24	704	1.6-	0.2-	1998 07 01	809	0.3+	0.2-
1978 07 13	675	0.3+	1.0-	1998 06 24	704	(5.2-	0.9+)	1998 07 01	809	0.1+	0.7-
1978 07 14	675	1.0+	0.6-	1998 06 28	809	0.0	0.6+				
1998 06 24	704	0.1+	0.6-	1998 06 28	809	0.1+	0.6+				

1998 QE₁₃ = 1970 XC = 1977 TJ₆ = 1989 BJ₁ = 1991 RL₃₇

Id. A. Milani, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	321.34912		(2000.0)	P	Q
<i>n</i>	0.27743559	ω	297.83129	+0.28706207	-0.95535194
<i>a</i>	2.3282410	Ω	135.30184	+0.91015223	+0.24923900
<i>e</i>	0.2623257	<i>i</i>	5.71042	+0.29869429	+0.15869026
<i>P</i>	3.55	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1970 12 03	095	0.7+	3.3-	1991 09 15	675	0.6+	0.5-	1998 08 23	704	0.1+	0.7+
1977 10 08	095	0.2+	0.5+	1998 08 17	704	0.6-	1.0+	1998 08 27	699	0.2+	0.7+
1989 01 28	046	1.6+	0.8+	1998 08 17	704	0.9-	1.4+	1998 08 27	699	0.0	0.8+
1989 01 28	046	1.1+	2.7+	1998 08 17	704	0.8-	1.0+	1998 08 27	699	0.4+	0.7+
1989 01 29	046	0.8+	1.2+	1998 08 17	704	2.6-	0.9+	1998 08 27	699	0.1-	1.4+
1989 01 29	046	1.2+	1.1+	1998 08 17	704	1.1-	0.8+	1998 08 27	699	0.8+	1.0+
1989 01 30	046	1.2-	2.9+	1998 08 23	704	0.2-	1.2+	1998 08 27	699	0.1-	0.7+
1989 01 30	046	2.7-	2.1+	1998 08 23	704	1.0+	1.2+				
1991 09 15	675	0.2-	1.9-	1998 08 23	704	1.1+	0.5+				

1998 QD₃₅ = 3198 T-1 = 1997 HB₈

Id. G. V. Williams (MPC 32700), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	18.44159		(2000.0)	P	Q
<i>n</i>	0.23052325	ω	292.18237	+0.99752318	+0.06999604
<i>a</i>	2.6342656	Ω	63.80445	-0.06135388	+0.91406750
<i>e</i>	0.1066127	<i>i</i>	0.44267	-0.03439778	+0.39947611
<i>P</i>	4.28	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1971 03 25	675	0.9-	0.5-	1998 08 17	704	1.3+	0.4+	1998 09 14	699	0.4-	0.4+
1971 03 26	675	0.0	0.2+	1998 08 17	704	1.1+	1.0-	1998 09 14	699	0.5+	0.9+
1971 03 26	675	0.1+	1.1-	1998 08 17	704	1.5+	1.3+	1998 09 14	699	0.3-	1.3+

1971 03 27	675	0.1-	0.6-	1998 08 17	704	0.1-	1.7-	1998 09 18	704	0.6+	0.2-
1997 04 30	704	0.7+	0.2-	1998 08 23	704	0.7-	0.0	1998 09 18	704	1.4-	0.2+
1997 04 30	704	0.1-	0.2+	1998 08 23	704	1.0-	0.6-	1998 09 18	704	1.5+	0.6-
1997 04 30	704	0.2+	0.3-	1998 08 23	704	0.5-	0.2-	1998 09 18	704	0.5+	1.0-
1997 04 30	704	2.1-	0.2+	1998 08 23	704	1.0-	0.6+	1998 10 20	910	0.2+	0.5-
1997 05 01	704	0.5+	0.3-	1998 09 14	704	1.3+	0.6+	1998 10 20	910	0.1+	0.7-
1997 05 01	704	0.7+	2.3+	1998 09 14	704	0.6+	0.1-	1998 10 20	910	0.1+	0.6-
1997 05 01	704	0.2+	0.5-	1998 09 14	704	0.1-	1.1-	1998 10 21	910	0.1+	0.4-
1997 05 01	704	0.1-	0.2-	1998 09 14	704	1.6-	0.3+	1998 10 21	910	0.2+	0.1-
1997 05 01	704	0.3+	0.4-	1998 09 14	704	1.0-	1.0+	1998 10 21	910	0.3+	0.2-

1998 QS₅₂

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Williams

<i>M</i>	351.12021		(2000.0)	P	Q
<i>n</i>	0.30209102	ω	242.10977	-0.76186873	-0.57377325
<i>a</i>	2.1997712	Ω	261.33015	+0.64761810	-0.68344091
<i>e</i>	0.8587934	<i>i</i>	17.70046	-0.01211726	-0.45132337
<i>P</i>	3.26	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1983 06 14	413	2.2+	0.8-	1998 09 09	402	0.3+	0.5+	1998 10 18	360	0.0	0.4+
1983 06 14	413	2.2-	0.4+	1998 09 09	402	0.3+	0.9+	1998 10 20	118	0.1-	0.3-
1998 08 19	704	1.6-	1.1-	1998 09 09	118	0.1-	0.7+	1998 10 20	118	0.3+	0.2-
1998 08 19	704	0.1+	2.0+	1998 09 09	118	0.1+	0.5+	1998 10 21	557	0.4+	0.3-
1998 08 19	704	0.7+	2.0+	1998 09 09	118	0.4+	0.4+	1998 10 21	557	0.5+	0.3-
1998 08 19	704	(2.2-	1.3+)	1998 09 09	046	0.3+	0.7+	1998 10 22	402	0.5+	0.5-
1998 08 19	704	(1.2+	2.1+)	1998 09 09	046	0.2+	0.8+	1998 10 22	402	0.7+	0.8-
1998 08 25	704	0.2-	0.9-	1998 09 09	046	0.3+	0.7+	1998 10 22	402	0.6+	0.6-
1998 08 25	704	0.2-	0.1-	1998 09 10	402	0.3+	0.4+	1998 10 22	118	0.7+	0.1+
1998 08 25	704	(3.0+	1.1-)	1998 09 10	402	0.2+	0.5+	1998 10 22	118	0.5+	0.4-
1998 08 25	704	0.8+	1.4-	1998 09 10	402	0.0	0.1+	1998 10 25	402	0.0	0.5+
1998 08 26	587	0.7+	0.6-	1998 09 10	108	1.4+	0.2+	1998 10 25	402	0.7+	0.3+
1998 08 26	587	0.1-	0.8+	1998 09 10	108	1.5-	1.0+	1998 10 25	402	0.1+	0.4+
1998 08 27	704	1.1-	1.4-	1998 09 10	108	1.5+	0.6+	1998 10 25	143	0.7+	0.4+
1998 08 27	704	1.5-	1.1-	1998 09 12	402	0.0	0.5+	1998 10 25	143	0.8+	0.9+
1998 08 27	704	0.0	0.5-	1998 09 12	402	0.1+	0.2+	1998 10 25	587	0.1+	0.5+
1998 08 27	704	0.8+	0.3+	1998 09 12	402	0.2+	0.2+	1998 10 25	587	0.4+	0.3+
1998 08 27	658	0.7-	0.2+	1998 09 14	118	0.3+	0.4+	1998 10 26	118	0.3+	0.1+
1998 08 27	658	0.9-	0.8+	1998 09 14	118	0.3+	0.4+	1998 10 26	118	0.1+	0.3+
1998 08 27	658	0.1-	1.1+	1998 09 14	587	0.2-	0.0	1998 10 26	118	0.3+	0.3+
1998 08 27	557	0.2-	0.2+	1998 09 14	587	0.1-	1.1-	1998 10 27	658	0.2-	0.2-
1998 08 27	557	0.1-	0.2+	1998 09 16	693	0.6+	0.1-	1998 10 27	658	0.1-	0.3+
1998 08 27	557	0.8+	0.2+	1998 09 16	693	0.5+	0.1-	1998 10 27	658	0.2-	0.5+
1998 08 27	596	1.1-	0.1-	1998 09 16	888	0.2-	0.1+	1998 11 02	118	0.1-	0.2+
1998 08 27	596	0.7-	0.2+	1998 09 16	888	0.1-	0.1+	1998 11 02	118	1.0-	0.5+
1998 08 27	596	1.1-	0.3+	1998 09 16	888	0.1-	0.3-	1998 11 05	402	0.4-	0.2-
1998 08 28	704	0.7+	0.1+	1998 09 17	360	0.4+	0.3+	1998 11 05	402	0.4-	0.5+
1998 08 28	704	0.2-	0.2+	1998 09 17	360	0.2+	0.2+	1998 11 05	402	0.3-	0.2-
1998 08 28	704	0.1+	0.4+	1998 09 17	360	0.1+	0.3+	1998 11 08	118	0.1-	0.4+
1998 08 28	704	0.3-	0.1+	1998 09 20	118	0.4-	0.5+	1998 11 08	118	0.8+	0.0
1998 08 28	704	1.2-	1.1-	1998 09 20	118	0.6-	0.5+	1998 11 11	658	0.2+	0.6-
1998 08 28	658	0.7-	0.3+	1998 09 21	954	0.0	0.2+	1998 11 11	658	0.1+	0.6-
1998 08 28	658	1.0-	0.4+	1998 09 21	954	0.1-	0.2+	1998 11 11	658	1.0-	0.5-
1998 08 28	658	0.0	0.3+	1998 09 21	954	0.1-	0.2+	1998 11 11	046	0.0	0.4-
1998 08 28	426	0.0	0.2+	1998 09 22	658	0.1-	0.2-	1998 11 11	046	0.1-	0.4-
1998 08 28	426	0.1+	1.4+	1998 09 22	658	0.5-	0.4-	1998 11 11	046	0.1-	0.3-
1998 08 28	426	0.4+	0.7+	1998 09 22	658	0.3-	0.3-	1998 11 12	402	0.0	0.1+
1998 08 28	954	0.4-	0.3+	1998 09 22	633	0.6-	1.1-	1998 11 12	402	0.2+	0.2+
1998 08 28	954	0.5-	0.2+	1998 09 22	118	0.3+	0.8-	1998 11 12	402	0.3+	0.3+
1998 08 28	954	0.4-	0.2+	1998 09 22	633	0.1-	0.0	1998 11 12	360	0.0	0.3+
1998 08 28	954	0.6-	0.3+	1998 09 22	118	0.2+	0.9-	1998 11 12	360	0.1-	0.0
1998 08 29	704	0.6+	0.7+	1998 09 22	633	0.1+	0.1+	1998 11 12	360	0.0	0.2+
1998 08 29	704	1.4+	1.6+	1998 09 22	557	0.8+	0.6-	1998 11 16	118	0.2+	0.2-
1998 08 29	704	1.5+	0.7+	1998 09 22	557	0.5+	0.9-	1998 11 16	118	0.1-	0.1-
1998 08 29	704	0.6-	0.8-	1998 09 22	557	0.3+	1.0-	1998 11 25	402	0.8+	0.6-
1998 08 29	704	1.0-	0.1+	1998 09 23	658	0.4+	1.4-	1998 11 25	402	0.6+	0.3-
1998 08 29	658	0.8-	0.0	1998 09 23	658	0.6+	1.4-	1998 11 25	402	0.5+	0.2-

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1998 08 29	658	0.9−	0.1+	1998 09 23	658	0.4+	1.5−	1998 11 28	118	0.3+	0.3+
1998 08 29	658	0.5−	0.1−	1998 09 23	587	0.8+	0.3−	1998 11 28	118	0.2−	0.4+
1998 08 29	422	0.3−	0.4+	1998 09 23	587	0.3+	0.4−	1998 11 28	118	0.5+	0.6+
1998 08 29	422	0.1−	0.1+	1998 09 23	504	1.4+	1.0−	1998 12 09	118	0.3−	0.1+
1998 08 29	422	0.1+	0.5+	1998 09 23	504	1.3+	1.3−	1998 12 09	118	0.3−	0.2+
1998 08 29	422	0.0	0.5+	1998 09 23	504	0.4−	1.0−	1998 12 09	118	0.5+	0.2+
1998 08 29	422	0.6−	0.1−	1998 09 23	504	0.4−	0.8−	1998 12 11	670	1.7−	1.2+
1998 08 29	426	0.1+	0.1+	1998 09 23	046	0.8+	0.6−	1998 12 11	670	2.0−	0.6−
1998 08 29	426	0.0	0.4+	1998 09 23	046	0.8+	0.8−	1998 12 15	046	0.4−	0.2+
1998 08 29	426	0.4+	0.1+	1998 09 23	046	0.8+	0.9−	1998 12 15	046	0.1−	0.2+
1998 08 29	108	0.9+	0.8+	1998 09 24	704	0.2+	0.3−	1998 12 15	046	0.2+	0.1+
1998 08 29	108	(1.9+	2.4−)	1998 09 24	704	1.1+	0.9−	1998 12 16	402	0.2+	0.2−
1998 08 30	658	0.6−	0.1−	1998 09 24	704	1.2+	1.9−	1998 12 16	402	0.6+	0.4+
1998 08 30	658	0.6−	0.0	1998 09 24	704	0.0	0.8−	1998 12 16	402	0.3+	0.7+
1998 08 30	658	0.5−	0.1−	1998 09 24	704	(1.1+	3.7−)	1998 12 17	360	0.0	0.4+
1998 08 30	587	0.2+	1.3+	1998 09 24	658	0.3+	1.2−	1998 12 17	360	0.1−	0.6+
1998 08 30	587	0.7+	1.1+	1998 09 24	658	0.3+	1.3−	1998 12 17	360	0.1+	0.6+
1998 08 31	046	0.5−	0.0	1998 09 24	658	0.4+	1.0−	1998 12 19	658	0.5−	0.1+
1998 08 31	046	0.0	0.0	1998 09 25	327	1.4−	1.1−	1998 12 19	658	0.7−	0.1+
1998 08 31	046	0.5−	0.1+	1998 09 25	327	1.5−	1.1−	1998 12 19	658	0.5−	0.0
1998 08 31	046	0.5−	0.2+	1998 09 25	327	1.3−	0.9−	1998 12 29	118	0.1+	0.1+
1998 09 01	360	0.3−	0.1−	1998 09 25	327	1.5−	1.1−	1998 12 29	118	0.4+	0.3−
1998 09 01	360	0.9−	0.3+	1998 09 26	699	0.6+	0.0	1999 01 04	587	0.2−	0.2+
1998 09 01	360	0.4−	0.2−	1998 09 26	699	0.1+	0.1+	1999 01 05	402	0.4+	0.2−
1998 09 02	402	0.1−	0.1+	1998 09 26	699	0.8+	0.4−	1999 01 05	402	0.2+	0.1+
1998 09 02	402	0.3−	0.0	1998 09 27	046	0.0	0.2−	1999 01 05	402	0.1−	0.4−
1998 09 02	402	0.2−	0.1−	1998 09 27	046	0.0	0.0	1999 01 06	151	0.2+	0.7−
1998 09 03	402	0.3−	0.0	1998 09 27	046	0.1−	0.1−	1999 01 06	151	1.5+	1.0−
1998 09 03	402	0.2−	0.0	1998 09 27	046	0.2+	0.9−	1999 01 06	151	1.1+	0.3−
1998 09 03	402	0.3−	0.2+	1998 09 27	557	0.2+	0.0	1999 01 06	151	0.4+	0.2+
1998 09 03	402	0.3−	0.0	1998 09 27	557	0.0	0.0	1999 01 13	360	0.5−	0.4+
1998 09 04	954	0.2−	0.4+	1998 09 29	046	0.2−	0.2−	1999 01 13	360	0.4−	0.4+
1998 09 04	954	0.0	0.4+	1998 09 29	046	0.0	0.3−	1999 01 13	360	0.4−	0.4+
1998 09 04	954	0.2−	0.5+	1998 09 29	046	0.2−	0.2−	1999 01 17	151	0.1−	0.2+
1998 09 04	954	0.2−	0.4+	1998 10 01	402	0.3+	0.1+	1999 01 17	151	0.8+	0.2+
1998 09 04	954	0.0	0.4+	1998 10 01	402	0.4+	0.1−	1999 01 17	151	(2.2−	0.1+)
1998 09 05	954	0.3−	0.2+	1998 10 01	402	0.6+	0.4−	1999 01 19	104	0.4−	0.8+
1998 09 05	954	0.3−	0.2+	1998 10 09	046	0.6−	0.0	1999 01 19	104	0.4+	0.5+
1998 09 05	954	0.3−	0.2+	1998 10 09	046	0.7−	0.1−	1999 01 19	104	0.1−	0.1+
1998 09 06	046	0.1−	0.5−	1998 10 09	046	0.5−	0.3+	1999 01 22	402	0.5−	0.5−
1998 09 06	046	0.8+	0.0	1998 10 09	046	0.6−	0.0	1999 01 22	402	0.8−	0.4−
1998 09 06	046	0.0	0.7+	1998 10 12	587	0.7−	0.5+	1999 01 22	402	0.7−	0.9−
1998 09 06	046	0.4+	0.6+	1998 10 12	587	0.6−	1.0+	1999 03 12	422	1.0−	0.0
1998 09 07	557	0.7+	0.1−	1998 10 12	587	0.3−	0.2+	1999 03 12	422	0.8−	0.0
1998 09 07	557	0.9+	0.4−	1998 10 14	422	0.0	0.0	1999 03 12	422	0.1−	0.3+
1998 09 08	402	0.7+	0.7+	1998 10 14	422	0.2−	0.3+	1999 03 21	428	0.6+	0.2−
1998 09 08	402	0.2+	0.9+	1998 10 14	422	0.5+	0.1−	1999 03 21	428	0.6+	0.7−
1998 09 08	402	0.9+	0.3+	1998 10 18	360	0.1+	0.3−	1999 03 21	428	0.4+	0.3−
1998 09 09	402	0.0	0.8+	1998 10 18	360	0.1+	0.1+				

1998 QW₅₄ = 1964 WS = 1980 PW₃ = 1981 UA₁₇ = 1986 RP₄
= 1996 HA₈

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$\dot{M}$	2.76677		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.17027087	ω	175.68859	+0.90100889	-0.43185833		
a	3.2238574	Ω	210.00368	+0.39551200	+0.85663279		
e	0.0366623	i	4.70351	+0.17819438	+0.28227406		
P	5.79	H	12.8	G	0.15	U	2

Residuals in seconds of arc

1964 11 27	330	0.5+	1.3+	1998 08 28	699	1.5+	0.2+	1998 09 27	704	0.4+	0.7+
1964 12 03	330	(7.8−	11.0+)	1998 09 14	704	0.1−	0.0	1998 09 27	704	0.2+	1.3+
1980 08 03	675	1.2+	0.9+	1998 09 14	704	0.5−	0.2−	1998 09 27	704	0.5+	0.1+
1980 08 05	675	1.9+	1.3+	1998 09 14	704	0.7−	0.6−	1998 09 27	704	0.1−	0.1+
1981 10 24	095	2.2−	2.8+	1998 09 15	699	0.3−	0.3+	1998 10 19	699	0.1+	0.0
1986 09 06	071	3.3−	0.2−	1998 09 15	699	0.0	0.2+	1998 10 19	699	0.2+	0.4+

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1986 09 06	071	1.7−	1.3−	1998 09 15	699	0.2−	0.2+	1998 10 19	699	0.3−	0.6+
1996 04 17	809	1.2+	2.8+	1998 09 18	704	0.2−	0.2−	1998 11 11	699	0.0	0.3−
1996 04 17	809	0.2+	1.7+	1998 09 18	704	0.7+	0.8−	1998 11 11	699	0.0	0.1+
1996 04 17	809	0.3−	1.4+	1998 09 18	704	0.7−	0.5+	1998 11 11	699	0.3−	1.2+
1996 04 18	809	0.2+	0.7−	1998 09 18	704	0.7+	0.8−	1998 12 08	699	0.7−	1.1+
1996 04 18	809	0.2+	0.7−	1998 09 18	704	0.3+	1.0−	1998 12 08	699	0.4+	1.2−
1996 04 18	809	0.6−	1.4−	1998 09 26	704	0.8−	0.4+	1998 12 08	699	0.5+	1.0−
1998 08 27	699	0.8+	0.4+	1998 09 26	704	0.0	0.5−	1998 12 15	699	0.0	0.0
1998 08 27	699	1.4+	0.8−	1998 09 26	704	0.2+	0.0	1998 12 15	699	0.1−	0.0
1998 08 27	699	0.7−	0.8+	1998 09 26	704	0.8−	0.2−	1998 12 15	699	0.3−	0.1−
1998 08 28	699	1.7+	0.8−	1998 09 26	704	0.4−	1.3−				
1998 08 28	699	1.2+	0.1−	1998 09 27	704	0.7−	0.0				

1998 QK₅₆ = 1986 EC = 1986 EY₄

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M	16.68529		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.38111774	ω	285.75137	-0.16186487	-0.98644381
a	1.8840682	Ω	173.38469	$+0.97112090$	-0.16408921
e	0.5125768	i	13.54849	$+0.17528254$	-0.00182640
P	2.59	H	17.5	G 0.15	U 1

Residuals in seconds of arc

1986 03 06	675	0.2+	0.0	1998 09 20	046	0.2−	0.7−	1998 11 15	360	0.1+	0.4+
1986 03 06	675	0.2−	0.0	1998 09 20	046	0.4−	0.3−	1998 11 15	360	0.9−	0.8+
1986 03 11	809(15.8−	61.7+)		1998 09 20	046	0.5−	0.5−	1998 11 15	360	0.1−	1.1+
1986 03 11	809(17.1+	62.2−)		1998 09 20	046	0.0	0.5−	1998 12 23	422	0.5−	0.9+
1998 08 28	704	0.0	0.6−	1998 09 23	557	0.5−	0.1−	1998 12 23	422	0.9+	0.1+
1998 08 28	704	0.6−	0.9+	1998 09 23	557	0.1−	0.3+	1998 12 23	422	0.4+	0.7−
1998 08 28	704	0.6−	0.9+	1998 09 25	046	0.1−	0.1+	1999 01 15	422	0.5−	0.2+
1998 08 28	704	1.5−	0.2−	1998 09 25	046	0.2−	0.1+	1999 01 15	422	0.2−	0.0
1998 08 29	704	0.1−	0.7+	1998 09 25	046	0.4−	0.3+	1999 01 15	422	0.6−	0.0
1998 08 29	704	0.2+	0.6+	1998 09 25	046	0.2−	0.0	1999 02 19	711	0.1−	0.6−
1998 08 29	704	0.7+	0.9−	1998 09 27	071	(3.3+	0.1+)	1999 02 19	711	0.4−	0.7+
1998 08 29	704	1.0+	0.6+	1998 09 27	071	1.1+	0.2+	1999 02 20	711	0.8−	0.1−
1998 08 29	704	(3.1−	0.1−)	1998 09 27	071	0.9+	0.4−	1999 02 20	711	0.5−	0.2−
1998 08 29	658	0.1+	0.1+	1998 09 27	071	0.6+	0.3+	1999 03 12	118	0.1−	0.0
1998 08 29	658	0.1−	0.1+	1998 09 27	071	0.3−	0.5+	1999 03 12	118	0.1+	0.0
1998 08 29	658	0.3+	0.0	1998 09 27	071	1.9+	0.1−	1999 03 12	691	1.3−	0.8+
1998 08 29	422	0.0	1.5+	1998 09 28	670	1.5+	0.6+	1999 03 12	691	1.0−	0.7+
1998 08 29	422	(2.4−	0.5+)	1998 09 28	670	0.2−	0.3+	1999 03 12	691	1.1−	0.8+
1998 08 29	422	(2.7−	1.3−)	1998 09 28	670	0.9−	0.6+	1999 03 12	422	0.5−	0.2−
1998 08 29	426	0.1+	0.4+	1998 09 30	046	0.0	0.3+	1999 03 12	422	0.9−	0.1+
1998 08 29	426	0.9+	0.5+	1998 09 30	046	0.4+	0.2−	1999 03 13	046	0.9+	0.2+
1998 08 29	426	0.3−	0.3+	1998 09 30	046	0.1−	0.2−	1999 03 13	046	0.9+	0.2−
1998 08 30	658	0.0	0.2+	1998 09 30	046	0.5−	0.4−	1999 03 13	046	0.6+	0.5+
1998 08 30	658	0.2+	0.5−	1998 10 01	422	0.5−	0.6+	1999 03 13	046	0.5+	0.1+
1998 08 30	658	0.5+	0.2+	1998 10 01	422	0.1+	0.1−	1999 03 16	360	0.0	0.1+
1998 08 30	422	0.4−	0.6+	1998 10 01	422	0.3+	0.0	1999 03 16	360	0.1+	0.3+
1998 08 30	422	0.3−	0.1−	1998 10 15	758	1.2+	0.5−	1999 03 16	360	0.0	0.0
1998 08 31	557	0.4−	0.0	1998 10 15	758	0.2−	0.6+	1999 03 17	402	0.9+	0.2+
1998 08 31	557	0.4−	0.5+	1998 10 15	758	1.3−	0.1+	1999 03 17	402	0.5+	0.4−
1998 09 01	046	0.6+	0.9+	1998 10 16	118	0.5−	0.5+	1999 03 17	402	0.6+	0.6−
1998 09 01	046	0.2+	0.5+	1998 10 16	118	0.2−	0.6+	1999 03 25	118	0.3−	0.9−
1998 09 01	046	0.5−	0.2+	1998 10 16	118	0.2−	0.6+	1999 03 25	118	1.6+	0.1−
1998 09 01	422	1.7−	1.1−	1998 10 18	844	0.8−	0.1−	1999 03 26	860	1.3−	1.3+
1998 09 18	426	0.6+	0.7−	1998 10 18	844	1.3+	1.2−	1999 03 26	860	0.2+	0.7+
1998 09 18	426	0.3−	0.8−	1998 10 18	844	0.3−	1.2−	1999 03 27	118	0.8+	0.0
1998 09 18	426	0.3−	0.1−	1998 10 23	422	0.2+	0.4−	1999 03 27	118	1.1+	0.5+
1998 09 19	557	0.1−	0.3+	1998 10 23	422	0.1−	0.2+				
1998 09 19	557	1.0−	0.4−	1998 10 23	422	0.3−	0.6−				

1999 APR. 2

M.P.C. 34221

1998 QO₉₃ = 1996 KR₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	346.26696		(2000.0)			P		Q			
<i>n</i>	0.23865211	ω	227.52663			−0.25187541		−0.94919174			
<i>a</i>	2.5741026	Ω	237.99202			+0.94032045		−0.19394515			
<i>e</i>	0.1264770	<i>i</i>	12.85515			+0.22881486		−0.24783124			
<i>P</i>	4.13	<i>H</i>	13.3	<i>G</i>	0.15		<i>U</i>	4			
Residuals in seconds of arc											
1996 05 20	566	0.4−	0.8+	1998 09 17	327	0.3+	0.3+	1998 12 15	138	0.5+	0.0
1996 05 20	566	0.3−	0.7+	1998 09 17	327	0.5+	0.1+	1998 12 22	704	0.5−	0.2+
1996 05 20	566	0.4−	0.7+	1998 09 17	327	0.6+	0.3+	1998 12 22	704	0.4−	0.0
1996 06 20	566	0.8+	0.2+	1998 09 17	327	0.2+	0.4+	1998 12 22	704	0.0	0.3−
1996 06 20	566	1.1+	0.2+	1998 09 21	327	1.1+	0.1−	1998 12 22	704	0.5−	0.8−
1996 06 20	566	0.2−	0.9+	1998 09 21	327	1.5+	0.0	1998 12 22	704	0.1−	0.6+
1998 08 28	704	0.1−	0.6+	1998 09 21	327	1.2+	0.1−	1999 02 04	704	1.1+	0.7+
1998 08 28	704	(2.1+ 0.4+)		1998 09 29	704	1.0+	0.0	1999 02 04	704	0.8+	0.3+
1998 08 28	704	0.4+	0.1+	1998 09 29	704	0.2+	1.6+	1999 02 04	704	0.5+	0.1+
1998 08 28	704	1.7−	0.1−	1998 09 29	704	0.4+	0.3+	1999 02 04	704	0.0	0.9+
1998 08 31	704	0.7+	0.8+	1998 09 29	704	(2.1+ 1.9−)		1999 02 04	699	0.5−	1.8+
1998 08 31	704	0.4−	1.2−	1998 09 29	704	0.6−	0.5+	1999 02 04	699	0.8−	0.2+
1998 08 31	704	1.8−	0.7−	1998 12 13	952	(0.2− 3.0−)		1999 02 04	699	0.2−	0.5+
1998 08 31	704	1.1−	1.1+	1998 12 13	952	0.0	1.9−	1999 02 15	699	0.3−	0.4−
1998 08 31	704	0.9+	1.1+	1998 12 15	138	0.3−	0.7−	1999 02 15	699	1.1−	0.1−
1998 09 06	327	0.2−	0.1+	1998 12 15	138	0.1+	0.3−	1999 02 15	699	0.5−	0.4+
1998 09 06	327	0.5−	0.6+	1998 12 15	138	0.1+	0.3−				
1998 09 06	327	0.1−	0.4+	1998 12 15	138	0.2+	1.1−				

1998 RD₂ = 1993 FG₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	317.25060		(2000.0)		P		Q				
<i>n</i>	0.26941632	ω	303.20324		+0.28927930		−0.95639937				
<i>a</i>	2.3742154	Ω	129.92907		+0.89478861		+0.25523765				
<i>e</i>	0.1464185	<i>i</i>	3.00657		+0.34010416		+0.14196474				
<i>P</i>	3.66	<i>H</i>	15.8		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1993 03 19	809	0.4−	0.0	1998 09 12	426	0.1+	0.3+	1998 09 15	426	0.7−	0.2−
1993 03 20	809	0.4+	0.6−	1998 09 12	426	0.1+	0.5−	1998 09 24	426	0.4−	0.2−
1993 03 24	809	0.0	0.6+	1998 09 15	426	0.0	0.3+	1998 09 24	426	0.0	0.0
1998 09 12	426	0.2+	0.0	1998 09 15	426	0.1+	0.2+	1998 09 24	426	0.6+	0.2+

1998 RP₁₉ = 1981 XQ₁ = 1996 DB₂

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	352.05478		(2000.0)			P		Q			
<i>n</i>	0.22332600	ω	94.18003			+0.89573061		−0.44429402			
<i>a</i>	2.6905632	Ω	292.19882			+0.40055305		+0.82246801			
<i>e</i>	0.0901950	<i>i</i>	1.01595			+0.19293505		+0.35517488			
<i>P</i>	4.41	<i>H</i>	14.4			<i>G</i>	0.15	<i>U</i>	3		
Residuals in seconds of arc											
1981 12 04	511	0.4−	0.2+	1996 02 24	587	0.4−	0.2+	1998 09 18	704	0.1+	1.5−
1981 12 04	511	0.2+	1.1+	1996 02 24	587	0.9−	2.0−	1998 09 18	704	0.8+	0.5−
1996 02 17	587	0.7−	0.9−	1998 09 14	704	0.7+	0.2+	1998 09 23	691	0.7−	0.3+
1996 02 17	587	0.2−	0.6+	1998 09 14	704	0.3+	1.0−	1998 09 23	691	0.7−	0.6−
1996 02 18	587	0.3+	0.3−	1998 09 14	704	0.9−	1.2−	1998 09 23	691	0.3−	0.3−
1996 02 20	566	0.8−	0.6+	1998 09 14	704	0.0	0.5−	1998 09 26	691	0.3+	0.5−
1996 02 20	566	0.4+	0.6+	1998 09 14	704	0.0	0.3+	1998 09 26	691	0.3+	0.2−
1996 02 20	566	0.2+	0.1+	1998 09 14	699	0.2+	0.1+	1998 09 26	691	0.6+	0.3−
1996 02 22	587	0.3+	1.5−	1998 09 14	699	0.4+	0.4+	1998 12 08	910	0.0	0.2−
1996 02 23	587	0.4−	0.5−	1998 09 14	699	0.5+	0.2−	1998 12 08	910	0.2+	0.3+
1996 02 23	587	0.3+	1.2−	1998 09 18	704	0.8−	1.0+	1998 12 08	910	0.2+	0.2−
1996 02 24	587	0.1+	0.9−	1998 09 18	704	0.9+	0.2−				

1998 RX₃₂ = 1982 YN₂ = 1986 WO₄ = 1996 FV₁

Id. A. Milani, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	323.39387		(2000.0)			P		Q			
n	0.23852889	ω	294.51422			+0.19264496		−0.98100175			
a	2.5749891	Ω	144.35473			+0.91390872		+0.17088212			
e	0.1924018	i	2.25004			+0.35729367		+0.09184150			
P	4.13	H	14.4	G	0.15	U	2				
Residuals in seconds of arc											
1982 12 22	095	0.2−	1.1+	1996 03 21	566	0.3+	0.4+	1998 09 18	704	0.3−	0.5−
1986 11 25	010	0.5+	0.4−	1996 03 21	566	0.0	0.5−	1998 09 18	704	0.7−	0.3−
1986 11 25	010	3.4−	0.8−	1996 03 22	566	0.9+	0.3−	1998 09 18	704	0.8+	0.7−
1986 11 25	010	0.3+	0.3+	1996 03 22	566	0.7+	0.3−	1998 09 18	704	0.2+	0.1+
1986 11 25	010	2.9+	0.2+	1996 03 22	566	0.7+	0.4−	1998 09 18	704	0.9−	1.2−
1996 03 17	566	0.8−	2.7+	1998 09 14	704	0.0	0.2+	1998 10 12	699	0.2−	0.1−
1996 03 17	566	0.2−	0.6+	1998 09 14	704	0.1−	2.1+	1998 10 12	699	0.3+	0.4−
1996 03 17	566	0.5−	0.8+	1998 09 14	704	0.9−	2.0+	1998 10 12	699	1.3+	0.1−
1996 03 21	566	0.1+	0.2−	1998 09 14	704	0.5−	1.9+				

1998 RN₃₅ = 1993 QS₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	45.45695		(2000.0)		P		Q				
n	0.20137040	ω	329.21652		+0.85554696		+0.51772518				
a	2.8827410	Ω	359.60352		−0.46867050		+0.77431260				
e	0.0550616	i	1.72355		−0.21997128		+0.36386899				
P	4.89	H	14.0		G	0.15	U	5			
Residuals in seconds of arc											
1993 08 20	675	(0.8+ 3.1−)		1998 09 18	704	0.3+	0.7−	1998 09 29	120	0.7−	0.4−
1993 08 20	675	0.9+	1.6−	1998 09 18	704	0.7+	0.0	1998 09 29	120	0.3+	0.8−
1993 08 24	675	0.6−	0.9+	1998 09 18	704	0.0	0.8+	1998 09 29	120	0.0	0.1−
1993 08 24	675	(1.9− 2.5+)		1998 09 18	704	0.3+	0.8+	1998 09 29	120	0.1−	0.2+
1998 09 14	704	0.6+	0.7+	1998 09 18	704	0.6+	0.0	1999 01 05	910	0.4+	0.1−
1998 09 14	704	0.4−	1.0+	1998 09 23	120	0.8−	0.4+	1999 01 05	910	0.1−	0.1−
1998 09 14	704	0.9−	0.2−	1998 09 23	120	0.3+	0.2−	1999 01 05	910	0.0	0.3−
1998 09 14	704	0.2+	0.3−	1998 09 23	120	0.7−	0.1−				

1998 RZ₄₈ = 1989 SY₈

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	21.57630		(2000.0)			P		Q			
n	0.21990501	ω	170.35102			+0.99327878		−0.11493385			
a	2.7183954	Ω	196.26782			+0.10267024		+0.92949669			
e	0.2497534	i	2.80163			+0.05344237		+0.35046557			
P	4.48	H	15.7	G	0.15		U	5			
Residuals in seconds of arc											
1989 09 24	809	1.3−	0.0	1998 09 14	704	0.1−	2.1−	1998 09 26	704	1.3−	0.0
1989 09 24	809	0.5−	0.0	1998 09 14	704	1.3+	0.2−	1998 09 26	704	0.8−	0.5+
1989 09 24	809	0.6+	0.1+	1998 09 14	704	1.0−	0.4−	1998 09 26	704	1.7−	0.8+
1989 09 25	809	0.6−	0.4+	1998 09 18	704	0.8+	1.1+	1998 09 27	704	0.3+	1.0−
1989 09 25	809	0.2−	0.2+	1998 09 18	704	0.8−	2.3+	1998 09 27	704	1.5+	0.2+
1989 09 25	809	0.5+	0.2+	1998 09 18	704	0.3+	0.1+	1998 09 27	704	0.6+	0.4−
1989 09 26	809	0.2+	0.5−	1998 09 18	704	0.3−	0.1−	1998 09 27	704	0.6+	0.3−
1989 09 26	809	0.5+	0.5−	1998 09 18	704	0.0	0.1−	1998 09 27	704	1.0+	0.8−
1989 09 26	809	0.9+	0.5−	1998 09 26	704	0.7−	0.3−				
1998 09 14	704	0.5+	0.6+	1998 09 26	704	0.2−	0.2+				

1998 RX₅₉ = 1997 EO₄₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	125.42091		(2000.0)	P		Q	
<i>n</i>	0.27660575	ω	48.39818	-0.18088318	+0.98217841		
<i>a</i>	2.3328953	Ω	211.29019	-0.92906462	-0.18767259		
<i>e</i>	0.1029328	<i>i</i>	5.64161	-0.32267664	-0.01022568		
<i>P</i>	3.56	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1997 03 11	809	0.6-	0.0	1998 09 14	704	0.7-	1.0-
1997 03 11	809	0.5-	0.8-	1998 09 18	704	1.1+	1.3+
1997 03 11	809	0.8-	0.7-	1998 09 18	704	(2.0+	1.2-)
1997 03 12	809	1.4+	0.6+	1998 09 18	704	1.0+	0.7+
1997 03 12	809	0.8+	0.3+	1998 09 18	704	1.8+	0.0
1997 03 12	809	0.7-	0.5+	1998 09 18	704	1.5+	0.1-
1997 03 12	809	0.3-	0.1+	1998 09 26	704	0.2-	0.2+
1997 03 12	809	0.0	0.1-	1998 09 26	704	0.0	1.1-

1998 SR₁ = 1998 UT₃₃ = 1991 VS₁₂ = 1995 YV₂₄Id. G. V. Williams (*MPC* 32725), A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	43.06166		(2000.0)	P		Q	
<i>n</i>	0.27904671	ω	254.00873	+0.98159338	+0.17383362		
<i>a</i>	2.3192707	Ω	95.92999	-0.13016583	+0.91200421		
<i>e</i>	0.1961269	<i>i</i>	4.56111	-0.13975443	+0.37152414		
<i>P</i>	3.53	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	3
Residuals in seconds of arc							
1991 11 09	808	3.9-	1.3+	1998 09 19	910	0.4+	0.2+
1991 11 09	808	1.2+	0.1+	1998 09 19	910	0.4+	0.3+
1991 11 12	808	1.1+	0.1+	1998 09 20	910	0.4+	0.3+
1991 11 12	808	0.9+	0.2+	1998 09 22	910	0.4+	0.0
1995 12 24	566	0.3+	0.2-	1998 09 23	910	0.3+	0.0
1995 12 24	566	0.3-	0.1-	1998 09 23	910	0.3+	0.1-
1995 12 24	566	0.6+	0.4-	1998 10 14	704	0.7-	0.2+
1995 12 25	566	0.2+	0.2-	1998 10 14	704	1.5-	0.0
1995 12 25	566	0.5-	0.4+	1998 10 14	704	0.3-	0.1+
1995 12 25	566	0.2-	0.1+	1998 10 14	704	0.3-	0.0
1998 09 16	910	0.1-	0.0	1998 10 14	704	0.3-	0.3+
1998 09 16	910	0.0	0.0	1998 10 15	704	0.2-	0.0
1998 09 17	910	0.2+	0.0	1998 10 15	704	1.2-	0.3-
1998 09 17	910	0.0	0.0	1998 10 15	704	0.3+	0.5+
1998 09 18	910	0.1+	0.1+	1998 10 15	704	0.4+	0.2-
1998 09 18	910	0.3+	0.1+	1998 10 15	704	1.0-	0.4-

1998 SE₇ = 1994 NA₃

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	102.34243		(2000.0)	P		Q	
<i>n</i>	0.26911847	ω	61.28794	-0.11777453	+0.99303611		
<i>a</i>	2.3759668	Ω	201.94895	-0.91378898	-0.10952103		
<i>e</i>	0.1989891	<i>i</i>	0.44569	-0.38874010	-0.04341010		
<i>P</i>	3.66	<i>H</i>	16.4	<i>G</i>	0.15	<i>U</i>	6
Residuals in seconds of arc							
1994 07 08	809	0.2-	0.4-	1994 07 11	809	1.3-	0.3-
1994 07 08	809	2.0-	1.5-	1994 07 11	809	0.2+	0.6+
1994 07 08	809	0.7+	0.0	1994 07 12	809	0.5-	0.9+
1994 07 09	809	1.4+	0.5-	1994 07 12	809	(0.2+	2.3+)
1994 07 09	809	0.8+	0.1-	1994 07 12	809	0.3+	0.4+
1994 07 09	809	0.5+	0.7+	1998 09 20	691	0.1+	0.2-
1994 07 11	809	0.1+	0.3+	1998 09 20	691	0.2+	0.4-

1998 SJ₄₈ = 1993 TD₄₂

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	30.73100		(2000.0)	P		Q	
<i>n</i>	0.20243500	ω	20.67833	+0.96202724	-0.27294326		
<i>a</i>	2.8726253	Ω	355.15932	+0.24634326	+0.87192567		
<i>e</i>	0.1097780	<i>i</i>	1.60046	+0.11755246	+0.40650657		
<i>P</i>	4.87	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1993 10 10	809	(1.9+	3.3+)	1993 10 22	809	0.1-	1.2-
1993 10 10	809	0.7+	1.4+	1998 09 27	691	0.9+	0.4-
1993 10 10	809	0.7-	0.5+	1998 09 27	691	0.9+	0.5-
1993 10 22	809	0.3-	0.1+	1998 09 27	691	1.0+	0.4-
1993 10 22	809	0.0	0.1-	1998 09 30	691	0.8-	0.2-
				1998 09 30	691	0.5-	0.7-
				1998 10 21	910	0.3-	0.6+
				1998 10 21	910	0.0	0.5+
				1998 10 22	910	0.2-	0.5+

1998 SK₅₅ = 1994 PP₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	344.55863		(2000.0)	P		Q	
<i>n</i>	0.25594707	ω	242.04540	+0.42585727	-0.90478874		
<i>a</i>	2.4567970	Ω	182.75136	+0.84212625	+0.39705254		
<i>e</i>	0.1864119	<i>i</i>	2.03844	+0.33086095	+0.15396950		
<i>P</i>	3.85	<i>H</i>	16.3	<i>G</i>	0.15	<i>U</i>	6
Residuals in seconds of arc							
1994 08 10	809	1.4+	0.5+	1998 09 16	699	0.6+	0.3-
1994 08 10	809	1.1-	0.3-	1998 09 25	699	0.3+	0.7+
1994 08 10	809	0.7-	0.1-	1998 09 25	699	0.4-	0.5+
1994 08 11	809	0.3+	0.2+	1998 09 25	699	0.8-	0.0
1994 08 11	809	0.2+	0.4-	1998 09 25	327	0.1-	0.4+
1994 08 11	809	(2.7-	1.3-)	1998 09 25	327	0.2+	0.2+
1998 09 16	699	0.1-	1.2+	1998 09 25	327	0.3-	0.3-
1998 09 16	699	0.3-	0.6-	1998 09 26	704	0.7-	0.6-
				1998 09 26	704	1.6+	2.5-
				1998 09 26	704	0.9-	0.1+
				1998 09 27	704	0.6-	0.2-
				1998 09 27	704	0.5-	0.4+
				1998 09 27	704	0.1+	0.4+
				1998 09 27	704	0.7+	0.1+
				1998 09 27	704	1.3+	0.6+

1998 SG₅₈ = 1078 T-2 = 1997 EY₅₃Id. G. V. Williams (*MPC* 33031), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	79.73473		(2000.0)	P		Q	
<i>n</i>	0.27623845	ω	301.99318	+0.58361194	+0.81199646		
<i>a</i>	2.3349628	Ω	3.73891	-0.69969308	+0.50764480		
<i>e</i>	0.1249269	<i>i</i>	6.75599	-0.41210035	+0.28802518		
<i>P</i>	3.57	<i>H</i>	15.9	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1973 09 19	675	1.2+	1.0-	1973 10 05	675	1.1+	0.1-
1973 09 20	675	1.8-	0.1+	1973 10 05	675	0.5+	1.5+
1973 09 24	675	0.7-	0.8-	1997 03 08	809	0.8+	0.2-
1973 09 24	675	0.5-	1.7-	1997 03 08	809	0.3+	1.7-
1973 09 25	675	0.8-	0.6-	1997 03 08	809	0.3+	2.8-
1973 09 25	675	0.6+	0.4-	1997 03 09	809	0.5-	2.1+
1973 09 29	675	0.2+	1.0+	1997 03 09	809	0.0	2.3+
1973 09 29	675	0.7+	0.4-	1997 03 09	809	0.1-	1.6+
1973 09 30	675	0.7+	0.5+	1998 09 17	699	0.6+	0.9+
1973 09 30	675	1.3-	1.6+	1998 09 17	699	0.5-	1.2+
1973 10 04	675	1.0+	0.6-	1998 09 17	699	0.4-	0.6+
1973 10 04	675	0.3-	0.0	1998 09 25	699	0.3-	0.4-
				1998 09 25	699	0.1-	0.3+
				1998 09 25	699	0.4-	0.1-
				1998 09 26	704	0.6-	1.0+
				1998 09 26	704	0.0	0.0
				1998 09 26	704	0.1-	0.9-
				1998 09 26	704	0.7-	0.1-
				1998 09 26	704	1.4-	0.4-
				1998 09 27	704	0.3+	0.0
				1998 09 27	704	0.7+	1.0+
				1998 09 27	704	0.9+	0.5-
				1998 09 27	704	0.7+	0.3-

1998 SW₆₀ = 1990 FW

Id. A. Milani

1999 APR. 2

M.P.C. 34223

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	66.59869	(2000.0)	P	Q
<i>n</i>	0.16967769	ω 302.44198	+0.65171650	+0.75628081
<i>a</i>	3.2313665	Ω 8.93611	-0.50989034	+0.49298046
<i>e</i>	0.0653360	<i>i</i> 21.72172	-0.56149572	+0.43012743
<i>P</i>	5.81	<i>H</i> 12.1	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1990 03 19	896	(6.9- 0.3+)	Y	1998 09 14	704	0.0	0.7+	1998 09 25	699	0.2+	0.0	
1990 03 20	896	0.7+	0.6+	Y	1998 09 14	704	0.1-	0.1+	1998 09 25	699	0.0	0.2-
1990 03 22	896	(8.9+ 1.6+)	Y	1998 09 17	699	0.3+	0.2-	1998 09 26	704	0.3-	0.7-	
1990 03 26	896	2.4-	0.9+	Y	1998 09 17	699	0.1+	0.1-	1998 09 26	704	1.1-	1.2-
1990 03 26	896	1.5+	1.0+		1998 09 17	699	0.2+	0.1-	1998 09 26	704	0.9-	1.1-
1990 03 27	675	0.1-	1.0-		1998 09 18	704	0.5+	1.0+	1998 09 26	704	1.0-	1.5-
1990 03 27	675	0.4-	1.7-		1998 09 18	704	0.5+	0.7+	1998 09 26	704	0.7-	0.3-
1990 03 30	095	0.7-	0.4-		1998 09 18	704	0.1-	0.6+	1998 09 27	704	1.0+	0.1-
1990 03 30	095	2.1-	3.4-		1998 09 18	704	1.0+	0.9+	1998 09 27	704	0.1+	0.4-
1990 04 02	896	2.4+	3.0+	Y	1998 09 18	704	0.0	0.5+	1998 09 27	704	0.1+	0.1+
1998 09 14	704	0.1-	0.3-		1998 09 25	699	0.1-	0.1+	1998 09 27	704	1.6+	0.4+

1998 ST₆₆ = 1993 RG₁₂

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	101.02069	(2000.0)	P	Q
<i>n</i>	0.21095157	ω 103.87990	+0.25776036	+0.96620563
<i>a</i>	2.7947794	Ω 181.06707	-0.93032144	+0.24748499
<i>e</i>	0.2064603	<i>i</i> 7.73742	-0.26088620	+0.07209624
<i>P</i>	4.67	<i>H</i> 14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1993 09 14	809	(3.1+ 1.9+)		1998 09 20	809	(0.9- 2.6-)	1998 09 21	809	0.4-	0.0
1993 09 14	809	0.9+ 1.1+		1998 09 20	809	1.3- 1.8-	1998 10 28	704	0.4+	1.2-
1993 09 14	809	1.4+ 0.9+		1998 09 20	809	1.1+ 0.4+	1998 10 28	704	0.7+	0.4+
1993 09 19	809	1.2+ 0.5+		1998 09 20	809	0.2+ 0.7-	1998 10 28	704	0.9-	1.8+
1993 09 19	809	1.5+ 0.2-		1998 09 20	809	0.6- 0.2+	1998 10 28	704	0.2+	0.8+
1993 09 19	809	0.2- 0.1+		1998 09 21	809	0.6+ 0.6+	1998 10 29	704	1.4+	0.3-
1993 09 20	691	1.9- 0.9-		1998 09 21	809	0.4+ 1.8+	1998 10 29	704	0.8-	1.7-
1993 09 20	691	1.6- 0.8-		1998 09 21	809	0.8- 0.1+	1998 10 29	704	0.6+	1.4+
1993 09 20	691	1.2- 0.8-		1998 09 21	809	0.4- 0.1-	1998 10 29	704	0.4+	0.0
1998 09 20	809	1.1+ 0.5-		1998 09 21	809	0.3- 0.2+	1998 10 29	704	1.5-	1.1-

1998 SQ₁₄₅ = 1963 GB = 1981 TR₄ = 1991 RT₁₃ = 1997 JL₁₈Id. G. V. Williams (*MPC* 33298, unpublished), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	194.85019	(2000.0)	P	Q
<i>n</i>	0.29212201	ω 17.47195	-0.78050929	+0.62384184
<i>a</i>	2.2495373	Ω 201.28263	-0.58601155	-0.75259424
<i>e</i>	0.1204312	<i>i</i> 6.37960	-0.21770557	-0.21076830
<i>P</i>	3.37	<i>H</i> 13.3	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1963 04 15	760	(3.3+ 1.1+)	X	1998 09 20	809	(0.1- 3.0+)	1998 10 29	704	0.1-	0.6+
1981 10 04	688	1.4+ 1.8+		1998 09 21	809	(1.9+ 3.9+)	1998 11 10	704	0.5-	0.1+
1981 10 04	688	1.2- 1.0-		1998 09 21	809	(1.8+ 3.7+)	1998 11 10	704	0.3+	2.1-
1991 09 13	675	0.8+ 1.1-		1998 09 21	809	(1.6+ 3.7+)	1998 11 10	704	0.9-	0.6+
1991 09 13	675	0.1- 0.9-		1998 10 10	699	1.5+ 0.5+	1998 11 10	704	1.2-	0.6+
1991 09 15	675	0.1- 0.6-		1998 10 10	699	0.1+ 0.0	1998 11 11	704	0.2+	0.7+
1991 09 15	675	0.7- 0.1-		1998 10 10	699	0.1+ 1.6+	1998 11 11	704	0.1+	0.1+
1997 05 03	809	0.6+ 0.1-		1998 10 28	704	0.0 0.2+	1998 11 11	704	1.0+	0.3-
1997 05 03	809	0.2+ 0.2+		1998 10 28	704	0.4- 0.3-	1998 11 11	704	0.8+	0.4-
1997 05 03	809	0.2- 0.2+		1998 10 28	704	0.1- 0.3+	1998 11 11	704	0.7+	0.5-
1997 05 04	809	0.2+ 1.1+		1998 10 28	704	0.1+ 0.4+	1999 01 11	704	1.4-	0.3-
1997 05 04	809	0.0 1.2+		1998 10 29	704	0.3- 0.0	1999 01 11	704	0.7-	0.9+
1997 05 04	809	0.4- 1.5+		1998 10 29	704	0.3- 1.3+	1999 01 11	704	1.0-	0.6+

1998 09 20	809	(1.5+ 2.8+)		1998 10 29	704	0.7-	0.8-	1999 01 11	704	0.5+	2.7+
1998 09 20	809	(0.6+ 3.3+)		1998 10 29	704	0.3+	0.7+				

1998 TE₂₉ = 1976 UR = 1991 FX

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	268.49508	(2000.0)	P	Q
<i>n</i>	0.21609512	ω 295.54516	-0.94636475	-0.31127415
<i>a</i>	2.7502536	Ω 226.45379	+0.32233428	-0.89111663
<i>e</i>	0.1647652	<i>i</i> 6.86318	+0.02223461	-0.33018110
<i>P</i>	4.56	<i>H</i> 13.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1976 10 31	809	0.6+	0.0	1998 10 13	910	1.3+	0.5+	1998 11 10	704	1.2+	1.6+
1976 11 01	809	0.1+	0.1+	1998 10 15	691	0.2-	0.1+	1998 11 11	704	0.7-	0.9-
1976 11 01	809	0.5-	0.3+	1998 10 15	691	0.7-	0.1+	1998 11 11	704	0.2+	0.6-
1976 11 02	809	0.1-	0.8-	1998 10 15	691	0.5-	0.1+	1998 11 11	704	0.3-	0.4-
1976 11 02	809	0.2+	0.8+	1998 10 19	699	0.1+	0.3-	1998 11 11	704	0.8-	1.1-
1991 03 18	402	0.4+	0.1-	1998 10 19	699	0.0	0.8+	1998 11 11	704	0.5-	0.9-
1991 03 18	402	0.2-	0.6+	1998 10 19	699	0.8-	0.6+	1998 11 14	699	0.7-	0.4+
1991 03 19	402	(3.7- 1.3-)		1998 10 20	691	0.1-	0.4+	1998 11 14	699	0.4-	1.0+
1991 03 19	402	(0.1+ 3.9+)		1998 10 20	691	0.0	0.1-	1998 11 14	699	0.3+	0.6+
1996 05 21	566	0.0	0.4+	1998 10 20	691	0.1-	0.1-	1998 12 08	699	0.5-	0.1+
1996 05 21	566	0.4+	0.7+	1998 11 10	704	0.4-	0.2+	1998 12 08	699	0.1-	0.5+
1996 05 21	566	0.1-	0.5+	1998 11 10	704	0.3+	0.4-	1998 12 08	699	0.7+	0.2+
1998 10 13	910	1.1+	0.7+	1998 11 10	704	1.1+	0.7-				
1998 10 13	910	0.9+	0.7+	1998 11 10	704	0.8-	1.0-				

1998 UY₁₅ = 1976 SB₆ = 1976 UX₈Id. A. Gnädig, B. G. Marsden (d, *MPC* 9065)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	48.75333	(2000.0)	P	Q
<i>n</i>	0.26902234	ω 328.16995	+0.98538365	+0.16445393
<i>a</i>	2.3765329	Ω 22.49227	-0.12147608	+0.86120136
<i>e</i>	0.2460765	<i>i</i> 6.66923	-0.11942624	+0.48092320
<i>P</i>	3.66	<i>H</i> 15.4	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1976 09 24	095	0.4-	0.6+	1998 10 28	704	0.7-	0.1-	1998 11 10	704	0.8-	0.1+
1976 10 22	381	0.6-	0.8+	1998 10 28	704	0.2-	0.3-	1998 11 10	704	0.1+	1.3+
1976 10 22	381	0.2-	0.8+	1998 10 28	704	0.0	0.5-	1998 11 10	704	0.7-	0.9-
1976 10 24	381	0.0	0.0	1998 10 29	704	0.5-	0.1-	1998 11 10	704	0.3-	1.1-
1998 10 21	910	1.4+	0.3-	1998 10 29	704	1.0-	0.4-	1998 11 11	704	0.2+	0.3-
1998 10 21	910	1.2+	0.2-	1998 10 29	704	0.9-	0.0	1998 11 11	704	0.4+	0.7+
1998 10 22	910	1.4+	0.1-	1998 10 29	704	0.7-	1.2-	1998 11 11	704	0.7-	0.0
1998 10 26	910	0.9+	0.1+	1998 10 29	704	0.1-	0.7-	1998 11 11	704	0.5+	1.1+
1998 10 26	910	1.0+	0.1+	1998 10 30	327	0.1-	0.1-	1998 11 11	704	0.9-	0.7+
1998 10 26	910	1.0+	0.0	1998 10 30	327	0.0	0.1-	1998 11 17	699	1.1+	0.5+
1998 10 28	704	0.3-	0.6-	1998 10 30	327	0.5-	0.3+	1998 11 17	699	0.3+	0.1+

1998 UM₂₀ = 1998 SK₁₄₇ = 1977 DA₂Id. G. V. Williams (*MPC* 33052), A. Milani (d)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	349.68837	(2000.0)	P	Q
<i>n</i>	0.17028431	ω 336.94482	+0.36805259	-0.92868301
<i>a</i>	3.2236877	Ω 91.43443	+0.86003701	+0.32136030
<i>e</i>	0.1739460	<i>i</i> 2.61805	+0.35337463	+0.18513621
<i>P</i>	5.79	<i>H</i> 13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1977 02 18	381	0.4+	0.8-	1998 10 14	699	0.6+	0.1+	1998 11 10	704	0.7-	0.7-
1977 02 18	381	0.9+	0.0	1998 10 14	699	0.1+	0.3+	1998 11 11	704	0.1-	1.4+
1977 02 19	381	0.3-	0.2+	1998 10 20	699	0.5+	0.3+	1998 11 11	704	0.2-	0.6+
1977 02 19	381	1.4-	0.3-	1998 10 20	699	0.9+	1.3+	1998 11 11	704	0.2+	0.3-
1998 09 18	699	1.5-	0.6+	1998 10 20	699	0.5-	0.4+	1998 11 11	704	0.6+	1.0-
1998 09 18	699	0.3-	0.8-	1998 10 29	611	0.1-	0.0	1998 11 11	611	0.7+	0.8-

M.P.C. 34224

1998 09 18	699	1.2−	1.1−	1998 10 29	611	0.3+	0.6−	1998 11 11	611	0.3+	0.1−
1998 09 20	809	1.7+	0.1−	1998 10 29	611	0.2+	0.3+	1998 11 11	611	0.4−	0.2−
1998 09 20	809	1.1+	1.0−	1998 10 30	611	0.5−	0.5−	1998 11 14	699	0.2+	0.1+
1998 09 20	809	0.7+	1.2−	1998 10 30	611	0.2−	0.2−	1998 11 14	699	0.4−	1.2+
1998 09 21	809	(2.8+	1.0−)	1998 10 30	611	0.7+	1.0−	1998 11 14	699	0.7+	0.4−
1998 09 21	809	(0.3+	2.2−)	1998 11 10	704	0.1−	0.7+	1999 01 06	611	0.1−	0.8+
1998 09 21	809	0.3−	0.6−	1998 11 10	704	0.7−	1.4+	1999 01 06	611	0.4−	0.1−
1998 10 14	699	0.3+	0.2+	1998 11 10	704	1.7−	0.4+	1999 01 06	611	0.6−	0.1+

1998 UD₂₈ = 1996 HR₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	41.06673	(2000.0)	P	Q
<i>n</i>	0.17854419	ω	330.88363	+0.95898679 −0.05036615
<i>a</i>	3.1234813	Ω	35.58085	+0.24052868 +0.66525711
<i>e</i>	0.1528412	<i>i</i>	28.64630	−0.14996765 +0.74491357
<i>P</i>	5.52	<i>H</i>	14.4	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1996 04 17	809	0.9+	1.3+	1998 10 29	704	0.5−	0.1+	1998 11 11	704	1.0+	1.3−
1996 04 17	809	1.6−	1.0+	1998 10 29	704	1.7−	0.6+	1998 11 11	704	0.9−	1.2−
1996 04 17	809	0.8−	0.1+	1998 10 29	704	0.8+	0.7−	1998 11 11	704	0.3−	0.2−
1996 04 18	809	1.2+	0.3−	1998 10 29	704	0.8+	1.0+	1998 11 15	699	0.0	0.4+
1996 04 18	809	0.5−	1.5−	1998 10 29	704	0.5+	0.7−	1998 11 15	699	0.8−	0.5+
1996 04 18	809	0.8+	0.5−	1998 11 11	704	1.0+	1.4+	1998 11 15	699	0.1+	0.0

1998 UC₃₀ = 1995 BY₁₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	331.15121	(2000.0)	P	Q
<i>n</i>	0.22675448	ω	318.17146	−0.45222049 −0.89061080
<i>a</i>	2.6633739	Ω	158.57884	+0.84924126 −0.44642663
<i>e</i>	0.2332711	<i>i</i>	7.56037	+0.27255440 −0.08669292
<i>P</i>	4.35	<i>H</i>	14.4	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1995 01 27	399	0.6+	1.6−	1998 10 18	809	0.2−	0.2−	1998 11 14	699	0.5−	0.7+
1995 01 27	399	0.3+	1.7−	1998 10 19	809	0.3+	0.1−	1998 11 19	699	0.2+	0.2−
1995 01 28	399	0.1−	1.3+	1998 10 19	809	0.0	0.4+	1998 11 19	699	0.6+	0.2−
1995 01 28	399	0.8−	2.1+	1998 10 19	809	0.2−	1.0+	1998 11 19	699	0.6+	0.6−
1998 10 18	809	0.3+	0.7−	1998 11 14	699	0.5−	0.0				
1998 10 18	809	0.0	0.4−	1998 11 14	699	0.5−	0.3+				

1998 UA₃₇ = 1972 TH₃ = 1981 UH₇ = 1985 TY₂ = 1989 RO₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	84.86796	(2000.0)	P	Q
<i>n</i>	0.22850079	ω	292.00486	+0.48263181 +0.87581116
<i>a</i>	2.6497867	Ω	6.85800	−0.78860548 +0.43685872
<i>e</i>	0.2279710	<i>i</i>	2.21784	−0.38100910 +0.20520546
<i>P</i>	4.31	<i>H</i>	14.1	<i>G</i> 0.15 <i>U</i> 3

Residuals in seconds of arc

1972 10 05	095	1.1+	0.8−	1989 09 02	071	1.4−	0.1+	1998 10 29	704	0.5+	1.8−
1981 10 30	381	0.9−	0.1−	1989 09 03	071	0.8+	0.0	1998 10 29	704	0.3+	0.1+
1981 10 30	381	1.1+	0.5−	1989 09 03	071	0.1−	0.7+	1998 10 29	704	0.3−	0.3+
1981 10 30	381	0.2−	1.0+	1998 10 28	704	0.1−	0.3−	1998 10 29	704	0.7+	0.8+
1981 10 30	381	0.1−	0.2−	1998 10 28	704	0.3+	0.7−	1998 11 14	699	0.5+	0.3+
1985 10 11	010	2.1−	1.2+	1998 10 28	704	0.4−	0.1−	1998 11 14	699	0.0	1.1+
1985 10 11	010	0.8+	1.3−	1998 10 28	704	0.6−	0.3+	1998 11 14	699	0.2−	0.2+
1989 09 02	071	0.4+	0.3−	1998 10 29	704	0.1−	0.5+				

1998 UF₄₀ = 1991 RR₂₆

Id. A. Milani

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Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	70.99552	(2000.0)	P	Q
<i>n</i>	0.28315274	ω	332.88917	+0.79172732 +0.61073292
<i>a</i>	2.2967949	Ω	349.43785	−0.54664916 +0.69870852
<i>e</i>	0.2358310	<i>i</i>	4.11667	−0.27265831 +0.37257442
<i>P</i>	3.48	<i>H</i>	15.1	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1991 09 11	675	(2.6+	0.0)	1998 10 28	704	0.2+	0.5−	1998 11 10	704	0.4−	0.8−
1991 09 11	675	0.6+	0.4+	1998 10 28	704	0.4−	0.4−	1998 11 10	704	0.0	0.1+
1991 09 13	675	1.1+	0.8−	1998 10 28	704	0.8−	0.9−	1998 11 11	704	0.1+	0.0
1991 09 13	675	0.7−	0.4+	1998 10 29	704	0.0	0.2+	1998 11 11	704	1.1+	0.4+
1991 09 13	675	0.5+	0.3+	1998 10 29	704	0.1−	0.6+	1998 11 11	704	0.5−	1.2+
1991 09 13	675	0.0	0.3+	1998 10 29	704	0.6−	0.5+	1998 11 11	704	0.2+	0.4+
1991 09 14	675	0.1−	0.0	1998 10 29	704	0.6+	0.4+	1998 11 17	699	0.3−	0.2−
1991 09 15	675	0.0	0.1+	1998 10 29	704	0.4−	0.1+	1998 11 17	699	0.4−	0.0
1991 09 15	675	1.3−	0.7−	1998 11 10	704	0.3+	0.2−	1998 11 17	699	0.4+	0.1−
1998 10 28	704	0.5+	0.2−	1998 11 10	704	0.4+	0.7−				

1998 VK₇ = 3548 P-L

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	85.56259	(2000.0)	P	Q
<i>n</i>	0.28606208	ω	45.94568	+0.64937260 +0.75474098
<i>a</i>	2.2811956	Ω	264.78559	−0.72173185 +0.57304440
<i>e</i>	0.1691134	<i>i</i>	5.36848	−0.23962131 +0.31935272
<i>P</i>	3.45	<i>H</i>	15.3	<i>G</i> 0.15 <i>U</i> 6

Residuals in seconds of arc

1960 10 17	675	0.3−	1.2−	1998 10 29	704	0.1+	0.3+	1998 11 10	704	0.3−	0.2−
1960 10 22	675	0.2+	0.6+	1998 10 29	704	0.7+	1.3+	1998 11 11	704	0.9−	0.0
1960 10 24	675	1.0+	0.5+	1998 10 29	704	0.8+	0.6+	1998 11 11	704	0.6+	0.3−
1960 10 26	675	0.7−	0.1−	1998 10 29	704	0.3+	0.9−	1998 11 11	704	1.5+	0.7+
1998 10 28	704	0.9−	0.3+	1998 10 29	704	0.6+	0.4+	1998 11 11	704	1.1+	0.8+
1998 10 28	704	0.2−	0.6−	1998 11 10	704	0.2−	0.0	1998 11 11	704	1.2−	1.2−
1998 10 28	704	0.3−	0.3−	1998 11 10	704	0.3−	0.9−				
1998 10 28	704	0.4−	0.8+	1998 11 10	704	1.1−	0.6−				

1998 VD₉ = 1993 TH₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	49.85147	(2000.0)	P	Q
<i>n</i>	0.20062146	ω	138.47577	+0.97099475 +0.18770103
<i>a</i>	2.8899110	Ω	211.63641	−0.21093818 +0.96414682
<i>e</i>	0.1263606	<i>i</i>	16.40199	+0.11258007 +0.18758792
<i>P</i>	4.91	<i>H</i>	13.0	<i>G</i> 0.15 <i>U</i> 6

Residuals in seconds of arc

1993 10 13	675	0.2−	0.2+	1998 10 29	704	0.0	0.0	1998 11 11	704	0.0	0.4−
1993 10 13	675	0.2+	0.6−	1998 10 29	704	1.0−	0.8+	1998 11 11	704	0.3+	0.2−
1993 10 15	675	0.0	0.2+	1998 10 29	704	0.6−	0.0	1998 11 11	704	0.2+	0.4−
1998 10 28	704	2.9+	0.7−	1998 10 29	704	1.0−	0.8+	1998 11 11	704	0.6+	0.4−
1998 10 28	704	0.4+	0.7−	1998 11 10	704	0.0	0.3+	1998 11 11	704	1.0−	0.8−
1998 10 28	704	0.2+	0.3+	1998 11 10	704	1.0−	0.2−	1998 11 14	699	0.7+	0.9+
1998 10 28	704	0.8+	0.4+	1998 11 10	704	0.9−	0.8−	1998 11 14	699	0.7+	0.8+
1998 10 29	704	0.1−	0.5+	1998 11 10	704	1.3−	0.5−	1998 11 14	699	0.0	0.2+

1998 VB₂₀ = 1997 GB₄₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	100.88557	(2000.0)	P	Q
<i>n</i>	0.27495889	ω	244.43790	+0.57467248 +0.80979939
<i>a</i>	2.3422012	Ω	61.14663	−0.69405830 +0.55880149
<i>e</i>	0.1448946	<i>i</i>	7.75739	−0.43362958 +0.17878995
<i>P</i>	3.58	<i>H</i>	15.2	<i>G</i> 0.15 <i>U</i> 6

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Residuals in seconds of arc

1997 04 09	809	0.1+	0.2+	1998 11 10	704	0.4−	0.2+	1998 11 11	704	0.8+	0.5+
1997 04 09	809	0.6+	0.9−	1998 11 10	704	1.1−	0.1+	1998 11 11	704	0.9+	0.1−
1997 04 09	809	0.2+	1.3−	1998 11 10	704	0.7−	0.1+	1998 11 14	699	0.3−	0.2−
1997 04 10	809	0.1+	0.0	1998 11 10	704	1.9+	1.1+	1998 11 14	699	0.1−	0.1+
1997 04 10	809	0.6−	0.6+	1998 11 11	704	1.1+	0.8−	1998 11 14	699	0.6+	0.2+
1997 04 10	809	0.5−	1.6+	1998 11 11	704	1.3−	0.8+				
1998 11 10	704	0.1−	0.8−	1998 11 11	704	1.3−	1.0−				

1998 VV₃₂ = 1997 WC₅₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	280.59317		(2000.0)	P		Q	
<i>n</i>	0.17597151	ω	124.90215	−0.71394843		+0.61370226	
<i>a</i>	3.1538508	Ω	95.44046	−0.70019775		−0.62515942	
<i>e</i>	0.0445848	<i>i</i>	19.79413	−0.00086379		−0.48222943	
<i>P</i>	5.60	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 11 30	566	0.0	0.0	1998 12 21	704	0.3−	0.9−	1999 02 11	704	1.5+	0.7−
1997 11 30	566	0.8+	0.0	1998 12 21	704	0.6−	1.3−	1999 02 11	704	0.2+	0.7−
1997 11 30	566	0.3+	0.1+	1998 12 21	704	0.4−	1.9−	1999 02 11	704	0.3+	0.0
1997 12 29	566	0.2−	0.0	1998 12 21	704	1.9−	1.6+	1999 02 11	704	1.7+	0.7+
1997 12 29	566	0.3−	0.3−	1998 12 27	699	0.2+	0.8+	1999 02 11	704	0.2+	0.2+
1997 12 29	566	0.6−	0.1−	1998 12 27	699	0.6+	0.8+	1999 02 18	704	0.1−	1.0−
1998 11 15	703	0.4−	0.4+	1998 12 27	699	0.1−	0.5+	1999 02 18	704	1.4−	0.2−
1998 11 15	703	0.4+	0.0	1999 01 15	905	0.8−	0.2−	1999 02 18	704	0.8−	0.3+
1998 11 15	703	0.0	0.1+	1999 01 15	905	0.5+	0.5−	1999 02 18	704	0.2−	0.5+
1998 11 16	703	0.2+	0.2+	1999 01 18	888	0.6+	0.3+	1999 02 18	704	0.6−	0.6+
1998 11 16	703	0.5+	0.7+	1999 01 18	888	0.6+	0.0				

1998 VU₃₃ = 1993 TE₃₆

Id. A. Doppler, A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	112.53200		(2000.0)	P		Q	
<i>n</i>	0.21079827	ω	247.67977	+0.59541097		+0.80256814	
<i>a</i>	2.7961343	Ω	58.91498	−0.72030654		+0.55365583	
<i>e</i>	0.0756822	<i>i</i>	2.47723	−0.35587113		+0.22214773	
<i>P</i>	4.68	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1993 10 11	809	0.2+	0.3−	1993 10 20	809	1.0+	0.0	1998 11 18	910	0.2−	0.4+
1993 10 11	809	1.0−	0.9−	1993 10 20	809	1.4+	0.7−	1998 11 19	910	0.0	0.3−
1993 10 11	809	1.4−	0.4−	1998 11 10	910	0.7+	0.4+	1998 11 19	910	0.0	0.0
1993 10 12	809	0.2−	0.6+	1998 11 11	910	1.3+	0.9+	1998 11 19	910	0.3+	0.2+
1993 10 12	809	0.2−	0.7+	1998 11 11	910	1.2+	0.7+	1998 11 23	691	0.9−	1.0−
1993 10 12	809	0.6−	1.2+	1998 11 17	910	0.0	0.2+	1998 11 23	691	0.9−	0.8−
1993 10 20	809	0.9+	0.3−	1998 11 17	910	0.7−	0.5+	1998 11 23	691	0.8−	1.0−

1998 VC₄₄ = 1986 TR₅ = 1986 UY₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	38.90632		(2000.0)	P		Q	
<i>n</i>	0.25138378	ω	218.30007	+0.82560739		−0.56422135	
<i>a</i>	2.4864394	Ω	176.03763	+0.53437364		+0.77892581	
<i>e</i>	0.1395428	<i>i</i>	4.28930	+0.18115533		+0.27373135	
<i>P</i>	3.92	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1986 10 01	010	1.6+	1.3+	1998 12 09	120	0.0	0.1−	1998 12 16	120	0.3−	0.1+
1986 10 01	010	(9.5+	2.7+)	1998 12 09	120	0.3+	0.0	1998 12 16	120	0.4−	0.1+
1986 10 27	010	(9.7−	2.2−)	1998 12 09	120	0.3+	0.0	1999 01 23	699	1.5+	0.4+
1986 10 27	010	(5.9−	0.8+)	1998 12 09	120	0.1−	0.1−	1999 01 23	699	1.3+	0.8+
1986 10 27	010	1.4−	1.5−	1998 12 09	120	0.2−	0.4+	1999 01 23	699	(2.7+	0.4+)
1998 11 15	120	(4.0+	0.6−)	1998 12 14	120	0.4+	0.8+	1999 02 04	699	0.9−	1.2−
1998 11 16	120	(4.1+	1.3−)	1998 12 14	120	0.4−	0.2+	1999 02 04	699	(0.0	2.5−)

1998 11 28	120	0.3−	0.3−	1998 12 15	120	0.8−	0.0	1999 02 04	699	0.4−	0.5−
1998 11 28	120	0.4+	0.3−	1998 12 15	120	0.2−	0.1−				

1998 WU₃ = 1990 SF₁₀

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	58.87851		(2000.0)	P		Q	
<i>n</i>	0.25762464	ω	308.10946	+0.99491179		−0.02066714	
<i>a</i>	2.4461201	Ω	53.29008	+0.06418328		+0.88444180	
<i>e</i>	0.1822243	<i>i</i>	7.06539	−0.07765974		+0.46619262	
<i>P</i>	3.83	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1990 09 17	675	0.1+	0.4−	1990 09 20	675	0.0	1.1+	1998 11 19	399	0.5+	1.4−
1990 09 17	675	0.1+	0.1−	1998 11 12	399	1.4−	1.8+	1998 12 10	399	0.5+	0.5+
1990 09 19	675	0.1+	1.1−	1998 11 18	399	0.6+	0.4+	1998 12 10	399	0.7−	0.1+
1990 09 19	675	0.9−	0.6−	1998 11 18	399	0.2−	0.7−				
1990 09 20	675	0.5+	1.1+	1998 11 19	399	0.6+	0.5−				

1998 WX₁₀ = 1979 QR₃

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	32.91416		(2000.0)	P		Q	
<i>n</i>	0.26508272	ω	254.26913	+0.83635183		−0.54784204	
<i>a</i>	2.4000214	Ω	138.94453	+0.51369950		+0.77073348	
<i>e</i>	0.1799810	<i>i</i>	1.71131	+0.19138557		+0.32532906	
<i>P</i>	3.72	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1979 08 22	809	0.6−	0.3+	1979 08 30	809	1.2−	0.2−	1998 11 24	704	0.5+	0.7+
1979 08 22	809	0.8−	0.0	1998 11 21	704	0.7+	0.1−	1998 11 24	704	1.0−	1.3+
1979 08 22	809	1.1−	0.2−	1998 11 21	704	0.0	0.1−	1998 12 07	910	1.2+	0.8−
1979 08 23	809	0.5−	0.1+	1998 11 21	704	0.9+	0.2+	1998 12 07	910	1.3+	0.8−
1979 08 23	809	0.1−	0.0	1998 11 21	704	0.8+	0.5+	1998 12 07	910	1.3+	0.9−
1979 08 26	809	2.3+	0.2+	1998 11 21	704	0.5−	0.7+	1998 12 08	910	0.6−	0.6−
1979 08 26	809	1.5+	0.5−	1998 11 24	704	0.7−	1.3+	1998 12 08	910	0.6−	0.7−
1979 08 26	809	1.8+	0.2−	1998 11 24	704	2.1−	0.6−	1998 12 08	910	0.3−	0.6−
1979 08 30	809	1.1−	0.0	1998 11 24	704	0.8−	0.2+				

1998 WA₁₈ = 1992 TR₁

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	10.69246		(2000.0)	P		Q	
<i>n</i>	0.17993036	ω	129.22677	+0.45213948		−0.88850822	
<i>a</i>	3.1074185	Ω	293.72536	+0.78975006		+0.43956627	
<i>e</i>	0.0682567	<i>i</i>	4.90326	+0.41456572		+0.13166104	
<i>P</i>	5.48	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 10 02	675	1.4+	0.5+	1998 11 21	704	0.5+	1.7−	1998 12 14	704	1.0−	1.2−
1992 10 02	675	1.4+	0.4+	1998 11 21	704	0.5+	1.0−	1998 12 14	704	1.5+	1.1+
1992 10 04	675	2.7−	1.6−	1998 11 24	704	0.1−	0.3+	1998 12 14	704	2.8−	0.4−
1992 10 04	675	0.0	0.8+	1998 11 24	704	1.5−	0.7+	1998 12 14	704	0.8+	0.3+
1998 11 21	704	0.3+	0.2+	1998 11 24	704	0.6+	0.7+	1999 01 06	699	0.0	1.1+
1998 11 21	704	0.3−	0.7−	1998 11 24	704	0.4+	0.1+	1999 01 06	699	0.2+	0.6−
1998 11 21	704	0.8+	0.5−	1998 11 24	704	0.1−	1.9+	1999 01 06	699	0.2+	0.2−

**1998 WU₁₉ = 1941 UD = 1969 AB₁ = 1976 GS₁ = 1981 WA₈
= 1981 WP₈ = 1984 SU₆ = 1993 KA₃ = 1996 FY₂₀**

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5				Williams			
<i>M</i>	43.84216	(2000.0)		P		Q	
<i>n</i>	0.29716591	ω	285.44866	−0.00841580		−0.99983064	
<i>a</i>	2.2240099	Ω	165.00492	+0.93999489		−0.01349272	
<i>e</i>	0.1447278	<i>i</i>	3.62665	+0.34108472		+0.01251511	
<i>P</i>	3.32	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	1
Residuals in seconds of arc (or two decimals in units of degrees)							
1941 10 16	053(0.03− 0.02−)X	1984 09 30	809	1.0+	0.7+	1998 11 25	704 0.5− 0.4−
1941 10 19	053(59.3− 67.4−)X	1984 09 30	809	1.2+	0.7+	1998 11 25	704 1.2− 0.1+
1941 10 22	053(16.9− 31.3+)X	1993 05 27	010	1.1−	1.3−	1998 11 25	704 0.5− 0.2+
1969 01 15	095 1.0− 0.4−	1993 05 27	010	0.1−	2.3−	1998 11 25	704 0.7− 0.2−
1976 04 01	095 (5.9− 4.9+)	1993 05 28	010	1.0+	1.9−	1998 12 01	704 0.2+ 0.3−
1976 04 04	095 0.5+ 1.3−	1993 05 29	010	0.1−	1.6−	1998 12 01	704 1.0− 1.3−
1981 11 25	095 (2.7+ 3.5+)	1993 05 29	010	0.6−	0.3−	1998 12 01	704 0.5− 1.4−
1981 11 25	095 1.5+ 1.8−	1993 05 29	010	0.8+	1.0−	1998 12 01	704 0.5+ 0.4−
1984 09 28	809 2.5− 0.7−	1996 03 24	809	0.6−	0.6+	1999 03 19	699 0.2+ 0.3−
1984 09 28	809 2.3− 0.4−	1996 03 24	809	0.5−	1.3+	1999 03 19	699 0.2+ 0.2−
1984 09 28	809 1.9− 0.5−	1996 03 24	809	1.1−	1.3+	1999 03 19	699 0.3+ 0.2−
1984 09 29	809 0.8+ 0.4−	1996 03 26	809	1.3+	1.3+	1999 03 23	699 0.4+ 0.3−
1984 09 29	809 0.9+ 0.2−	1996 03 26	809	0.1+	1.1+	1999 03 23	699 0.3+ 0.2+
1984 09 29	809 0.9+ 0.3−	1996 03 26	809	0.7+	1.1+	1999 03 23	699 0.0 0.2+
1984 09 30	809 1.1+ 0.8+	1998 11 25	704	0.3+	0.0		

1998 WA₃₂ = 1992 PB₄

Id. A. Doppler											
Epoch 1999 Jan. 22.0 TT = JDT 2451200.5											
Williams											
<i>M</i>	119.63431		(2000.0)	P		Q					
<i>n</i>	0.19850419	ω	84.91257	+0.66685738		+0.74501179					
<i>a</i>	2.9104240	Ω	226.92597	−0.69212150		+0.61122836					
<i>e</i>	0.0432087	<i>i</i>	1.26159	−0.27616854		+0.26712791					
<i>P</i>	4.97	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1992 08 02	675	0.7+	0.8+	1998 11 21	704	0.4−	0.4−	1998 12 08	699	0.1+	0.4−
1992 08 02	675	0.2−	1.3+	1998 11 21	704	0.4−	0.4−	1998 12 08	699	0.7−	0.3+
1992 08 06	675	0.6+	0.5−	1998 11 24	704	0.0	0.4+	1999 01 05	699	0.4+	0.2−
1992 08 06	675	1.0−	1.6−	1998 11 24	704	0.2+	0.2+	1999 01 05	699	0.5+	0.3−
1998 11 21	704	0.3+	0.7+	1998 11 24	704	0.9−	0.7+	1999 01 05	699	0.8−	0.4+
1998 11 21	704	0.9+	0.2−	1998 11 24	704	0.4−	0.3−				
1998 11 21	704	0.3+	0.7−	1998 12 08	699	0.8+	0.2+				

1998 XE = 1958 TS = 1980 WZ

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5					Williams				
<i>M</i>	65.86912	(2000.0)			P		Q		
<i>n</i>	0.22646932	ω	336.16470		+0.47909746		−0.84824033		
<i>a</i>	2.6656091	Ω	84.52254		+0.83738131		+0.36458215		
<i>e</i>	0.1761869	<i>i</i>	13.10671		+0.26316946		+0.38414607		
<i>P</i>	4.35	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	3		
Residuals in seconds of arc									
1958 10 13	760 0.4+ 0.1+	1998 12 02	327 1.2+ 0.3+	1999 02 11	704 0.5− 0.9+				
1958 10 13	760 1.3− 2.1+	1998 12 02	327 0.5+ 0.1+	1999 02 11	704 0.6− 0.4−				
1980 11 30	095 0.8− 1.9−	1998 12 02	327 0.4+ 0.0	1999 02 11	704 0.3− 0.1+				
1980 12 10	095 1.2+ 0.1−	1998 12 02	327 0.4+ 0.1+	1999 02 18	704 0.5− 0.0				
1998 12 01	327 0.6+ 0.0	1998 12 14	327 0.3− 0.4−	1999 02 18	704 0.0 0.2+				
1998 12 01	327 0.9+ 0.4+	1998 12 14	327 0.4− 0.0	1999 02 18	704 0.2+ 0.8+				
1998 12 01	327 1.0+ 0.4+	1998 12 14	327 0.2− 0.2−	1999 02 18	704 0.1+ 0.5+				
1998 12 02	327 0.2− 0.1−	1999 02 11	704 0.3− 0.2−	1999 02 18	704 0.8+ 0.4+				
1998 12 02	327 0.8+ 0.1−	1999 02 11	704 1.3− 0.6−						

1998 XB₁₄ = 1980 WL₄ = 1993 QQ₁

Id. S. Nakano												
Epoch 1999 Jan. 22.0 TT = JDT 2451200.5												
				Williams								
<i>M</i>	66.84382			(2000.0)			P		Q			
<i>n</i>	0.21930396			ω	157.69590			+0.98356644		+0.18019167		
<i>a</i>	2.7233601			Ω	191.93986			−0.17280613		+0.92139601		
<i>e</i>	0.1992581			<i>i</i>	3.13502			−0.05229813		+0.34432595		
<i>P</i>	4.49			<i>H</i>	14.6			<i>G</i>	0.15		<i>U</i>	5
Residuals in seconds of arc												
1980 11 29	675	0.2−	0.6+	1998 12 08	699	0.5−	0.8−	1998 12 16	910	0.2+	0.1−	
1980 12 01	675	0.0	0.8+	1998 12 08	699	0.3+	0.7−	1998 12 16	910	0.7+	0.4−	
1993 08 16	010	0.2+	0.7+	1998 12 08	699	0.5+	0.5−	1998 12 16	910	0.5+	0.3−	
1993 08 16	010	0.4+	0.3−	1998 12 15	910	0.3−	0.3+	1998 12 17	910	0.3−	0.1+	
1993 08 16	010	0.2−	1.0−	1998 12 15	910	0.2−	0.3+	1998 12 17	910	0.2−	0.3+	
1993 08 17	010	0.4−	0.5+	1998 12 16	910	0.3−	0.3+	1998 12 17	910	0.2−	0.2+	

1998 XS₃₀ = 1981 XE₁ = 1996 LE₁

Id. A. Milani, G. V. Williams											
Epoch 1999 Jan. 22.0 TT = JDT 2451200.5						Williams					
<i>M</i>	285.72893		(2000.0)	P		Q					
<i>n</i>	0.23255426	ω	276.10914	−0.95844133	−0.20179066						
<i>a</i>	2.6189056	Ω	252.38349	+0.26046967	−0.90732797						
<i>e</i>	0.1347953	<i>i</i>	12.21572	−0.11638631	−0.36883125						
<i>P</i>	4.24	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	3				
Residuals in seconds of arc											
1981 12 04	511 0.7+	0.1+	1996 06 21	566	0.3+	0.5+	1998 12 14	704	0.5−	1.6−	
1981 12 04	511 0.7−	0.7−	1996 06 21	566	0.3−	0.2+	1998 12 14	704	0.8−	0.3−	
1996 06 13	566 0.4+	0.0	1996 06 21	566	0.4−	0.1+	1998 12 14	704	0.4−	0.4−	
1996 06 13	566 0.0	0.0	1998 12 11	699	0.2−	0.7+	1998 12 17	704	0.6+	0.4+	
1996 06 13	566 0.4+	0.4+	1998 12 11	699	0.3−	0.8+	1998 12 17	704	1.7+	0.1−	
1996 06 14	566 0.3−	0.3−	1998 12 11	699	0.0	0.9+	1998 12 17	704	0.5+	0.2−	
1996 06 14	566 0.1−	0.4−	1998 12 14	704	0.3+	0.5+	1998 12 17	704	0.7+	0.5−	
1996 06 14	566 0.1−	0.3−	1998 12 14	704	1.7−	0.6+					

1998 XS₃₁ = 1996 SQ₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5					Doppler						
M	18.25328		(2000.0)		P		Q				
n	0.08518286		ω	159.97619	+0.61109101		−0.78439262				
a	5.1156548		Ω	252.20776	+0.71019215		+0.60260474				
e	0.0655246		i	6.40879	+0.34956385		+0.14695491				
P	11.57		H	11.5	G	0.15	U	5			
Residuals in seconds of arc											
1996 09 16	809	0.1−	0.2+	1998 12 14	704	0.1−	1.4+	1998 12 17	704	0.1+	0.0
1996 09 17	809	0.1+	0.2−	1998 12 14	704	0.7−	0.1−	1998 12 17	704	0.3+	0.4−
1998 12 11	699	1.2+	0.3+	1998 12 14	704	0.5+	1.6−	1998 12 17	704	0.8−	0.4−
1998 12 11	699	1.0+	0.3+	1998 12 14	704	0.3−	1.4+	1999 01 05	699	0.5−	1.3+
1998 12 11	699	0.8+	0.6−	1998 12 17	704	1.3−	0.6−	1999 01 05	699	0.9+	0.5+
1998 12 14	704	0.8−	0.1+	1998 12 17	704	0.5−	0.4−	1999 01 05	699	0.3+	1.0−

1998 XF₆₃ = 1981 UV₂₅ = 1993 FT₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5					Williams								
<i>M</i>	27.87482 (2000.0)				P		Q						
<i>n</i>	0.29146364				<i>ω</i>	343.47569		+0.68645673		−0.71701657			
<i>a</i>	2.2529236				<i>Ω</i>	62.98845		+0.68160046		+0.57642751			
<i>e</i>	0.1888981				<i>i</i>	7.81205		+0.25337316		+0.39194205			
<i>P</i>	3.38				<i>H</i>	15.0		<i>G</i>	0.15		<i>U</i>	3	
Residuals in seconds of arc													
1981 10 25	675	0.1+	0.4−	1998 12 11	699	0.0	1.0+	1998 12 14	704	0.0	0.3+		
1981 10 26	675	0.1+	0.0	1998 12 11	699	0.4+	0.9+	1998 12 17	704	0.2+	0.7−		
1993 03 17	809	0.4+	0.2+	1998 12 14	704	0.1+	0.1−	1998 12 17	704	0.8−	1.3−		

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1993 03 18	809	0.8−	0.7+	1998 12 14	704	0.1−	0.2−	1998 12 17	704	0.4−	0.9−
1993 03 23	809	0.3+	1.1−	1998 12 14	704	0.2+	0.3−	1998 12 17	704	0.5+	0.4−
1998 12 11	699	0.0	1.0+	1998 12 14	704	0.2−	0.8+				

1998 XK₆₃ = 1991 PQ₂₁ = 1991 RK₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	74.70586		(2000.0)	P	Q
<i>n</i>	0.29715187	ω	50.80928	+0.95604614	+0.26904249
<i>a</i>	2.2240800	Ω	293.30394	−0.29255998	+0.84867564
<i>e</i>	0.2053033	<i>i</i>	7.29282	−0.01960696	+0.45537436
<i>P</i>	3.32	<i>H</i>	15.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1991 08 10	675	0.4−	0.1+	1998 12 14	704	(1.8+	2.2−)	1998 12 17	704	0.4+	1.5−
1991 08 10	675	1.3+	0.7−	1998 12 14	704	0.8−	0.5−	1998 12 17	704	0.0	1.3−
1991 09 12	675	0.9+	0.1+	1998 12 14	704	0.1−	1.4+	1998 12 24	699	0.1+	0.8+
1991 09 12	675	1.8−	0.6+	1998 12 17	704	0.1−	0.4+	1998 12 24	699	0.8−	0.8+
1998 12 14	704	0.5−	0.0	1998 12 17	704	1.0+	0.1−	1998 12 24	699	0.0	0.6+
1998 12 14	704	0.1+	0.3+	1998 12 17	704	0.8+	1.2−				

1998 XK₇₂ = 1976 SD₇ = 1977 YC

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	50.37478		(2000.0)	P	Q
<i>n</i>	0.18640704	ω	8.52259	+0.82241505	−0.56879952
<i>a</i>	3.0350173	Ω	26.15183	+0.52059384	+0.74537276
<i>e</i>	0.1421624	<i>i</i>	1.30394	+0.22938079	+0.34768744
<i>P</i>	5.29	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1976 09 25	095	0.0	0.1+	1999 01 16	704	0.7+	0.4+	1999 01 19	704	0.4−	1.5+
1977 12 10	801	0.1+	0.3+	1999 01 18	046	0.2−	0.3+	1999 01 19	704	1.2+	0.6−
1998 12 14	704	1.3−	0.4+	1999 01 18	046	0.2−	0.3−	1999 01 19	704	0.1+	0.2+
1998 12 14	704	1.5+	0.5−	1999 01 18	046	0.2−	0.4+	1999 01 19	704	1.3+	0.2+
1998 12 14	704	0.2−	0.1+	1999 01 18	046	0.3−	0.1−	1999 01 19	704	1.0−	0.3+
1998 12 14	704	0.7−	0.5+	1999 01 18	046	0.2−	0.3+	1999 01 19	046	0.1−	0.1+
1998 12 14	704	0.6+	0.2+	1999 01 19	704	0.1−	1.0−	1999 01 19	046	0.2−	0.3+
1998 12 17	704	(1.1−	3.3−)	1999 01 19	704	0.2+	0.2−	1999 01 19	046	0.2−	0.2+
1998 12 17	704	0.3−	0.3−	1999 01 19	704	0.4+	0.8−	1999 01 19	046	0.3−	0.1+
1998 12 17	704	0.2−	0.6−	1999 01 19	704	1.3−	0.2+	1999 01 20	046	0.2−	0.1+
1998 12 17	704	0.2+	0.6−	1999 01 19	704	1.1+	0.2−	1999 01 20	046	0.1−	0.1+
1998 12 17	704	0.5+	0.3+	1999 01 19	704	0.6+	0.6−	1999 01 20	046	0.3−	0.2+
1999 01 16	704	0.2+	1.9−	1999 01 19	704	0.2+	0.4+				
1999 01 16	704	0.8−	0.5+	1999 01 19	704	(1.8−	3.5−)				

1998 XL₇₇ = 1980 NA = 1994 BF₅ = 1996 MY

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	44.65399		(2000.0)	P	Q
<i>n</i>	0.17817224	ω	275.01766	+0.92853591	−0.30843165
<i>a</i>	3.1278267	Ω	103.06388	+0.36410666	+0.86520624
<i>e</i>	0.1559778	<i>i</i>	12.24589	−0.07243895	+0.39533287
<i>P</i>	5.53	<i>H</i>	12.5	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1980 07 11	805	0.3+	0.2−	1997 08 30	566	0.2+	0.2−	1998 12 22	704	0.2+	0.4−
1980 07 12	805	0.8−	0.2−	1997 08 30	566	0.2−	0.0	1998 12 22	704	0.4+	0.0
1980 07 12	805	0.3+	0.2−	1998 11 16	699	0.3+	1.2−	1998 12 22	704	0.5−	0.8−
1980 07 13	805	0.6+	0.1+	1998 11 16	699	1.6+	1.8−	1999 01 10	699	0.0	0.2−
1980 07 13	805	0.3−	0.1+	1998 11 16	699	0.1+	0.8+	1999 01 10	699	0.2−	0.8+
1994 01 18	033	0.3+	0.8−	1998 12 15	704	1.6−	0.9−	1999 01 10	699	0.3−	0.4+
1994 01 18	033	0.9−	0.4−	1998 12 15	704	0.3−	0.7+	1999 01 23	699	0.7−	0.4+
1994 01 19	033(51.8−	16.9−)		1998 12 15	704	0.1−	0.5−	1999 01 23	699	0.4−	0.5+
1996 06 16	691	0.2+	0.2−	1998 12 15	704	0.9+	0.4−	1999 01 23	699	0.9−	0.8−
1996 06 16	691	0.3+	0.3−	1998 12 15	704	0.4+	0.0	1999 02 04	699	0.7+	0.4+
1996 06 16	691	0.1−	0.3−	1998 12 16	699	0.1+	0.1−	1999 02 04	699	0.3−	0.2+
1996 06 22	691	0.2−	0.5−	1998 12 16	699	0.3+	0.0	1999 02 04	699	0.2+	0.2+

1996 06 22	691	0.2−	0.4−	1998 12 16	699	0.4+	0.0	1999 02 15	699	0.6−	0.5+
1996 06 22	691	0.7−	0.4−	1998 12 22	704	0.3+	0.3+	1999 02 15	699	0.2−	0.7+
1997 08 30	566	0.4−	0.2+	1998 12 22	704	0.9+	0.3+	1999 02 15	699	0.1−	0.5+

1998 XO₇₇ = 1997 MX₁₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	34.78731		(2000.0)	P	Q
<i>n</i>	0.23089662	ω	295.44481	+0.80332411	−0.54908461
<i>a</i>	2.6314250	Ω	98.66643	+0.59486809	+0.72140293
<i>e</i>	0.1638036	<i>i</i>	13.48929	+0.02832540	+0.42199989
<i>P</i>	4.27	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 06 28	704	0.3+	0.5+	1998 11 16	566	0.4−	0.4+	1998 12 22	704	0.2−	0.0
1997 06 28	704	0.3−	0.1−	1998 12 15	704	0.3−	0.3+	1998 12 22	704	0.1+	0.6+
1997 06 28	704	0.8−	0.2−	1998 12 15	704	0.5−	0.8−	1999 01 10	699	0.2−	0.8+
1997 06 29	704	0.0	0.1+	1998 12 15	704	1.1+	1.4−	1999 01 10	699	1.2+	0.4+
1997 06 29	704	0.0	0.3−	1998 12 15	704	0.9−	0.8−	1999 01 10	699	0.1+	0.5+
1997 06 29	704	0.7+	0.4+	1998 12 16	699	1.0+	0.1−	1999 01 23	699	0.6−	0.0
1997 06 29	704	0.1+	0.2−	1998 12 16	699	0.4+	0.3−	1999 01 23	699	0.9−	0.8−
1998 11 16	566	0.1−	0.3+	1998 12 16	699	0.2−	0.1−	1999 01 23	699	0.2+	0.5+
1998 11 16	566	0.0	0.3+	1998 12 22	704	0.0	0.6+				

1998 XY₇₇ = 1990 TW₁₄ = 1994 XE₂ = 1996 FS₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	9.56683		(2000.0)	P	Q
<i>n</i>	0.25647215	ω	273.57937	+0.26777555	−0.96274377
<i>a</i>	2.4534426	Ω	160.76028	+0.92316026	+0.24517408
<i>e</i>	0.0757598	<i>i</i>	6.56810	+0.27581041	+0.11407938
<i>P</i>	3.84	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1990 10 12	413	0.2+	0.7−	1996 03 19	691	0.1+	0.3−	1998 12 22	704	1.7+	0.3+
1990 10 12	413	(2.1+	1.1+)	1996 03 23	691	0.2+	0.2−	1998 12 22	704	0.3+	0.6+
1994 12 01	691	0.0	0.0	1996 03 23	691	0.2−	0.0	1998 12 22	704	1.1+	0.8−
1994 12 01	691	0.1−	0.1−	1996 03 23	691	0.1−	0.1+	1998 12 22	704	0.2−	1.0−
1994 12 01	691	0.1+	0.1−	1998 12 15	704	0.0	0.4−	1999 01 10	699	0.1+	0.2+
1994 12 02	691	0.3−	0.0	1998 12 15	704	0.3+	0.3+	1999 01 10	699	0.4+	0.3+
1994 12 02	691	0.1+	0.1−	1998 12 15	704	1.5−	0.0	1999 01 10	699	0.0	0.3+
1994 12 02	691	0.2+	0.0	1998 12 15	704	0.7−	1.1+	1999 01 23	699	0.6−	0.2−
1996 03 19	691	0.1−	0.3−	1998 12 15	704	0.8−	0.3+	1999 01 23	699	0.2−	0.4−
1996 03 19	691	0.1−	0.0	1998 12 22	704	0.2+	0.0	1999 01 23	699	0.3−	0.2−

1998 XZ₇₇ = 1992 HU₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	55.75061		(2000.0)	P	Q
<i>n</i>	0.08305491	ω	176.88809	+0.97568166	−0.21112787
<i>a</i>	5.2026647	Ω	195.68098	+0.19610534	+0.96085893
<i>e</i>	0.0644214	<i>i</i>	12.58903	+0.09791832	+0.17937432
<i>P</i>	11.87	<i>H</i>	10.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 04 28	691	0.0	0.2+	1998 11 16	699	0.2−	0.3−	1998 12 22	704	0.3−	0.9−
1992 04 28	691	0.4−	0.0	1998 12 15	704	1.9+	1.2+	1998 12 22	704	0.1+	0.8−
1992 04 28	691	0.3−	0.1−	1998 12 15	704	0.1−	0.1−	1998 12 22	704	0.2−	0.1−
1992 05 03	691	0.2+	0.1−	1998 12 15	704	0.1+	0.7+	1999 01 14	699	0.2+	1.1−
1992 05 03	691	0.2+	0.0	1998 12 15	704	0.1+	1.0+	1999 01 14	699	0.4+	0.1−
1992 05 03	691	0.3+	0.1+	1998 12 15	704	1.8−	1.3+	1999 01 14	699	0.2+	0.3−
1998 11 16	699	0.0	0.4+	1998 12 22	704	1.1−	1.3−				
1998 11 16	699	0.1−	0.9+	1998 12 22	704	0.8+	0.3−				

1998 XG₇₉ = 1980 NO

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17607316	ω	262.92322	+0.92515183	−0.32176586		
<i>a</i>	3.1526368	Ω	115.67670	+0.37087357	+0.87927341		
<i>e</i>	0.2374713	<i>i</i>	12.91254	−0.08091282	+0.35120507		
<i>P</i>	5.60	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1980 07 11	805	1.9+	0.8+	1998 12 15	704	0.1+	0.4−	1998 12 22	704	0.0	0.5+
1980 07 12	805	1.2−	0.2−	1998 12 15	704	0.1−	0.5−	1998 12 22	704	0.2+	0.8+
1980 07 12	805	0.8−	0.3−	1998 12 16	699	0.1+	0.1−	1999 01 23	699	0.3−	0.4−
1980 07 13	805	0.7+	0.3−	1998 12 16	699	0.2+	0.2−	1999 01 23	699	0.6−	0.3+
1980 07 13	805	0.5−	0.8+	1998 12 16	699	0.1−	0.1−	1999 01 23	699	0.6−	0.1+
1998 12 15	704	0.1−	0.1−	1998 12 22	704	1.0+	0.7+	1999 02 04	699	0.0	0.8+
1998 12 15	704	0.1+	0.6−	1998 12 22	704	1.1−	0.4−	1999 02 04	699	0.4−	0.8+
1998 12 15	704	1.0+	0.0	1998 12 22	704	0.0	0.1+	1999 02 04	699	0.3−	0.3−

1998 XE₈₀ = 1997 MK₇

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22256579	ω	246.03065	+0.10200123	−0.99294847		
<i>a</i>	2.6966864	Ω	198.42154	+0.96799810	+0.11306822		
<i>e</i>	0.1685607	<i>i</i>	11.02050	+0.22929330	−0.03562187		
<i>P</i>	4.43	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 06 27	691	0.2−	0.1+	1998 11 16	566	0.2−	0.1+	1998 12 17	699	0.5+	0.2−
1997 06 27	691	0.1+	0.1−	1998 11 16	566	0.6+	0.0	1998 12 17	699	0.1+	0.2−
1997 06 27	691	0.3+	0.4+	1998 12 15	704	0.3+	1.1+	1998 12 22	704	0.2+	0.1+
1997 07 05	691	0.3−	0.4+	1998 12 15	704	0.5−	1.0−	1998 12 22	704	0.3+	0.1+
1997 07 05	691	0.1−	0.6−	1998 12 15	704	(1.0+ 2.3−)		1998 12 22	704	0.2−	0.6−
1997 07 05	691	0.2+	0.2−	1998 12 15	704	1.8−	0.6−	1998 12 22	704	0.2+	0.4+
1998 11 16	566	0.1−	0.0	1998 12 17	699	0.4+	0.2+	1998 12 22	704	0.4+	0.4+

1998 XF₈₃ = 1995 FK₁₇ = 1997 SK₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18430719	ω	285.67670	−0.10421685	−0.99409638		
<i>a</i>	3.0580262	Ω	170.15638	+0.96667997	−0.10838481		
<i>e</i>	0.0836273	<i>i</i>	10.17014	+0.23381337	+0.00501184		
<i>P</i>	5.35	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 03 28	691	0.8+	0.6−	1997 09 23	691	0.0	0.3+	1998 12 17	699	0.5−	0.3−
1995 03 28	691	0.4+	0.5+	1997 09 29	691	0.2+	0.5−	1998 12 17	699	0.2−	0.6−
1995 03 28	691	0.0	0.8+	1997 09 29	691	0.1−	0.1−	1998 12 17	699	0.5−	0.7−
1995 04 07	691	0.2−	0.0	1997 09 29	691	0.0	0.1+	1998 12 22	704	0.1−	0.7−
1995 04 07	691	0.5−	0.1−	1998 12 15	704	0.1−	0.4+	1998 12 22	704	0.1+	0.1+
1995 04 07	691	0.3−	0.2−	1998 12 15	704	1.1−	0.9+	1998 12 22	704	0.4+	0.3−
1997 09 23	691	0.0	0.4+	1998 12 15	704	0.4+	1.3+	1998 12 22	704	0.4+	0.5−
1997 09 23	691	0.1−	0.1+	1998 12 15	704	1.3+	0.8+	1998 12 22	704	0.2−	0.2−

1998 XQ₈₃ = 1993 SD₈

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22502283	ω	298.53448	−0.66285049	−0.74721947		
<i>a</i>	2.6770203	Ω	193.32212	+0.73884918	−0.64238025		
<i>e</i>	0.1286676	<i>i</i>	11.99228	+0.12137182	−0.17032519		
<i>P</i>	4.38	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 09 17	809	1.1−	0.5−	1993 09 22	809	1.2−	0.4+	1998 12 22	704	0.4+	0.4+
1993 09 17	809	1.2−	1.4+	1998 12 15	704	0.2+	0.5−	1998 12 22	704	0.5−	0.4−
1993 09 17	809	0.4−	0.6−	1998 12 15	704	0.3+	0.3−	1998 12 22	704	1.5−	0.1+
1993 09 18	809	1.8+	0.0	1998 12 15	704	0.1+	0.6−	1998 12 22	704	0.7−	0.1−
1993 09 18	809	(2.3+ 0.1−)		1998 12 15	704	0.3+	0.7−	1999 01 14	699	0.3−	0.3−
1993 09 18	809	1.7+	0.1−	1998 12 17	699	0.3+	0.9+	1999 01 14	699	0.3+	0.1+
1993 09 22	809	0.5+	0.3+	1998 12 17	699	0.4+	0.5+	1999 01 14	699	0.3+	0.1+
1993 09 22	809	0.0	0.7−	1998 12 17	699	0.3+	0.9+				

1998 YU₂₉ = 1990 UH₇ = 1990 WH

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26031005	ω	342.39121	+0.64575228	−0.74008394		
<i>a</i>	2.4292680	Ω	66.94542	+0.72280985	+0.51323800		
<i>e</i>	0.2589132	<i>i</i>	11.77873	+0.24606892	+0.43458315		
<i>P</i>	3.79	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 10 18	808	0.0	0.5+	1999 01 09	699	0.2+	0.2−	1999 02 11	704	0.2+	0.6+
1990 10 18	808	1.6−	0.6+	1999 01 09	699	0.5+	0.0	1999 02 18	704	0.5−	0.3−
1990 11 20	413	0.0	0.2+	1999 01 09	699	0.2+	0.3+	1999 02 18	704	0.8−	0.1−
1990 11 20	413	1.7+	1.3−	1999 02 11	704	0.4−	1.0+	1999 02 18	704	0.5−	0.1−
1998 12 27	699	0.6+	0.4−	1999 02 11	704	0.1+	0.4+	1999 02 18	704	0.2−	0.6−
1998 12 27	699	0.4+	0.0	1999 02 11	704	0.2+	0.1+	1999 02 18	704	0.6−	1.0−
1998 12 27	699	0.2+	0.4−	1999 02 11	704	0.6+	1.1+				

1999 AH₁ = 1996 HL₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24614505	ω	222.93807	+0.99498015	+0.08764382		
<i>a</i>	2.5215949	Ω	131.96772	−0.06474632	+0.93182721		
<i>e</i>	0.1293882	<i>i</i>	3.72476	−0.07630474	+0.35215993		
<i>P</i>	4.00	<i>H</i>	16.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 04 17	691	0.5−	0.1−	1999 01 07	691	1.0+	0.0	1999 02 09	691	0.3−	0.3+
1996 04 17	691	0.1−	0.0	1999 01 07	691	0.8+	0.2−	1999 02 09	691	0.2−	0.1+
1996 04 17	691	0.1+	0.0	1999 01 08	691	0.7−	0.1+	1999 02 12	691	0.5+	0.3−
1996 04 21	691	0.3+	0.2+	1999 01 08	691	1.1−	0.3+	1999 02 12	691	0.0	0.2−
1996 04 21	691	0.1+	0.0	1999 01 08	691	0.7−	0.0	1999 02 12	691	0.1+	0.1−
1999 01 07	691	1.0+	0.1−	1999 02 09	691	0.3−	0.0				

1999 AC₆ = 1995 AJ₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23230889	ω	271.19421	+0.94291288	−0.15839409		
<i>a</i>	2.6207494	Ω	97.97309	+0.25812213	+0.90342965		
<i>e</i>	0.3176317	<i>i</i>	17.20680	−0.21044777	+0.39840455		
<i>P</i>	4.24	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1995 01 02	010	1.4+	0.6−	1999 01 07	704	1.0+	0.3+	1999 01 10	699	0.0	0.1−
1995 01 02	010	1.3+	0.3−	1999 01 07	704	0.2−	1.1+	1999 01 11	704	0.6−	0.3+
1995 01 03	010	2.6−	1.2+	1999 01 07	704	0.6−	0.9+	1999 01 11	704	0.2+	1.4−
1995 01 04	010	0.0	0.8−	1999 01 07	704	0.1+	0.5+	1999 01 11	704	1.5−	0.6−
1998 12 17	699	0.4+	0.4−	1999 01 07	704	0.1−	1.3+	1999 01 11	704	0.6−	0.0
1998 12 17	699	0.4+	0.6−	1999 01 10	699	0.1+	0.0	1999 01 11	704	0.3−	0.1−
1998 12 17	699	0.8+	0.3−	1999 01 10	699	0.3+	0.5−				

1999 AE₆ = 1981 RK₂ = 1986 XH₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23621335	ω	178.07449	+0.43403986	-0.87273718		
<i>a</i>	2.5917897	Ω	246.14204	+0.82325363	+0.48497788		
<i>e</i>	0.0685248	<i>i</i>	14.14345	+0.36587275	-0.05591311		
<i>P</i>	4.17	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	3
Residuals in seconds of arc							
1981 09 07	095	0.2-	0.3-	1999 01 05	699	0.0	0.3+
1981 09 27	095	(1.1+	9.2+)	1999 01 05	699	0.3+	0.1+
1981 10 03	095	0.3+	0.3+	1999 01 08	704	0.1-	0.5+
1986 12 05	010	1.7-	0.6-	1999 01 08	704	0.2+	0.8+
1986 12 05	010	0.9+	0.4+	1999 01 08	704	0.3-	1.1-
1986 12 05	010	0.8+	0.2+	1999 01 08	704	0.4-	0.4-
1999 01 05	699	0.0	0.5+	1999 01 08	704	0.5+	0.1+

1999 AM₆ = 1992 AH₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27060675	ω	79.40907	+0.73071222	-0.68017165		
<i>a</i>	2.3672473	Ω	323.40662	+0.58166866	+0.66518046		
<i>e</i>	0.0448384	<i>i</i>	5.63489	+0.35738106	+0.30806084		
<i>P</i>	3.64	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1992 01 01	511	1.3-	0.3+	1999 01 08	704	1.0+	0.1-
1992 01 01	511	0.7+	0.6+	1999 01 08	704	0.1-	1.0-
1992 01 04	511	1.1+	0.3-	1999 01 08	704	1.2-	1.5-
1992 01 04	511	0.5-	0.6-	1999 01 08	704	1.0+	1.3-
1998 12 16	699	0.1-	0.5-	1999 01 11	704	1.0-	1.8+
1998 12 16	699	0.1+	0.1-	1999 01 11	704	0.1-	1.9+
1998 12 16	699	0.2+	0.1-	1999 01 11	704	1.0+	0.8+

1999 AL₂₁ = 1982 SS₇ = 1982 ST₁₀ = 1986 VG₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25954878	ω	197.75617	+0.96841062	+0.24765259		
<i>a</i>	2.4340158	Ω	147.86020	-0.22162577	+0.90836190		
<i>e</i>	0.1984751	<i>i</i>	3.13987	-0.11429301	+0.33696713		
<i>P</i>	3.80	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1982 09 18	095	0.4+	1.9+	1999 01 14	120	0.5-	0.9+
1982 09 26	095	1.0-	0.4-	1999 01 15	120	0.5+	0.5+
1986 11 04	675	0.0	0.9-	1999 01 15	120	0.0	0.3+
1986 11 04	675	0.5+	0.8-	1999 01 16	120	1.1-	0.7+
1999 01 14	120	0.5-	1.0+	1999 01 16	120	0.0	0.5+

1999 AQ₂₁ = 1977 DK₅ = 1977 DL₁₁ = 1981 JK₂

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26631938	ω	348.27013	-0.98441347	+0.17578442		
<i>a</i>	2.3925859	Ω	201.85647	-0.16014505	-0.90882480		
<i>e</i>	0.1292696	<i>i</i>	0.84235	-0.07268891	-0.37833492		
<i>P</i>	3.70	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc							
1977 02 18	381	1.3+	0.8+	1999 01 16	120	0.5-	0.3+
1977 02 19	381	0.4-	0.6+	1999 01 16	120	0.5+	0.1-
1977 02 19	381	0.3-	0.4+	1999 01 16	120	0.0	0.3-
1981 05 05	675	1.0+	0.6+	1999 01 16	120	0.0	0.4+
1981 05 10	675	1.3-	1.7-	1999 01 19	120	0.1+	0.2-

1999 01 14	120	0.2-	0.1+	1999 01 19	120	0.4-	0.4-	1999 03 22	691	0.5-	0.2-
1999 01 15	120	0.4-	0.1-	1999 01 20	120	0.1-	0.6-	1999 03 22	691	0.0	0.1-
1999 01 15	120	0.4-	0.6-	1999 01 20	120	0.3-	0.7-				
1999 01 15	120	0.8-	0.4+	1999 02 06	120	0.6+	0.1-				

1999 AS₂₁ = 1991 VN₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	57.17602		(2000.0)			P		Q		
n	0.30248152	ω	296.55428			+0.30529477		-0.94885236		
a	2.1978775	Ω	135.42060			+0.90938868		+0.26544085		
e	0.0543277	i	6.58266			+0.28250192		+0.17093959		
P	3.26	H	15.2			G	0.15	U	5	
Residuals in seconds of arc										
1991 11 09	809	(2.8+	3.0+)	1999 01 16	120	0.8-	0.1-	1999 02 10	704	0.0 0.3+
1991 11 09	809	0.5-	0.8+	1999 01 16	120	1.8+	0.7-	1999 02 10	704	0.0 0.5+
1991 11 09	809	0.2-	0.9+	1999 01 16	120	0.6+	0.4-	1999 02 10	704	(2.3- 1.1+)
1991 11 12	809	0.7+	1.5-	1999 01 16	120	0.2+	0.7-	1999 02 13	691	0.3+ 0.4+
1991 11 12	809	(1.8-	3.6-)	1999 01 16	120	0.7+	0.3+	1999 02 13	691	0.1+ 0.2+
1991 11 12	809	(1.8-	2.8-)	1999 01 19	120	0.3+	0.4-	1999 02 13	691	0.1+ 0.1-
1999 01 13	699	0.3+	0.1-	1999 01 19	120	0.4+	0.5-	1999 02 13	691	0.1- 0.2-
1999 01 13	699	0.3+	0.3+	1999 01 23	691	0.8-	0.1-	1999 02 13	691	0.0 0.0
1999 01 13	699	0.6+	0.0	1999 01 23	691	0.8-	0.4-	1999 02 24	699	0.2- 0.3+
1999 01 15	120	0.9-	1.6+	1999 01 23	691	1.1-	0.3-	1999 02 24	699	0.5- 0.0
1999 01 15	120	0.2-	0.2+	1999 02 10	704	0.0	0.4-	1999 02 24	699	0.1- 0.3+
1999 01 15	120	0.4-	0.3-	1999 02 10	704	0.5+	0.5+			

1999 AT₂₁ = 1977 DK₉ = 1988 WL

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	114.08283		(2000.0)			P		Q			
n	0.31118028	ω	90.01574			+0.97572732		-0.21895380			
a	2.1567245	Ω	282.63185			+0.19928297		+0.89522001			
e	0.0829245	i	0.23069			+0.09078823		+0.38812417			
P	3.17	H	14.8			G	0.15	U	5		
Residuals in seconds of arc											
1977 02 19	381	0.2-	0.6+	1999 01 16	120	0.9+	0.7-	1999 02 10	691	0.1-	0.4+
1977 02 19	381	0.5+	0.1+	1999 01 16	120	1.0-	0.6+	1999 02 10	691	(0.3-	2.7+)
1988 11 17	399	1.2+	1.8+	1999 01 16	120	0.6+	0.2-	1999 02 12	699	1.1+	0.3+
1988 11 17	399	1.3-	0.1-	1999 01 16	120	0.2-	1.0-	1999 02 12	699	0.6+	0.7+
1988 11 17	399	0.9+	0.4-	1999 01 19	120	(3.3+	1.7-)	1999 02 12	699	1.0+	0.2+
1988 11 17	399	1.0-	0.6-	1999 01 19	120	1.3+	1.7-	1999 02 23	691	0.4-	0.0
1999 01 15	120	0.3+	0.3-	1999 01 23	691	0.7-	0.2-	1999 02 23	691	0.4-	0.5+
1999 01 15	120	1.3-	1.1+	1999 01 23	691	0.8-	0.7-	1999 02 23	691	0.5-	0.0
1999 01 15	120	0.8-	0.1-	1999 01 23	691	0.8-	0.5-				
1999 01 16	120	0.6+	0.0	1999 02 10	691	0.0	0.8+				

1999 AC₂₄ = 1994 GN₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	86.20755		(2000.0)		P		Q			
<i>n</i>	0.36632563	ω	355.17735		+0.81915556		−0.52618465			
<i>a</i>	1.9344515	Ω	39.46452		+0.53752283		+0.56537526			
<i>e</i>	0.1121928	<i>i</i>	21.04885		+0.20013339		+0.63520117			
<i>P</i>	2.69	<i>H</i>	14.7		<i>G</i>	0.15	<i>U</i>	5		
Residuals in seconds of arc										
1994 04 11	675	(2.3+	0.9+)	1999 01 15	703	0.1−	0.0	1999 02 09	704	0.3− 0.8−
1994 04 11	675	0.7−	0.2−	1999 01 17	703	0.1−	0.2−	1999 02 09	704	0.1− 0.5+
1994 04 13	675	0.2+	0.0	1999 01 17	703	0.1+	0.6+	1999 02 09	704	0.1− 0.1+
1994 04 13	675	0.6+	0.2+	1999 01 19	703	0.0	0.0	1999 02 09	704	0.2+ 0.9+
1999 01 15	703	0.2−	0.0	1999 01 19	703	0.2−	0.4−			
1999 01 15	703	0.4+	0.0	1999 02 09	704	0.4+	0.7−			

1999 AJ₂₄ = 1996 NK

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	139.36709		(2000.0)		P		Q				
<i>n</i>	0.17958657	ω	30.32726		+0.88190979		+0.42950984				
<i>a</i>	3.1113830	Ω	302.98020		-0.46551892		+0.72845060				
<i>e</i>	0.1542583	<i>i</i>	13.39343		-0.07434559		+0.53374247				
<i>P</i>	5.49	<i>H</i>	13.5		<i>G</i>	0.15	<i>U</i>	3			
Residuals in seconds of arc											
1996 07 14	566	0.2+	0.2+	1999 01 13	725	0.0	0.1-	1999 01 25	725	0.6+	0.3+
1996 07 14	566	0.2-	0.1+	1999 01 13	725	0.3+	0.4+	1999 01 25	725	0.4-	0.2-
1996 07 14	566	0.2-	0.2+	1999 01 15	725	0.1-	0.5-	1999 02 21	725	0.0	0.3+
1996 07 15	566	0.0	0.4-	1999 01 15	725	0.3-	0.1-	1999 02 21	725	0.0	0.2-
1996 07 15	566	0.1+	0.2+	1999 01 24	725	0.2+	0.4+	1999 02 22	725	0.1-	0.3-
1996 07 15	566	0.0	0.4-	1999 01 24	725	0.2-	0.1-	1999 02 22	725	0.1+	0.1+

1999 AE₂₈ = 1986 VG₂ = 1990 WM₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	233.99050		(2000.0)			P		Q		
<i>n</i>	0.26893707	ω	138.22717			-0.02308533		+0.99527365		
<i>a</i>	2.3770351	Ω	130.22669			-0.94686236		+0.00850997		
<i>e</i>	0.1368258	<i>i</i>	7.09675			-0.32080951		-0.09673651		
<i>P</i>	3.66	<i>H</i>	14.8		<i>G</i>	0.15		<i>U</i>	5	
Residuals in seconds of arc										
1986 11 03	010	2.0-	1.6-	1999 01 18	691	1.1-	0.4-	1999 02 13	704	0.7- 0.4-
1986 11 03	010	1.2+	1.4-	1999 01 18	691	1.0-	0.7-	1999 02 13	704	(0.3+ 2.1-)
1986 11 03	010	1.9+	0.2-	1999 01 18	691	1.0-	0.8-	1999 02 13	704	0.7- 0.5+
1990 11 22	809	1.8+	1.9+	1999 01 21	910	0.1-	0.6-	1999 02 13	704	0.8+ 0.1+
1990 11 22	809	1.3-	1.5+	1999 01 21	910	0.1-	0.5-	1999 02 13	704	1.1+ 0.0
1990 11 22	809	1.4-	0.9+	1999 01 21	910	0.2-	0.6-	1999 02 24	699	0.4+ 0.9+
1999 01 11	691	0.1+	0.6-	1999 02 10	704	0.6+	0.4+	1999 02 24	699	0.8+ 1.5+
1999 01 11	691	0.0	0.4-	1999 02 10	704	0.7+	0.7+	1999 02 24	699	1.3+ 0.6-
1999 01 11	691	0.2+	0.3-	1999 02 10	704	1.6-	0.3-			

1999 AN₃₀ = 1986 WX = 1994 WX₉

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	97.32586		(2000.0)		P		Q				
<i>n</i>	0.25571864	ω	90.77296		+0.99483624		-0.09831375				
<i>a</i>	2.4582599	Ω	274.86937		+0.08011897		+0.91317298				
<i>e</i>	0.1804200	<i>i</i>	1.44949		+0.06230416		+0.39553700				
<i>P</i>	3.85	<i>H</i>	15.1		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1986 11 25	046	(9.6-	0.5-)	1994 12 04	691	0.4-	0.7+	1999 01 14	691	1.3-	0.0
1986 11 25	046	(6.8-	0.7+)	1994 12 04	691	0.3-	0.6+	1999 01 14	691	1.5-	0.1-
1986 11 26	046	0.8-	0.9-	1998 12 13	691	1.0+	0.0	1999 01 22	691	0.1+	0.8-
1986 11 26	046	1.2+	0.8-	1998 12 13	691	0.5+	0.6-	1999 01 22	691	0.2+	0.4-
1994 11 29	691	0.2-	0.9+	1998 12 13	691	0.7+	0.6-	1999 01 22	691	0.2+	0.7-
1994 11 29	691	0.6+	0.7+	1998 12 23	691	1.8+	0.4+				
1994 11 29	691	0.4+	1.2+	1999 01 14	691	1.5-	0.1+				

1999 AU₃₀ = 1992 EQ₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	38.36908		(2000.0)			P		Q	
<i>n</i>	0.27569747	<i>ω</i>	289.49866			+0.48252289		−0.87303411	
<i>a</i>	2.3380163	<i>Ω</i>	131.44542			+0.83478087		+0.43398449	
<i>e</i>	0.2649366	<i>i</i>	5.40374			+0.26516517		+0.22241607	
<i>P</i>	3.57	<i>H</i>	16.1			<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc									
1992 03 01	809	0.2−	0.1+	1999 01 14	691	0.3−	0.1+	1999 02 10	691 0.0 0.3−
1992 03 04	809	0.2+	0.0	1999 01 14	691	0.0	0.1−	1999 02 11	699 0.5− 0.9+

1999 01 10	699	1.1+	0.5+	1999 01 17	691	0.6-	0.1-	1999 02 11	699	0.1-	0.1-
1999 01 10	699	0.1+	0.1-	1999 01 17	691	0.8-	0.0	1999 02 11	699	0.3+	0.2+
1999 01 10	699	0.4+	0.0	1999 02 10	691	0.2-	0.5-	1999 02 13	691	0.7+	0.2-
1999 01 14	691	0.2-	0.1+	1999 02 10	691	0.3-	0.3-	1999 02 13	691	0.5+	0.2-

1999 AT₃₁ = 1982 VV₇ = 1991 PN₁₂ = 1994 FA₁

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	215.48934		(2000.0)		P		Q				
n	0.19862566	ω	288.20564		+0.25747386		+0.96628354				
a	2.9092373	Ω	356.71294		-0.87409504		+0.23210400				
e	0.0156788	i	1.82301		-0.41190420		+0.11146233				
P	4.96	H	13.6		G	0.15	U	2			
Residuals in seconds of arc											
1982 11 09	095	0.1-	0.3+	1994 03 18	104	0.3-	0.6+	1999 02 10	704	0.7-	1.1+
1991 08 05	675	0.1+	0.4+	1994 03 18	104	0.2+	0.5+	1999 02 10	704	0.1+	0.5+
1991 08 05	675	0.2+	0.6+	1994 03 18	104	0.6-	0.4+	1999 02 10	704	0.5-	0.4+
1991 08 10	675	0.2+	0.1-	1994 03 18	104	0.1-	0.2+	1999 02 12	699	0.2-	0.3-
1991 08 10	675	0.8-	0.4-	1999 01 14	691	0.2-	0.8-	1999 02 12	699	0.6+	0.5+
1994 03 17	104	0.1-	0.7+	1999 01 14	691	0.2-	0.5-	1999 02 12	699	0.4+	0.3-
1994 03 17	104	0.8+	0.6+	1999 01 14	691	0.1+	0.5-	1999 02 13	704	0.3-	0.6-
1994 03 17	104	0.2+	0.5+	1999 01 18	691	0.8+	0.1-	1999 02 13	704	0.2-	1.1-
1994 03 17	104	0.0	0.1-	1999 01 18	691	0.6+	0.2-	1999 02 13	704	0.2+	0.2-
1994 03 17	104	0.3+	0.6-	1999 01 18	691	0.5+	0.3-	1999 02 13	704	0.4-	0.3-
1994 03 17	104	0.3+	0.9-	1999 02 10	704	0.3-	0.4+	1999 02 13	704	0.0	0.1-
1994 03 18	104	0.0	0.6+	1999 02 10	704	0.8-	0.6+				

1999 BV = 1994 RF₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	91.62289	(2000.0)		P			Q				
n	0.29124966	ω	353.36280		+0.98639014		-0.16177655				
a	2.2540269	Ω	16.03755		+0.15532039		+0.85818616				
e	0.2074017	i	6.10352		+0.05394507		+0.48718052				
P	3.38	H	14.5	G	0.15	U	5				
Residuals in seconds of arc											
1994 09 07	905	1.1+	0.4+	1999 01 17	725	1.6-	0.9+	1999 01 25	725	0.6-	0.1+
1994 09 07	905	1.3+	0.7+	1999 01 19	704	2.8+	0.1-	1999 01 25	725	0.4-	0.4+
1994 09 09	905	2.3-	1.2-	1999 01 19	704	2.5+	0.3-	1999 02 21	725	0.2+	0.4-
1999 01 16	725	0.7-	0.1-	1999 01 19	704	0.3-	0.6-	1999 02 21	725	0.1+	0.1-
1999 01 16	725	0.7-	0.4+	1999 01 19	704	1.2+	0.9-	1999 02 22	725	0.6-	0.1-
1999 01 17	725	0.7-	1.0+	1999 01 25	725	0.7-	0.0	1999 02 22	725	0.7-	0.5-

1999 BR₃ = 1975 VY₈

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	36.85940		(2000.0)			P		Q			
n	0.26104369	ω	127.58712			+0.20896980		-0.96535252			
a	2.4247144	Ω	309.60614			+0.82107978		+0.26000867			
e	0.1984849	i	11.70396			+0.53118698		-0.02213597			
P	3.78	H	13.5		G	0.15		U	4		
Residuals in seconds of arc											
1975 11 08	095	0.4-	0.3-	1999 01 22	691	0.4-	0.4-	1999 02 12	704	1.1+	0.6+
1975 11 12	095	(2.0+	4.1+)	1999 01 22	691	0.2-	0.3-	1999 02 12	704	0.0	0.2+
1975 11 27	095	1.5-	1.1+	1999 01 22	691	0.4-	0.9+	1999 02 12	704	0.4-	0.0
1975 11 28	095	1.8+	0.6-	1999 02 11	732	0.4-	0.9-	1999 02 12	704	0.5-	0.7+
1999 01 19	120	0.2-	0.3+	1999 02 11	732	0.3-	0.7-	1999 02 12	704	0.9+	0.2+
1999 01 19	120	0.3-	0.1+	1999 02 11	699	0.5+	0.3+	1999 02 16	704	0.0	0.6-
1999 01 20	120	0.2-	0.2+	1999 02 11	699	0.3+	0.5+	1999 02 16	704	0.7+	0.5+
1999 01 20	120	0.2-	0.1-	1999 02 11	699	0.6+	0.3+	1999 02 16	704	0.2+	0.6-
1999 01 20	120	0.6-	0.1-	1999 02 12	732	0.0	0.4-	1999 02 16	704	0.8+	0.1+
1999 01 21	120	0.4-	0.4-	1999 02 12	732	0.0	0.5-	1999 02 16	704	0.1+	0.7+
1999 01 21	120	0.6-	0.4-	1999 02 12	732	0.2-	0.4-				

1999 BX₄ = 1994 GE₆ = 1997 WQ₃₃

Id. S. Nakano, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	80.06514		(2000.0)	P	Q
<i>n</i>	0.17468507	ω	37.93018	+0.57558569	-0.81770707
<i>a</i>	3.1693159	Ω	16.93332	+0.74382492	+0.51972457
<i>e</i>	0.1310442	<i>i</i>	1.47585	+0.33974344	+0.24747025
<i>P</i>	5.64	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1994 04 06	691	0.0	0.3+	1997 12 04	704	0.3-	0.8+	1999 02 10	704	0.7+	0.5+
1994 04 06	691	0.1+	0.0	1997 12 04	704	1.7-	0.8+	1999 02 10	704	1.4+	0.9+
1994 04 06	691	0.1+	0.1+	1997 12 04	704	0.5-	0.5+	1999 02 10	704	1.7+	0.5+
1994 04 16	691	0.2-	0.3-	1999 01 19	910	0.1+	0.2-	1999 02 10	704	0.4-	0.1+
1994 04 16	691	0.1-	0.3-	1999 01 20	910	0.0	0.1-	1999 02 10	704	0.8-	0.1-
1994 04 16	691	0.0	0.0	1999 01 20	910	0.2-	0.3-	1999 02 12	699	0.0	0.7+
1997 11 29	704	0.5+	0.4-	1999 01 21	910	0.1-	0.2-	1999 02 12	699	0.8-	1.1+
1997 11 29	704	0.1+	0.3-	1999 01 21	910	0.1-	0.3-	1999 02 12	699	1.1+	0.1+
1997 11 29	704	0.3+	1.0-	1999 01 21	910	0.2-	0.1-	1999 02 13	704	1.5-	0.6-
1997 11 29	704	0.1+	0.8-	1999 01 23	910	0.4-	0.7-	1999 02 13	704	(1.6-	3.3+)
1997 12 04	704	0.9+	0.1+	1999 01 23	910	0.2-	0.8-	1999 02 13	704	(2.7-	2.2+)
1997 12 04	704	0.7+	0.4+	1999 01 23	910	0.4-	0.5-				

1999 BG₆ = 1996 LO₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	343.09665		(2000.0)	P	Q
<i>n</i>	0.25904813	ω	24.01235	-0.99647445	+0.01775440
<i>a</i>	2.4371509	Ω	156.55785	-0.03513884	-0.97581861
<i>e</i>	0.1043890	<i>i</i>	11.89469	+0.07618361	-0.21785965
<i>P</i>	3.80	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1996 06 08	691	0.4-	0.4-	1999 01 20	910	0.2-	0.1-	1999 03 19	699	0.4+	0.1+
1996 06 08	691	0.4-	0.1+	1999 01 20	910	0.2-	0.0	1999 03 19	699	0.1-	0.5-
1996 06 08	691	0.4-	0.0	1999 01 20	910	0.0	0.1+	1999 03 19	699	0.3+	0.0
1996 06 16	691	0.4+	0.2-	1999 01 22	910	0.2+	0.1-	1999 03 23	699	0.7+	0.9+
1996 06 16	691	0.4+	0.2-	1999 01 22	910	0.2+	0.2-	1999 03 23	699	0.4-	0.6+
1996 06 16	691	0.4+	0.5+	1999 01 22	910	0.1+	0.0	1999 03 23	699	1.0-	0.8-

1999 BP₉ = 1991 LN

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	240.62624		(2000.0)	P	Q
<i>n</i>	0.21475406	ω	119.18303	-0.25278642	+0.96003167
<i>a</i>	2.7616912	Ω	135.63604	-0.93662674	-0.21168597
<i>e</i>	0.2627280	<i>i</i>	9.89534	-0.24254767	-0.18310720
<i>P</i>	4.59	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1991 06 13	675	0.4+	0.5+	1991 06 16	675	0.3+	1.1-	1999 01 24	552	0.1-	0.3+
1991 06 13	675	1.2+	1.6+	1991 06 16	675	0.6-	0.4-	1999 02 06	552	0.2-	1.2+
1991 06 14	675	0.5+	0.4+	1999 01 21	552	0.6-	0.1+	1999 02 06	552	0.8+	0.3-
1991 06 14	675	0.7-	0.3+	1999 01 21	552	0.1+	0.4+	1999 02 06	552	0.5-	1.1-
1991 06 15	675	1.9-	0.3-	1999 01 24	552	0.2+	0.8-				
1991 06 15	675	0.8+	1.0-	1999 01 24	552	0.3+	0.2+				

1999 BC₁₁ = 1985 DT₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	256.82817		(2000.0)	P	Q
<i>n</i>	0.28002637	ω	291.90478	-0.21230603	+0.97436407
<i>a</i>	2.3138583	Ω	325.56984	-0.84094696	-0.22097041
<i>e</i>	0.0961201	<i>i</i>	7.56511	-0.49772921	-0.04226992
<i>P</i>	3.52	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1985 02 24	675	0.3+	1.4+	1999 01 20	910	0.1+	0.2+	1999 02 12	704	0.3+	0.3+
1985 02 24	675	(3.8+	1.0+)	1999 01 20	910	0.1+	0.3+	1999 02 16	704	0.9-	0.2+
1985 02 24	675	(6.3+	0.6+)	1999 01 20	910	0.3+	0.3+	1999 02 16	704	1.4-	1.0-
1985 02 26	675	1.4+	0.0	1999 01 23	910	0.0	0.1+	1999 02 16	704	1.0-	1.2-
1985 02 27	675	(2.7-	0.5-)	1999 01 23	910	0.1+	0.2+	1999 02 16	704	0.3-	1.3-
1985 02 27	675	0.8-	0.1+	1999 01 23	910	0.1-	0.2+	1999 02 16	704	0.2+	0.4-
1999 01 14	699	0.3+	0.2-	1999 02 12	704	0.1-	0.0	1999 03 22	699	0.0	0.4-
1999 01 14	699	1.2+	0.4+	1999 02 12	704	1.1+	0.3+	1999 03 22	699	0.0	0.1+
1999 01 14	699	0.1+	0.0	1999 02 12	704	0.3+	0.1+	1999 03 22	699	0.8-	0.6+

1999 BD₁₁ = 1992 DN₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	270.39856		(2000.0)	P	Q
<i>n</i>	0.27968752	ω	266.91758	-0.24420811	+0.96971176
<i>a</i>	2.3157268	Ω	348.94407	-0.87982442	-0.22357663
<i>e</i>	0.1933622	<i>i</i>	1.38537	-0.40776390	-0.09834931
<i>P</i>	3.52	<i>H</i>	16.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1992 02 25	691	0.3-	1.1+	1999 01 20	910	0.0	0.1-	1999 03 12	691	0.5-	0.3-
1992 02 25	691	0.6-	0.7+	1999 01 20	910	0.1+	0.0	1999 03 12	691	0.1-	0.9-
1992 02 25	691	0.2-	1.3+	1999 01 20	910	0.1+	0.0	1999 03 12	691	0.2+	0.2-
1992 03 06	691	0.0	0.9+	1999 01 23	910	0.1-	0.4-	1999 03 20	691	0.2-	0.2-
1992 03 06	691	1.6+	2.9-	1999 01 23	910	0.0	0.0	1999 03 20	691	0.4-	0.0
1992 03 06	691	0.2+	0.7+	1999 01 23	910	0.3+	0.2+	1999 03 20	691	0.0	0.0

1999 BG₁₁ = 1980 FC₄

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	92.88950		(2000.0)	P	Q
<i>n</i>	0.20445885	ω	38.81182	+0.74360468	-0.66861807
<i>a</i>	2.8536373	Ω	3.14974	+0.60692305	+0.67410952
<i>e</i>	0.1108537	<i>i</i>	1.45916	+0.28052895	+0.31388888
<i>P</i>	4.82	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1980 03 16	809	0.7-	0.3+	1999 01 20	910	0.1+	0.3+	1999 02 13	704	0.4+	1.7-
1980 03 16	809	0.3+	0.1-	1999 01 20	910	0.0	0.1+	1999 02 13	704	0.9+	1.3-
1980 03 16	809	0.4+	0.2+	1999 01 20	910	0.2+	0.3+	1999 02 13	704	1.7-	0.2-
1980 03 16	809	0.1-	0.1+	1999 01 23	910	0.1-	0.1-	1999 02 13	704	1.0+	0.9-
1980 03 17	809	0.7+	0.1-	1999 01 23	910	0.1+	0.2-	1999 02 13	704	0.5+	0.0
1980 03 17	809	0.1-	0.1+	1999 01 23	910	0.0	0.1-	1999 02 23	699	0.0	0.3+
1980 03 17	809	0.1+	0.1+	1999 02 10	704	0.6-	0.2+	1999 02 23	699	0.5+	1.1+
1980 03 17	809	0.4+	0.1-	1999 02 10	704	0.0	0.9+	1999 02 23	699	0.0	1.4+
1980 03 23	809	1.1-	0.6-	1999 02 10	704	1.3-	0.1+				

1999 BK₁₃ = 1979 SZ₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	92.86873		(2000.0)	P	Q
<i>n</i>	0.17281645	ω	249.61282	+0.55928427	-0.82629604
<i>a</i>	3.1921209	Ω	165.78250	+0.82504407	+0.54701616
<i>e</i>	0.1297105	<i>i</i>	15.73458	+0.08064360	+0.13419458
<i>P</i>	5.70	<i>H</i>	12.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1979 09 20	675	0.4-	0.5+	1999 01 26	120	0.1+	0.5+	1999 02 20	699	0.0	1.3+
1979 09 21	675	0.4+	0.2-	1999 01 28	120	0.1-	0.2-	1999 02 20	699	(0.2-	2.3+)
1999 01 25	120	0.6+	0.0	1999 01 28	120	0.6+	0.6+	1999 02 20	699	0.3+	0.7+
1999 01 25	120	0.4-	0.1-	1999 02 12	120	0.3-	0.6-	1999 03 12	120	(2.5-	0.4+)
1999 01 25	120	0.0	0.8-	1999 02 12	120	0.2-	1.1-	1999 03 12	120	(2.7+	1.5+)
1999 01 26	120	0.2-	0.4+	1999 02 12	120	1.2-	0.0	1999 03 12	120	1.4+	0.1-
1999 01 26	120	0.8+	0.2-	1999 02 12	120	0.7-	0.1-				
1999 01 26	120	0.3-	0.1+	1999 02 13	120	0.5-	0.1-				

1999 BN₁₃ = 1992 KV = 1993 RG₁₅

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27140325	ω	24.37281	−0.98285628	+0.18418672		
<i>a</i>	2.3626135	Ω	166.23324	−0.17436455	−0.91394188		
<i>e</i>	0.1402809	<i>i</i>	1.99718	−0.05992104	−0.36164277		
<i>P</i>	3.63	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1992 05 28	372	0.1−	0.6+	1999 01 25	120	0.5−	0.5−	1999 02 20	699	0.8+	0.2+
1992 05 28	372	0.2+	0.2−	1999 01 25	120	0.6+	0.5+	1999 02 20	699	0.5+	0.3+
1993 09 15	809	1.3−	1.6−	1999 01 26	120	0.1+	0.1+	1999 02 20	699	0.9+	0.5+
1993 09 15	809	(1.9−	3.1−)	1999 01 26	120	0.5+	0.2−	1999 03 09	691	0.2−	0.7−
1993 09 15	809	(3.1−	3.8−)	1999 01 28	120	0.3+	0.2+	1999 03 09	691	0.1−	0.6−
1993 09 19	675	1.2+	0.4+	1999 02 12	120	0.4+	0.3+	1999 03 09	691	0.1−	0.7−
1993 09 19	675	1.2+	0.7−	1999 02 12	120	0.6−	1.2+	1999 03 16	691	0.8−	0.4−
1993 09 20	691	0.2+	0.5−	1999 02 12	120	0.7−	0.5−	1999 03 16	691	0.7−	0.1−
1993 09 20	691	0.2+	0.3+	1999 02 13	120	0.5+	0.3−	1999 03 16	691	0.7−	0.2−
1993 09 20	691	0.4+	0.1+	1999 02 13	120	0.1−	0.2−	1999 03 18	691	0.1+	0.3−
1993 09 22	809	(3.4−	3.0−)	1999 02 13	120	0.3−	0.6+	1999 03 18	691	0.1+	0.3−
1993 09 22	809	(0.7−	2.9−)	1999 02 13	120	0.6−	0.3+	1999 03 18	691	0.3+	0.3−
1993 09 22	809	1.6−	1.6−	1999 02 13	120	1.1−	0.0	1999 03 23	699	1.4+	1.0+
1993 09 23	675	0.4+	1.7+	1999 02 13	120	0.1−	0.6+	1999 03 23	699	0.2+	0.1−
1993 09 23	675	0.3−	1.1+	1999 02 13	120	0.4+	0.3−	1999 03 23	699	0.0	0.6−
1999 01 25	120	0.0	0.1+	1999 02 13	120	0.3+	0.2−				

1999 BA₁₄ = 1992 FU

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28553576	ω	133.64393	−0.99249492	+0.10336497		
<i>a</i>	2.2839979	Ω	52.39636	−0.12166548	−0.88842935		
<i>e</i>	0.1123627	<i>i</i>	4.73089	+0.01230250	−0.44722362		
<i>P</i>	3.45	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 03 23	400	0.2+	1.0+	1999 01 26	910	0.2−	0.3−	1999 03 19	704	0.9−	0.3−
1992 03 23	400	0.5+	2.2−	1999 01 26	910	0.2−	0.4−	1999 03 20	704	0.3+	0.4+
1992 03 24	400	1.3−	0.5+	1999 01 26	910	0.3−	0.2−	1999 03 20	704	0.4−	1.1+
1992 03 24	400	1.3+	2.0+	1999 03 19	704	0.5+	0.4+	1999 03 20	704	0.1−	0.3+
1999 01 22	910	0.0	0.0	1999 03 19	704	0.5+	1.8−	1999 03 20	704	0.1+	0.6+
1999 01 22	910	0.0	0.3−	1999 03 19	704	1.5+	0.5−	1999 03 20	704	0.4−	0.9−
1999 01 22	910	0.2+	0.1−	1999 03 19	704	1.3−	0.0				

1999 BM₁₅ = 1997 NP₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24224197	ω	306.22513	−0.28476468	−0.95498176		
<i>a</i>	2.5486085	Ω	159.82928	+0.93859014	−0.29540539		
<i>e</i>	0.1421036	<i>i</i>	13.95905	+0.19482720	+0.02730375		
<i>P</i>	4.07	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 07 10	599	0.2−	0.1+	1999 01 26	120	0.7+	0.1−	1999 02 12	120	1.1+	0.5−
1997 07 10	599	1.0+	0.3+	1999 01 26	120	0.7+	0.9−	1999 02 12	120	1.9−	0.2+
1997 10 29	566	0.2−	0.1+	1999 01 26	120	0.6−	0.3+	1999 02 12	120	1.1+	0.4+
1997 10 29	566	0.1−	0.1−	1999 01 28	120	0.4+	0.6+	1999 03 13	120	1.1−	0.6−
1997 10 29	566	0.3−	0.2−	1999 01 28	120	0.6−	0.1−	1999 03 13	120	0.5−	0.8+
1999 01 26	120	1.7+	0.4+	1999 01 29	120	0.6−	0.1−				
1999 01 26	120	0.7−	0.6+	1999 01 29	120	0.7+	1.1−				

1999 BQ₁₅ = 1985 SF₇ = 1985 TB₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.16886985	ω	65.58462	+0.40513048	−0.91424930		
<i>a</i>	3.2416638	Ω	0.56884	+0.60869661	+0.26631085		
<i>e</i>	0.1815597	<i>i</i>	24.92571	+0.68217134	+0.30533054		
<i>P</i>	5.84	<i>H</i>	12.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1985 09 17	054	0.2+	0.6−	1999 01 18	327	0.3−	0.2−	1999 02 11	704	0.3−	0.8+
1985 10 10	054	2.4−	0.6+	1999 01 26	327	0.4+	0.3+	1999 02 18	704	0.2−	0.6−
1985 10 12	054	(4.6−	0.8−)	1999 01 26	327	0.8+	0.1−	1999 02 18	704	0.0	0.3−
1985 10 14	010	0.4−	0.5+	1999 01 26	327	0.3+	0.1+	1999 02 18	704	0.3−	0.3+
1985 10 15	010	(4.1−	2.5+)	1999 02 11	704	0.0	0.1+	1999 02 18	704	0.0	0.6−
1985 10 18	054	2.7+	0.5−	1999 02 11	704	0.4+	0.2+	1999 02 18	704	0.2+	0.5−
1999 01 18	327	0.5−	0.1−	1999 02 11	704	0.8−	0.3+				
1999 01 18	327	0.4−	0.2−	1999 02 11	704	0.6+	0.5+				

1999 BW₂₄ = 1987 SO₂₄ = 1987 UG₇ = 1992 BT₁ = 1996 FR₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28466775	ω	186.80268	+0.75880620	−0.64791704		
<i>a</i>	2.2886385	Ω	213.87966	+0.60304788	+0.73745314		
<i>e</i>	0.0977398	<i>i</i>	6.84696	+0.24606179	+0.19069969		
<i>P</i>	3.46	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1987 09 23	095	0.3−	0.9+	1996 03 25	327	0.5+	0.6+	1999 01 18	704	0.5+	0.0
1987 10 23	095	(1.9−	4.3+)	1997 08 01	566	0.1+	0.2+	1999 01 18	704	1.5−	1.0−
1992 01 30	675	0.7−	1.3+	1997 08 01	566	0.6−	0.5+	1999 01 18	704	0.6+	0.3−
1992 01 31	675	0.9+	0.8−	1997 08 01	566	0.3+	0.3+	1999 01 18	704	0.1−	0.7+
1992 01 31	675	0.0	0.4+	1998 12 18	699	0.8+	1.3+	1999 01 18	704	(2.2−	2.6−)
1996 03 23	566	0.3−	0.0	1998 12 18	699	0.4−	1.5+	1999 01 20	704	0.4−	1.3−
1996 03 23	566	0.2−	0.2−	1998 12 18	699	0.0	0.6+	1999 01 20	704	1.0−	0.5−
1996 03 23	566	0.0	0.0	1999 01 14	699	0.3+	0.5+	1999 01 20	704	0.3+	0.5−
1996 03 25	327	0.1−	0.6+	1999 01 14	699	0.4+	0.5+	1999 01 20	704	0.2−	1.6−
1996 03 25	327	0.7+	0.9+	1999 01 14	699	0.6+	0.3+				

1999 BL₂₅ = 1980 FB₂ = 1981 QZ₃ = 1985 PP₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25207058	ω	122.97987	+0.37725850	+0.92585121		
<i>a</i>	2.4819209	Ω	169.11853	−0.88356938	+0.36688478		
<i>e</i>	0.1356379	<i>i</i>	6.63352	−0.27745482	+0.09052674		
<i>P</i>	3.91	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1980 03 16	809	0.2−	0.1−	1980 03 17	809	0.4+	0.1−	1999 01 10	699	0.1+	0.7−
1980 03 16	809	0.1+	0.3−	1981 08 30	675	0.5−	0.7+	1999 01 18	704	1.7+	0.6+
1980 03 16	809	0.1+	0.3+	1981 08 31	675	0.2+	0.9+	1999 01 18	704	0.1−	0.4+
1980 03 16	809	0.1−	0.2−	1985 08 14	010	0.1+	1.8−	1999 01 18	704	0.1−	0.4−
1980 03 17	809	0.0	0.5+	1985 08 16	010	0.1−	0.8+	1999 01 20	704	0.4−	0.9−
1980 03 17	809	0.2−	0.5+	1999 01 10	699	0.3+	0.1−	1999 01 20	704	1.3−	1.8+
1980 03 17	809	0.1−	0.1−	1999 01 10	699	0.7+	1.0−	1999 01 20	704	0.7−	0.7+

1999 BP₂₅ = 1982 DY₄ = 1987 HC₂ = 1990 AZ

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22643342	ω	134.68664	+0.49951345	+0.86615416		
<i>a</i>	2.6658908	Ω	165.25683	−0.81176305	+0.47452272		
<i>e</i>	0.0816570	<i>i</i>	3.65565	−0.30253439	+0.15686031		
<i>P</i>	4.35	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

1999 APR. 2

M.P.C. 34233

Residuals in seconds of arc

1982 02 22	010	0.0	0.0	1999 01 10	699	(2.4− 0.2−)	1999 01 20	704	0.6− 0.6+
1987 04 29	046	(3.0− 0.5−)		1999 01 10	699	0.4− 0.4−	1999 01 20	704	0.3− 0.9+
1987 04 29	046	1.5− 0.5+		1999 01 18	704	0.6+ 1.3−	1999 01 20	704	(2.6− 2.3+)
1987 04 29	046	1.5+ 0.5−		1999 01 18	704	0.7+ 0.0	1999 02 23	699	1.1− 0.5+
1987 04 29	046	(3.5+ 1.7−)		1999 01 18	704	(0.6+ 2.3+)	1999 02 23	699	(2.3− 0.4−)
1990 01 04	511	(54.5− 2.1−)		1999 01 18	704	0.7+ 0.8+	1999 02 23	699	1.2+ 0.5−
1990 01 04	511	(54.3− 2.0−)		1999 01 18	704	0.5+ 0.4−			
1999 01 10	699	0.8− 0.1−		1999 01 20	704	0.4− 0.0			

1999 BQ₂₈ = 1997 WF₄₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	99.85368	(2000.0)	<i>P</i>	Williams	<i>Q</i>
<i>n</i>	0.17523615	ω	10.74953	+0.94953214	−0.31366185
<i>a</i>	3.1626678	Ω	7.53164	+0.28651193	+0.86441094
<i>e</i>	0.1835410	<i>i</i>	0.97293	+0.12766999	+0.39295034
<i>P</i>	5.62	<i>H</i>	14.7	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1997 11 29	704	1.6− 1.3−	1997 11 30	566	0.2+ 0.2+	1999 02 10	691	0.5− 0.3+
1997 11 29	704	0.3− 0.5+	1999 01 17	691	0.5− 1.1+	1999 02 10	691	0.7− 0.3−
1997 11 29	704	0.8+ 0.8−	1999 01 17	691	0.2− 0.8+	1999 02 10	691	0.4− 0.0
1997 11 29	704	0.8+ 0.0	1999 01 17	691	0.2− 0.4−	1999 02 16	691	0.4+ 0.0
1997 11 29	704	0.4+ 0.6+	1999 01 19	691	0.2+ 0.3−	1999 02 16	691	0.3+ 0.3−
1997 11 30	566	0.2− 0.4+	1999 01 19	691	0.8+ 0.2−	1999 02 16	691	0.3+ 0.3−
1997 11 30	566	0.1− 0.5+	1999 01 19	691	0.7+ 0.3−			

1999 CA = 1992 UO

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	343.49096	(2000.0)	<i>P</i>	Williams	<i>Q</i>
<i>n</i>	0.19510508	ω	82.17670	−0.70090705	−0.71221149
<i>a</i>	2.9441301	Ω	52.39775	+0.63374032	−0.64664442
<i>e</i>	0.0443364	<i>i</i>	2.78711	+0.32726520	−0.27314060
<i>P</i>	5.05	<i>H</i>	13.1	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1992 10 19	399	0.7+ 1.0−	1999 02 02	143	0.5+ 0.1+	1999 02 10	958	0.1+ 0.6+
1992 10 19	399	0.1− 0.4−	1999 02 03	143	0.9+ 0.7−	1999 02 12	143	0.1− 0.3+
1992 10 22	399	1.6+ 0.5+	1999 02 03	143	1.1− 0.4+	1999 02 12	143	0.2− 0.2+
1992 10 22	399	1.0− 0.3+	1999 02 04	143	(2.4+ 0.9+)	1999 02 12	143	0.8− 0.1+
1992 11 16	399	1.4− 0.6+	1999 02 04	143	1.7+ 0.5+	1999 02 13	704	1.3+ 0.3+
1992 11 16	399	(2.1− 0.6+)	1999 02 04	143	1.4− 0.1+	1999 02 13	704	1.6+ 0.2−
1992 11 18	399	(3.8+ 1.8+)	1999 02 10	704	0.3− 0.3−	1999 02 13	704	0.5− 0.4+
1992 11 18	399	(2.8+ 0.5+)	1999 02 10	704	0.1+ 0.4−	1999 02 13	704	1.0+ 0.5−
1996 08 17	566	0.2− 0.3−	1999 02 10	704	0.0 0.3+	1999 02 15	726	0.3− 0.0
1996 08 17	566	0.1− 0.1+	1999 02 10	704	0.1− 0.2−	1999 02 15	747	0.1− 0.4−
1996 08 17	566	0.3+ 0.0	1999 02 10	704	0.6− 0.4+	1999 02 15	747	0.0 0.2−
1999 02 02	143	(0.5− 2.1−)	1999 02 10	958	0.4+ 0.2−	1999 02 15	747	0.1+ 0.4−
1999 02 02	143	1.3− 0.9−	1999 02 10	958	0.8− 0.5+	1999 02 15	726	0.1− 0.0

1999 CQ = 1994 WG₁₂

Id. S. Nakano, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	30.62608	(2000.0)	<i>P</i>	Williams	<i>Q</i>
<i>n</i>	0.26652475	ω	65.82585	−0.04807349	−0.99858268
<i>a</i>	2.3913567	Ω	26.95974	+0.89717012	−0.05321925
<i>e</i>	0.1830052	<i>i</i>	2.88747	+0.43906118	−0.00058904
<i>P</i>	3.70	<i>H</i>	16.1	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1994 11 27	010	0.2+ 1.0−	1999 02 10	704	0.8+ 0.3+	1999 02 13	704	0.2− 0.7+
1994 11 27	010	(0.1− 3.1−)	1999 02 10	704	0.6+ 0.1−	1999 02 13	704	0.8− 0.3−
1994 11 28	010	0.1+ 1.3−	1999 02 10	704	0.2+ 0.6+	1999 02 13	411	0.4− 0.2−
1994 11 28	010	0.0 0.9+	1999 02 10	704	0.1+ 0.7+	1999 02 13	411	1.4− 0.6−

1994 11 28	010	0.8− 0.9+	1999 02 10	704	(2.4− 0.9+)	1999 02 20	411	0.1+ 0.2+
1994 11 29	010	0.4+ 0.5+	1999 02 12	699	0.2+ 0.7+	1999 02 20	411	1.4− 0.4−
1999 02 05	411	0.7+ 0.7+	1999 02 12	699	0.7+ 0.8+	1999 02 24	699	0.8+ 0.3−
1999 02 05	411	0.9− 0.7−	1999 02 12	699	0.5+ 0.2−	1999 02 24	699	0.9+ 0.8+
1999 02 06	411	1.1− 0.6−	1999 02 13	704	0.6+ 1.7−	1999 02 24	699	0.7− 0.3+
1999 02 06	411	0.1− 0.1−	1999 02 13	704	0.8+ 0.6−			

1999 CY = 1993 FR₈₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	162.20838	(2000.0)	<i>P</i>	Williams	<i>Q</i>
<i>n</i>	0.30493750	ω	244.29057	+0.88847530	+0.45356600
<i>a</i>	2.1860604	Ω	88.66842	−0.39199820	+0.82927626
<i>e</i>	0.1981563	<i>i</i>	4.01078	−0.23864002	+0.32646403
<i>P</i>	3.23	<i>H</i>	14.8	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1993 03 18	809	2.1− 1.2+	1999 02 06	411	0.7+ 0.6−	1999 02 13	704	1.1+ 0.9−
1993 03 19	809	0.2− 0.6−	1999 02 10	704	0.3+ 0.3−	1999 02 13	704	0.0 0.9−
1993 03 23	809	0.4+ 1.3−	1999 02 10	704	1.2− 1.6−	1999 02 13	704	0.8− 0.1+
1993 04 16	413	2.0+ 1.0+	1999 02 10	704	0.2+ 0.3+	1999 02 13	411	0.6− 0.4+
1998 11 30	910	0.0 0.7+	1999 02 10	704	0.8− 0.3+	1999 02 13	411	0.0 0.8−
1998 11 30	910	0.4+ 0.3+	1999 02 10	704	1.5− 0.2+	1999 02 20	411	1.9− 0.5+
1998 11 30	910	0.1− 0.8+	1999 02 13	699	0.2+ 1.1+	1999 02 21	411	0.2+ 0.9+
1999 02 05	411	0.5+ 0.4−	1999 02 13	699	0.6+ 0.2+	1999 02 21	411	0.7− 0.2−
1999 02 05	411	0.4+ 0.7+	1999 02 13	704	0.7− 0.1−	1999 02 22	411	0.7+ 0.0
1999 02 06	411	1.0+ 1.2−	1999 02 13	699	1.1+ 0.9+	1999 02 22	411	1.2+ 0.0

1999 CU₁ = 1993 TR₁₁Id. T. B. Spahr (*MPC* 33991); 1999 CU₁ = 1987 KZ (*ibid.*) is invalid

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	37.81319	(2000.0)	<i>P</i>	Williams	<i>Q</i>
<i>n</i>	0.23116272	ω	53.64268	−0.00069719	−0.99841617
<i>a</i>	2.6294052	Ω	36.52023	+0.88453726	−0.02685709
<i>e</i>	0.1890504	<i>i</i>	5.42426	+0.46646902	+0.04943525
<i>P</i>	4.26	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1993 10 13	675	1.0+ 0.7−	1999 02 10	704	0.7+ 0.6−	1999 02 21	411	0.5− 0.0
1993 10 13	675	0.6+ 0.3−	1999 02 10	704	0.1− 0.5−	1999 03 16	411	0.4− 1.2+
1993 10 15	675	1.6− 1.0+	1999 02 10	704	0.4− 0.0	1999 03 16	411	0.5− 0.0
1999 02 05	327	1.0− 0.6−	1999 02 10	704	0.3+ 0.6−	1999 03 19	704	0.6− 0.1−
1999 02 05	327	0.6− 0.8+	1999 02 13	699	0.9+ 0.2+	1999 03 19	704	0.7+ 0.5+
1999 02 05	327	0.2− 0.1+	1999 02 13	699	0.4− 0.6+	1999 03 19	704	0.3+ 0.7−
1999 02 07	411	0.6− 0.0	1999 02 13	704	0.9+ 0.7+	1999 03 20	704	0.7+ 0.0
1999 02 07	411	0.8+ 0.5−	1999 02 13	699	0.1+ 0.3+	1999 03 20	704	0.6+ 0.1−
1999 02 08	411	0.2− 0.7−	1999 02 13	704	1.5+ 0.4−	1999 03 20	704	1.8− 0.1−
1999 02 08	411	0.8− 0.2+	1999 02 13	704	0.8− 1.0+	1999 03 20	704	1.6+ 0.7+
1999 02 09	327	0.4+ 0.0	1999 02 13	704	0.1+ 0.3+	1999 03 23	704	0.4+ 0.3−
1999 02 09	327	0.8+ 0.1+	1999 02 14	411	0.5− 0.5−	1999 03 23	704	0.2− 0.7−
1999 02 09	327	0.6+ 0.2−	1999 02 14	411	0.7− 0.3+	1999 03 23	704	0.8− 0.2−
1999 02 10	704	0.3+ 0.5−	1999 02 21	411	0.7− 0.2+			

1999 CV₃

Id. K. J. Lawrence (1992 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	299.64490	(2000.0)	<i>P</i>	Williams	<i>Q</i>
<i>n</i>	0.55898088	ω	96.16608	−0.48689961	+0.83924677
<i>a</i>	1.4595022	Ω	141.45263	−0.87241410	−0.48081441
<i>e</i>	0.3938886	<i>i</i>	22.85751	+0.04268967	−0.25393377
<i>P</i>	1.76	<i>H</i>	14.9	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1992 09 22	675	0.4+ 0.3−	1999 02 19	726	0.2+ 0.0	1999 03 05	151	0.0 0.4−
1992 09 22	675	0.3+ 1.2−	1999 02 19	726	0.2+ 0.1−	1999 03 05	151	0.0 0.2−
1992 09 24	675	0.1+ 0.1−	1999 02 19	726	0.4+ 0.1−	1999 03 06	719	0.3− 0.2−

1998 12 23	704	0.6-	0.6+	1999 02 19	726	0.2+	0.0	1999 03 06	719	0.0	0.2-	1999 02 13	699	0.5-	1.1-	1999 02 25	108	0.9+	0.5+	1999 03 13	151	0.1+	0.7-
1998 12 23	704	0.9-	0.7+	1999 02 19	726	0.3+	0.0	1999 03 06	557	0.3+	0.2+	1999 02 13	714	0.1+	0.4-	1999 02 25	635	0.9+	0.5+	1999 03 15	726	0.1+	0.1-
1998 12 23	704	0.1+	0.5+	1999 02 19	750	0.2+	0.3+	1999 03 06	557	0.3+	0.2+	1999 02 13	714	0.2+	0.6-	1999 02 25	108	0.7-	0.2+	1999 03 15	726	0.1+	0.0
1998 12 23	704	0.1-	0.5+	1999 02 19	750	0.1-	0.1+	1999 03 06	557	0.4+	0.1+	1999 02 13	714	0.3+	0.5-	1999 02 25	635	0.5+	0.3-	1999 03 15	726	0.0	0.2-
1998 12 23	704	1.1+	0.8+	1999 02 19	750	0.2+	0.4+	1999 03 06	046	0.2+	0.3+	1999 02 13	699	0.2+	1.3-	1999 02 25	635	0.1+	0.4+	1999 03 15	726	0.1-	0.1-
1999 02 10	704	0.2-	0.0	1999 02 19	402	0.1+	0.0	1999 03 06	046	0.2+	0.3+	1999 02 13	704	0.9-	0.4-	1999 02 25	635	0.1-	0.0	1999 03 15	726	0.1+	0.0
1999 02 10	704	0.2-	0.4+	1999 02 19	402	0.2+	0.1+	1999 03 06	046	0.0	0.4+	1999 02 13	704	0.5-	0.7-	1999 02 25	635	0.2-	0.1+	1999 03 15	726	0.1+	0.1+
1999 02 10	704	0.0	0.3+	1999 02 19	402	0.2+	0.1+	1999 03 06	046	0.1+	0.1+	1999 02 13	704	0.9-	0.3-	1999 02 25	635	0.1+	0.1-	1999 03 15	726	0.2+	0.1-
1999 02 10	704	0.0	1.2+	1999 02 19	871	0.0	0.1-	1999 03 06	557	0.3+	0.2+	1999 02 13	704	1.6-	0.6+	1999 02 26	151	0.5-	0.4+	1999 03 15	726	0.0	0.2-
1999 02 10	704	0.0	0.4+	1999 02 19	871	0.0	0.4-	1999 03 07	557	0.5+	0.2+	1999 02 13	704	(3.4-	1.4-)	1999 02 26	151	0.6-	0.7+	1999 03 15	726	0.1+	0.3-
1999 02 11	557	0.1-	0.3+	1999 02 20	355	0.1+	0.2-	1999 03 07	726	0.5+	0.2+	1999 02 13	355	0.0	0.6-	1999 02 26	151	0.4-	0.6+	1999 03 15	118	0.1+	0.2-
1999 02 11	557	0.2-	0.1+	1999 02 20	355	0.2+	0.0	1999 03 07	557	0.3+	0.2+	1999 02 13	355	0.0	0.5-	1999 02 26	151	0.3-	0.8+	1999 03 15	118	0.1+	0.1-
1999 02 11	557	0.1-	0.3+	1999 02 20	355	0.2+	0.0	1999 03 07	726	0.5+	0.1+	1999 02 13	355	0.0	0.7-	1999 02 26	151	0.5-	0.9+	1999 03 15	118	0.1+	0.1-
1999 02 11	557	0.1-	0.3+	1999 02 21	726	0.0	0.4+	1999 03 07	726	0.5+	0.2+	1999 02 13	871	0.2+	0.5-	1999 02 26	587	0.6-	0.5+	1999 03 16	726	0.1-	0.2-
1999 02 11	557	0.1-	0.1+	1999 02 21	726	0.0	0.4+	1999 03 07	726	0.3+	0.2-	1999 02 13	871	0.4+	0.9-	1999 02 26	587	0.7-	0.6+	1999 03 16	726	0.0	0.1+
1999 02 11	758	0.3+	0.5+	1999 02 21	726	0.0	0.1+	1999 03 07	151	0.1-	0.2-	1999 02 13	151	0.2+	0.9-	1999 02 26	587	0.7-	0.5+	1999 03 16	726	0.1+	0.2+
1999 02 11	758	0.4+	0.2+	1999 02 21	750	0.1-	0.4+	1999 03 07	151	0.5-	0.1+	1999 02 13	151	0.1+	0.5-	1999 02 26	046	0.3-	0.2+	1999 03 16	726	0.0	0.0
1999 02 11	758	0.7+	0.1+	1999 02 21	750	0.3-	0.2+	1999 03 07	151	0.1-	0.1+	1999 02 13	151	0.1+	0.4-	1999 02 26	046	0.3-	0.5+	1999 03 16	726	0.0	0.1-
1999 02 11	758	0.4+	0.2+	1999 02 21	750	0.2-	0.2+	1999 03 07	151	0.3-	0.1+	1999 02 13	151	0.1+	0.6-	1999 02 26	958	0.8-	0.0	1999 03 16	726	0.3+	0.1-
1999 02 11	758	0.4+	0.1+	1999 02 22	726	0.0	0.2+	1999 03 07	151	0.1-	0.4+	1999 02 13	151	0.1+	0.5-	1999 02 26	046	0.4-	0.5+	1999 03 16	726	0.0	0.3-
1999 02 11	758	0.4+	0.1+	1999 02 22	726	0.2-	0.2+	1999 03 08	557	0.2+	0.3-	1999 02 13	970	0.4+	0.5-	1999 02 26	046	0.2-	0.5+	1999 03 16	726	0.1+	0.1-
1999 02 11	704	0.2-	0.2+	1999 02 22	726	0.4-	0.0	1999 03 08	557	0.2+	0.3-	1999 02 13	970	0.3+	0.5-	1999 02 26	958	(1.0+	2.3+)	1999 03 16	726	0.0	0.1-
1999 02 11	704	0.4-	0.0	1999 02 22	726	0.0	0.2+	1999 03 08	557	0.1+	0.3-	1999 02 13	970	0.2+	0.6-	1999 02 27	118	0.6-	0.6+	1999 03 16	726	0.2+	0.1+
1999 02 11	704	0.3-	0.1+	1999 02 22	750	0.1+	0.1-	1999 03 08	557	0.2+	0.0	1999 02 13	970	0.2+	0.6-	1999 02 27	118	0.6-	0.5+	1999 03 16	750	0.1-	0.1+
1999 02 11	704	0.7-	0.2-	1999 02 22	750	0.0	0.2+	1999 03 08	557	0.1+	0.3-	1999 02 13	970	0.2+	0.1+	1999 02 27	739	1.0-	0.7-	1999 03 16	750	0.1+	0.0
1999 02 11	704	0.7-	0.1+	1999 02 22	750	0.1+	0.7+	1999 03 09	719	0.2+	0.0	1999 02 13	970	0.1+	0.2-	1999 02 27	739	0.3-	0.7+	1999 03 16	750	0.1+	0.1+
1999 02 11	704	0.8-	0.5+	1999 02 22	726	0.1-	0.1+	1999 03 09	719	0.3+	0.0	1999 02 14	714	0.3+	0.2-	1999 02 27	739	0.2-	0.4+	1999 03 16	750	0.1+	0.1+
1999 02 11	704	0.2-	0.0	1999 02 22	726	0.2-	0.1+	1999 03 09	057	0.1-	1.5-	1999 02 14	714	0.4+	0.2-	1999 02 27	739	0.3+	2.0+	1999 03 16	750	0.1-	0.2+
1999 02 11	704	0.5-	1.0+	1999 02 22	726	0.0	0.7+	1999 03 09	057	0.4-	1.1+	1999 02 14	714	0.4+	0.2-	1999 02 27	739	(1.6+	3.1+)	1999 03 16	750	0.3+	0.1+
1999 02 11	704	0.3-	0.1-	1999 02 22	726	0.1-	0.2+	1999 03 09	057	0.8-	0.5-	1999 02 14	360	0.1-	0.5-	1999 02 27	739	0.3+	1.4+	1999 03 16	750	0.1-	0.3+
1999 02 11	704	0.2-	0.1-	1999 02 22	900	1.0-	0.1-	1999 03 09	057	1.5-	0.2+	1999 02 14	360	0.1+	0.5-	1999 02 27	540	0.1+	0.2+	1999 03 16	750	0.0	0.3+
1999 02 11	704	0.2-	0.3-	1999 02 22	900	1.1-	0.0	1999 03 09	057	0.3-	0.1+	1999 02 14	360	0.1+	0.5-	1999 02 27	540	0.3+	0.3+	1999 03 16	151	0.1+	0.0
1999 02 11	704	0.7-	0.0	1999 02 22	355	1.0-	0.3-	1999 03 09	057	0.5+	0.8+	1999 02 14	627	0.7-	0.9+	1999 02 27	540	0.2+	0.3+	1999 03 16	151	0.2+	0.2-
1999 02 11	670	0.1-	0.3+	1999 02 22	355	1.1-	0.1-	1999 03 09	057	0.1-	1.1+	1999 02 14	627	1.0+	0.9+	1999 02 27	540	0.3+	0.2+	1999 03 16	151	0.1+	0.0
1999 02 11	670	0.0	0.3+	1999 02 22	355	1.1-	0.1+	1999 03 09	151	0.0	0.2+	1999 02 14	627	0.1+	0.4-	1999 02 27	610	0.7+	0.8-	1999 03 16	151	0.0	0.3+
1999 02 11	670	0.0	0.1+	1999 02 23	118	0.2+	0.5-	1999 03 09	151	0.0	0.2+	1999 02 14	627	0.1+	0.8+	1999 02 27	610	0.6+	0.9-	1999 03 16	151	0.1-	0.2+
1999 02 11	670	0.0	0.2+	1999 02 23	118	0.3+	0.4-	1999 03 09	151	0.0	0.1+	1999 02 14	627	0.8-	0.2-	1999 02 27	610	0.6+	1.1-	1999 03 17	121	0.3-	0.1+
1999 02 11	422	0.0	0.2-	1999 02 23	118	0.3+	0.3-	1999 03 09	151	0.1+	0.1+	1999 02 14	627	0.2-	0.3+	1999 02 27	610	0.6+	1.2-	1999 03 17	121	0.2-	0.1+
1999 02 11	422	0.0	0.1-	1999 02 23	610	0.6-	1.1-	1999 03 09	151	0.0	0.0	1999 02 14	627	0.5+	0.8-	1999 02 27	610	0.5+	1.2-	1999 03 17	151	0.4-	0.2-
1999 02 11	422	0.0	0.2-	1999 02 23	610	0.8-	1.0-	1999 03 09	620	0.4+	0.1+	1999 02 14	627	0.2-	0.5+	1999 02 27	118	0.6+	0.2-	1999 03 17	151	0.5-	0.2-
1999 02 11	422	0.1+	0.3-	1999 02 23	610	0.9-	0.8-	1999 03 09	620	0.3+	0.1+	1999 02 15	726	0.0	0.2-	1999 02 27	118	0.6+	0.3-	1999 03 17	151	0.2-	0.2-
1999 02 11	422	0.0	0.0	1999 02 23	610	0.8-	0.7-	1999 03 09	620	0.2+	0.1+	1999 02 15	726	0.6-	0.5+	1999 02 27	118	0.7+	0.3-	1999 03 17	151	0.2-	0.3-
1999 02 11	557	0.1+	0.0	1999 02 23	610	0.9-	0.7-	1999 03 09	620	0.0	0.1+	1999 02 15	726	0.1-	0.5-	1999 02 28	900	0.3+	0.0	1999 03 17	151	0.2-	0.1-
1999 02 11	557	0.0	0.1-	1999 02 23	108	0.3-	0.8-	1999 03 09	620	0.0	0.1+	1999 02 15	726	0.1-	0.4-	1999 02 28	900	0.2+	0.1-	1999 03 18	121	0.1+	0.1-
1999 02 11	557	0.1+	0.1-	1999 02 23	108	0.0	0.2-	1999 03 09	620	0.2-	0.3+	1999 02 15	726	0.1+	0.2-	1999 02 28	151	0.1+	0.0	1999 03 18	121	0.2+	0.1+
1999 02 11	557	0.2+	0.1-	1999 02 23	108	0.3-	0.5-	1999 03 10	719	0.8+	0.4-	1999 02 15	726	0.1-	0.6-	1999 02 28	151	0.1-	0.1+	1999 03 18	121	0.0	0.0
1999 02 11	151	0.0	0.1-	1999 02 23	108	0.1+	0.4-	1999 03 10	719	0.2+	0.5-	1999 02 15	726	0.1-	0.2+	1999 02 28	151	0.1+	0.0	1999 03 18	121	0.2+	0.3-
1999 02 11	151	0.0	0.0	1999 02 24	587	0.2+	0.1-	1999 03 11	540	0.3+	0.1+	1999 02 15	726	0.2-	0.1-	1999 02 28	151	0.2+	0.0	1999 03 18	557	0.1-	0.1+
1999 02 11	151	0.2+	0.1-	1999 02 24	587	0.2+	0.1-	1999 03 11	540	0.2+	0.2+	1999 02 15	726	0.2-	0.1-	1999 03 03	726	0.2-	0.2+	1999 03 19	557	0.3-	0.2+
1999 02 11	151	0.1+	0.1+	1999 02 24	587	0.0	0.2-	1999 03 11	540	0.3+	0.4+	1999 02 15	726	0.3-	0.2+	1999 03 03	726	0.1-	0.1+	1999 03 19	557	0.1-	0.2+
1999 02 11	108	0.9+	0.3-	1999 02 24	587	0.0	0.1-	1999 03 12	704	0.2-	0.6-	1999 02 15	896	1.5+	0.2-	1999 03 03	726	0.3-	0.2+	1999 03 19	726	0.3-	0.0
1999 02 12	714	0.3+	0.1+	1999 02 25	046	0.1-	0.2-	1999															

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1999 02 15	627	0.8+	0.0	1999 03 03	046	0.1+	0.7+	1999 03 20	726	0.0	0.3+
1999 02 16	118	0.2+	0.3-	1999 03 03	046	0.0	0.6+	1999 03 20	726	0.1-	0.4+
1999 02 16	118	0.2+	0.3-	1999 03 03	046	0.0	0.6+	1999 03 20	726	0.0	0.2+
1999 02 16	118	0.2+	0.2-	1999 03 04	726	0.1+	0.4-	1999 03 20	097	1.6+	0.3+
1999 02 16	402	0.3+	0.3-	1999 03 04	726	0.2+	0.4-	1999 03 20	097	1.2+	2.0-
1999 02 16	402	0.2+	0.3-	1999 03 04	726	0.0	0.6-	1999 03 22	097	0.1+	0.0
1999 02 16	402	0.3+	0.4-	1999 03 04	739	0.1+	1.1-	1999 03 22	097	1.5-	0.6-
1999 02 16	426	0.0	0.4+	1999 03 04	726	0.1+	0.5-	1999 03 24	557	0.3+	0.0
1999 02 16	426	0.3-	0.7+	1999 03 04	739	0.2+	0.8-	1999 03 24	557	0.4+	0.0
1999 02 16	426	0.3+	0.1+	1999 03 04	726	0.0	0.2-	1999 03 24	557	0.2+	0.2-
1999 02 17	896	0.7-	0.6+	1999 03 04	739	0.7+	0.2-	1999 03 24	557	0.2+	0.1-
1999 02 18	610	0.2+	0.0	1999 03 04	739	0.4+	0.9-	1999 03 25	557	0.2+	0.1-
1999 02 18	610	0.2+	0.1-	1999 03 04	726	0.1+	0.5-	1999 03 25	557	0.2+	0.1+
1999 02 18	610	0.1+	0.2-	1999 03 04	726	0.3+	0.3+	1999 03 28	628	0.4-	0.0
1999 02 18	610	0.1+	0.3-	1999 03 04	726	0.0	0.1-	1999 03 28	628	1.0-	0.2+
1999 02 18	610	0.1+	0.3-	1999 03 04	726	0.1+	0.3-	1999 03 28	628	1.1-	0.2+
1999 02 19	104	0.4+	0.2+	1999 03 05	151	0.0	0.4-	1999 03 28	628	0.9-	0.2+
1999 02 19	104	0.4+	0.1+	1999 03 05	151	0.5-	0.6-				
1999 02 19	726	0.1+	0.0	1999 03 05	151	0.1-	0.5-				

1999 CA₄ = 1991 UG

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		Williams		<i>P</i>		<i>Q</i>	
219.92469		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.18812229	<i>ω</i>	278.85693	+0.43464048	+0.89909987		
<i>a</i>	3.0165409	<i>Ω</i>	17.19590	-0.74156953	+0.39007322		
<i>e</i>	0.1031046	<i>i</i>	10.13625	-0.51104039	+0.19865121		
<i>P</i>	5.24	<i>H</i>	12.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 10 18	399	0.5-	0.8+	1999 02 05	327	0.1+	1.1-	1999 02 13	699	0.3-	0.6+
1991 10 18	399	1.3+	1.6-	1999 02 05	327	0.0	0.3+	1999 02 13	704	0.0	0.5-
1991 10 19	399	0.3-	0.1+	1999 02 09	327	0.4+	0.3+	1999 02 13	699	0.5-	0.1+
1991 10 19	399	0.0	0.1+	1999 02 09	327	1.3+	1.2+	1999 02 13	704	0.5+	1.1-
1991 10 28	399	(3.0+ 1.4+)		1999 02 09	327	0.4+	0.4+	1999 02 13	704	0.2-	0.5-
1991 10 28	399	1.4-	0.5+	1999 02 10	704	0.3-	0.1+	1999 02 13	704	0.2-	0.5-
1991 10 29	399	0.1-	0.6+	1999 02 10	704	0.4+	0.5+	1999 02 13	704	0.2-	1.1-
1991 10 29	399	0.3+	1.4+	1999 02 10	704	0.1+	0.8+	1999 02 14	327	0.3-	0.2-
1991 10 31	399	0.2+	0.4-	1999 02 10	704	0.3+	0.2+	1999 02 14	327	0.2-	0.1-
1991 10 31	399	0.6+	1.5-	1999 02 10	704	0.7-	0.1+	1999 02 14	327	0.2-	0.1-
1999 02 05	327	0.1+	0.2+	1999 02 13	699	0.3-	0.3+				

1999 CF₄ = 1993 PX₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		Williams		<i>P</i>		<i>Q</i>	
20.31670		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.23551706	<i>ω</i>	275.47149	+0.30743744	-0.94725047		
<i>a</i>	2.5968955	<i>Ω</i>	156.01054	+0.93720756	+0.28495451		
<i>e</i>	0.0677824	<i>i</i>	12.86828	+0.16469427	+0.14668836		
<i>P</i>	4.18	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 08 15	010	0.3-	0.7+	1999 02 12	426	0.1-	0.2-	1999 02 16	426	0.4-	0.2-
1993 08 15	010	0.3+	0.9+	1999 02 12	426	0.8-	0.6-	1999 02 16	426	0.1+	0.7-
1993 08 15	010	0.2+	1.2-	1999 02 14	422	0.1-	0.1+	1999 03 13	426	0.5-	0.2-
1993 08 17	010	0.2-	0.5-	1999 02 14	422	0.1-	0.1+	1999 03 13	426	0.1-	0.1-
1999 02 10	426	1.5+	0.0	1999 02 14	422	0.3-	0.2+	1999 03 13	426	1.0+	0.2-
1999 02 10	426	0.8+	0.1-	1999 02 14	422	0.6-	0.9+				
1999 02 12	426	0.4-	0.2+	1999 02 16	426	0.0	0.7+				

1999 CQ₄ = 1978 GS₁ = 1991 TP₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		Williams		<i>P</i>		<i>Q</i>	
302.72370		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.18287947	<i>ω</i>	13.11270	-0.88189902	+0.47108378		
<i>a</i>	3.0739213	<i>Ω</i>	195.03279	-0.43864780	-0.83415102		
<i>e</i>	0.1924300	<i>i</i>	4.04164	-0.17274904	-0.28683123		
<i>P</i>	5.39	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1978 04 07	095	0.1+	0.2+	1999 02 08	120	0.2-	0.2-	1999 02 12	704	0.5-	0.6+
1991 10 11	691	0.1-	0.1-	1999 02 08	120	0.8+	0.1-	1999 02 12	120	0.6+	0.9+
1991 10 11	691	0.0	0.4+	1999 02 08	120	0.5-	0.0	1999 02 12	120	0.7+	0.2+
1991 10 11	691	0.6-	0.1+	1999 02 11	699	0.0	0.5+	1999 02 12	120	0.2-	0.0
1991 10 13	691	0.4+	0.2+	1999 02 11	699	0.3+	1.5+	1999 02 16	704	0.6-	1.1-
1991 10 13	691	0.3+	0.4-	1999 02 11	699	0.2-	0.1-	1999 02 16	704	0.0	0.6+
1991 10 13	691	(2.1+ 0.8-)		1999 02 12	704	0.5+	0.1-	1999 02 16	704	0.2-	1.0-
1999 01 14	699	0.6+	0.6+	1999 02 12	704	0.4+	0.1-	1999 02 16	704	1.1-	0.8-
1999 01 14	699	0.5-	0.0	1999 02 12	704	0.4+	0.4+	1999 02 18	120	0.0	0.5-
1999 01 14	699	0.1-	1.1-	1999 02 12	704	0.3-	0.4+	1999 02 18	120	0.2+	0.7-

1999 CW₄ = 1999 BL₁₅ = 1993 SQ₉

Id. A. Doppler, G. V. Williams (d)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		Williams		<i>P</i>		<i>Q</i>	
347.17549		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.26167919	<i>ω</i>	330.26662	-0.99258501	-0.12146782		
<i>a</i>	2.4207871	<i>Ω</i>	202.75789	+0.11370739	-0.91468995		
<i>e</i>	0.1576246	<i>i</i>	0.67173	+0.04296077	-0.38547098		
<i>P</i>	3.77	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 09 18	675	0.3+	1.6+	1996 07 22	566	0.1+	0.1+	1999 02 10	691	0.5+	1.1-
1993 09 18	675	1.6-	0.2+	1996 07 22	566	0.1+	0.6-	1999 02 12	120	0.1-	1.0+
1993 09 18	691	0.4+	0.7+	1999 01 13	699	1.0+	1.2-	1999 02 12	120	0.9-	0.2-
1993 09 18	691	0.5+	0.7+	1999 01 13	699	0.8-	0.6-	1999 02 12	120	1.6-	0.8+
1993 09 18	691	0.1+	0.5+	1999 01 13	699	0.2-	0.1-	1999 02 13	120	0.3-	0.1-
1993 09 22	809	0.8+	1.3-	1999 01 26	120	0.4+	0.8+	1999 02 13	120	0.6-	0.5+
1993 09 22	809	1.9-	1.7-	1999 01 26	120	0.2+	0.1+	1999 02 16	120	0.2+	0.0
1993 09 22	809	(1.5- 2.4-)		1999 01 26	120	0.3-	0.2+	1999 02 16	120	0.7-	0.0
1993 09 24	809	(2.8+ 0.7-)		1999 01 28	120	0.5+	0.3-	1999 03 21	691	0.2+	0.1-
1993 09 24	809	1.7+	1.5-	1999 01 28	120	0.3+	0.2+	1999 03 21	691	0.3+	0.3-
1993 09 24	809	(0.2+ 2.5-)		1999 02 10	691	0.7+	0.3+	1999 03 21	691	0.3+	0.2-
1996 07 22	566	0.0	0.2-	1999 02 10	691	0.4+	0.9-				

1999 CP₅ = 1984 SS₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		Williams		<i>P</i>		<i>Q</i>	
164.54309		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.23616281	<i>ω</i>	339.26814	+0.98639220	+0.16106672		
<i>a</i>	2.5921594	<i>Ω</i>	11.61076	-0.11806240	+0.83354770		
<i>e</i>	0.1299041	<i>i</i>	9.43253	-0.11441898	+0.52844653		
<i>P</i>	4.17	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1984 09 27	809	0.1+	0.2+	1984 09 30	809	0.4+	0.2+	1999 03 11	621	0.2-	0.7-
1984 09 27	809	0.3+	0.2+	1984 09 30	809	0.3+	0.1+	1999 03 11	621	0.0	0.2+
1984 09 27	809	0.4+	0.2+	1984 09 30	809	0.4+	0.1-	1999 03 11	621	0.0	0.7-
1984 09 28	809	0.3+	0.3-	1999 02 12	411	0.1-	0.5+	1999 03 11	621	0.3+	0.4+
1984 09 28	809	0.5+	0.0	1999 02 12	411	0.3+	1.0-	1999 03 12	621	0.1-	0.0
1984 09 28	809	0.8+	0.4+	1999 02 13	411	1.1-	0.2-	1999 03 12	621	0.1+	0.2-
1984 09 28	809	0.7-	0.0	1999 02 13	411	0.1-	0.4-	1999 03 12	621	0.7+	0.6-
1984 09 28	809	0.4-	0.2-	1999 02 20	411	(1.2+ 2.2+)		1999 03 13	621	0.2+	0.1+
1984 09 28	809	0.2-	0.5-	1999 02 20	411	0.9+	1.4+	1999 03 13	621	0.1+	0.1+
1984 09 29	809	1.0-	0.0	1999 02 22	411	0.8-	0.5+	1999 03 15	621	0.1-	0.1+
1984 09 29	809	0.8-	0.1-	1999 02 22	411	0.2+	0.4+	1999 03 15	621	0.1+	0.0
1984 09 29	809	0.5-	0.1-	1999 03 11	621	0.2-	0.1-	1999 03 15	621	0.2-	0.4+

1999 CV₅ = 1991 ER₄

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24048871	ω	20.23325	+0.91509405	−0.40289210		
<i>a</i>	2.5609804	Ω	3.65752	+0.32431440	+0.71065040		
<i>e</i>	0.1176321	<i>i</i>	15.23024	+0.23963108	+0.57676161		
<i>P</i>	4.10	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 03 12	809	0.5+	1.2+	1999 02 18	699	0.2+	0.1+	1999 03 09	292	0.1+	0.4+
1991 03 12	809	0.6+	1.4+	1999 02 18	699	0.5+	0.4+	1999 03 12	292	0.4+	0.2+
1991 03 12	809	0.7+	1.9+	1999 02 20	411	0.2−	0.8+	1999 03 12	292	0.4+	0.5−
1991 03 16	809	1.0−	1.3−	1999 02 20	411	1.5−	0.1−	1999 03 12	292	1.4−	0.0
1991 03 16	809	0.4−	1.6−	1999 02 22	411	0.6+	0.5+	1999 03 16	292	0.7+	0.4+
1991 03 16	809	0.4−	1.6−	1999 02 22	411	0.2+	0.3+	1999 03 16	292	0.4+	0.1+
1999 02 12	411	0.8+	0.4−	1999 03 08	292	1.2−	1.0−	1999 03 16	411	0.7+	1.3+
1999 02 12	411	0.1+	1.1−	1999 03 08	292	0.5−	0.7−	1999 03 16	411	1.8+	0.4+
1999 02 13	411	0.6+	0.2+	1999 03 08	292	0.7−	0.6−	1999 03 17	292	0.2−	1.8+
1999 02 13	411	0.4−	0.1−	1999 03 09	292	0.4−	0.7−	1999 03 17	292	0.5+	0.2−
1999 02 18	699	0.1+	0.0	1999 03 09	292	0.2−	0.4−	1999 03 17	292	1.4−	1.2−

1999 CM₈ = 1954 CA = 1967 GA = 1979 FV₃ = 1997 UA₂₅

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24396779	ω	326.77901	+0.98260332	−0.07101528		
<i>a</i>	2.5365751	Ω	38.45442	+0.15910440	+0.79849947		
<i>e</i>	0.1552443	<i>i</i>	16.01785	−0.09579405	+0.59779212		
<i>P</i>	4.04	<i>H</i>	12.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1954 02 02	760	1.2−	0.0	1999 02 11	704	0.0	1.3+	1999 02 18	704	0.1−	0.4+
1954 02 02	760	1.2+	1.6+	1999 02 11	704	0.1−	0.8+	1999 02 18	704	0.5−	0.4−
1967 04 04	095	(3.1−	2.6−)	1999 02 11	704	0.4+	0.5+	1999 02 18	704	0.1+	0.2−
1979 03 22	033	0.1+	0.7−	1999 02 11	704	0.3−	1.0+	1999 02 21	411	0.3−	0.1−
1979 03 22	033	0.6−	0.4−	1999 02 13	411	0.6−	0.1−	1999 02 21	411	0.1−	0.0
1997 10 25	098	0.2+	0.3+	1999 02 13	411	0.6−	0.3−	1999 02 23	699	0.1+	0.3+
1997 10 25	098	0.6+	1.6−	1999 02 14	411	0.1+	1.0−	1999 02 23	699	1.0+	0.1+
1997 10 29	098	(6.6+	2.7−)	1999 02 14	411	0.0	0.7−	1999 02 23	699	0.5+	0.2−
1997 10 29	098	(11.2+	6.4−)	1999 02 18	704	0.7−	1.1−	1999 03 16	411	0.4+	0.4−
1999 02 11	704	0.4+	0.3+	1999 02 18	704	0.7−	0.2−	1999 03 16	411	0.4+	0.5−

1999 CN₈ = 1982 BB₅ = 1989 WX₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23632280	ω	6.92663	−0.28557675	−0.92276030		
<i>a</i>	2.5909894	Ω	99.91629	+0.86619221	−0.36406026		
<i>e</i>	0.1082063	<i>i</i>	15.22971	+0.41006947	+0.12638657		
<i>P</i>	4.17	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1982 01 26	381	0.9+	0.3−	1999 02 11	704	0.9+	0.1−	1999 02 18	704	0.3−	1.1+
1982 01 26	381	0.1+	0.0	1999 02 11	704	0.5−	0.9−	1999 02 18	704	1.1−	0.0
1982 01 26	381	0.7−	0.2+	1999 02 11	704	0.5−	0.4−	1999 02 18	704	0.7−	0.3−
1982 01 28	381	(4.7+	4.7−)	1999 02 11	704	0.4−	1.3+	1999 02 21	411	0.2−	0.6−
1982 01 28	381	0.3−	0.7+	1999 02 13	411	1.1+	0.2+	1999 02 21	411	0.1+	1.0−
1989 11 28	402	1.4−	0.0	1999 02 13	411	1.2+	0.6+	1999 03 21	699	1.0+	0.1−
1989 11 28	402	0.9+	0.2−	1999 02 14	411	0.3−	0.0	1999 03 21	699	1.0+	0.9+
1989 12 03	402	1.9+	0.3−	1999 02 14	411	0.1−	0.7−	1999 03 21	699	0.0	0.4−
1989 12 03	402	1.2−	0.2+	1999 02 18	704	0.5−	0.5−				
1999 02 11	704	0.1+	0.3+	1999 02 18	704	1.2−	0.1+				

1999 CO₈ = 1978 WF₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30433917	ω	117.52491	−0.83588473	+0.54519198		
<i>a</i>	2.1889247	Ω	95.57742	−0.52349817	−0.75688375		
<i>e</i>	0.0796087	<i>i</i>	3.67175	−0.16506481	−0.36040628		
<i>P</i>	3.24	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1978 11 29	675	0.6+	0.6+	1999 02 13	704	0.3−	0.3+	1999 03 19	704	0.9+	0.3+
1978 11 30	675	0.6−	0.8−	1999 02 14	757	0.5+	0.2+	1999 03 19	704	0.8+	0.5−
1999 02 10	704	0.4−	0.2−	1999 02 14	757	0.3+	0.2−	1999 03 19	704	0.5−	0.1+
1999 02 10	704	0.5−	1.4+	1999 02 15	757	0.3+	0.2−	1999 03 19	704	0.8−	0.8−
1999 02 10	704	0.8−	0.3+	1999 02 15	757	0.3−	1.3−	1999 03 20	704	0.1−	0.3+
1999 02 10	704	0.4−	0.1+	1999 02 18	699	0.5+	0.1−	1999 03 20	704	0.6−	0.1−
1999 02 10	704	0.4−	0.9+	1999 02 18	699	1.3+	1.0−	1999 03 20	704	0.3−	0.1+
1999 02 13	757	1.4+	0.0	1999 02 18	699	0.0	0.7−	1999 03 20	704	0.4−	0.2−
1999 02 13	757	0.1+	0.1−	1999 02 18	566	0.2−	0.3−	1999 03 20	704	0.3−	0.1−
1999 02 13	704	0.1−	0.0	1999 02 18	566	0.1−	0.1−	1999 03 20	699	1.4+	0.3−
1999 02 13	704	0.3+	0.8+	1999 02 18	566	0.4−	0.4−	1999 03 20	699	0.0	0.1+
1999 02 13	704	0.3−	1.1+	1999 03 08	757	1.2−	0.6−	1999 03 20	699	0.3+	1.3+
1999 02 13	704	0.4+	0.2+	1999 03 08	757	0.1−	0.3+				

1999 CR₈ = 1997 TJ₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22530218	ω	277.95423	+0.16506673	−0.98594528		
<i>a</i>	2.6748070	Ω	162.48100	+0.93528808	+0.14818099		
<i>e</i>	0.0737138	<i>i</i>	4.91391	+0.31303225	+0.07716408		
<i>P</i>	4.37	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 02	910	0.2+	0.2+	1999 02 12	704	0.2+	0.3−	1999 02 13	120	1.6−	0.3+
1997 10 02	910	0.0	0.0	1999 02 12	704	0.7−	0.1−	1999 02 15	120	0.9+	0.1−
1997 10 02	910	0.1+	0.1+	1999 02 12	704	0.9−	1.3+	1999 02 15	120	0.8−	1.0+
1997 10 03	910	0.1−	0.2−	1999 02 12	704	0.7−	0.0	1999 02 16	704	1.0−	1.4+
1997 10 04	910	0.1−	0.2−	1999 02 12	704	0.7−	0.4+	1999 02 16	704	1.1+	1.4−
1997 10 04	910	0.2−	0.0	1999 02 12	120	1.2+	0.4−	1999 02 16	704	0.9+	0.1+
1999 02 12	699	0.3−	0.4+	1999 02 12	120	0.4+	0.5+	1999 02 16	704	1.6+	0.3−
1999 02 12	699	1.0+	1.0−	1999 02 13	120	1.3+	0.1−	1999 02 17	120	1.2−	0.5−
1999 02 12	699	0.2+	0.8−	1999 02 13	120	0.6−	0.6−	1999 02 17	120	0.6−	0.2+

1999 CH₉ = 1990 SX₂₀ = 1990 SV₂₅ = 1990 SW₂₇Id. G. V. Williams, S. Nakano (d, *MPC* 20913)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26470983	ω	213.82923	+0.70462630	−0.70883957		
<i>a</i>	2.4022747	Ω	191.49035	+0.68170315	+0.68890365		
<i>e</i>	0.1913441	<i>i</i>	9.35376	+0.19693296	+0.15151970		
<i>P</i>	3.72	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 09 16	400	(5.2+	3.6+)	1999 02 08	376	0.5−	0.7−	1999 02 14	376	0.5+	0.3+
1990 09 16	400	0.3−	0.6+	1999 02 08	376	0.5−	0.6+	1999 02 14	376	0.3+	0.8+
1990 09 20	675	0.2+	0.4−	1999 02 12	704	0.6+	0.7−	1999 02 16	704	1.0+	0.8+
1990 09 20	675	0.2+	0.2−	1999 02 12	704	0.3+	0.0	1999 02 16	704	0.8−	0.2−
1990 09 23	095	(3.9+	2.4−)	1999 02 12	704	(2.2+	0.3−)	1999 02 16	704	0.1−	0.9−
1999 01 15	699	0.4−	0.5+	1999 02 12	704	(0.0	3.0−)	1999 02 16	704	0.4−	0.5+
1999 01 15	699	0.5+	0.2+	1999 02 12	704	0.6+	0.2−	1999 02 16	376	0.5+	0.4−
1999 01 15	699	0.1−	0.2−	1999 02 12	376	0.5−	0.2+				
1999 02 08	376	0.2+	0.3−	1999 02 12	376	1.1−	0.1−				

1999 APR. 2

M.P.C. 34237

1999 CC₁₀ = 1978 EO₁ = 1985 DL = 1994 YS₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	355.20215		(2000.0)	P	Q
<i>n</i>	0.28480571	ω	34.31015	-0.97476232	-0.18854378
<i>a</i>	2.2878994	Ω	134.33683	+0.14821967	-0.94699325
<i>e</i>	0.1507990	<i>i</i>	9.62105	+0.16694113	-0.26010578
<i>P</i>	3.46	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1978 03 05	095	0.9-	0.8-	1999 02 15	757	0.6-	0.3-	1999 02 22	757	0.2+	0.1-
1985 02 16	046	(0.2+	5.0-)	1999 02 15	757	0.7+	0.2+	1999 03 01	757	0.3+	0.5+
1985 02 16	046	(1.5-	7.8-)	1999 02 16	757	0.2-	0.1-	1999 03 01	757	0.6-	0.5+
1985 02 20	046	0.0	1.9-	1999 02 16	757	0.5+	0.8+	1999 03 16	757	0.5-	0.4+
1985 02 20	046	0.6+	0.7-	1999 02 20	704	0.9+	1.0-	1999 03 16	757	0.1+	0.6+
1985 02 20	046	(3.5-	1.0-)	1999 02 20	704	0.7-	1.4+	1999 03 20	143	0.2+	0.1+
1985 02 20	046	(4.2-	1.2-)	1999 02 20	704	(2.3+	0.2+)	1999 03 20	143	0.2+	0.2+
1994 12 25	399	0.4-	0.5+	1999 02 20	704	(2.4+	0.7+)				
1994 12 25	399	0.1+	1.1+	1999 02 22	757	0.4+	0.0				

1999 CH₁₀ = 1964 BG

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	74.01304		(2000.0)	P	Q
<i>n</i>	0.25705082	ω	341.11215	+0.35628082	-0.93155667
<i>a</i>	2.4497592	Ω	87.96350	+0.86635489	+0.30025445
<i>e</i>	0.1672733	<i>i</i>	4.16415	+0.34999026	+0.20505959
<i>P</i>	3.83	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1964 01 18	033	0.1-	0.2+	1964 01 20	033	0.1-	0.5-	1999 02 21	411	0.1+	0.6-
1964 01 18	033	0.3+	0.1+	1999 02 15	411	0.1-	0.2+	1999 03 19	699	0.4+	0.2+
1964 01 18	033	0.3-	0.3+	1999 02 15	411	0.4-	0.7-	1999 03 19	699	0.9-	0.4-
1964 01 19	033	0.3-	0.1+	1999 02 16	411	0.8+	0.2-	1999 03 19	699	0.8+	0.5+
1964 01 19	033	0.2-	0.0	1999 02 16	411	0.0	0.3+				
1964 01 20	033	0.6+	0.2-	1999 02 21	411	0.8-	0.7+				

1999 CN₁₀ = 1997 UJ₂₅

Id. B. G. Marsden

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	41.52875		(2000.0)	P	Q
<i>n</i>	0.18131004	ω	313.43052	+0.00537790	-0.99990589
<i>a</i>	3.0916345	Ω	136.25656	+0.92266114	+0.00009509
<i>e</i>	0.1447884	<i>i</i>	1.04592	+0.38557424	+0.01371891
<i>P</i>	5.44	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 09 09	910	0.2+	0.4-	1999 02 12	691	0.3-	0.1+	1999 02 18	566	0.2-	0.1-
1997 09 09	910	0.2+	0.5-	1999 02 12	691	0.3-	0.2-	1999 02 18	566	0.0	0.4-
1997 09 09	910	0.5+	0.6-	1999 02 12	691	0.5-	0.1-	1999 02 23	699	0.8+	1.5+
1997 10 29	704	1.0-	0.3-	1999 02 12	699	0.1+	1.6+	1999 02 23	699	0.1+	0.2+
1997 10 29	704	0.2-	0.4+	1999 02 12	699	0.5-	0.8+	1999 02 23	699	0.4+	0.4+
1997 10 29	704	0.1+	0.1-	1999 02 12	699	0.8+	0.2+	1999 03 14	721	0.5-	0.2-
1997 10 29	704	0.5+	0.4-	1999 02 13	704	0.3+	0.6-	1999 03 14	721	1.3-	0.6-
1997 10 29	704	1.2-	0.0	1999 02 13	704	0.1+	1.1-	1999 03 14	721	0.8-	0.5-
1997 10 30	704	0.2+	1.1-	1999 02 13	704	0.0	0.5-	1999 03 14	721	0.6-	0.7-
1997 10 30	704	0.6+	0.7-	1999 02 13	704	0.0	0.1-	1999 03 14	691	0.7+	0.4-
1997 10 30	704	0.1-	0.4+	1999 02 13	704	0.1+	0.4+	1999 03 14	721	1.3-	1.5-
1997 10 30	704	0.3-	0.0	1999 02 13	470	0.4+	0.7+	1999 03 14	691	0.6+	0.4-
1997 10 30	704	0.4+	0.4+	1999 02 13	470	0.7+	0.5+	1999 03 14	709	0.4+	0.1+
1997 11 03	704	0.3-	1.1+	1999 02 13	470	0.8+	0.7+	1999 03 14	709	0.5+	0.2+
1997 11 03	704	0.3+	1.0+	1999 02 16	691	0.9-	0.0	1999 03 14	691	0.4+	0.4-
1997 11 03	704	0.4+	0.1+	1999 02 16	691	0.9-	0.3-	1999 03 14	709	0.4+	0.2+
1997 11 03	704	0.2+	0.1-	1999 02 16	470	(0.3-	2.9+)	1999 03 14	709	0.3+	0.3+
1999 02 10	704	0.1+	0.2-	1999 02 16	470	(0.7-	2.1+)	1999 03 14	709	0.2+	0.3+
1999 02 10	704	0.0	0.7+	1999 02 17	721	(4.4-	1.8+)	1999 03 14	709	0.2+	0.2+
1999 02 10	704	0.7+	0.8+	1999 02 17	721	(5.2-	2.5+)	1999 03 16	691	0.7+	0.5-

1999 02 10	704	0.6+	0.1-	1999 02 17	721	(3.5-	2.3+)	1999 03 16	691	0.6-	0.5-
1999 02 10	704	0.6-	0.4-	1999 02 18	566	0.0	0.3-	1999 03 16	691	0.9-	0.5-

1999 CX₁₂ = 1997 RP₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	3.04874		(2000.0)	P	Q
<i>n</i>	0.21741724	ω	312.18075	-0.77068837	-0.63705433
<i>a</i>	2.7390927	Ω	188.28167	+0.60981251	-0.73090889
<i>e</i>	0.0579388	<i>i</i>	5.65163	+0.18484626	-0.24481417
<i>P</i>	4.53	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1997 09 04	910	0.4-	0.2+	1999 02 12	704	0.9-	1.2-	1999 02 16	704	0.6-	0.2+
1997 09 04	910	0.4-	0.1-	1999 02 12	704	1.9-	1.0+	1999 02 16	704	0.6-	0.7+
1997 09 04	910	0.4+	0.5-	1999 02 14	910	1.2+	0.1-	1999 02 16	704	0.7-	1.1+
1997 09 05	910	0.4+	0.0	1999 02 14	910	0.8+	0.1-	1999 02 16	704	0.6+	0.8+
1997 09 05	910	0.2-	0.0	1999 02 14	910	0.8+	0.4-	1999 02 17	910	0.2-	0.3-
1997 09 05	910	0.2+	0.4+	1999 02 16	910	0.4+	0.3-	1999 02 17	910	0.0	0.3-
1999 02 12	704	0.7+	0.3+	1999 02 16	910	0.3+	0.3-	1999 02 17	910	0.2-	0.3-
1999 02 12	704	0.9+	0.1-	1999 02 16	910	0.3+	0.3-				
1999 02 12	704	0.2-	0.4-	1999 02 16	704	0.6-	0.2+				

1999 CG₁₄ = 1979 OE = 1990 SP₁₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	266.43900		(2000.0)	P	Q
<i>n</i>	0.18752288	ω	104.84772	+0.21147169	+0.97734938
<i>a</i>	3.0229656	Ω	177.31943	-0.95076175	+0.20765869
<i>e</i>	0.0907824	<i>i</i>	10.14880	-0.22656527	+0.04081732
<i>P</i>	5.26	<i>H</i>	12.8	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1979 07 21	805	0.7+	0.7+	1999 02 18	120	0.8+	0.7+	1999 03 15	120	1.2-	0.2+
1979 07 22	805	0.9-	0.1+	1999 02 18	120	0.0	0.5+	1999 03 15	120	0.3-	0.6-
1979 07 22	805	0.2+	0.0	1999 02 18	120	0.5-	1.0+	1999 03 22	699	1.4+	1.1-
1990 09 18	675	0.3+	1.5-	1999 02 18	120	0.3-	0.2+	1999 03 22	699	0.3+	0.1+
1990 09 18	675	(1.0+	2.7-)	1999 02 19	120	0.2-	0.5+	1999 03 22	699	0.5+	0.2-
1999 02 13	120	0.4+	0.8-	1999 02 19	120	1.0-	0.4+	1999 03 24	699	0.8+	0.6-
1999 02 13	120	1.7-	1.1-	1999 02 24	120	1.1-	0.1+	1999 03 24	699	0.8+	1.0-
1999 02 13	120	0.3+	1.5+	1999 02 24	120	0.4-	0.4+	1999 03 24	699	0.5+	1.2-

1999 CH₁₄ = 1987 YO₄ = 1990 RQ

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	78.86726		(2000.0)	P	Q
<i>n</i>	0.28454711	ω	76.58084	+0.28598661	-0.95822067
<i>a</i>	2.2892853	Ω	356.78842	+0.84116995	+0.25353529
<i>e</i>	0.1654286	<i>i</i>	5.10133	+0.45896054	+0.13241229
<i>P</i>	3.46	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1987 12 23	010	1.7-	0.6-	1999 02 13	120	0.4+	1.6+	1999 02 23	704	1.6-	0.6-
1987 12 23	010	0.9+	0.5-	1999 02 18	120	(4.0+	1.4+)	1999 02 23	704	0.0	0.7-
1987 12 23	010	1.0+	0.4+	1999 02 18	120	0.9-	0.6+	1999 02 24	120	(2.5-	0.7-)
1990 09 13	675	0.3-	0.4-	1999 02 18	120	0.0	1.0+	1999 02 24	120	0.4-	0.1+
1990 09 13	675	0.2+	0.8-	1999 02 18	120	0.8-	0.1+	1999 03 12	120	0.4+	1.2-
1990 09 18	675	0.4+	0.2-	1999 02 19	120	0.5-	0.3+	1999 03 12	120	(1.5-	2.2-)
1990 09 18	675	0.5+	0.5-	1999 02 19	120	0.6-	0.2+	1999 03 12	120	(1.5+	2.6-)
1999 02 13	120	0.9-	0.0	1999 02 23	704	0.8+	0.5-	1999 03 24	699	0.5+	1.5-
1999 02 13	120	(2.3-	0.5-)	1999 02 23	704	0.7+	0.6-	1999 03 24	699	0.5+	1.2-
1999 02 13	120	0.4-	0.2+	1999 02 23	704	0.7+	0.6-	1999 03 24	699	0.4+	0.9+

1999 CV₁₄ = 4198 T-1

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	36.70439		(2000.0)	P	Q	Williams			
<i>n</i>	0.17599083	ω	304.04606	-0.42453890	-0.90434180				
<i>a</i>	3.1536199	Ω	170.75434	+0.89441555	-0.42643282				
<i>e</i>	0.1676296	<i>i</i>	15.87974	+0.14066822	-0.01791535				
<i>P</i>	5.60	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1971 03 24	675	2.1+	1.1-	1999 02 18	120	0.7-	0.9-	1999 03 14	120	1.6-	0.8-
1971 03 26	675	0.4+	1.3+	1999 02 18	120	0.1+	0.5-	1999 03 14	120	1.1-	0.4-
1971 03 26	675	0.7-	1.6+	1999 02 20	699	1.4+	0.4+	1999 03 14	120	2.0-	0.5+
1971 03 27	675	1.7-	1.8-	1999 02 20	699	1.0+	1.0+	1999 03 22	699	1.8+	0.4+
1999 02 15	120	0.6-	0.3-	1999 02 20	699	1.2+	0.3+	1999 03 22	699	1.1+	0.2+
1999 02 15	120	0.2-	0.2+	1999 02 23	120	0.5-	0.3-	1999 03 22	699	1.0+	0.1-
1999 02 16	120	0.0	0.7+	1999 02 24	120	0.2-	0.4-				
1999 02 18	120	0.1-	0.0	1999 02 24	120	0.6-	0.0				

1999 CX₁₄ = 1990 VO₂ = 1992 EQ₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	178.62584		(2000.0)	P	Q	Williams			
<i>n</i>	0.28628115	ω	356.77436	+0.96879752	+0.24729413				
<i>a</i>	2.2800317	Ω	348.86577	-0.22542863	+0.85124510				
<i>e</i>	0.1532652	<i>i</i>	4.94415	-0.10302089	+0.46284706				
<i>P</i>	3.44	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1990 11 11	408	(2.2-	4.7-)	1992 03 03	809	0.2+	0.2+	1999 02 24	120	0.4-	0.0
1990 11 11	408	0.8-	0.6-	1992 04 07	809	0.3-	1.0-	1999 03 12	120	0.1+	1.0+
1990 11 12	408	0.8+	0.8+	1999 02 15	120	0.2+	0.3-	1999 03 12	120	0.3-	0.5-
1990 11 12	408	1.4+	0.8+	1999 02 16	120	0.2-	0.1-	1999 03 12	120	0.5-	0.2+
1990 11 12	408	(1.0+	2.3-)	1999 02 16	120	(2.4+	0.4-)	1999 03 23	699	1.8+	1.4+
1990 11 17	408	0.2-	0.4+	1999 02 18	120	0.4-	0.4+	1999 03 23	699	0.1-	0.6-
1990 11 17	408	(0.7-	2.8+)	1999 02 18	120	1.2-	0.7-	1999 03 23	699	1.1+	0.2-
1990 11 17	408	1.2-	1.3-	1999 02 18	120	0.4-	0.6-				
1992 03 01	809	0.4+	1.2+	1999 02 23	120	0.1-	0.3-				

1999 CY₁₄ = 1996 RX₁₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	337.27574		(2000.0)	P	Q	Williams			
<i>n</i>	0.21350712	ω	41.41670	-0.98955781	+0.13953565				
<i>a</i>	2.7724335	Ω	146.55285	-0.14336473	-0.92693868				
<i>e</i>	0.0625959	<i>i</i>	3.75819	-0.01489589	-0.34830228				
<i>P</i>	4.62	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1996 09 08	691	0.2+	0.0	1997 12 26	566	0.5+	0.6+	1999 02 18	120	0.4+	0.1-
1996 09 08	691	0.2+	0.1-	1997 12 26	566	0.2-	0.2-	1999 02 23	120	0.8-	0.9+
1996 09 08	691	0.3+	0.0	1997 12 26	566	0.4-	0.0	1999 02 24	120	0.7-	1.5+
1996 09 17	691	0.7-	0.8+	1999 02 15	120	0.1+	1.2-	1999 03 19	699	0.8+	0.6+
1996 09 17	691	0.1-	0.5+	1999 02 16	120	0.8-	0.4-	1999 03 19	699	0.7+	0.2+
1996 09 17	691	0.4-	0.5+	1999 02 18	120	0.4+	0.5-	1999 03 19	699	0.4+	0.6+

1999 CG₁₆ = 1996 PZ₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	265.71884		(2000.0)	P	Q	Williams			
<i>n</i>	0.22975297	ω	277.07807	-0.53119674	+0.84364964				
<i>a</i>	2.6401502	Ω	320.51269	-0.72084465	-0.49840822				
<i>e</i>	0.1737869	<i>i</i>	7.04637	-0.44521121	-0.19961097				
<i>P</i>	4.29	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1996 08 13	566	0.4-	0.1-	1996 08 14	566	0.3+	0.6+	1999 02 23	104	1.3-	0.1-
1996 08 13	566	0.6-	0.2-	1999 02 15	104	2.6+	1.5-	1999 02 23	104	1.2-	0.0
1996 08 13	566	0.4-	0.2-	1999 02 15	104	0.9+	1.0-	1999 02 23	104	1.1-	0.1+
1996 08 13	327	0.7+	0.1-	1999 02 15	104	0.5-	0.2+	1999 03 12	104	0.2-	0.1-
1996 08 13	327	0.4+	0.8-	1999 02 18	104	0.6-	0.6+	1999 03 12	104	0.3+	0.1+
1996 08 13	327	0.4+	0.3-	1999 02 18	104	0.7-	0.6+	1999 03 12	104	0.6+	0.3+
1996 08 14	566	0.2-	0.5+	1999 02 18	104	0.1-	0.7+	1999 03 12	104	0.8+	0.1+
1996 08 14	566	0.4-	0.9+	1999 02 19	104	0.7+	0.4+				

1999 CK₁₆ = 1999 CM₁₁₄ = 1977 RF₉ = 1997 UZ₃

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	55.94382		(2000.0)	P	Q	Williams			
<i>n</i>	0.20267078	ω	236.10738	+0.06787296	-0.99762301				
<i>a</i>	2.8703969	Ω	210.00754	+0.92304321	+0.06731669				
<i>e</i>	0.0351213	<i>i</i>	1.36338	+0.37866145	+0.01472400				
<i>P</i>	4.86	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3		

Residuals in seconds of arc

1977 09 09	675	0.9-	0.9-	1997 10 30	684	0.1-	0.1-	1999 02 12	704	1.4+	0.7-
1977 09 10	675	1.1+	0.3+	1997 10 30	684	0.2-	0.0	1999 02 12	704	0.3+	1.0+
1997 08 31	910	0.1+	0.8-	1997 10 30	684	0.1-	0.2+	1999 02 12	704	0.5-	1.1-
1997 08 31	910	0.2-	0.3-	1999 02 06	120	1.5-	0.5-	1999 02 16	704	0.7-	0.7-
1997 08 31	910	0.1+	0.3-	1999 02 06	120	(2.4+	0.3-)	1999 02 16	704	0.8-	0.5-
1997 10 25	684	0.2-	0.3-	1999 02 07	120	0.9-	1.2+	1999 02 16	704	1.5-	1.0-
1997 10 25	684	0.1-	0.2-	1999 02 12	704	0.6+	0.1-	1999 02 16	704	0.3+	0.5+
1997 10 27	684	0.4+	0.8+	1999 02 12	704	1.9+	1.7+	1999 02 16	704	0.2-	0.3-
1997 10 27	684	0.0	0.3+	1999 02 12	704	0.3+	0.5-	1999 02 18	120	0.4+	0.5-
1997 10 27	684	0.1+	0.5+	1999 02 12	704	1.8+	1.4+	1999 02 18	120	1.0-	0.6-

1999 CG₁₇ = 1995 KR₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	284.48623		(2000.0)	P	Q	Marsden			
<i>n</i>	0.18814984	ω	87.38407	-0.89961244	+0.39848287				
<i>a</i>	3.0162464	Ω	116.04817	-0.43582046	-0.84506079				
<i>e</i>	0.0487154	<i>i</i>	11.46833	+0.02753146	-0.35648794				
<i>P</i>	5.24	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1995 05 24	693	0.6-	0.4+	1998 12 13	303	0.1+	0.1+	1999 02 10	704	0.7+	0.9-
1995 05 24	693	0.2-	0.4+	1998 12 13	303	0.1-	0.2+	1999 02 13	704	0.3+	0.2+
1995 05 25	693	2.1+	0.0	1999 02 10	704	0.6+	0.4-	1999 02 13	704	0.4-	0.0
1995 05 25	693	1.3-	0.9-	1999 02 10	704	0.4+	1.2+	1999 02 13	704	0.6-	0.3+
1998 12 11	303	0.5-	0.1-	1999 02 10	704	1.2+	0.2-	1999 02 13	704	0.5-	0.6+
1998 12 12	303	0.1+	0.1-	1999 02 10	704	0.4-	0.9-	1999 02 13	704	1.0-	0.1+

1999 CG₁₉ = 1988 JT₁ = 1992 JK₂ = 1997 WC₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	270.81330		(2000.0)	P	Q	Williams			
<i>n</i>	0.26207754	ω	277.66953	-0.59823969	+0.80082286				
<i>a</i>	2.4183334	Ω	315.54645	-0.71844388	-0.55159245				
<i>e</i>	0.1702875	<i>i</i>	2.30306	-0.35489106	-0.23329918				
<i>P</i>	3.76	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	2		

Residuals in seconds of arc

1988 05 11	413	1.6+	0.7-	1997 11 28	691	0.4-	0.4+	1999 02 11	699	0.3-	1.1+
1988 05 11	413	2.0-	0.0	1997 11 28	691	0.2+	0.5+	1999 02 11	699	0.2-	0.3+
1992 05 04	809	0.3-	0.8+	1997 11 28	691	0.0	0.4+	1999 02 11	699	0.5+	0.4+
1992 05 04	809	0.2+	1.1+	1999 01 10	699	0.7+	1.6-	1999 02 13	704	0.0	0.7+
1992 05 04	809	0.7+	0.7+	1999 01 10	699	1.0+	0.1-	1999 02 13	704	0.7-	0.1+
1992 05 07	809	0.1+	0.2-	1999 01 10	699	0.2+	0.0	1999 02 13	704	1.9+	0.9-
1992 05 07	809	0.4+	0.4+	1999 02 10	704	0.9-	0.3-	1999 02 13	704	0.1+	0.6-
1992 05 07	809	0.2+	0.3+	1999 02 10	704	1.0-	0.5-	1999 02 13	704	0.4-	1.0-

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1997 11 21	691	0.6−	0.9+	1999 02 10	704	0.7−	0.1+	1999 02 23	699	0.1+	1.7+
1997 11 21	691	0.6−	0.9+	1999 02 10	704	0.7−	0.0	1999 02 23	699	0.0	1.6+
1997 11 21	691	0.2−	0.7+	1999 02 10	704	0.4+	0.8−				

1999 CK₁₉ = 1949 QQ₂ = 1974 HK₂ = 1986 RR₁₀ = 1992 EP₃₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	169.14453		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.26800770	ω	343.28817	+0.70356518	+0.70980129		
a	2.3825272	Ω	331.39701	−0.64351541	+0.61588273		
e	0.1358275	i	4.11151	−0.30146967	+0.34186341		
P	3.68	H	13.5	G	0.15	U	2

Residuals in seconds of arc

1949 08 21	024	1.6+	0.9−	1999 01 22	699	0.5+	1.8−	1999 02 11	699	1.0+	0.2−
1949 08 22	024	0.8−	1.1−	1999 01 22	699	0.9+	0.5−	1999 02 11	699	0.4+	0.6−
1974 04 24	805	0.8+	1.3−	1999 02 10	704	0.2−	0.9+	1999 02 13	704	1.4−	1.2+
1986 09 09	095	0.0	0.2−	1999 02 10	704	0.4−	0.9−	1999 02 13	704	1.1+	1.0+
1992 03 02	809	0.5−	1.4+	1999 02 10	704	1.0−	0.2−	1999 02 13	704	0.8−	0.2−
1992 03 05	809	0.9−	0.9−	1999 02 10	704	0.8−	0.0	1999 02 13	704	0.9−	0.5−
1992 04 07	809	1.5−	0.2+	1999 02 10	704	0.7+	0.4+				
1999 01 22	699	0.9+	0.9−	1999 02 11	699	0.7+	0.1−				

1999 CR₂₀ = 1979 WG₆ = 1988 VK₈ = 1995 FF₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	31.31155		(2000.0)		P		Q
n	0.21574911	ω	18.70399		+0.00996575		−0.99671210
a	2.7531934	Ω	70.78803		+0.90623251		−0.02498693
e	0.0952215	i	4.88475		+0.42266218		+0.07707563
P	4.57	H	14.1	G	0.15	U	1

Residuals in seconds of arc

1979 11 17	095	0.4−	1.6−	1997 10 30	566	0.4−	0.9−	1999 02 10	704	0.6−	0.2−
1988 11 04	033	1.2+	0.2−	1997 10 30	566	0.0	0.5−	1999 02 10	704	0.2−	0.6+
1988 11 04	033	1.0+	0.0	1997 10 30	566	0.1−	0.1−	1999 02 13	704	0.8+	0.8−
1995 03 26	691	0.4−	0.4−	1999 01 22	699	0.4−	1.2+	1999 02 13	704	0.1+	1.0−
1995 03 26	691	0.3−	0.5−	1999 01 22	699	0.1−	0.8+	1999 02 13	704	0.6+	0.6−
1995 03 26	691	0.3−	0.9−	1999 01 22	699	0.1+	0.7+	1999 02 13	704	0.2+	0.3−
1995 03 31	691	0.2−	0.5−	1999 02 10	704	0.2−	0.4+	1999 02 13	704	0.4−	1.1−
1995 03 31	691	0.1−	0.5−	1999 02 10	704	0.1−	0.6+				
1995 03 31	691	0.2−	0.5−	1999 02 10	704	0.4+	0.8+				

1999 CV₂₀ = 1992 EN₃₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	230.73307		(2000.0)		P	Q
n	0.27086878	ω	285.18563		−0.06763397	+0.99723837
a	2.3657204	Ω	340.85655		−0.87570995	−0.07407060
e	0.0999110	i	5.36825		−0.47807711	−0.00540253
P	3.64	H	14.4	G	0.15	U 5

Residuals in seconds of arc

1992 03 03	809	0.4−	0.3−	1999 02 10	704	0.5−	0.4+	1999 02 13	704	0.3+	0.2−
1992 03 06	809	0.7+	0.3+	1999 02 11	699	0.3+	0.8+	1999 02 13	704	1.9+	0.4−
1992 04 07	809	0.3−	0.2+	1999 02 11	699	0.0	0.9+	1999 02 18	566	0.3−	0.9−
1999 02 10	704	0.5−	0.6+	1999 02 11	699	0.7+	0.7+	1999 02 18	566	1.0−	0.3−
1999 02 10	704	0.6−	0.5−	1999 02 13	704	0.5+	0.3−	1999 02 18	566	0.7−	0.6−
1999 02 10	704	0.7−	1.0+	1999 02 13	704	0.5+	0.8−				
1999 02 10	704	0.7−	0.2+	1999 02 13	704	1.0+	0.9−				

1999 CB₂₁ = 1997 TQ₂₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	350.60198		(2000.0)		P		Q
n	0.17787001	ω	48.51451		−0.78286329		−0.62047659
a	3.1313688	Ω	93.08279		+0.55618047		−0.73115250
e	0.1020031	i	2.65149		+0.27890565		−0.28359269
P	5.54	H	13.6	G	0.15	U	4

Residuals in seconds of arc

1997 10 09	327	0.4−	0.0	1997 10 10	327	0.1+	0.6−	1999 02 10	704	0.5+	0.5−
1997 10 09	327	0.3−	0.1−	1997 10 10	327	0.0	0.1−	1999 02 10	704	0.2−	0.5−
1997 10 09	327	0.8+	0.4+	1999 01 10	699	0.7−	0.2+	1999 02 13	704	0.2−	0.0
1997 10 09	327	0.7+	0.0	1999 01 10	699	0.2+	0.0	1999 02 13	704	0.1+	0.3+
1997 10 09	327	0.4−	0.1−	1999 01 10	699	0.3+	0.0	1999 02 13	704	0.0	0.2+
1997 10 09	327	0.3−	0.3+	1999 02 10	704	0.5+	0.2+	1999 02 13	704	1.0−	0.2+
1997 10 09	327	0.0	0.2+	1999 02 10	704	0.8+	0.1−	1999 02 13	704	0.5−	0.0
1997 10 10	327	0.1−	0.0	1999 02 10	704	0.3+	0.1−				

1999 CF₂₁ = 1999 BR₃₃ = 1982 BP₁₅ = 1996 PG₃Id. G. V. Williams (d, *MPC* 34062), A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	313.94047		(2000.0)		P		Q
n	0.23217791	ω	232.78244		−0.98233547		+0.10431615
a	2.6217350	Ω	312.62760		−0.00846300		−0.85412194
e	0.1140514	i	12.18951		−0.18693692		−0.50950353
P	4.25	H	14.4	G	0.15	U	3

Residuals in seconds of arc

1982 01 30	675	0.7−	0.2+	1999 01 10	699	0.1+	0.5−	1999 02 11	699	0.5+	1.0+
1982 01 31	675	0.8+	0.0	1999 01 22	159	0.0	0.2−	1999 02 11	699	0.7+	0.2−
1996 08 12	608	0.4+	0.2+	1999 01 22	159	0.1+	0.1−	1999 02 13	704	0.1+	0.4−
1996 08 14	608	0.5−	0.1+	1999 01 22	159	0.1+	0.3−	1999 02 13	704	0.3−	0.5+
1996 08 14	608	0.1−	0.0	1999 02 10	704	0.6−	0.4−	1999 02 13	704	0.5+	0.1+
1998 12 14	699	0.0	0.3−	1999 02 10	704	0.3−	0.6−	1999 02 13	704	0.2+	0.1+
1998 12 14	699	0.2+	0.1−	1999 02 10	704	0.5−	0.6−	1999 02 13	704	0.8+	0.2−
1998 12 14	699	0.6−	0.3+	1999 02 10	704	(1.1−	2.9−)	1999 03 08	159	0.2+	0.1+
1999 01 10	699	(0.5+	2.2+)	1999 02 10	704	1.4−	0.4−	1999 03 08	159	0.9−	0.2−
1999 01 10	699	0.5+	0.7+	1999 02 11	699	0.5+	1.5+				

1999 CC₂₃ = 1997 TZ₆

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	6.33315		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.22745286	ω	7.63828	-0.56096266	-0.82518785
a	2.6579193	Ω	116.50670	$+0.75556293$	-0.54303601
e	0.0469582	i	4.24408	$+0.33829802$	-0.15548921
P	4.33	H	15.2	G 0.15	U 4

Residuals in seconds of arc

1997 10 02	910	0.0	0.0	1998 12 18	910	0.0	0.2+	1999 02 10	704	1.2−	1.8+
1997 10 02	910	0.0	0.1−	1999 01 14	699	0.2−	0.4−	1999 02 13	704	0.9−	0.2−
1997 10 02	910	0.0	0.0	1999 01 14	699	0.3−	0.0	1999 02 13	704	0.8+	0.1+
1997 10 04	910	0.1+	0.0	1999 01 14	699	0.2−	1.6−	1999 02 13	704	0.4+	0.7−
1997 10 04	910	0.1−	0.0	1999 02 10	704	0.5−	0.0	1999 02 13	704	0.7+	0.5−
1997 10 04	910	0.1−	0.1+	1999 02 10	704	0.0	0.3−	1999 02 13	704	0.7+	0.5+
1998 12 18	910	0.6+	0.3+	1999 02 10	704	0.3+	0.7+				
1998 12 18	910	0.0	0.3+	1999 02 10	704	0.2−	0.2−				

M.P.C. 34240

1999 CO₂₄ = 1995 GU

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	288.67058		(2000.0)		P		Q				
<i>n</i>	0.22053594	ω	131.24215		−0.82763204		+0.54713813				
<i>a</i>	2.7132083	Ω	82.28760		−0.54530799		−0.73104172				
<i>e</i>	0.1083013	<i>i</i>	7.25599		−0.13290750		−0.40769826				
<i>P</i>	4.47	<i>H</i>	13.4		<i>G</i>	0.15	<i>U</i>	6			
Residuals in seconds of arc											
1995 04 09	107	0.1−	2.6+	1995 04 10	107	1.6+	0.1−	1999 02 13	704	0.1+	0.1−
1995 04 09	107	0.4−	2.7+	1999 02 10	704	0.2+	0.7−	1999 02 13	704	0.9+	0.6+
1995 04 09	107	0.9−	2.6−	1999 02 10	704	0.3+	0.4−	1999 02 13	704	0.9−	0.3+
1995 04 09	107	1.6−	2.0−	1999 02 10	704	0.6−	0.3+	1999 02 18	566	0.2−	0.2−
1995 04 10	107	1.2+	0.8−	1999 02 10	704	0.2−	0.3+	1999 02 18	566	0.0	0.3−
1995 04 10	107	0.1+	0.1+	1999 02 10	704	0.2+	0.2+	1999 02 18	566	0.1+	0.1−

1999 CU₂₅ = 1987 SU₁₀

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	87.68672		(2000.0)			P		Q			
<i>n</i>	0.20151810	ω	313.11346			+0.78587955		−0.61600736			
<i>a</i>	2.8813322	Ω	84.98485			+0.58195818		+0.70716682			
<i>e</i>	0.0730165	<i>i</i>	3.11392			+0.20908852		+0.34705909			
<i>P</i>	4.89	<i>H</i>	13.8		<i>G</i>	0.15		<i>U</i>	6		
Residuals in seconds of arc											
1987 09 29	033	0.5−	0.3+	1999 02 10	704	0.3+	0.1−	1999 02 13	704	0.6−	0.2+
1987 09 29	033	0.4+	0.4+	1999 02 10	704	0.5+	0.5−	1999 02 13	704	0.6−	0.8+
1987 09 30	033	0.3+	0.3+	1999 02 10	704	0.4+	0.2−	1999 02 13	704	0.3−	0.1−
1987 09 30	033	0.3−	0.2−	1999 02 12	699	0.1−	0.3+	1999 02 13	704	1.2−	0.1+
1987 10 01	033	0.1+	0.8−	1999 02 12	699	0.1−	0.5+	1999 02 19	566	0.1−	0.4−
1999 02 10	704	0.6+	0.3−	1999 02 12	699	0.5+	0.3+	1999 02 19	566	0.3−	0.6−
1999 02 10	704	0.1−	0.5−	1999 02 13	704	0.7+	0.4+	1999 02 19	566	0.2+	0.1−

1999 CY₂₅ = 1978 WR₁ = 1989 TE₁₇ = 1997 UD₁₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	233.16162		(2000.0)			P		Q			
<i>n</i>	0.25710804	ω	172.40304			+0.07416559		+0.99584373			
<i>a</i>	2.4493957	Ω	101.83939			−0.91777229		+0.08889695			
<i>e</i>	0.1572856	<i>i</i>	3.09629			−0.39011985		−0.01981396			
<i>P</i>	3.83	<i>H</i>	14.6			<i>G</i>	0.15	<i>U</i>	2		
Residuals in seconds of arc											
1978 11 29	675	1.5−	1.0+	1997 11 01	691	0.2+	0.4−	1999 02 12	699	0.0	0.5+
1978 11 30	675	0.9+	1.4+	1997 11 01	691	0.2+	0.2−	1999 02 12	699	1.2+	0.7+
1989 10 09	809	(3.0+ 19.9−)		1998 12 26	910	0.4−	0.0	1999 02 12	699	0.1+	0.8+
1989 10 09	809	(3.1+ 19.9−)		1998 12 26	910	0.3−	0.3+	1999 02 13	704	1.3+	0.6−
1989 10 09	809	(3.4+ 19.8−)		1998 12 26	910	0.4−	0.4+	1999 02 13	704	0.2−	1.2−
1989 10 10	809	0.5−	0.6−	1999 01 13	699	0.5−	1.5−	1999 02 13	704	1.5+	0.1−
1989 10 10	809	0.1−	0.5−	1999 01 13	699	0.5−	0.0	1999 02 13	704	1.3+	0.7−
1989 10 10	809	0.5+	0.2−	1999 01 13	699	0.2−	0.7+	1999 02 13	704	0.6+	0.2−
1989 10 10	809	0.8+	0.2−	1999 02 10	704	0.2−	0.0	1999 02 19	566	0.1−	0.1−
1997 10 25	691	0.2−	0.2+	1999 02 10	704	0.9−	1.2−	1999 02 19	566	0.0	0.2+
1997 10 25	691	0.1−	0.0	1999 02 10	704	1.1−	0.5+	1999 02 19	566	0.1−	0.4+
1997 10 25	691	0.2−	0.3−	1999 02 10	704	0.1−	0.3−				
1997 11 01	691	0.3+	0.1−	1999 02 10	704	1.5−	0.0				

1999 CM₂₇ = 1991 VN₁₂

Id. A. Doppler

1999 APR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	21.01743		(2000.0)		P		Q				
n	0.29826331	ω	47.15545		−0.24486777		−0.96637441				
a	2.2185514	Ω	57.17778		+0.86008960		−0.25387447				
e	0.1098192	i	5.35911		+0.44753285		−0.04084429				
P	3.30	H	16.5		G	0.15	U	5			
Residuals in seconds of arc											
1991 11 08	691	0.5−	0.2−	1999 02 10	704	0.1−	0.4+	1999 02 13	704	0.4+	0.4−
1991 11 08	691	0.6−	0.0	1999 02 10	704	0.9−	0.1−	1999 02 13	704	0.8+	0.4−
1991 11 08	691	0.3−	0.1+	1999 02 10	704	0.6−	0.7+	1999 02 13	704	1.1+	0.4−
1991 11 12	691	0.8+	0.1−	1999 02 10	704	0.4−	0.4+	1999 02 19	566	0.7−	0.3+
1991 11 12	691	0.4+	0.5+	1999 02 10	704	0.6−	0.1−	1999 02 19	566	0.2−	0.6+
1991 11 12	691	0.2+	0.2−	1999 02 13	704	1.0+	1.9−	1999 02 19	566	0.1+	0.9+

1999 CN₂₇ = 1994 WU₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	104.73159		(2000.0)		P		Q				
<i>n</i>	0.28107587	ω	350.81301		+0.97475363		−0.21858240				
<i>a</i>	2.3080950	Ω	21.97429		+0.21181496		+0.84064748				
<i>e</i>	0.1276728	<i>i</i>	6.99580		+0.07063840		+0.49551343				
<i>P</i>	3.51	<i>H</i>	14.7		<i>G</i>	0.15	<i>U</i>	6			
Residuals in seconds of arc											
1994 11 26	408	1.4−	0.2−	1999 02 10	704	0.8+	0.1−	1999 02 13	704	0.2−	0.8+
1994 11 26	408	0.2+	0.6+	1999 02 10	704	0.6+	0.2−	1999 02 13	704	0.9−	0.3+
1994 11 27	408	1.3+	0.1−	1999 02 10	704	0.3−	0.4+	1999 02 18	566	0.1+	0.3−
1994 11 27	408	0.1−	0.3−	1999 02 13	704	0.1−	0.5+	1999 02 18	566	0.4−	0.0
1999 02 10	704	0.2−	0.6−	1999 02 13	704	0.2+	0.7−	1999 02 18	566	0.3+	0.2−
1999 02 10	704	0.2+	0.3−	1999 02 13	704	0.2−	0.6+				

1999 CD₂₈ = 1990 RN₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	232.66626		(2000.0)		P		Q				
<i>n</i>	0.17853488	ω	213.49221		+0.06458357		+0.99034196				
<i>a</i>	3.1235899	Ω	60.48615		−0.88183478		+0.11418655				
<i>e</i>	0.1564996	<i>i</i>	8.10453		−0.46711496		−0.07863985				
<i>P</i>	5.52	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1990 09 14	675	1.6−	0.6+	1999 02 10	704	0.9−	0.6−	1999 02 20	699	1.5+	0.4−
1990 09 14	675	0.5+	0.2+	1999 02 13	704	0.5+	0.5−	1999 03 11	557	0.1−	0.4−
1990 09 15	675	0.8+	1.2−	1999 02 13	704	1.3+	1.2+	1999 03 11	557	0.0	0.3−
1990 09 15	675	0.3+	0.3+	1999 02 13	704	1.0+	1.1+	1999 03 13	557	0.1−	0.1+
1999 02 10	704	0.0	0.6−	1999 02 13	704	0.4−	0.2+	1999 03 13	557	0.3−	0.4+
1999 02 10	704	0.2−	0.2−	1999 02 13	704	1.3−	0.4+	1999 03 13	557	0.3−	0.2+
1999 02 10	704	0.9−	0.4−	1999 02 20	699	0.8+	0.4−				
1999 02 10	704	0.5−	0.4−	1999 02 20	699	0.1+	0.6+				

1999 CT₃₀ = 1979 QJ₄ = 1985 SX = 1985 TU₂ = 1996 RA₈Id. A. Doppler, G. V. Williams, S. Nakano (d), T. Furuta (d), *JAM* 2060)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	217.14347		(2000.0)			P		Q			
n	0.17609302	ω	301.62916			+0.19923593		+0.97840759			
a	3.1523998	Ω	339.64545			−0.83702263		+0.14072834			
e	0.0032660	i	9.09595			−0.50960589		+0.15137411			
P	5.60	H	12.5		G	0.15		U	1		
Residuals in seconds of arc											
1979 08 22	809	(9.9− 4.1+)		1996 09 08	691	0.4−	1.1+	1999 02 12	699	0.8+	0.5+
1979 08 22	809	(8.8− 4.0+)		1996 09 08	691	0.2−	1.2+	1999 02 12	699	0.5+	0.5+
1979 08 23	809	(8.4− 3.7+)		1997 12 28	566	0.2−	0.6−	1999 02 12	699	0.8+	0.6+
1979 08 23	809	(6.3− 3.5+)		1997 12 28	566	0.2−	0.7−	1999 02 13	704	0.4+	0.2−
1979 08 26	809	2.1− 1.0+		1997 12 28	566	0.3−	0.8−	1999 02 13	704	0.6+	0.3−

1999 APR. 2

M.P.C. 34241

1985 09 19	046	1.7+	0.0	1999 01 13	699	0.1-	1.1+	1999 02 13	704	0.6+	0.5+
1985 09 19	046	1.3+	0.8-	1999 01 13	699	0.2-	0.3+	1999 02 13	704	0.4+	0.3+
1985 10 14	010	(10.7+	5.8+)	1999 01 13	699	0.2-	0.2+	1999 02 13	704	1.4+	0.8-
1985 10 15	010	(3.0-	2.1+)	1999 02 10	704	0.3-	0.6+	1999 02 24	699	0.2-	0.2+
1996 09 06	691	1.0-	1.0+	1999 02 10	704	0.2-	0.1-	1999 02 24	699	0.4-	0.0
1996 09 06	691	1.1-	1.0+	1999 02 10	704	0.1+	1.0+	1999 02 24	699	0.7-	0.4+
1996 09 06	691	0.8-	0.8+	1999 02 10	704	0.2+	0.4+				
1996 09 08	691	0.1-	0.5+	1999 02 10	704	0.1+	0.7+				

1999 CE₃₁ = 1996 JV₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	33.34109		(2000.0)	P	Q
<i>n</i>	0.26733141	ω	351.45972	+0.03887762	-0.99760908
<i>a</i>	2.3865437	Ω	96.29820	+0.92015065	+0.01344574
<i>e</i>	0.1801330	<i>i</i>	3.29541	+0.38962970	+0.06778887
<i>P</i>	3.69	<i>H</i>	15.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 05 13	691	0.0	0.5+	1999 01 13	699	0.2-	0.3-	1999 02 12	699	0.0	0.1-
1996 05 13	691	0.5-	0.0	1999 01 13	699	0.6+	0.8+	1999 02 13	704	1.9-	0.4+
1996 05 13	691	0.4-	0.0	1999 01 13	699	0.2-	0.2-	1999 02 13	704	0.8+	0.3+
1996 05 20	691	0.2+	0.1-	1999 02 10	704	0.4+	0.4-	1999 02 13	704	0.2-	0.0
1996 05 20	691	0.3+	0.1-	1999 02 10	704	1.0-	0.1+	1999 02 13	704	0.4+	0.8+
1996 05 20	691	0.5+	0.0	1999 02 10	704	0.7-	0.0	1999 02 13	704	0.5+	0.3+
1998 10 20	910	0.3+	0.2-	1999 02 10	704	0.1+	0.8-	1999 02 18	566	0.3+	0.7-
1998 10 20	910	0.2+	0.3+	1999 02 12	699	0.1+	0.2-	1999 02 18	566	0.1+	0.6-
1998 10 20	910	0.5-	0.3+	1999 02 12	699	0.4+	0.6+	1999 02 18	566	0.4+	0.3-

1999 CT₃₁ = 1992 EG₃ = 1996 HH₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	206.48466		(2000.0)	P	Q
<i>n</i>	0.27284107	ω	239.11208	+0.33779521	+0.93787340
<i>a</i>	2.3543059	Ω	50.84303	-0.82488177	+0.33556328
<i>e</i>	0.0452657	<i>i</i>	5.86947	-0.45328188	+0.08826541
<i>P</i>	3.61	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1992 03 07	372	0.0	1.1-	1996 04 18	809	0.9-	0.9-	1999 02 13	704	1.2+	0.0
1992 03 07	372	0.2-	0.6+	1999 02 10	704	0.9-	0.8-	1999 02 13	704	0.6+	1.0+
1996 04 17	809	0.7+	0.3+	1999 02 10	704	0.4-	0.0	1999 02 13	704	0.0	0.0
1996 04 17	809	0.1+	0.2+	1999 02 10	704	0.4+	0.4+	1999 02 20	699	0.6-	0.2+
1996 04 17	809	0.2-	0.3+	1999 02 10	704	1.7-	0.5-	1999 02 20	699	0.0	0.3+
1996 04 18	809	0.1+	0.0	1999 02 13	704	1.1-	1.2-	1999 02 20	699	0.2-	1.4+
1996 04 18	809	0.2+	0.2+	1999 02 13	704	2.7+	0.2-				

1999 CM₃₂ = 1997 SY₁₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	255.64997		(2000.0)	P	Q
<i>n</i>	0.28920773	ω	240.82375	-0.21082244	+0.97710329
<i>a</i>	2.2646241	Ω	17.07758	-0.85951050	-0.17131121
<i>e</i>	0.1745701	<i>i</i>	5.60634	-0.46561315	-0.12618097
<i>P</i>	3.41	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 09 27	910	0.2-	0.0	1999 02 10	704	1.0+	0.2-	1999 02 13	704	0.8-	1.3+
1997 09 27	910	0.2-	0.2-	1999 02 10	704	0.1-	0.4+	1999 02 13	704	1.1-	0.0
1997 09 27	910	0.1+	0.3-	1999 02 10	704	0.5+	0.7+	1999 02 13	704	0.7+	0.3-
1997 09 30	910	0.0	0.2+	1999 02 12	699	0.9+	0.4-	1999 02 13	704	1.7-	0.8-
1997 09 30	910	0.1+	0.0	1999 02 12	699	0.3+	0.5+	1999 02 18	566	0.2+	0.4-
1997 10 01	910	0.2+	0.2+	1999 02 12	699	0.8+	0.5+	1999 02 18	566	0.5+	0.1-
1999 02 10	704	0.1+	0.4-	1999 02 13	704	1.4-	0.5-	1999 02 18	566	0.0	0.5-

1999 CO₃₂ = 4305 T-2 = 1996 HK₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	250.35839		(2000.0)	P	Q
<i>n</i>	0.29058270	ω	210.58822	-0.11443096	+0.99108532
<i>a</i>	2.2574746	Ω	52.92675	-0.89327062	-0.07259656
<i>e</i>	0.1766218	<i>i</i>	4.90573	-0.43471043	-0.11171222
<i>P</i>	3.39	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1973 09 29	675	1.1-	1.0-	1996 04 18	413	0.3-	0.5+	1999 02 13	704	0.4-	0.4+
1973 09 29	675	0.7-	1.6-	1996 04 21	413	0.4-	0.8-	1999 02 13	704	0.1-	0.4-
1973 09 30	675	0.7+	1.4+	1996 04 21	413	0.8+	0.1-	1999 02 13	704	0.2-	0.3-
1973 09 30	675	0.8+	1.6+	1999 02 10	704	0.1+	0.1+	1999 02 13	704	0.4-	0.8+
1973 10 04	675	1.0+	0.8-	1999 02 10	704	0.3+	0.3+	1999 02 18	566	0.3-	0.1-
1973 10 04	675	0.5+	0.2-	1999 02 10	704	0.3+	0.2+	1999 02 18	566	0.1-	0.1+
1973 10 05	675	0.9-	0.4+	1999 02 10	704	0.8+	0.5-	1999 02 18	566	0.2+	0.1-
1973 10 05	675	0.2-	0.0	1999 02 10	704	0.7-	0.8-				
1996 04 18	413	0.1-	0.3+	1999 02 13	704	0.4+	0.2+				

1999 CC₃₃ = 1996 FN₁₅

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	239.80760		(2000.0)	P	Q
<i>n</i>	0.30536242	ω	265.96159	-0.00464070	+0.99997990
<i>a</i>	2.1840320	Ω	3.78061	-0.88951913	-0.00215461
<i>e</i>	0.1294577	<i>i</i>	3.75592	-0.45687435	-0.00596235
<i>P</i>	3.23	<i>H</i>	15.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 03 17	566	0.2+	0.2-	1996 04 20	566	0.3-	0.6-	1999 02 12	699	0.7+	0.2-
1996 03 17	566	0.1+	0.1+	1999 02 10	704	0.1-	0.1+	1999 02 12	699	1.2+	0.3-
1996 03 17	566	0.3-	0.0	1999 02 10	704	0.2+	0.9-	1999 02 13	704	0.0	0.0
1996 03 20	098	(3.5-	0.2+)	1999 02 10	704	0.2-	0.5-	1999 02 13	704	1.2+	1.2+
1996 03 20	098	(4.1-	1.0-)	1999 02 10	704	0.7-	0.1-	1999 02 13	704	1.8-	0.7+
1996 04 20	566	0.1+	0.6+	1999 02 10	704	(2.3-	0.5+)	1999 02 13	704	0.6-	0.7+
1996 04 20	566	0.2+	0.1+	1999 02 12	699	0.4+	0.2+	1999 02 13	704	0.3-	0.7-

1999 CJ₃₄ = 1949 WX = 1981 UF₂₂ = 1996 KT₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	156.07390		(2000.0)	P	Q
<i>n</i>	0.24626715	ω	214.21450	+0.93342050	+0.35518030
<i>a</i>	2.5207613	Ω	124.90140	-0.31379409	+0.87672044
<i>e</i>	0.1789440	<i>i</i>	3.54604	-0.17395240	+0.32435817
<i>P</i>	4.00	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1949 11 19	675	1.4-	0.4+	1996 05 22	566	0.0	0.9+	1999 02 10	704	2.3-	0.6+
1949 11 19	675	0.5+	0.3+	1996 05 22	566	0.1+	0.8+	1999 02 13	704	0.7+	0.5+
1949 11 21	675	0.2-	0.0	1996 05 22	566	0.5+	1.4+	1999 02 13	704	0.4+	0.2+
1949 11 21	675	0.4+	1.5+	1999 02 07	691	0.3-	0.3-	1999 02 13	704	0.6+	0.5+
1981 10 24	675	0.2-	0.0	1999 02 07	691	0.2-	0.4-	1999 02 13	704	0.9+	0.1-
1981 10 25	675	0.4+	0.2+	1999 02 07	691	0.2-	0.5-	1999 02 13	704	1.3-	0.7-
1981 10 26	675	0.4-	0.0	1999 02 10	704	0.1+	1.0-	1999 02 23	699	0.4+	0.2+
1996 05 21	566	0.2+	0.3-	1999 02 10	704	0.7-	0.6+	1999 02 23	699	1.2+	0.2-
1996 05 21	566	0.2-	0.2-	1999 02 10	704	0.4+	0.6+	1999 02 23	699	0.7+	0.0
1996 05 21	566	0.0	0.1-	1999 02 10	704	0.1-	0.0				

1999 CF₃₅ = 1991 RZ₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	91.20729		(2000.0)	P		Q	
<i>n</i>	0.17924768	ω	27.86892	+0.88026980		−0.47447155	
<i>a</i>	3.1153034	Ω	0.46259	+0.39820671		+0.73722266	
<i>e</i>	0.1624016	<i>i</i>	9.64269	+0.25798545		+0.48101923	
<i>P</i>	5.50	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 09 11	675	0.1−	0.2−	1999 02 10	704	0.0	0.2−	1999 02 13	704	0.7+	0.3+
1991 09 11	675	0.7−	0.8+	1999 02 10	704	0.8−	0.0	1999 02 13	704	0.4−	0.8+
1991 09 12	675	0.4−	0.1−	1999 02 10	704	0.1−	0.3+	1999 02 13	704	0.0	0.4+
1991 09 12	675	0.2+	1.1−	1999 02 12	699	0.0	0.4+	1999 02 13	704	0.5+	0.8−
1991 09 16	675	0.5+	0.4−	1999 02 12	699	0.1+	0.2+	1999 02 18	566	0.3−	0.3−
1991 09 16	675	0.4−	1.0+	1999 02 12	699	0.4+	0.0	1999 02 18	566	0.3−	0.1−
1999 02 10	704	0.1+	0.7−	1999 02 13	704	0.2+	0.5−	1999 02 18	566	0.0	0.0

1999 CJ₃₅ = 1991 RR₁₈ = 1996 TS₁₃

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	171.92970		(2000.0)	P		Q	
<i>n</i>	0.18930746	ω	323.34269	+0.81464849		+0.57994212	
<i>a</i>	3.0039375	Ω	1.23068	−0.48005836		+0.67805611	
<i>e</i>	0.0949473	<i>i</i>	10.38311	−0.32541022		+0.45156068	
<i>P</i>	5.21	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 09 13	675	0.2+	0.2+	1996 10 14	327	0.4+	0.0	1999 02 13	704	0.0	0.6+
1991 09 13	675	0.8−	0.2+	1999 02 10	704	0.3+	0.2−	1999 02 13	704	0.2+	1.2−
1991 09 16	675	0.1−	0.4−	1999 02 10	704	0.1+	0.1−	1999 02 18	566	0.3−	0.1−
1991 09 16	675	0.5+	0.3+	1999 02 10	704	0.3−	0.2−	1999 02 18	566	0.4−	0.3−
1996 10 09	327	0.1−	0.1+	1999 02 10	704	0.0	0.0	1999 02 18	566	0.2−	0.2−
1996 10 09	327	0.1−	0.1−	1999 02 10	704	0.9−	0.8−	1999 02 20	699	0.8−	0.7+
1996 10 09	327	0.1−	0.4−	1999 02 13	704	0.7−	0.7+	1999 02 20	699	0.7+	1.1+
1996 10 14	327	0.1+	0.1+	1999 02 13	704	0.8+	0.4−	1999 02 20	699	0.1−	0.4+
1996 10 14	327	0.0	0.1−	1999 02 13	704	1.6+	0.1+				

1999 CA₃₆ = 1978 UO₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	38.64659		(2000.0)	P		Q	
<i>n</i>	0.20666371	ω	78.25208	+0.06880561		−0.99710180	
<i>a</i>	2.8333044	Ω	8.01787	+0.80047686		+0.03575897	
<i>e</i>	0.1350906	<i>i</i>	13.45806	+0.59540120		+0.06715130	
<i>P</i>	4.77	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1978 10 27	675	2.4−	0.6−	1999 02 10	704	0.4+	0.2−	1999 02 13	704	1.1+	0.3−
1978 10 28	675	1.1+	0.2−	1999 02 10	704	1.0+	0.2−	1999 02 20	699	0.0	0.3−
1978 10 29	675	1.3+	0.9+	1999 02 13	704	0.3+	0.9+	1999 02 20	699	0.7−	0.4−
1999 02 10	704	0.7−	0.5+	1999 02 13	704	0.9−	0.7+	1999 02 20	699	0.7+	0.3+
1999 02 10	704	0.1−	1.0−	1999 02 13	704	1.1−	0.1+				

1999 CV₃₆ = 1997 SC₃₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	247.04461		(2000.0)	P		Q	
<i>n</i>	0.27085123	ω	247.38131	−0.19557394		+0.98044407	
<i>a</i>	2.3658226	Ω	11.40612	−0.85416791		−0.15932111	
<i>e</i>	0.0788472	<i>i</i>	6.36222	−0.48181742		−0.11552577	
<i>P</i>	3.64	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 09 30	691	0.3−	0.2+	1999 02 10	704	0.3−	0.4−	1999 02 13	704	0.1+	1.0+
1997 09 30	691	0.2+	0.1+	1999 02 10	704	0.6−	0.4+	1999 02 13	704	0.0	0.3−

1997 09 30	691	0.2+	0.2−	1999 02 10	704	0.0	0.9−	1999 02 13	704	0.4−	0.0
1997 10 06	691	0.1+	0.3+	1999 02 12	699	0.0	1.1+	1999 02 13	704	0.6−	0.4−
1997 10 06	691	0.0	0.3−	1999 02 12	699	1.0+	0.3+	1999 02 24	699	0.3+	0.3−
1997 10 06	691	0.2−	0.2−	1999 02 12	699	0.4+	0.1−	1999 02 24	699	0.1−	0.2−
1999 02 10	704	0.0	0.1−	1999 02 13	704	0.3+	0.6−	1999 02 24	699	0.1−	0.4+

1999 CM₃₇ = 1986 WZ₃ = 1997 UN₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	32.27991		(2000.0)	P		Q	
<i>n</i>	0.17860889	ω	355.94423	−0.16340642		−0.98505202	
<i>a</i>	3.1227269	Ω	103.45417	+0.90671945		−0.17172564	
<i>e</i>	0.1412005	<i>i</i>	3.21274	+0.38879066		−0.01352102	
<i>P</i>	5.52	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1986 11 25	010	(4.8−	1.3+)	1999 01 22	699	(2.8−	0.3−)	1999 02 12	699	0.1+	0.6−
1986 11 25	010	0.3−	0.2−	1999 01 22	699	1.0+	0.2−	1999 02 13	704	0.3+	0.2−
1986 11 25	010	0.6+	0.4−	1999 01 22	699	0.3+	0.5+	1999 02 13	704	1.2−	0.7+
1997 10 27	688	0.1−	0.0	1999 02 10	704	0.1−	0.0	1999 02 13	704	0.2−	0.6+
1997 10 27	688	0.1+	0.0	1999 02 10	704	0.5−	0.1−	1999 02 13	704	0.7+	0.1+
1997 10 28	688	0.1−	0.3+	1999 02 10	704	0.0	0.2+	1999 02 13	704	1.1−	0.1+
1997 10 28	688	0.1−	0.2+	1999 02 10	704	0.1−	0.4+	1999 02 23	699	0.3+	0.4−
1998 11 20	910	0.2+	0.0	1999 02 10	704	0.3+	0.2+	1999 02 23	699	0.0	0.2−
1998 11 20	910	0.1−	0.3+	1999 02 12	699	0.4+	0.9−	1999 02 23	699	0.5+	0.3−
1998 11 20	910	0.1−	0.1+	1999 02 12	699	0.5−	0.0				

1999 CA₃₈ = 1988 CS₇

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	3.44915		(2000.0)	P		Q	
<i>n</i>	0.18261687	ω	356.98245	−0.70210309		−0.71131844	
<i>a</i>	3.0768674	Ω	137.61014	+0.65433157		−0.66266526	
<i>e</i>	0.2116697	<i>i</i>	2.79061	+0.28089402		−0.23430926	
<i>P</i>	5.40	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1988 02 15	809	(2.9+	1.6+)	1988 02 23	809	1.3+	1.3−	1999 02 11	691	0.6−	0.9−
1988 02 16	809	0.3−	1.0+	1988 02 23	809	0.6+	0.8−	1999 02 12	699	1.2+	0.3−
1988 02 16	809	1.8−	1.7+	1988 02 23	809	2.4−	0.4+	1999 02 12	699	0.3−	0.0
1988 02 16	809	(3.0−	2.0+)	1999 02 10	704	0.1+	0.4+	1999 02 12	699	0.1+	0.4+
1988 02 17	809	0.9+	0.3+	1999 02 10	704	0.7−	1.1−	1999 02 13	704	0.1+	0.3−
1988 02 17	809	1.0+	0.0	1999 02 10	704	0.2−	0.0	1999 02 13	704	0.2+	0.4−
1988 02 17	809	0.6+	0.3+	1999 02 10	704	0.3−	0.1+	1999 02 13	704	0.5−	0.4+
1988 02 21	809	1.3+	0.5−	1999 02 10	704	0.3−	0.5−	1999 02 13	704	0.6+	1.7+
1988 02 21	809	0.0	1.1−	1999 02 11	691	0.7−	0.4−	1999 02 13	704	1.5+	1.4+
1988 02 21	809	1.3−	0.2−	1999 02 11	691	0.2−	0.3−				

1999 CN₃₈ = 1997 NM₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	38.06874		(2000.0)	P		Q	
<i>n</i>	0.27439520	ω	18.40123	+0.07419246		−0.99717130	
<i>a</i>	2.3454079	Ω	67.34537	+0.91330792		+0.06309622	
<i>e</i>	0.1834201	<i>i</i>	0.74731	+0.40045489		+0.04084434	
<i>P</i>	3.59	<i>H</i>	16.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 07 13	910	0.1+	0.3−	1999 02 10	704	1.0−	0.5+	1999 02 13	704	0.4+	0.6−
1997 07 13	910	0.1+	0.2+	1999 02 10	704	0.0	0.2−	1999 02 13	704	0.4−	0.6−
1997 07 13	910	0.2−	0.3+	1999 02 11	691	0.7−	0.1+	1999 02 13	704	0.7−	0.6−
1997 07 14	910	0.4+	0.1+	1999 02 11	691	0.3−	0.3−	1999 02 13	704	1.5+	0.7−
1997 07 14	910	0.2−	0.1−	1999 02 11	691	0.4−	0.1+	1999 02 23	699	0.1+	0.3+
1997 07 14	910	0.2−	0.3−	1999 02 12	699	1.4+	1.2+	1999 02 23	699	0.1+	0.2+
1999 02 10	704	0.3+	0.2−	1999 02 12	699	0.8+	1.8+	1999 02 23	699	0.6−	0.1−

1999 02 10 704 0.7- 0.5- 1999 02 12 699 0.1- 0.6+
 1999 02 10 704 0.8- 0.3- 1999 02 13 704 1.1+ 0.7-

1999 CJ₄₀ = 1988 VQ₇ = 1991 JL₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21755063	ω	274.13273	+0.97680113	+0.15754156		
<i>a</i>	2.7379729	Ω	76.84847	-0.08240172	+0.90170117		
<i>e</i>	0.0237917	<i>i</i>	8.56663	-0.19766009	+0.40263589		
<i>P</i>	4.53	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1988 11 03	033	0.2+	0.8-	1991 05 17	809	1.0+	1.2-	1999 02 13	704	1.4-	0.3-
1988 11 03	033	0.1+	0.0	1999 02 10	704	0.2+	0.1-	1999 02 13	704	0.2+	1.2+
1988 11 05	033	0.4-	0.3+	1999 02 10	704	0.6-	0.2+	1999 02 13	704	0.4-	0.3+
1988 11 06	033	0.2+	0.3+	1999 02 10	704	1.0+	0.7+	1999 02 13	704	1.1+	0.7+
1991 05 12	809	(0.8-	2.9+)	1999 02 10	704	0.5-	0.5-	1999 02 13	704	0.2-	0.0
1991 05 12	809	0.7-	2.0+	1999 02 10	704	0.6-	0.2-	1999 02 19	566	0.4+	2.0-
1991 05 12	809	0.8-	1.7+	1999 02 13	699	0.4-	1.3+	1999 02 19	566	0.6+	1.4-
1991 05 17	809	0.4+	1.4-	1999 02 13	699	0.6-	1.0+	1999 02 19	566	1.1+	1.9-
1991 05 17	809	0.0	1.2-	1999 02 13	699	0.0	1.0+				

1999 CW₄₀ = 1996 PF₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23400554	ω	172.28434	-0.95746565	+0.27713094		
<i>a</i>	2.6080663	Ω	24.27392	-0.27407911	-0.78639189		
<i>e</i>	0.1553237	<i>i</i>	11.27273	-0.09022291	-0.55207448		
<i>P</i>	4.21	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 08 13	566	0.3+	0.3+	1999 02 10	704	0.1-	0.2+	1999 02 13	704	0.2-	0.5-
1996 08 13	566	0.6+	0.3+	1999 02 10	704	0.8+	0.4-	1999 02 13	704	2.5-	0.8-
1996 08 13	566	0.4-	0.3-	1999 02 10	704	1.0+	0.2-	1999 02 13	704	0.9-	1.1+
1996 08 14	566	0.3+	0.2-	1999 02 10	704	0.9+	0.5+	1999 02 22	699	0.3+	0.2-
1996 08 14	566	0.3+	0.1-	1999 02 10	704	0.2+	0.2+	1999 02 22	699	0.2-	0.2-
1996 08 14	566	1.1-	0.0	1999 02 13	704	0.0	0.3-	1999 02 22	699	0.7+	0.5+

1999 CM₄₂ = 1994 AV₁₅

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21086649	ω	320.68516	+0.66474978	+0.74682209		
<i>a</i>	2.7955312	Ω	350.92166	-0.65130656	+0.56683444		
<i>e</i>	0.0159519	<i>i</i>	6.94977	-0.36593373	+0.34778654		
<i>P</i>	4.67	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1994 01 14	033	0.9-	0.1+	1999 02 10	704	1.0+	1.5+	1999 02 18	566	0.3-	0.4+
1994 01 15	033	0.6+	0.1+	1999 02 13	704	0.4+	0.1+	1999 02 18	566	0.5-	0.7+
1994 01 15	033	0.3+	0.2-	1999 02 13	704	0.1-	1.7-	1999 02 23	699	0.6+	0.0
1999 02 10	704	0.5-	0.7+	1999 02 13	704	0.7+	0.2-	1999 02 23	699	0.6+	0.7-
1999 02 10	704	1.1-	0.0	1999 02 13	704	0.2+	1.3-	1999 02 23	699	0.1+	0.1+
1999 02 10	704	0.1+	0.1+	1999 02 13	704	0.8-	0.2-				
1999 02 10	704	0.4-	0.3+	1999 02 18	566	0.0	0.4+				

1999 CT₄₂ = 1984 BE₆ = 1996 NO₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20101852	ω	307.98955	+0.76854566	+0.63975733		
<i>a</i>	2.8861042	Ω	12.24193	-0.57626830	+0.69690424		
<i>e</i>	0.0684543	<i>i</i>	1.87463	-0.27794318	+0.32409108		
<i>P</i>	4.90	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1984 01 25	675	0.3+	0.3-	1999 02 10	704	0.4+	1.1-	1999 02 18	566	0.4-	0.2+
1984 01 26	675	0.5-	0.5-	1999 02 10	704	1.9+	1.7+	1999 03 10	691	0.3-	0.2+
1996 07 14	809	0.0	0.3-	1999 02 10	704	0.5-	0.7+	1999 03 10	691	0.4-	0.2+
1996 07 14	809	0.5+	0.9-	1999 02 13	704	0.1+	1.4-	1999 03 10	691	0.2-	0.2+
1996 07 14	809	0.1-	0.5-	1999 02 13	704	1.2+	0.6-	1999 03 23	691	0.4+	0.9-
1996 07 15	809	(2.4+	2.4+)	1999 02 13	704	0.9-	1.5+	1999 03 23	691	0.1+	0.7-
1996 07 15	809	0.4-	0.5+	1999 02 13	704	0.2-	1.3+	1999 03 23	691	0.3+	0.8-
1996 07 15	809	0.2+	0.6+	1999 02 18	566	0.4-	0.4-				
1999 02 10	704	0.7-	0.3-	1999 02 18	566	0.3-	0.1+				

1999 CB₄₃ = 1974 SV₁ = 1990 QF₁₈ = 1990 RF₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18131232	ω	190.34648	+0.20556956	+0.97804029		
<i>a</i>	3.0916086	Ω	91.52256	-0.89541589	+0.20212665		
<i>e</i>	0.1442268	<i>i</i>	1.96788	-0.39493233	+0.05081350		
<i>P</i>	5.44	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1974 09 19	095	0.8-	0.4-	1999 02 10	704	0.0	0.5-	1999 02 13	704	0.5-	0.0
1974 09 21	095	1.2-	2.0+	1999 02 10	704	0.1+	0.1+	1999 02 13	704	0.4-	0.4+
1974 09 23	095	2.1+	2.0-	1999 02 10	704	0.3+	0.1+	1999 02 13	704	0.4-	0.6+
1990 08 28	095	1.1+	1.5-	1999 02 10	704	0.4+	0.2-	1999 02 23	699	0.8+	0.9-
1990 08 28	095	2.1-	0.7-	1999 02 10	704	0.2+	0.5-	1999 02 23	699	0.1-	0.2+
1990 09 14	675	0.2+	1.5+	1999 02 13	704	0.4-	0.6+	1999 02 23	699	0.7+	0.4+
1990 09 14	675	0.8+	1.4+	1999 02 13	704	0.5-	0.2-				

1999 CO₄₃ = 1997 XU₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28515626	ω	175.43919	-0.95371904	+0.29927775		
<i>a</i>	2.2860240	Ω	22.04316	-0.27828887	-0.84167922		
<i>e</i>	0.0927929	<i>i</i>	4.46279	-0.11390915	-0.44945403		
<i>P</i>	3.46	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1997 12 03	910	0.2-	0.0	1999 02 10	704	0.3+	0.1+	1999 02 13	704	0.6-	0.1-
1997 12 03	910	0.0	0.4-	1999 02 10	704	0.5-	0.4-	1999 02 13	704	0.5+	0.3+
1997 12 03	910	0.1+	0.0	1999 02 10	704	0.3+	0.1-	1999 02 13	704	0.2-	0.5+
1997 12 05	910	0.1+	0.2+	1999 02 12	699	0.0	0.9+	1999 02 18	566	0.3-	0.5-
1997 12 05	910	0.0	0.0	1999 02 12	699	0.2-	0.7+	1999 02 18	566	0.2+	0.7-
1997 12 05	910	0.1+	0.3+	1999 02 12	699	0.2-	0.5+	1999 02 18	566	0.0	0.6-
1999 02 10	704	0.2+	0.2-	1999 02 13	704	0.0	0.1+				
1999 02 10	704	1.3+	0.0	1999 02 13	704	0.8-	0.5-				

1999 CL₄₄ = 1980 XK₂ = 1992 EO₁₈ = 1996 FQ₇

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27916603	ω	325.02404	+0.25368704	-0.96417244		
<i>a</i>	2.3186098	Ω	110.17117	+0.90524237	+0.20839863		
<i>e</i>	0.1355128	<i>i</i>	4.73917	+0.34085061	+0.16413871		
<i>P</i>	3.53	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1980 12 10	095	0.0	0.2-	1999 01 13	699	0.4-	0.5+	1999 02 12	699	0.4+	0.3+
1992 03 01	809	0.8-	0.9+	1999 01 13	699	0.0	0.4+	1999 02 13	704	0.2+	0.1+
1992 03 04	809	0.6+	1.6-	1999 01 13	699	0.3+	0.0	1999 02 13	704	0.2+	0.8+
1996 03 18	691	0.3-	0.0	1999 02 10	704	0.1-	0.8-	1999 02 13	704	0.4+	0.3+
1996 03 18	691	0.1-	0.2-	1999 02 10	704	1.0-	0.2-	1999 02 13	704	0.6+	0.5+
1996 03 18	691	0.2-	0.1-	1999 02 10	704	0.5-	0.1+	1999 02 13	704	1.4-	1.0+
1996 03 23	691	0.3+	0.1+	1999 02 10	704	0.6-	1.9-	1999 02 18	566	0.5+	0.3-
1996 03 23	691	0.2+	0.3+	1999 02 12	699	0.7+	0.4+	1999 02 18	566	0.4+	0.5-
1996 03 23	691	0.1+	0.1-	1999 02 12	699	0.2+	0.4+	1999 02 18	566	0.4+	0.2-

1999 CO₄₅ = 1977 HM₁ = 1982 RC₂ = 1986 WE₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	126.00694		(2000.0)		P		Q		Williams
<i>n</i>	0.26200793	ω	8.09211		+0.98061860		-0.19589587		
<i>a</i>	2.4187617	Ω	3.21114		+0.17612472		+0.87363963		
<i>e</i>	0.0832452	<i>i</i>	3.53997		+0.08583261		+0.44539712		
<i>P</i>	3.76	<i>H</i>	13.9		<i>G</i>	0.15	<i>U</i>	3	
Residuals in seconds of arc									
1977 04 25	675	1.2-	1.3+	1999 02 10	704	1.1+	0.2+	1999 03 19	704 1.2- 0.2-
1977 04 25	675	2.5+	1.5+	1999 02 10	704	0.5+	0.6+	1999 03 19	704 0.2+ 1.7-
1982 09 15	010	1.5-	2.1+	1999 02 10	704	1.3+	1.0+	1999 03 19	704 0.9- 0.0
1982 09 16	010	1.9-	2.4+	1999 02 12	699	0.0	0.8+	1999 03 19	704 0.8- 0.2-
1982 09 18	010	0.2-	2.9+	1999 02 12	699	0.1+	1.4+	1999 03 20	704 0.2- 0.1-
1986 11 30	381	1.7+	0.8-	1999 02 12	699	0.3+	1.3+	1999 03 20	704 0.2- 0.2+
1986 11 30	381	1.2+	0.6-	1999 02 13	704	0.7+	0.2+	1999 03 20	704 0.7- 0.8+
1986 12 01	381	3.0-	0.3-	1999 02 13	704	0.7+	0.1+	1999 03 20	704 0.6- 0.4+
1986 12 01	381	1.2+	1.4-	1999 02 13	704	0.5+	0.4-	1999 03 20	704 1.5- 0.4+
1999 02 10	704	0.0	0.0	1999 02 13	704	1.3+	0.2-		
1999 02 10	704	0.2-	0.4-	1999 02 13	704	1.3+	0.3+		

1999 CG₄₆ = 1989 EF₇ = 1994 WP₇

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	346.89194		(2000.0)		P		Q		Williams
<i>n</i>	0.29027613	ω	12.32807		-0.92214917		-0.38291249		
<i>a</i>	2.2590638	Ω	144.99782		+0.34628213		-0.88041967		
<i>e</i>	0.0452044	<i>i</i>	5.49668		+0.17242272		-0.27971277		
<i>P</i>	3.40	<i>H</i>	14.9		<i>G</i>	0.15	<i>U</i>	4	
Residuals in seconds of arc									
1989 03 06	033	0.1+	0.2-	1999 02 10	704	1.4-	0.0	1999 03 19	704 0.2- 0.3-
1989 03 06	033	0.2-	0.1-	1999 02 12	699	0.2-	0.3+	1999 03 19	704 0.8- 0.4-
1994 11 28	691	0.0	0.2+	1999 02 12	699	0.2+	0.3-	1999 03 19	704 0.5+ 0.8+
1994 11 28	691	0.6-	0.1+	1999 02 12	699	0.7+	0.5+	1999 03 19	704 0.8+ 0.5-
1994 11 28	691	0.1-	0.1+	1999 02 13	704	0.3-	0.4-	1999 03 19	704 (3.2- 0.7+)
1994 12 03	691	0.4+	0.1+	1999 02 13	704	0.4+	0.1+	1999 03 20	704 0.9+ 0.9+
1994 12 03	691	0.2+	0.1-	1999 02 13	704	0.7+	0.3-	1999 03 20	704 0.2- 0.1-
1994 12 03	691	0.1+	0.5-	1999 02 13	704	0.5+	0.4+	1999 03 20	704 1.2- 0.9-
1999 02 10	704	0.5-	0.0	1999 02 13	704	0.9+	0.4+	1999 03 20	704 0.2- 0.5+
1999 02 10	704	0.4-	0.1+	1999 02 23	699	0.2-	0.0	1999 03 20	704 0.1+ 0.3+
1999 02 10	704	0.4-	0.2+	1999 02 23	699	0.2+	0.2-		
1999 02 10	704	0.2+	0.7-	1999 02 23	699	0.0	0.2-		

1999 CK₄₆ = 1955 FD = 1977 DC₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	291.37696		(2000.0)		P		Q		Williams
<i>n</i>	0.17800599	ω	258.54714		-0.54151218		+0.83928203		
<i>a</i>	3.1297739	Ω	338.44949		-0.71038533		-0.48777839		
<i>e</i>	0.1831954	<i>i</i>	7.61643		-0.44957451		-0.24016227		
<i>P</i>	5.54	<i>H</i>	13.2		<i>G</i>	0.15	<i>U</i>	4	
Residuals in seconds of arc									
1955 03 23	760(29.1+ 11.8-)	X		1999 02 13	704	0.2+	0.2-	1999 03 19	704 0.9+ 1.2-
1977 02 18	381	1.2+	0.3+	1999 02 13	704	0.2-	0.0	1999 03 19	704 0.9+ 0.6-
1977 02 19	381	0.6-	0.0	1999 02 13	704	0.7-	1.4-	1999 03 19	704 1.2- 0.5+
1977 02 19	381	0.6-	0.3-	1999 02 13	704	0.3+	0.2+	1999 03 20	704 0.5- 0.1+
1999 02 10	704	0.1-	0.5+	1999 02 13	704	0.1-	0.1-	1999 03 20	704 0.6- 0.1+
1999 02 10	704	0.1+	0.6+	1999 02 23	699	0.4+	0.4+	1999 03 20	704 0.1- 0.1-
1999 02 10	704	0.1-	0.6+	1999 02 23	699	0.2+	0.4+	1999 03 20	704 0.4- 0.9+
1999 02 10	704	0.3-	0.1-	1999 02 23	699	0.2+	0.2+	1999 03 20	704 0.1+ 0.7+
1999 02 10	704	0.0	0.9-	1999 03 19	704	0.6+	0.7-		

1999 CL₄₆ = 1988 VB₆ = 1997 WT₅₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	149.80047		(2000.0)		P		Q		Williams
<i>n</i>	0.21770277	ω	15.39820		+0.99348438		+0.10441163		
<i>a</i>	2.7366972	Ω	338.45011		-0.11321415		+0.85811398		
<i>e</i>	0.0716444	<i>i</i>	7.14456		-0.01308986		+0.50273116		
<i>P</i>	4.53	<i>H</i>	14.0		<i>G</i>	0.15	<i>U</i>	4	
Residuals in seconds of arc									
1988 11 03	033	0.0	0.6+	1999 02 10	704	0.1-	0.6+	1999 02 23	699 0.4- 0.4+
1988 11 04	033	0.3+	1.0+	1999 02 10	704	0.4-	0.6-	1999 02 23	699 0.6- 0.7+
1988 11 04	033	0.6-	0.4+	1999 02 10	704	0.4-	1.1-	1999 03 19	704 0.0 0.2+
1997 11 30	566	0.0	0.3+	1999 02 12	699	0.2+	0.8+	1999 03 19	704 1.8+ 1.1-
1997 11 30	566	0.0	0.3+	1999 02 12	699	0.5+	0.5+	1999 03 19	704 0.8- 2.5-
1997 11 30	566	0.2+	0.4+	1999 02 12	699	0.4+	0.4+	1999 03 20	704 0.0 1.0+
1997 12 06	704	0.5+	0.3+	1999 02 13	704	0.1+	0.3+	1999 03 20	704 1.2- 0.5+
1997 12 06	704	0.4-	1.0-	1999 02 13	704	0.8-	0.6+	1999 03 20	704 0.3+ 0.8-
1997 12 06	704	0.3+	0.6-	1999 02 13	704	0.4-	1.2-	1999 03 20	704 1.5- 2.0+
1997 12 06	704	0.5+	0.4-	1999 02 13	704	0.6+	0.8+	1999 03 20	704 0.1+ 1.1+
1997 12 06	704	0.5-	1.1-	1999 02 13	704	0.2+	1.7-		
1999 02 10	704	2.5+	1.4-	1999 02 23	699	0.1+	0.4+		

1999 CU₄₆ = 1991 RT₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	119.35908		(2000.0)		P		Q		Williams
<i>n</i>	0.18187869	ω	30.08552		+0.92011502		-0.39141256		
<i>a</i>	3.0851871	Ω	352.91647		+0.33377360		+0.80182274		
<i>e</i>	0.0630734	<i>i</i>	6.32467		+0.20489882		+0.45152686		
<i>P</i>	5.42	<i>H</i>	13.3		<i>G</i>	0.15	<i>U</i>	4	
Residuals in seconds of arc									
1991 09 10	675	0.1-	0.5+	1999 02 10	704	0.4+	0.2-	1999 03 19	704 1.2- 0.0
1991 09 10	675	0.0	1.2-	1999 02 10	704	0.5+	1.2+	1999 03 19	704 0.6+ 1.0-
1991 09 14	675	0.5+	0.9+	1999 02 10	704	2.2-	1.9-	1999 03 20	704 0.1+ 0.5+
1991 09 14	675	0.5+	0.7+	1999 02 13	704	0.6+	0.1-	1999 03 20	704 1.0- 0.7-
1991 09 16	675	1.4-	0.3-	1999 02 13	704	0.7+	0.2+	1999 03 20	704 0.3- 1.7+
1991 09 16	675	0.5+	0.7-	1999 02 13	704	1.0-	1.2+	1999 03 20	704 0.3+ 0.1+
1999 02 10	704	0.3+	0.1+	1999 03 19	704	0.4-	0.1+	1999 03 20	704 1.1+ 0.2-
1999 02 10	704	0.7+	0.2-	1999 03 19	704	0.7+	0.7-		

1999 CX₄₆ = 1990 JL

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	237.88667		(2000.0)		P		Q		Williams
<i>n</i>	0.18864964	ω	299.25073		+0.23440541		+0.97025764		
<i>a</i>	3.0109166	Ω	343.96185		-0.79861686		+0.15673596		
<i>e</i>	0.1406489	<i>i</i>	12.63869		-0.55431509		+0.18448292		
<i>P</i>	5.22	<i>H</i>	14.0		<i>G</i>	0.15	<i>U</i>	6	
Residuals in seconds of arc									
1990 05 03	413	0.1-	0.0	1999 02 10	704	1.3+	0.9+	1999 02 23	699 0.8+ 0.0
1990 05 04	413	0.1+	0.0	1999 02 10	704	3.6-	1.4-	1999 02 23	699 0.8- 0.4+
1999 02 10	704	1.4+	0.8+	1999 02 13	704	2.1+	0.5+	1999 02 23	699 0.1+ 0.4-
1999 02 10	704	0.5-	0.8-	1999 02 13	704	0.2+	1.0-		
1999 02 10	704	1.5+	0.8+	1999 02 13	704	2.5-	0.3+		

1999 CB₄₇ = 1994 AT₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	336.05069		(2000.0)		P		Q		Williams
<i>n</i>	0.20417184	ω	88.29407		-0.98913295		-0.13424959		
<i>a</i>	2.8563110	Ω	83.98759		+0.09908146		-0.90988885		
<i>e</i>	0.0303850	<i>i</i>	3.45552		+0.10862264		-0.39252939		
<i>P</i>	4.83	<i>H</i>	14.1		<i>G</i>	0.15	<i>U</i>	6	

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Residuals in seconds of arc

1994 01 12	691	1.1+	0.6-	1994 01 14	691	0.7-	0.5+	1999 02 13	704	0.1+	0.2+
1994 01 12	691	0.0	0.4-	1994 01 14	691	0.8-	0.6+	1999 02 13	704	1.1+	0.2+
1994 01 12	691	0.8+	0.1-	1999 02 10	704	0.9-	0.5-	1999 02 13	704	2.5+	1.4+
1994 01 13	691	0.6+	0.5+	1999 02 10	704	0.8-	0.7-	1999 02 13	704	0.4+	0.3+
1994 01 13	691	0.1-	0.0	1999 02 10	704	0.4-	0.1-	1999 02 23	699	1.4-	0.1+
1994 01 13	691	0.2-	0.1-	1999 02 10	704	0.4+	1.0-	1999 02 23	699	0.3+	0.3+
1994 01 14	691	0.5-	0.2-	1999 02 10	704	1.6-	0.8-	1999 02 23	699	0.2+	0.2+

1999 CE₄₇ = 1989 TL₁₆ = 1997 UW₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	285.83691		(2000.0)	P	Q
n	0.26181049	ω	220.05433	-0.52028504	+0.85382223
a	2.4199776	Ω	18.61400	-0.76920505	-0.45985705
e	0.1690199	i	3.06397	-0.37098122	-0.24396536
P	3.76	H	14.4	G 0.15	U 4

Residuals in seconds of arc

1989 10 04	809	0.1-	0.9-	1997 10 21	327	0.1-	0.2+	1999 03 19	704	0.2-	0.3-
1989 10 04	809	0.4+	1.0-	1999 02 10	704	0.6+	0.0	1999 03 19	704	1.6-	0.7-
1989 10 04	809	0.8+	1.1-	1999 02 10	704	0.9-	0.1+	1999 03 20	704	0.5+	0.6-
1989 10 06	809(12.1+	8.4-)	}	1999 02 10	704	0.1+	0.7+	1999 03 20	704	0.0	0.0
1989 10 06	809(12.2+	8.4-)		1999 02 10	704	0.1+	1.1+	1999 03 20	704	0.6-	0.5-
1989 10 06	809(12.6+	8.4-)	}	1999 02 13	704	0.1-	0.4-	1999 03 20	704	0.3+	0.0
1989 10 08	809	0.1+		0.0	1999 02 13	704	0.4-	0.3+	1999 03 20	704	0.2+
1989 10 08	809	0.1+	0.0	1999 02 13	704	0.2+	0.2-	1999 03 20	699	0.5+	0.1-
1989 10 08	809	0.3+	0.0	1999 02 13	704	1.5+	0.0	1999 03 20	699	0.9-	0.9-
1997 10 20	327	0.6-	0.3+	1999 02 13	704	0.7-	0.1-	1999 03 20	699	0.0	0.2+
1997 10 20	327	0.1-	0.3-	1999 02 23	699	0.5+	0.3-	1999 03 24	699	0.5-	0.7+
1997 10 20	327	0.6-	0.2+	1999 02 23	699	0.8+	0.2+	1999 03 24	699	0.8-	0.4+
1997 10 20	327	0.3+	0.4+	1999 02 23	699	0.3+	0.1+	1999 03 24	699	0.3+	0.0
1997 10 21	327	0.2+	0.4+	1999 03 19	704	0.4-	0.6-				
1997 10 21	327	0.4+	0.3+	1999 03 19	704	0.0	1.0-				

1999 CN₄₇ = 1989 GB₂

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	30.56326		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.28649978	ω	120.86981	-0.24297148	-0.96979895
a	2.2788716	Ω	343.15234	+0.86297554	-0.20606321
e	0.1229755	i	4.21997	+0.44298766	-0.13049116
P	3.44	H	15.1	G 0.15	U 4

Residuals in seconds of arc

1989 04 03	809	0.9+	0.9-	1999 02 10	704	0.5-	0.5-	1999 02 23	699	0.1+	0.2+
1989 04 03	809	0.8+	0.7-	1999 02 10	704	0.0	0.6-	1999 03 19	704	0.9+	0.5-
1989 04 03	809	0.7+	1.1-	1999 02 10	704	1.1+	0.8-	1999 03 19	704	0.1+	0.7-
1989 04 05	809	0.6+	0.8-	1999 02 10	704	0.2+	0.8-	1999 03 19	704	1.9+	0.8-
1989 04 05	809	0.2-	0.2-	1999 02 10	704	0.7-	0.7-	1999 03 19	704	0.2+	1.5-
1989 04 05	809	0.6+	0.3-	1999 02 12	699	0.0	0.4+	1999 03 19	704	1.1+	1.4+
1989 04 08	809	0.2+	0.4+	1999 02 12	699	0.2+	0.4+	1999 03 20	704	0.8+	0.3-
1989 04 08	809	0.4+	0.3+	1999 02 12	699	0.0	0.5+	1999 03 20	704	0.0	0.5-
1989 04 08	809	0.5+	0.2+	1999 02 13	704	0.5-	0.2+	1999 03 20	704	0.7-	1.3+
1989 04 10	809	1.2-	0.9+	1999 02 13	704	0.8-	0.2+	1999 03 20	704	0.1+	0.9+
1989 04 10	809	2.0-	0.9+	1999 02 13	704	0.6-	0.6+	1999 03 20	704	0.7-	1.3+
1989 04 10	809	1.8-	0.4+	1999 02 13	704	0.9-	0.4-	1999 03 21	699	0.9-	0.1+
1998 11 30	910	0.2-	0.2-	1999 02 13	704	0.5-	0.6+	1999 03 21	699	0.2+	0.0
1998 11 30	910	0.2+	0.3-	1999 02 23	699	0.0	0.4+	1999 03 21	699	0.9+	0.8+
1998 11 30	910	0.1-	0.1-	1999 02 23	699	0.1-	0.0				

1999 CV₄₈ = 1997 SQ₁₅

Id. B. G. Marsden

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

$\dot{M}$	264.51937		(2000.0)	P	Q		
n	0.30127622	ω	248.73222	-0.24937285	+0.96834336		
a	2.2037355	Ω	6.85614	-0.85027943	-0.21342881		
e	0.1365913	i	5.35911	-0.46350629	-0.12945760		
P	3.27	H	14.4	G	0.15	U	4

Residuals in seconds of arc

1997 09 27	910	0.2-	0.3+	1999 02 13	704	0.1+	0.6+	1999 03 07	046	0.0	0.1-
1997 09 27	910	0.0	0.3+	1999 02 13	704	0.4+	0.9+	1999 03 07	046	0.2-	0.1-
1997 09 27	910	0.2-	0.2+	1999 02 13	704	0.0	0.3+	1999 03 07	046	0.7-	0.7-
1997 09 30	910	0.2+	0.2-	1999 02 23	699	0.1+	0.4+	1999 03 19	704	0.2-	0.4+
1997 09 30	910	0.1+	0.3-	1999 02 23	699	0.6+	0.4+	1999 03 19	704	0.8-	0.1+
1997 09 30	910	0.2+	0.2-	1999 02 23	699	0.3+	0.8+	1999 03 19	704	0.6-	0.0
1999 02 10	704	0.5+	0.7-	1999 03 06	046	1.4-	0.8+	1999 03 19	704	0.2-	0.7+
1999 02 10	704	0.2-	1.0-	1999 03 06	046	1.4-	0.8+	1999 03 20	704	0.9+	0.5-
1999 02 10	704	0.3+	0.7-	1999 03 06	046	0.8-	0.3+	1999 03 20	704	1.6+	0.5-
1999 02 10	704	0.3+	0.5-	1999 03 06	046	1.5-	0.8+	1999 03 20	704	0.5+	0.3-
1999 02 10	704	0.1-	0.4-	1999 03 06	046	0.7-	0.1-	1999 03 20	704	1.1+	0.3-
1999 02 13	704	0.3+	0.4-	1999 03 07	046	0.4+	0.3-	1999 03 20	704	1.2+	0.4-
1999 02 13	704	0.2+	0.2+	1999 03 07	046	0.3+	0.3-				

1999 CL₄₉ = 1997 WC₄₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	319.04322		(2000.0)	P	Q		
n	0.19012060	ω	97.58655	-0.97164649	+0.15880975		
a	2.9953662	Ω	91.66979	-0.21626441	-0.89638691		
e	0.0455352	i	10.09255	+0.09556568	-0.41384777		
P	5.18	H	13.8	G	0.15	U	5

Residuals in seconds of arc

1997 11 26	704	0.6+	0.5-	1999 02 10	704	0.7-	0.5+	1999 02 13	704	0.2+	0.1+
1997 11 26	704	0.3-	0.5-	1999 02 10	704	0.5+	0.3-	1999 02 13	704	0.5-	1.2-
1997 11 26	704	0.8+	0.5-	1999 02 10	704	0.8-	0.5-	1999 02 13	704	0.4+	0.1+
1997 11 29	704	0.3+	0.8+	1999 02 10	704	0.0	0.4-	1999 02 13	704	0.2+	0.5+
1997 11 29	704	0.0	0.5+	1999 02 10	704	1.0-	0.6+	1999 02 13	704	0.2+	0.4-
1997 11 29	704	1.0-	0.3-	1999 02 13	699	1.3-	0.1-	1999 02 18	566	0.2-	0.5+
1997 11 29	704	0.6+	0.3+	1999 02 13	699	0.8+	0.1-	1999 02 18	566	0.3+	0.1+
1997 11 29	704	1.0-	0.2+	1999 02 13	699	1.9+	0.3+	1999 02 18	566	0.1+	0.2+

1999 CB₅₀ = 1997 WX₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	276.61942	(2000.0)	P	Q			
<i>n</i>	0.21922891	ω	191.92203	-0.59860073	+0.79923650		
<i>a</i>	2.7239816	Ω	41.34068	-0.72808714	-0.51482645		
<i>e</i>	0.0190649	<i>i</i>	4.67490	-0.33401539	-0.31012054		
<i>P</i>	4.50	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1997 11 29	704	0.5-	1.1+	1999 02 10	704	0.1-	1.4-	1999 02 13	704	1.3+	1.9+
1997 11 29	704	0.1-	0.3+	1999 02 10	704	0.2+	0.4-	1999 02 18	699	0.4-	0.5+
1997 11 29	704	0.1+	0.7+	1999 02 10	704	0.8+	0.2+	1999 02 18	699	0.2+	0.1+
1997 11 29	704	0.7-	1.3-	1999 02 10	704	(1.3-	2.4+)	1999 02 18	699	0.2-	0.1+
1997 11 29	704	(4.2-	1.4+)	1999 02 10	704	1.2-	0.6-	1999 02 23	699	0.3+	0.1+
1997 12 04	704	0.3-	0.1+	1999 02 13	704	0.3-	0.6-	1999 02 23	699	0.3-	0.4+
1997 12 04	704	0.5+	0.1-	1999 02 13	704	0.1-	1.2-	1999 02 23	699	0.5+	0.0
1997 12 04	704	(2.5+	1.0-)	1999 02 13	704	0.2-	0.6-				
1997 12 04	704	0.9+	0.7-	1999 02 13	704	0.3-	1.5+				

1999 CH₅₀ = 1992 ET₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28259333	ω	270.74620	+0.04563752	+0.99895404		
<i>a</i>	2.2998249	Ω	1.87660	-0.87864439	+0.04149108		
<i>e</i>	0.2382769	<i>i</i>	4.96651	-0.47529070	+0.01921745		
<i>P</i>	3.49	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 03 01	809	0.0	0.3+	1999 02 13	704	0.1+	0.6-	1999 03 19	704	1.3+	0.1+
1992 03 04	809	0.1+	0.2-	1999 02 13	704	0.8+	0.2+	1999 03 19	704	0.7-	1.4-
1999 02 10	704	0.9+	0.4-	1999 02 13	704	0.3+	0.9-	1999 03 20	704	1.6+	0.5+
1999 02 10	704	0.8-	0.0	1999 02 13	704	0.3+	0.1-	1999 03 20	704	0.0	0.0
1999 02 10	704	0.5-	0.5+	1999 02 13	704	0.8-	0.8+	1999 03 20	704	0.3+	0.3+
1999 02 10	704	0.3-	0.4+	1999 03 19	704	1.2-	0.6+	1999 03 20	704	0.5-	0.2+
1999 02 10	704	0.1-	0.0	1999 03 19	704	0.8-	1.2-	1999 03 20	704	0.1-	0.9+

1999 CM₅₀ = 1992 DO₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28015128	ω	308.36503	-0.00141604	-0.99858625		
<i>a</i>	2.3131705	Ω	141.61379	+0.94210237	-0.01915010		
<i>e</i>	0.1578773	<i>i</i>	4.90891	+0.33532241	+0.04958606		
<i>P</i>	3.52	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1992 02 29	809	0.2-	0.2+	1999 02 10	704	0.1+	0.7-	1999 03 19	704	1.2-	0.7+
1992 03 03	809	0.5-	0.4-	1999 02 13	704	0.0	0.1+	1999 03 19	704	0.1+	1.1-
1992 03 07	809	0.7+	0.1-	1999 02 13	704	0.5+	0.8+	1999 03 20	704	2.4+	0.1+
1999 02 10	704	0.0	0.3-	1999 02 13	704	0.5+	0.6+	1999 03 20	704	1.2-	0.5-
1999 02 10	704	0.7-	0.0	1999 02 13	704	1.5+	0.9+	1999 03 20	704	0.6-	0.2-
1999 02 10	704	1.2-	1.3-	1999 02 13	704	0.3-	0.3+	1999 03 20	704	0.1-	0.4+
1999 02 10	704	0.0	0.3-	1999 03 19	704	0.3+	0.1+	1999 03 20	704	0.0	0.4+

1999 CV₅₀ = 1962 PE = 1977 EY₃ = 1978 QC₂ = 1991 VB₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30953870	ω	216.75476	+0.99749359	-0.05326700		
<i>a</i>	2.1643430	Ω	146.20886	+0.06576554	+0.94079764		
<i>e</i>	0.1806299	<i>i</i>	4.80366	-0.02610421	+0.33475726		
<i>P</i>	3.18	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1962 08 01	760	0.7+	0.8-	1999 02 10	704	0.0	0.4-	1999 03 19	704	0.2-	0.7-
1962 08 01	760	0.3-	1.1-	1999 02 10	704	0.2+	0.1-	1999 03 19	704	0.0	0.8-
1977 03 15	381	0.6-	0.3-	1999 02 10	704	0.6+	1.9-	1999 03 19	704	0.7-	1.8-
1977 03 15	381	0.1+	1.3-	1999 02 12	699	0.2+	1.0+	1999 03 19	704	1.0-	0.2+
1978 08 31	095	(0.7+	4.1+)	1999 02 12	699	0.1-	0.6+	1999 03 20	704	1.1-	0.3-
1978 09 05	095	0.3+	0.2-	1999 02 12	699	0.0	0.4+	1999 03 20	704	0.1+	0.6+
1978 09 27	095	(4.6-	5.1+)	1999 02 13	704	0.1+	1.3+	1999 03 20	704	1.1-	0.2-
1991 11 07	675	0.3+	1.1-	1999 02 13	704	0.3-	1.1+	1999 03 20	704	0.4-	1.4-
1991 11 07	675	0.1-	0.6-	1999 02 13	704	1.0+	0.6+	1999 03 20	704	0.3+	0.2-
1999 02 10	704	0.1-	0.6-	1999 02 13	704	0.6+	0.8+				
1999 02 10	704	0.8+	0.1-	1999 02 13	704	0.3+	0.3+				

1999 CD₅₁ = 1991 GL₁₁ = 1996 KY

Id. G. V. Williams, K. Ichikawa

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23641363	ω	353.75910	-0.40981463	-0.91095697		
<i>a</i>	2.5903257	Ω	120.42534	+0.83923802	-0.39673754		
<i>e</i>	0.0890596	<i>i</i>	3.12478	+0.35739546	-0.11294564		
<i>P</i>	4.17	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 04 11	033	0.3+	0.6-	1996 05 25	867	0.3+	0.0	1999 03 19	704	0.3+	0.4+
1991 04 11	033	0.5-	0.7-	1999 02 10	704	0.9+	0.9-	1999 03 19	704	1.2+	0.5-
1991 04 12	033	0.3-	0.2-	1999 02 10	704	1.0-	0.3+	1999 03 19	704	0.1-	0.8-
1996 05 22	867	0.6-	0.4+	1999 02 10	704	1.0-	0.4+	1999 03 19	704	1.7+	0.7-
1996 05 22	867	0.2+	0.3+	1999 02 10	704	0.2-	1.2+	1999 03 20	704	0.2+	0.6-
1996 05 22	867	0.0	0.2-	1999 02 13	704	0.6-	0.3-	1999 03 20	704	0.0	0.0
1996 05 24	867	0.8-	0.1+	1999 02 13	704	0.1-	0.5+	1999 03 20	704	0.5-	0.2+
1996 05 24	867	0.1+	0.2+	1999 02 13	704	0.2-	0.6+	1999 03 20	704	0.1-	0.2+
1996 05 24	867	0.3+	1.0+	1999 02 13	704	0.4+	0.8+	1999 03 20	704	0.4-	0.3+
1996 05 25	867	0.3+	0.1-	1999 02 13	704	0.2+	0.4+				

1999 CE₅₂ = 1980 TM₈ = 1983 LV = 1987 WF₅ = 1994 WR₁₁= 1996 GP₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28846292	ω	301.24332	+0.99066760	-0.08263266		
<i>a</i>	2.2685205	Ω	63.69276	+0.12261810	+0.88758435		
<i>e</i>	0.2073430	<i>i</i>	6.94514	-0.05951899	+0.45317311		
<i>P</i>	3.42	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1980 10 12	095	1.8-	0.0	1996 04 22	691	0.0	0.7-	1999 02 12	327	0.5-	0.0
1983 06 10	323	1.3+	1.4-	1996 04 22	691	0.1+	0.6-	1999 02 12	327	0.3+	0.3+
1983 06 14	323	0.2+	0.8-	1997 09 01	566	0.0	0.1-	1999 02 13	704	0.0	0.0
1987 11 21	095	1.0+	0.8-	1997 09 01	566	0.0	0.2-	1999 02 13	704	0.9+	0.2+
1994 11 27	010	(0.6-	2.2-)	1997 09 01	566	0.0	0.1-	1999 02 13	704	0.1-	0.4+
1994 11 27	010	(0.4-	2.4-)	1997 12 30	566	0.9-	0.9+	1999 02 13	704	0.1-	0.6+
1994 11 28	010	1.0-	1.8-	1997 12 30	566	1.1-	0.9+	1999 02 13	704	1.0+	0.9+
1994 11 28	010	1.6+	0.7-	1997 12 30	566	1.0-	1.0+	1999 02 14	327	0.5-	0.1-
1994 11 28	010	1.0+	1.1-	1999 02 10	704	0.2-	0.3+	1999 02 14	327	0.8-	0.1+
1994 11 29	010	1.6+	0.8-	1999 02 10	704	0.5+	0.1+	1999 02 14	327	0.7-	0.1+
1996 04 14	691	0.5-	0.6-	1999 02 10	704	0.5+	0.2+	1999 02 19	566	0.2-	0.3+
1996 04 14	691	0.5-	0.9-	1999 02 10	704	0.1+	0.7+	1999 02 19	566	0.5-	0.2+
1996 04 14	691	1.1-	0.6-	1999 02 10	704	0.1+	0.8+	1999 02 19	566	0.1-	0.2+
1996 04 22	691	0.1+	0.7-	1999 02 12	327	0.6-	0.4+				

1999 CY₅₃ = 1997 WK₅₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17756362	ω	20.53449	-0.42111154	-0.90583601		
<i>a</i>	3.1349700	Ω	94.39393	+0.82557853	-0.40386214		
<i>e</i>	0.1379009	<i>i</i>	2.65068	+0.37561305	-0.12789248		
<i>P</i>	5.55	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 11 29	704	0.3-	0.9-	1997 12 04	704	0.8+	1.7+	1999 02 18	699	0.2+	0.2+
1997 11 29	704	0.1+	0.1+	1997 12 04	704	(2.7-	0.8-)	1999 02 18	699	0.1+	0.1-
1997 11 29	704	0.8+	0.2-	1999 02 10	704	0.1-	0.3+	1999 02 18	699	0.0	0.3+
1997 11 29	704	0.4+	0.5-	1999 02 10	704	0.2-	0.0	1999 02 18	566	1.1-	0.0
1997 11 29	704	1.3+	1.5+	1999 02 10	704	0.4+	0.7+	1999 02 18	566	0.3-	0.0
1997 11 29	691	0.8-	0.3-	1999 02 10	704	0.6+	0.3+	1999 02 18	566	1.0	0.2-
1997 11 29	691	0.1+	0.1-	1999 02 10	704	0.4-	0.5+	1999 02 22	699	0.2-	0.8-
1997 11 29	691	0.2+	0.2+	1999 02 13	704	0.4+	0.3+	1999 02 22	699	0.1+	0.3-
1997 12 04	704	0.2-	0.5-	1999 02 13	704	1.6-	0.8-	1999 02 22	699	1.1+	0.6-
1997 12 04	704	1.7-	1.0-	1999 02 13	704	0.5+	0.6+				
1997 12 04	704	0.6-	0.1-	1999 02 13	704	1.5+	0.4-				

1999 CO₅₄ = 1991 RB₂₃

Id. A. Doppler

1999 APR. 2

M.P.C. 34247

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	147.31974	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.19156882	ω 212.93456	+0.99567860	-0.02234851
<i>a</i>	2.9802509	Ω 147.97488	+0.04516788	+0.96461317
<i>e</i>	0.1063964	<i>i</i> 9.78645	-0.08114182	+0.26272035
<i>P</i>	5.14	<i>H</i> 13.6	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1991 09 15	675	0.4-	0.0	1999 02 10	704	1.0+	1.0+	1999 02 18	699	0.3+	0.8+
1991 09 15	675	0.3+	0.0	1999 02 13	704	0.5-	0.9-	1999 02 18	699	0.2+	1.4+
1991 09 17	675	0.1+	0.3-	1999 02 13	704	1.3-	1.0+	1999 02 18	566	0.2+	0.3-
1991 09 17	675	0.0	0.4+	1999 02 13	704	0.2-	0.3+	1999 02 18	566	0.1+	0.6-
1999 02 10	704	1.3+	1.3-	1999 02 13	704	(2.4-	0.1-)	1999 02 18	566	0.6-	0.9-
1999 02 10	704	0.3-	0.3+	1999 02 13	704	0.0	1.0-				
1999 02 10	704	0.2-	0.2+	1999 02 18	699	(0.2+	2.4+)				

1999 CT₅₄ = 1997 WY₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	313.36490	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.25352005	ω 208.46903	-0.92147772	+0.38829106
<i>a</i>	2.4724518	Ω 354.34888	-0.33326191	-0.80411264
<i>e</i>	0.0707168	<i>i</i> 6.08235	-0.19953773	-0.45014767
<i>P</i>	3.89	<i>H</i> 13.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 11 24	691	1.3-	0.5+	1999 02 10	704	0.3-	0.3-	1999 03 19	704	0.5+	0.4-
1997 11 24	691	0.1-	0.0	1999 02 13	704	0.7+	0.1-	1999 03 19	704	0.0	0.1-
1997 11 24	691	0.2-	0.2-	1999 02 13	704	0.2-	0.2+	1999 03 19	704	0.7-	0.8-
1997 11 30	691	0.8+	0.0	1999 02 13	704	0.6+	0.1+	1999 03 20	704	0.2-	0.1-
1997 11 30	691	0.1+	0.1-	1999 02 13	704	0.1+	0.3-	1999 03 20	704	0.4-	0.0
1997 11 30	691	0.6+	0.2-	1999 02 13	704	0.4-	0.9+	1999 03 20	704	0.1+	0.8+
1999 02 10	704	0.1-	0.1-	1999 02 18	699	0.3+	0.3+	1999 03 20	704	0.4+	0.8+
1999 02 10	704	0.1-	0.4-	1999 02 18	699	0.4+	0.0	1999 03 20	704	0.2-	0.2+
1999 02 10	704	0.9-	0.2+	1999 02 18	699	0.9+	0.4+				
1999 02 10	704	0.6-	0.6-	1999 03 19	704	0.2+	0.6-				

1999 CX₅₄ = 1977 EP₁ = 1986 GZ₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	136.44282	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.22094194	ω 5.97266	+0.97325992	-0.22877263
<i>a</i>	2.7098834	Ω 7.35079	+0.20349089	+0.81688522
<i>e</i>	0.0242547	<i>i</i> 9.30785	+0.10656732	+0.52949185
<i>P</i>	4.46	<i>H</i> 12.9	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1977 03 13	095	0.8+	1.3+	1999 02 10	704	0.2+	0.9+	1999 03 19	704	0.2-	0.8-
1977 03 22	095	0.5-	0.1-	1999 02 10	704	0.6+	0.7+	1999 03 19	704	0.8-	0.0
1977 03 25	095	0.6+	0.0	1999 02 13	704	0.9+	0.3-	1999 03 19	704	0.2-	0.0
1986 04 09	071	1.2-	1.1-	1999 02 13	704	0.2-	0.6-	1999 03 20	704	0.6+	0.2-
1986 04 09	071	0.7+	0.4+	1999 02 13	704	0.3+	1.0-	1999 03 20	704	0.0	0.6+
1999 02 10	704	0.3+	0.7-	1999 02 13	704	0.6+	0.1+	1999 03 20	704	0.4-	0.6+
1999 02 10	704	0.2-	0.1+	1999 02 13	704	0.7-	0.6-	1999 03 20	704	0.4-	0.1-
1999 02 10	704	0.3-	0.7+	1999 03 19	704	0.1-	0.1-	1999 03 20	704	0.3-	0.1-

1999 CA₅₅ = 1997 RY₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	52.65204	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.25957383	ω 49.63687	+0.20304765	-0.97821535
<i>a</i>	2.4338591	Ω 28.73460	+0.86893451	+0.15967530
<i>e</i>	0.1759998	<i>i</i> 5.15568	+0.45135847	+0.13265942
<i>P</i>	3.80	<i>H</i> 15.4	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1997 09 02	608	0.1+	0.0	1999 02 10	704	0.4-	0.2+	1999 02 13	704	0.0	2.0+
1997 09 02	608	0.1-	0.1-	1999 02 10	704	1.4+	0.9+	1999 02 13	704	0.7+	1.9-
1997 09 03	608	0.5-	0.0	1999 02 10	704	1.7-	0.1-	1999 02 18	699	0.6+	1.2-
1997 09 03	608	0.5+	0.2+	1999 02 13	704	0.1-	0.5+	1999 02 18	699	0.0	0.5+
1999 02 10	704	1.2+	1.2-	1999 02 13	704	1.2-	0.3-	1999 02 18	699	0.4-	0.6+

1999 CB₅₅ = 1997 WK₂₅ = 1998 BZ₃₅

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Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	286.00651	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.25618961	ω 145.92978	-0.50471027	+0.85787408
<i>a</i>	2.4552461	Ω 93.58395	-0.81204468	-0.43381919
<i>e</i>	0.1432130	<i>i</i> 5.55074	-0.29300340	-0.27541418
<i>P</i>	3.85	<i>H</i> 14.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 11 28	691	0.0	0.1+	1998 02 02	691	0.2+	0.1-	1999 02 13	704	1.2+	0.4+
1997 11 28	691	0.3-	0.2+	1998 02 02	691	0.2+	0.3-	1999 02 13	704	0.1+	0.7+
1997 11 28	691	0.2-	0.3+	1999 02 10	704	0.4-	1.4-	1999 02 13	704	1.1+	0.0
1997 12 04	691	0.2-	0.1+	1999 02 10	704	0.2-	0.3-	1999 02 18	699	0.2+	0.3+
1997 12 04	691	0.9-	0.1-	1999 02 10	704	0.1-	0.1+	1999 02 18	699	0.4-	0.0
1997 12 04	691	1.1+	0.1+	1999 02 10	704	0.3+	0.9-	1999 02 18	699	0.0	0.1+
1998 01 31	691(64.3-	17.5+)		1999 02 10	704	1.3-	0.5+	1999 02 18	566	0.3-	0.3-
1998 01 31	691(65.0-	16.7+)		1999 02 13	704	0.5+	0.5+	1999 02 18	566	0.3-	0.3+
1998 02 02	691	0.1+	0.3-	1999 02 13	704	0.1-	0.1-	1999 02 18	566	0.5-	0.2+

1999 CB₅₇ = 1979 OC₄ = 1994 JN₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	29.95225	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.18030708	ω 351.35432	-0.39286353	-0.91813664
<i>a</i>	3.1030887	Ω 121.76368	+0.84731481	-0.38330004
<i>e</i>	0.1478780	<i>i</i> 3.49298	+0.35737355	-0.10052955
<i>P</i>	5.47	<i>H</i> 13.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1979 07 24	675	0.1+	1.2+	1994 05 16	104	(5.3-	5.2-)	1999 03 19	704	1.0+	0.8+
1979 07 24	413	0.1-	1.1-	1994 05 16	104	(5.8-	4.9-)	1999 03 19	704	0.3+	0.7-
1994 05 15	104	0.7+	0.1+	1994 05 16	104	(6.1-	4.8-)	1999 03 19	704	2.4-	1.5+
1994 05 15	104	0.4+	0.0	1999 02 10	704	0.6+	0.3-	1999 03 19	704	0.6-	0.7-
1994 05 15	104	0.5+	0.3-	1999 02 10	704	1.6-	0.3+	1999 03 20	704	0.4+	0.0
1994 05 15	104	0.5+	0.3-	1999 02 10	704	0.6+	0.3+	1999 03 20	704	1.5-	0.1+
1994 05 15	104	0.5-	0.4+	1999 02 13	704	1.9+	2.6-	1999 03 20	704	1.1+	0.0
1994 05 15	104	1.2-	0.3+	1999 02 13	704	0.2+	1.0+	1999 03 20	704	0.9+	0.2+
1994 05 15	104	0.6-	0.4-	1999 02 13	704	0.8-	0.8-	1999 03 20	704	0.2+	0.3+
1994 05 16	104	(4.6-	5.6-)	1999 02 13	704	0.3-	0.7+				

1999 CN₅₇ = 1991 EY₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	75.97163	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.24976831	ω 316.84788	+0.25243455	-0.96737847
<i>a</i>	2.4971492	Ω 118.52000	+0.89424719	+0.22481090
<i>e</i>	0.0119495	<i>i</i> 1.39215	+0.36959268	+0.11678595
<i>P</i>	3.95	<i>H</i> 13.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1991 03 13	809	0.8-	0.5-	1999 02 10	704	0.3+	0.7-	1999 03 19	704	0.1-	0.1+
1991 03 13	809	0.1-	0.7-	1999 02 10	704	0.1-	0.2+	1999 03 19	704	0.1-	0.2-
1991 03 13	809	0.5+	0.7-	1999 02 13	704	0.9+	0.2+	1999 03 19	699	0.8+	1.3-
1991 03 15	809	0.4-	0.5-	1999 02 13	704	0.2+	0.7-	1999 03 19	704	1.0-	0.5+
1991 03 15	809	0.2-	0.4-	1999 02 13	704	0.6-	0.2-	1999 03 19	699	0.3+	1.1+
1991 03 15	809	0.1-	0.5-	1999 02 13	704	0.8+	0.6-	1999 03 20	704	(0.7-	2.1+)
1997 09 09	910	0.2-	0.4+	1999 02 13	704	0.1-	0.1-	1999 03 20	704	0.5-	1.5+
1997 09 09	910	0.1-	0.4+	1999 02 18	699	0.2+	0.8+	1999 03 20	704	0.3-	1.5+
1997 09 09	910	0.2-	0.5+	1999 02 18	699	0.5+	0.0	1999 03 20	704	0.0	1.6+

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1999 02 10	704	0.2+	0.1+	1999 02 18	699	1.0+	0.2-	1999 03 20	704	0.8-	1.8+
1999 02 10	704	0.3-	0.1-	1999 03 19	704	0.4-	1.1-				
1999 02 10	704	0.2-	0.3-	1999 03 19	699	0.6+	0.1-				

1999 CG₆₀ = 1997 WG₄₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	166.93287		(2000.0)		P		Q
<i>n</i>	0.24397776	ω	164.11778	+0.90171110			+0.43230567
<i>a</i>	2.5365060	Ω	170.26303	-0.40004296			+0.83900324
<i>e</i>	0.1227594	<i>i</i>	1.82140	-0.16395948			+0.33043209
<i>P</i>	4.04	<i>H</i>	14.6	<i>G</i>	0.15		<i>U</i> 5

Residuals in seconds of arc

1997 11 29	704	0.2-	0.9+	1999 02 12	704	0.6-	0.3+	1999 02 23	691	0.3-	0.3-
1997 11 29	704	0.4+	1.0+	1999 02 12	704	0.1+	0.4+	1999 02 23	691	0.4-	0.2-
1997 11 29	704	0.3-	0.3+	1999 02 12	704	0.1+	0.1-	1999 02 23	691	0.5-	0.3-
1997 11 29	704	0.4-	0.6+	1999 02 16	704	0.6+	0.7+	1999 03 12	691	0.3-	0.2-
1997 11 30	566	0.1+	0.7-	1999 02 16	704	0.1-	0.3-	1999 03 12	691	0.7+	0.3+
1997 11 30	566	0.2+	1.0-	1999 02 16	704	0.8-	0.1-	1999 03 12	691	0.1-	0.1-
1997 11 30	566	0.1+	1.2-	1999 02 16	704	0.1-	0.1-				
1999 02 12	704	0.6+	0.3-	1999 02 16	704	1.2+	0.4+				

1999 CH₆₀ = 1997 XL₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	44.81849		(2000.0)		P		Q
<i>n</i>	0.17036572	ω	274.01311	+0.02960881			-0.99955874
<i>a</i>	3.2226607	Ω	174.28856	+0.92628807			+0.02654541
<i>e</i>	0.1267703	<i>i</i>	1.36730	+0.37565109			+0.01332899
<i>P</i>	5.79	<i>H</i>	14.5	<i>G</i>	0.15		<i>U</i> 4

Residuals in seconds of arc

1997 12 05	910	0.0	0.0	1999 02 12	704	0.7-	0.5-	1999 02 16	704	0.1-	1.4+
1997 12 05	910	0.1+	0.2-	1999 02 12	704	0.8+	0.6-	1999 02 16	704	0.4-	0.2+
1997 12 05	910	0.0	0.1-	1999 02 12	704	0.8+	0.7-	1999 02 16	704	0.3-	1.2+
1997 12 07	910	0.0	0.1+	1999 02 14	691	0.2-	0.1+	1999 03 20	691	0.7-	0.3+
1997 12 07	910	0.0	0.1+	1999 02 14	691	0.3-	0.1-	1999 03 20	691	1.1+	0.3-
1997 12 07	910	0.0	0.1+	1999 02 14	691	0.3-	0.2-	1999 03 20	691	0.2-	0.3-
1999 02 12	704	0.2+	0.1-	1999 02 16	704	0.2-	0.7-				
1999 02 12	704	0.6+	0.3-	1999 02 16	704	0.1+	0.7+				

1999 CU₆₀ = 1991 BA₄ = 1991 BK₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	43.68476		(2000.0)		P		Q
<i>n</i>	0.25241908	ω	183.09129	-0.02034588			-0.99904878
<i>a</i>	2.4796360	Ω	268.07682	+0.91811797			-0.00339848
<i>e</i>	0.0449325	<i>i</i>	2.21164	+0.39578459			-0.04347396
<i>P</i>	3.90	<i>H</i>	14.6	<i>G</i>	0.15		<i>U</i> 6

Residuals in seconds of arc

1991 01 18	511	(5.0+	1.1+)	1999 02 09	691	0.6-	0.2-	1999 02 16	704	0.2-	0.4-
1991 01 19	511	0.7+	1.7+	1999 02 09	691	0.6-	0.4+	1999 02 16	704	0.2-	0.9-
1991 01 19	511	0.8-	1.1-	1999 02 09	691	0.7-	0.5+	1999 02 16	704	0.4+	0.8-
1991 01 20	511	0.1-	0.9+	1999 02 12	704	0.5+	0.1+	1999 02 16	704	0.4+	0.3-
1991 01 20	511	0.2+	1.4-	1999 02 12	704	0.0	0.9+	1999 02 16	704	0.2-	0.2-
1999 01 22	699	0.1-	0.3-	1999 02 12	704	0.3+	0.1-	1999 02 20	699	0.5-	0.7+
1999 01 22	699	0.7+	0.1+	1999 02 12	704	0.7+	0.1-	1999 02 20	699	0.7+	0.6+
1999 01 22	699	0.6-	0.0	1999 02 12	704	0.0	0.0	1999 02 20	699	(0.9+	2.5+)

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1999 CZ₆₀ = 1995 FC₁₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	65.81318		(2000.0)		P		Q
<i>n</i>	0.22256135	ω	236.05744	+0.35165333			-0.93606657
<i>a</i>	2.6967222	Ω	193.36719	+0.87372009			+0.33237575
<i>e</i>	0.0451889	<i>i</i>	2.70792	+0.33608500			+0.11535045
<i>P</i>	4.43	<i>H</i>	14.5	<i>G</i>	0.15		<i>U</i> 6

Residuals in seconds of arc

1995 03 28	691	0.3-	0.1+	1999 02 12	704	0.0	0.7-	1999 02 16	704	0.5+	0.2-
1995 03 28	691	0.0	0.1-	1999 02 12	704	0.9+	0.3-	1999 02 16	704	0.8-	1.2-
1995 03 28	691	0.1-	0.4-	1999 02 12	704	0.7-	0.4-	1999 02 16	704	0.4+	1.3+
1995 04 05	691	0.2+	0.2+	1999 02 14	691	0.9-	0.7+	1999 02 20	699	0.1+	0.9+
1995 04 05	691	0.2+	0.1+	1999 02 14	691	1.1-	0.5+	1999 02 20	699	0.9+	0.4+
1999 02 12	704	0.3+	1.0-	1999 02 14	691	1.0-	0.8+	1999 02 20	699	0.2+	0.4-
1999 02 12	704	0.5-	0.3+	1999 02 16	704	1.8+	0.7-				

1999 CG₆₂ = 1986 RO₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	192.01477		(2000.0)		P		Q
<i>n</i>	0.19519377	ω	123.74193	+0.52164689			+0.85307750
<i>a</i>	2.9432382	Ω	177.60318	-0.84636028			+0.51920562
<i>e</i>	0.0190121	<i>i</i>	16.63301	-0.10751183			+0.05181024
<i>P</i>	5.05	<i>H</i>	12.2	<i>G</i>	0.15		<i>U</i> 5

Residuals in seconds of arc

1986 09 06	095	0.4-	0.6+	1999 02 12	704	0.2+	0.2-	1999 02 16	704	0.4-	0.2+
1986 09 07	071	0.8+	0.8-	1999 02 12	704	0.3-	0.3-	1999 02 21	699	0.3+	0.2+
1986 09 07	071	0.4-	0.3+	1999 02 16	704	0.3-	0.4-	1999 02 21	699	0.1+	0.2+
1999 02 12	704	0.3-	0.1+	1999 02 16	704	0.2+	0.5-	1999 02 21	699	0.1-	0.1+
1999 02 12	704	0.0	0.2+	1999 02 16	704	0.0	0.4+				
1999 02 12	704	1.0+	0.2-	1999 02 16	704	0.4-	0.2+				

1999 CJ₆₂ = 3015 P-L = 1991 RW₄₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	329.93416		(2000.0)		P		Q
<i>n</i>	0.18918770	ω	239.86508	-0.95752602			-0.23588011
<i>a</i>	3.0052051	Ω	286.06421	+0.28572364			-0.85357696
<i>e</i>	0.0509248	<i>i</i>	9.93808	-0.03880623			-0.46450721
<i>P</i>	5.21	<i>H</i>	13.1	<i>G</i>	0.15		<i>U</i> 2

Residuals in seconds of arc

1960 09 24	675	1.3-	0.4-	1991 09 10	675	0.5+	0.0	1999 01 14	699	0.6+	0.3+
1960 09 24	675	0.1-	1.0+	1991 09 10	675	0.0	0.8-	1999 02 12	704	0.2-	0.1-
1960 09 24	675	1.6+	0.0	1997 11 30	566	0.0	0.1-	1999 02 12	704	0.5+	0.7-
1960 09 25	675	1.0+	0.8-	1997 11 30	566	0.2+	0.2+	1999 02 12	704	0.5-	0.7-
1960 09 25	675	0.9-	0.8+	1997 11 30	566	0.2-	0.1+	1999 02 12	704	0.3-	0.2-
1960 09 25	675	0.5-	0.8-	1998 11 23	699	(0.3-	2.2-)	1999 02 12	704	0.1-	0.2-
1960 09 26	675	0.9+	0.4+	1998 11 23	699	1.8-	0.1+	1999 02 16	704	0.4+	0.2+
1960 09 26	675	0.7-	0.8+	1998 11 23	699	1.6+	0.6-	1999 02 16	704	0.4-	0.3+
1960 09 27	675	1.3+	0.3-	1998 12 01	699	0.3+	1.0-	1999 02 16	704	0.2-	0.2+
1960 09 27	675	0.9-	0.3+	1998 12 01	699	0.4-	0.5-	1999 02 16	704	0.3+	0.8+
1960 09 28	675	1.4+	0.7-	1998 12 01	699	1.1-	0.1+	1999 02 16	704	0.4-	0.5+
1960 09 28	675	0.6-	0.6+	1999 01 14	699	0.6+	0.3+				
1960 09 29	675	1.4-	0.2-	1999 01 14	699	0.7+	0.5+				

1999 CP₆₂ = 1993 RT

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	46.32821		(2000.0)		P		Q
<i>n</i>	0.23551202	ω	278.34906	+0.35888425			-0.92417620
<i>a</i>	2.5969325	Ω	149.57246	+0.92528064			+0.33384132
<i>e</i>	0.1730576	<i>i</i>	14.96372	+0.12271039			+0.18560262
<i>P</i>	4.18	<i>H</i>	14.2	<i>G</i>	0.15		<i>U</i> 4

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Residuals in seconds of arc

1993 09 14	675	1.0+	1.7+	1999 01 15	699	0.1+	0.0	1999 02 12	704	0.7+	0.0
1993 09 14	675	2.1-	0.1+	1999 01 15	699	0.3-	0.4-	1999 02 12	704	0.5+	0.1-
1993 09 16	675	0.6+	1.0-	1999 02 11	699	0.0	0.0	1999 02 16	704	0.3+	0.2+
1993 09 16	675	0.5+	0.8-	1999 02 11	699	0.1-	0.2-	1999 02 16	704	0.4+	0.5+
1998 12 26	699	0.2+	0.5+	1999 02 11	699	0.1-	0.1+	1999 02 16	704	0.6+	0.1+
1998 12 26	699	0.1+	0.2+	1999 02 12	704	0.4-	0.3-	1999 02 16	704	0.2+	0.3-
1998 12 26	699	0.2-	0.0	1999 02 12	704	0.7-	0.7-	1999 02 16	704	0.2+	0.7+
1999 01 15	699	0.4-	0.1-	1999 02 12	704	0.9-	0.0				

1999 CD₆₃ = 1987 QA₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	170.13584		(2000.0)	P	Q
<i>n</i>	0.21073143	ω	143.62000	+0.77893413	+0.62706704
<i>a</i>	2.7967255	Ω	177.51258	-0.60656621	+0.75619576
<i>e</i>	0.1546253	<i>i</i>	9.23910	-0.15918246	+0.18696231
<i>P</i>	4.68	<i>H</i>	13.3	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1987 08 27	095	0.9-	1.3-	1999 02 12	704	0.5-	0.1+	1999 02 14	699	0.2+	0.1-
1987 09 02	095	1.1+	0.8+	1999 02 12	704	0.5-	0.4-	1999 02 16	704	0.5+	1.2-
1999 01 15	699	1.0-	1.1+	1999 02 12	704	0.4-	0.4-	1999 02 16	704	1.7+	0.0
1999 01 15	699	0.5+	1.2+	1999 02 12	704	0.1+	0.1-	1999 02 16	704	0.1+	0.5-
1999 01 15	699	0.3+	0.2+	1999 02 14	699	0.6-	0.0	1999 02 16	704	0.3+	0.0
1999 02 12	704	0.0	0.3-	1999 02 14	699	0.1-	0.4-	1999 02 16	704	0.6-	0.2+

1999 CR₆₃ = 1997 XM₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	313.03935		(2000.0)	P	Q
<i>n</i>	0.19628871	ω	327.49477	-0.97380529	+0.20578405
<i>a</i>	2.9322827	Ω	224.71073	-0.16791112	-0.93764328
<i>e</i>	0.1133127	<i>i</i>	7.90257	-0.15332682	-0.28013926
<i>P</i>	5.02	<i>H</i>	14.4	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1997 12 05	910	0.0	0.3+	1999 02 12	704	0.2+	0.0	1999 02 16	704	0.4+	0.7-
1997 12 05	910	0.0	0.2+	1999 02 12	704	0.6+	0.7+	1999 02 16	704	0.1+	1.0-
1997 12 05	910	0.1-	0.0	1999 02 12	704	0.2-	0.2+	1999 02 21	699	0.2-	0.6+
1997 12 07	910	0.0	0.2-	1999 02 12	704	0.2-	0.1-	1999 02 21	699	0.1+	0.6+
1997 12 07	910	0.0	0.2-	1999 02 16	704	0.4+	0.5+	1999 02 21	699	0.0	0.0
1997 12 07	910	0.1+	0.2-	1999 02 16	704	0.5-	0.5-				
1999 02 12	704	0.7-	0.1+	1999 02 16	704	0.0	0.5-				

1999 CW₆₅ = 1997 WQ₂₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	95.51558		(2000.0)	P	Q
<i>n</i>	0.20210767	ω	151.34889	+0.83080138	-0.55634831
<i>a</i>	2.8757261	Ω	242.46312	+0.50721192	+0.76841784
<i>e</i>	0.0753818	<i>i</i>	1.01273	+0.22913999	+0.31624449
<i>P</i>	4.88	<i>H</i>	14.4	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1997 11 28	691	0.2+	0.1-	1999 02 12	704	0.0	0.6+	1999 02 16	704	0.3+	0.1+
1997 11 28	691	0.1-	0.1+	1999 02 12	704	0.3+	0.1+	1999 02 16	704	0.1-	0.6+
1997 11 28	691	0.1-	0.2+	1999 02 12	704	0.2-	0.3-	1999 02 18	566	0.1+	0.2+
1997 12 04	691	0.1+	0.3-	1999 02 12	704	0.3+	0.2-	1999 02 18	566	0.2-	0.3+
1997 12 04	691	0.1-	0.1+	1999 02 16	704	1.3-	1.3-	1999 02 18	566	0.1-	0.0
1997 12 04	691	0.1+	0.0	1999 02 16	704	1.1+	1.8-				
1999 02 12	704	0.2-	0.9+	1999 02 16	704	0.1+	0.9+				

1999 CH₆₆ = 1982 BM₂ = 1984 UP₄ = 1989 EC₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	44.82978		(2000.0)	P	Q
<i>n</i>	0.29181730	ω	244.03204	+0.20332814	-0.97894229
<i>a</i>	2.2511030	Ω	194.27154	+0.92259883	+0.19776839
<i>e</i>	0.1235654	<i>i</i>	4.22373	+0.32782474	+0.05059298
<i>P</i>	3.38	<i>H</i>	14.5	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1982 01 19	046	1.7-	0.1+	1999 02 12	704	0.6-	0.9-	1999 02 16	704	0.0	0.4-
1982 01 19	046	1.5+	1.1-	1999 02 12	704	0.0	0.6+	1999 02 16	704	0.3-	0.0
1984 10 20	095	0.1-	0.6+	1999 02 12	704	0.3-	0.2+	1999 02 20	699	0.4+	0.1-
1989 03 02	413	0.3-	0.0	1999 02 12	704	0.5+	0.4+	1999 02 20	699	0.1-	0.7+
1989 03 02	413	1.3+	0.0	1999 02 16	704	0.3-	0.3-	1999 02 20	699	0.6+	0.5+
1989 03 04	413	0.9-	0.3+	1999 02 16	704	0.5+	0.3-				
1999 02 12	704	0.3-	0.3+	1999 02 16	704	0.3+	0.2+				

1999 CK₆₆ = 1993 PL

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	237.48649		(2000.0)	P	Q
<i>n</i>	0.28201203	ω	5.36902	+0.01799520	+0.99757983
<i>a</i>	2.3029842	Ω	265.67423	-0.91982216	-0.00981292
<i>e</i>	0.1378656	<i>i</i>	3.86198	-0.39192265	+0.06883447
<i>P</i>	3.49	<i>H</i>	15.1	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1993 08 13	691	0.0	0.4-	1999 02 12	704	0.4+	0.3-	1999 02 16	704	0.3-	0.3+
1993 08 13	691	0.1+	0.2-	1999 02 12	704	0.3+	0.3-	1999 02 18	566	0.3-	0.3-
1993 08 13	691	0.1+	0.1-	1999 02 12	704	1.0+	0.1-	1999 02 18	566	0.5-	0.1-
1993 08 15	691	0.1-	0.2+	1999 02 16	704	1.0-	0.5-	1999 02 18	566	0.3+	0.5-
1993 08 15	691	0.0	0.3+	1999 02 16	704	0.0	0.6+	1999 02 20	699	0.3+	0.7-
1993 08 15	691	0.1-	0.3+	1999 02 16	704	0.5-	0.2-	1999 02 20	699	0.7+	0.5+
1999 02 12	704	0.3-	0.2+	1999 02 16	704	0.5-	0.2+	1999 02 20	699	0.6+	1.1+

1999 CJ₆₇ = 1957 YG = 1966 BF = 1973 YU₂ = 1985 VH₅ = 1993 XO₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	146.48069		(2000.0)	P	Q
<i>n</i>	0.24316489	ω	73.66954	+0.96735140	+0.13727101
<i>a</i>	2.5421557	Ω	278.06312	-0.21695676	+0.88303390
<i>e</i>	0.0368081	<i>i</i>	12.42560	+0.13100014	+0.44878481
<i>P</i>	4.05	<i>H</i>	12.7	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1957 12 22	760	1.3-	3.4-	1993 12 16	675	1.1-	0.8+	1999 02 16	704	1.0+	1.4+
1957 12 22	760	0.6+	2.2-	1999 02 12	704	0.5+	0.6-	1999 02 16	704	1.5-	0.0
1966 01 16	330	0.7+	1.5+	1999 02 12	704	0.1-	1.0-	1999 02 16	704	0.8-	0.4-
1973 12 21	095	2.8-	1.8+	1999 02 12	704	0.4+	0.2-	1999 02 16	704	0.5-	0.2+
1985 11 11	095	1.7+	0.2-	1999 02 12	704	0.5-	0.5-	1999 02 23	699	0.9+	1.2+
1993 12 14	675	0.2+	0.3+	1999 02 12	704	0.2-	0.9-	1999 02 23	699	1.5+	1.0+
1993 12 16	675	0.2-	1.3+	1999 02 16	704	0.5-	0.2-	1999 02 23	699	1.0+	2.1+

1999 CW₆₇ = 1976 GJ₈ = 1976 HW = 1980 BV₃Id. A. Doppler, O. Kippes (d, *MPC* 6840)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	335.89435		(2000.0)	P	Q
<i>n</i>	0.21098426	ω	254.64265	-0.98198267	-0.15367739
<i>a</i>	2.7944908	Ω	276.42351	+0.18553518	-0.89452638
<i>e</i>	0.1625245	<i>i</i>	6.35361	-0.03587114	-0.41976877
<i>P</i>	4.67	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1976 04 05	808	0.4+	0.4-	1999 02 12	704	0.7+	0.4+	1999 02 16	704	0.5-	0.8-
1976 04 05	808	0.0	0.2+	1999 02 12	704	0.4-	0.0	1999 02 19	566	0.3-	0.9-

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1976 04 23	808	0.3+	0.2−	1999 02 12	704	0.6+	1.5+	1999 02 19	566	0.5−	0.6−
1976 04 23	808	0.8−	0.2+	1999 02 16	704	0.1+	0.8+	1999 02 19	566	0.3−	0.9−
1980 01 22	095	0.1−	0.4−	1999 02 16	704	0.2−	0.1−	1999 02 20	699	0.2+	0.2+
1999 02 12	704	0.3−	0.6+	1999 02 16	704	0.6−	0.3+	1999 02 20	699	0.4+	0.3+
1999 02 12	704	0.2+	0.0	1999 02 16	704	0.4−	0.4−	1999 02 20	699	1.4+	0.1+

1999 CL₆₉ = 1988 CN₆ = 1989 PP

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	222.23447	(2000.0)		P		Q	
<i>n</i>	0.26769242	ω	9.39116	+0.29094683		+0.95007727	
<i>a</i>	2.3843976	Ω	277.58632	−0.88500613		+0.22250348	
<i>e</i>	0.1377773	<i>i</i>	6.52884	−0.36347502		+0.21873588	
<i>P</i>	3.68	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1988 02 10	033	0.2+	0.6−	1999 02 12	704	0.1−	0.3−	1999 02 16	704	0.0	0.6−
1988 02 11	033	0.3−	0.4+	1999 02 12	704	0.3+	0.1+	1999 02 16	704	0.1−	0.2−
1989 07 29	675	0.9−	0.7−	1999 02 12	704	0.1−	0.1−	1999 02 20	699	0.9+	0.2+
1989 07 29	675	0.1−	0.8+	1999 02 12	704	0.2+	0.0	1999 02 20	699	0.2+	1.0+
1989 08 01	675	0.3−	0.0	1999 02 16	704	0.4−	0.0	1999 02 20	699	0.9−	0.2+
1989 08 01	675	1.3+	0.1−	1999 02 16	704	0.3+	0.1−				
1999 02 12	704	0.4−	0.2−	1999 02 16	704	0.1+	0.1+				

1999 CT₇₀ = 1997 WC₃₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	351.58185	(2000.0)		P		Q	
<i>n</i>	0.16872350	ω	284.45841	−0.86921555		−0.49138652	
<i>a</i>	3.2435380	Ω	226.14409	+0.47785521		−0.80643200	
<i>e</i>	0.0541226	<i>i</i>	4.35891	+0.12695954		−0.32894789	
<i>P</i>	5.84	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1997 11 29	704	0.1+	0.1−	1997 12 04	704	1.0−	1.8−	1999 02 16	704	0.4+	0.6−
1997 11 29	704	0.9−	1.5+	1999 02 12	704	0.6−	0.1−	1999 02 16	704	0.1−	0.9+
1997 11 29	704	0.3−	1.2+	1999 02 12	704	1.5+	0.9−	1999 02 16	704	0.1−	0.6−
1997 11 29	704	1.0−	0.4+	1999 02 12	704	1.3+	0.4−	1999 02 20	699	0.8−	0.5−
1997 11 29	704	1.1−	0.2−	1999 02 12	704	0.1+	1.2−	1999 02 20	699	0.1−	0.7+
1997 12 04	704	2.5+	0.8+	1999 02 12	704	1.6−	0.5+	1999 02 20	699	0.1−	2.4+
1997 12 04	704	1.1+	1.1−	1999 02 16	704	0.2−	0.0				
1997 12 04	704	0.7+	0.8−	1999 02 16	704	0.2+	0.2−				

1999 CA₇₃ = 1993 US₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
<i>M</i>	82.62506	(2000.0)		P		Q	
<i>n</i>	0.23120410	ω	201.26493	+0.83047965		−0.55549036	
<i>a</i>	2.6290914	Ω	192.73480	+0.53445453		+0.81563946	
<i>e</i>	0.2375625	<i>i</i>	10.88875	+0.15704111		+0.16174897	
<i>P</i>	4.26	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 10 17	033	0.8−	1.6−	1993 10 21	809	(1.3+	2.0+)	1999 02 16	704	0.4−	0.9+
1993 10 18	033	0.7−	1.3−	1993 10 21	809	1.3+	1.4+	1999 02 16	704	0.4−	0.5+
1993 10 19	675	0.6−	1.1+	1993 10 21	809	0.7+	0.8+	1999 02 16	704	1.3−	0.1+
1993 10 19	675	0.4−	1.9−	1999 02 12	704	1.2+	0.7+	1999 02 16	704	0.7−	0.2+
1993 10 20	809	0.1+	0.7+	1999 02 12	704	1.7+	0.2+	1999 02 18	566	0.3−	1.3−
1993 10 20	809	0.6+	0.7+	1999 02 12	704	0.0	0.2+	1999 02 18	566	0.2+	0.7−
1993 10 20	809	0.1−	0.0	1999 02 12	704	0.7+	0.5−	1999 02 18	566	0.3−	1.3−
1993 10 20	675	(0.8+	2.3−)	1999 02 16	704	0.4−	0.8+				

1999 APR. 2

1999 CN₇₃ = 1990 TK₆ = 1992 CU₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	336.76988	(2000.0)		P		Q	
<i>n</i>	0.28660058	ω	258.53232	−0.97412545		−0.21302116	
<i>a</i>	2.2783372	Ω	269.13493	+0.22536462		−0.89034555	
<i>e</i>	0.1025083	<i>i</i>	4.33096	+0.01704113		−0.40237643	
<i>P</i>	3.44	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 10 09	413	0.2+	0.6+	1999 01 15	699	0.3+	0.0	1999 02 12	704	1.2−	1.9+
1990 10 11	413	0.4−	0.1−	1999 02 12	704	1.1−	1.0−	1999 02 12	699	1.3+	0.3+
1992 02 12	809	1.8+	0.4−	1999 02 12	704	0.9−	0.5+	1999 02 16	704	0.7+	1.0−
1992 02 12	809	0.5−	0.7−	1999 02 12	699	0.6+	0.8+	1999 02 16	704	0.4−	0.7−
1992 02 12	809	1.7−	0.3−	1999 02 12	704	0.6+	0.1−	1999 02 16	704	1.6+	0.5−
1999 01 15	699	0.2−	0.7+	1999 02 12	699	0.8+	0.4−	1999 02 16	704	0.9−	0.2−
1999 01 15	699	0.0	0.1−	1999 02 12	704	0.6−	1.2+	1999 02 16	704	0.1+	0.2+

1999 CR₇₄ = 1995 MV₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	319.88681	(2000.0)		P		Q	
<i>n</i>	0.17502990	ω	7.55553	−0.98990410		+0.14172864	
<i>a</i>	3.1651519	Ω	180.60026	−0.13702547		−0.95997302	
<i>e</i>	0.0407220	<i>i</i>	9.30011	−0.03624765		−0.24158808	
<i>P</i>	5.63	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 06 22	327	0.4+	0.3−	1999 01 15	699	0.4−	0.2−	1999 02 16	704	0.5−	0.5−
1995 06 22	327	0.1−	0.2−	1999 01 15	699	0.0	0.3+	1999 02 16	704	0.7−	0.2−
1995 06 22	327	0.1−	0.1−	1999 01 15	699	0.6+	0.2−	1999 02 16	704	0.2+	0.1−
1995 06 22	327	0.1−	0.1−	1999 02 12	704	0.3+	0.1−	1999 02 16	704	0.7+	0.2+
1995 06 26	327	0.0	0.3−	1999 02 12	704	0.4+	0.1+	1999 02 16	704	0.2+	0.3+
1995 06 26	327	0.2−	0.2+	1999 02 12	704	0.3−	0.3−	1999 02 18	566	0.1+	0.0
1995 06 26	327	0.1+	0.7+	1999 02 12	704	0.1−	0.4+	1999 02 18	566	0.1+	0.1+
1995 06 26	327	0.0	0.1+	1999 02 12	704	0.9−	0.2+	1999 02 18	566	0.1+	0.0

1999 CZ₇₄ = 1991 RM₁₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	5.33507	(2000.0)		P		Q	
<i>n</i>	0.18797970	ω	291.57831	−0.74530361		−0.66150861	
<i>a</i>	3.0180661	Ω	207.22091	+0.65899010		−0.71193049	
<i>e</i>	0.0646804	<i>i</i>	10.48489	+0.10126491		−0.23571452	
<i>P</i>	5.24	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 09 14	675	0.1+	0.3−	1999 02 12	704	0.0	0.2−	1999 02 16	704	0.7−	0.4+
1991 09 14	675	0.1+	0.6+	1999 02 12	704	0.9−	0.1+	1999 02 16	704	0.2−	0.6−
1991 09 17	675	0.1+	0.0	1999 02 12	704	0.8−	0.7+	1999 02 23	699	0.6+	0.4−
1991 09 17	675	0.2−	0.5−	1999 02 16	704	0.1−	1.6−	1999 02 23	699	0.6−	0.1+
1999 02 12	704	1.3+	0.1−	1999 02 16	704	1.4+	0.4−	1999 02 23	699	0.6+	0.5−
1999 02 12	704	0.2−	0.8+	1999 02 16	704	0.4−	1.6+				

1999 CA₇₆ = 1990 UF₈ = 1990 UY₉ = 1996 FR₁₉Id. A. Doppler, G. V. Williams (d, *MPC* 19057)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
<i>M</i>	213.78742	(2000.0)		P		Q	
<i>n</i>	0.28290495	ω	124.62129	+0.49345869		+0.86973376	
<i>a</i>	2.2981358	Ω	174.92793	−0.82425840		+0.47050256	
<i>e</i>	0.1635083	<i>i</i>	5.09771	−0.27766278		+0.14896486	
<i>P</i>	3.48	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 10 20	809	1.1+	0.8+	1996 03 26	809	(2.4−	0.5+)	1999 02 16	704	0.1−	0.2+
1990 10 20	809	0.3−	1.1+	1996 03 26	809	1.1−	0.5−	1999 02 16	704	0.2+	0.7−

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1990 10 20	809	0.5+	0.9+	1999 02 12	699	0.9-	0.4+	1999 02 16	704	0.3+	0.1-
1990 10 24	809	0.3-	1.2-	1999 02 12	704	0.0	0.8+	1999 02 16	704	0.4-	0.7-
1990 10 24	809	0.2+	0.4-	1999 02 12	699	0.1-	0.2+	1999 02 16	704	0.7-	0.0
1990 10 24	809	1.3-	0.9-	1999 02 12	704	0.6+	1.5-	1999 02 18	566	0.3+	0.1+
1996 03 24	809	1.2+	0.2+	1999 02 12	704	0.3-	0.5+	1999 02 18	566	0.8+	0.1+
1996 03 24	809	0.9+	0.1-	1999 02 12	699	0.3-	1.2+	1999 02 18	566	0.5+	0.1+
1996 03 24	809	0.6+	1.1+	1999 02 12	704	1.8+	1.6-				
1996 03 26	809	1.5-	0.2-	1999 02 12	704	1.7-	0.7+				

1999 CZ₇₆ = 1997 WU₄₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	198.77399		(2000.0)	P	Q
<i>n</i>	0.26083659	ω	43.23820	+0.66704210	+0.74065050
<i>a</i>	2.4259976	Ω	268.77253	-0.70362315	+0.59073591
<i>e</i>	0.1411263	<i>i</i>	4.62245	-0.24488631	+0.32010612
<i>P</i>	3.78	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 11 22	327	0.7-	0.1+	1999 02 12	704	0.2-	1.6-	1999 02 16	704	0.1-	0.1-
1997 11 22	327	0.4-	0.0	1999 02 12	704	0.6+	0.1-	1999 02 16	704	0.7+	1.0-
1997 11 22	327	0.6-	0.1+	1999 02 12	704	0.8-	0.4+	1999 02 16	704	0.6-	0.2-
1997 11 29	704	0.2+	0.2+	1999 02 12	704	0.3+	1.3+	1999 02 21	699	0.6-	0.2+
1997 11 29	704	1.6+	0.8+	1999 02 12	704	0.9+	0.8+	1999 02 21	699	0.6-	0.7+
1997 11 29	704	0.4+	0.9-	1999 02 16	704	0.4+	0.7+	1999 02 21	699	0.2-	0.7-
1997 11 29	704	0.6-	0.3-	1999 02 16	704	0.3+	0.4-				

1999 CD₇₇ = 1996 FX₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	273.76300		(2000.0)	P	Q
<i>n</i>	0.31164119	ω	5.82321	-0.49621252	+0.86680392
<i>a</i>	2.1545975	Ω	234.43704	-0.79898165	-0.47810501
<i>e</i>	0.0966674	<i>i</i>	3.46991	-0.33970790	-0.14165648
<i>P</i>	3.16	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1996 03 23	566	0.1+	0.2+	1999 02 12	704	0.2+	0.5+	1999 02 16	704	0.6+	0.4+
1996 03 23	566	0.1-	0.1-	1999 02 12	704	0.6-	0.7-	1999 02 16	704	0.5+	0.0
1996 03 23	566	0.1-	0.0	1999 02 12	704	0.8-	0.5-	1999 02 21	699	0.1+	0.3+
1996 03 24	566	0.3+	0.0	1999 02 12	704	0.7-	0.6-	1999 02 21	699	0.2-	0.8+
1996 03 24	566	0.1-	0.1+	1999 02 16	704	0.7+	0.3-	1999 02 21	699	0.1-	0.4-
1996 03 24	566	0.2-	0.2-	1999 02 16	704	0.3-	0.1-				
1999 02 12	704	0.7+	0.6+	1999 02 16	704	0.1-	0.1+				

1999 CG₇₇ = 1996 FH₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	316.76191		(2000.0)	P	Q
<i>n</i>	0.30064311	ω	3.47409	-0.96066699	+0.27691755
<i>a</i>	2.2068283	Ω	192.66151	-0.25702766	-0.91508585
<i>e</i>	0.1301947	<i>i</i>	5.46393	-0.10514616	-0.29314597
<i>P</i>	3.28	<i>H</i>	16.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 03 24	809	0.3-	2.4+	1999 02 12	704	0.3-	0.6+	1999 02 16	704	0.5-	0.8+
1996 03 24	809	0.4-	0.1+	1999 02 12	704	0.5+	1.6-	1999 02 16	704	0.5-	0.4-
1996 03 24	809	0.4+	0.1-	1999 02 12	704	1.4+	0.3+	1999 02 21	699	0.3+	0.2-
1996 03 27	809	0.5+	0.1-	1999 02 12	704	0.3+	0.6+	1999 02 21	699	0.6+	1.3-
1996 03 27	809	0.1-	0.4-	1999 02 16	704	0.3-	0.6+	1999 02 21	699	0.5+	0.2+
1996 03 27	809	0.1-	1.7-	1999 02 16	704	0.2-	0.3-				
1999 02 12	704	1.2-	0.3-	1999 02 16	704	0.6-	1.1+				

1999 CE₇₈ = 1991 CG₆ = 1991 EZ₈ = 1992 QC₁ = 1993 XJ₂ = 1997 XO₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	283.62777		(2000.0)	P	Q
<i>n</i>	0.24188424	ω	11.74843	-0.60324176	+0.79568952
<i>a</i>	2.5511207	Ω	221.18227	-0.73829375	-0.58298868
<i>e</i>	0.0948875	<i>i</i>	4.75363	-0.30169807	-0.16432404
<i>P</i>	4.07	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1991 02 10	675	0.3+	0.7-	1993 12 17	691	0.6-	0.0	1999 02 16	704	0.8-	0.3+
1991 02 10	675	0.3-	0.4-	1993 12 17	691	0.6-	0.1-	1999 02 16	704	0.4-	0.3-
1991 03 13	675	0.6-	1.2-	1997 12 05	910	0.7+	0.3-	1999 02 16	704	0.4-	0.3-
1991 03 13	675	0.3+	0.8-	1997 12 05	910	0.7+	0.2-	1999 02 16	704	0.5+	0.5-
1992 08 29	675	1.1+	0.6-	1997 12 05	910	0.7+	0.2-	1999 02 16	704	1.1-	1.0-
1992 08 29	675	0.2-	1.0-	1997 12 07	910	0.0	0.4-	1999 02 21	699	0.5+	0.1-
1992 09 01	675	0.1+	1.8-	1997 12 07	910	0.1+	0.4-	1999 02 21	699	0.4+	0.7+
1992 09 01	675	0.1-	0.9-	1997 12 07	910	0.0	0.4-	1999 02 21	699	0.1+	0.0
1993 12 14	691	0.1+	0.3-	1999 02 12	704	0.8+	0.5-	1999 03 22	699	0.1-	0.7+
1993 12 14	691	0.4+	0.3+	1999 02 12	704	0.8-	0.7-	1999 03 22	699	0.2-	1.0+
1993 12 14	691	0.1-	0.6+	1999 02 12	704	0.4+	0.2-	1999 03 22	699	0.0	0.0
1993 12 17	691	0.9-	0.1+	1999 02 12	704	0.2-	0.4-				

1999 CV₇₉ = 1992 YV₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	20.95870		(2000.0)	P	Q
<i>n</i>	0.17473142	ω	191.81281	-0.59164966	-0.79600591
<i>a</i>	3.1687553	Ω	294.59272	+0.75064104	-0.48610366
<i>e</i>	0.0515556	<i>i</i>	8.07776	+0.29408963	-0.36066304
<i>P</i>	5.64	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1992 12 24	691	0.2+	0.2+	1999 02 12	704	0.0	0.2-	1999 03 19	704	0.2-	0.2-
1992 12 24	691	0.0	0.1-	1999 02 12	704	0.4+	0.9-	1999 03 19	704	2.8-	0.9-
1992 12 24	691	0.2+	0.1+	1999 02 16	704	0.4-	0.2-	1999 03 20	704	0.9+	0.9+
1992 12 25	691	0.1-	0.1-	1999 02 16	704	0.4-	0.6+	1999 03 20	704	1.3+	0.1+
1992 12 25	691	0.1-	0.2+	1999 02 16	704	0.4-	0.3+	1999 03 20	704	0.2+	2.0+
1992 12 25	691	0.1-	0.2-	1999 02 16	704	0.2+	0.5+	1999 03 20	704	0.2-	0.5+
1999 02 12	704	0.1+	0.2-	1999 02 16	704	0.4+	1.1+	1999 03 20	704	0.1+	1.3+
1999 02 12	704	1.0+	0.3-	1999 03 19	704	0.5-	2.3-				
1999 02 12	704	0.1+	0.7-	1999 03 19	704	0.2+	1.4-				

1999 CB₈₁ = 1977 FD₁ = 1990 WL₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	5.94892		(2000.0)	P	Q
<i>n</i>	0.26698205	ω	295.50843	-0.73035012	-0.68238877
<i>a</i>	2.3886252	Ω	201.50405	+0.65282720	-0.68414372
<i>e</i>	0.1400499	<i>i</i>	4.78311	+0.20101083	-0.25747415
<i>P</i>	3.69	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1977 03 25	095	0.5-	1.6-	1999 02 16	704	0.2-	0.2-	1999 03 19	704	0.1-	0.8-
1990 11 10	046	(0.2+	2.2-)	1999 02 16	704	0.1-	0.8-	1999 03 19	699	0.7+	0.1+
1990 11 10	046	0.1-	0.5-	1999 02 16	704	0.4-	1.4-	1999 03 20	704	0.6-	0.3+
1990 11 21	372	(6.2+	0.2-)	1999 02 16	704	0.0	1.9-	1999 03 20	704	0.6-	0.4+
1990 11 21	372	(1.4+	3.2+)	1999 02 21	699	0.8+	0.9+	1999 03 20	704	0.3-	0.9+
1990 11 23	372	0.7+	1.0+	1999 02 21	699	0.8+	0.7+	1999 03 20	704	0.3-	0.1+
1990 11 23	372	0.5-	0.7-	1999 02 21	699	0.9+	0.5+	1999 03 20	704	0.2+	0.2+
1999 02 12	704	0.2-	0.1-	1999 03 19	704	0.2-	0.2+	1999 03 23	699	0.4+	0.5+
1999 02 12	704	1.0-	0.5+	1999 03 19	704	0.5+	0.2+	1999 03 23	699	0.8-	0.8+
1999 02 12	704	0.1-	0.5-	1999 03 19	699	0.4+	0.4+	1999 03 23	699	0.5-	0.8+
1999 02 12	704	0.1+	0.1-	1999 03 19	704	0.3-	0.2-				
1999 02 16	704	0.4+	0.2+	1999 03 19	699	0.7+	0.2-				

1999 CJ₈₁ = 1985 VD₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23657080	ω	194.52956	+0.55634080	−0.82925538		
<i>a</i>	2.5891783	Ω	221.70404	+0.77013043	+0.53856589		
<i>e</i>	0.2897536	<i>i</i>	4.57864	+0.31206415	+0.14927258		
<i>P</i>	4.17	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1985 11 07	675	0.8−	0.6−	1999 02 14	699	0.5+	0.2+	1999 03 19	704	0.5−	0.7−
1985 11 07	675	2.4−	0.4−	1999 02 14	699	1.2+	0.8+	1999 03 19	704	0.0	0.5−
1985 11 10	095	2.0+	1.4−	1999 02 16	704	0.2+	0.4+	1999 03 20	704	0.8−	0.4+
1985 11 20	095	1.1+	2.2+	1999 02 16	704	0.6−	0.3+	1999 03 20	704	0.4−	0.3+
1999 02 12	704	0.5−	0.5+	1999 02 16	704	0.3−	0.3+	1999 03 20	704	0.2−	0.3+
1999 02 12	704	0.5−	0.3+	1999 02 16	704	0.8−	0.9−	1999 03 20	704	0.5−	0.3−
1999 02 12	704	0.5+	0.6−	1999 02 16	704	0.9−	0.4−	1999 03 20	704	0.3+	0.4+
1999 02 12	704	2.0−	0.1+	1999 03 19	704	2.1+	2.3−				
1999 02 14	699	2.2+	1.1+	1999 03 19	704	0.7+	0.1−				

1999 CL₈₁ = 1991 TA₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18369750	ω	269.45931	−0.20782385	−0.97728010		
<i>a</i>	3.0647888	Ω	192.76735	+0.95557846	−0.19374816		
<i>e</i>	0.1053530	<i>i</i>	10.85745	+0.20899533	−0.08593752		
<i>P</i>	5.37	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 10 07	033	0.2−	0.6−	1999 02 14	699	1.1+	0.1+	1999 03 19	704	0.6+	0.4−
1991 10 07	033	0.1−	0.1+	1999 02 14	699	1.0+	0.5+	1999 03 19	704	0.5+	1.1−
1991 10 08	033	0.4+	0.3+	1999 02 16	704	0.6−	0.3−	1999 03 20	704	0.5−	0.2+
1999 02 12	704	0.7−	0.5+	1999 02 16	704	0.1+	0.7−	1999 03 20	704	0.0	0.5−
1999 02 12	704	1.5−	1.0+	1999 02 16	704	0.3+	1.2−	1999 03 20	704	0.6−	0.0
1999 02 12	704	1.2−	0.1+	1999 02 16	704	0.1+	0.8−	1999 03 20	704	0.3−	0.6+
1999 02 12	704	0.6−	1.5+	1999 03 19	704	0.5−	0.6+	1999 03 20	704	1.3+	0.3+
1999 02 14	699	0.5+	0.1−	1999 03 19	704	0.9+	0.4−				

1999 CY₈₂ = 1994 CM₁₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18013397	ω	51.45957	+0.65280748	−0.75750211		
<i>a</i>	3.1050764	Ω	357.76172	+0.64123434	+0.55661188		
<i>e</i>	0.1649937	<i>i</i>	8.45198	+0.40331243	+0.34113599		
<i>P</i>	5.47	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 02 07	809	0.8+	0.2−	1999 01 22	699	0.3+	0.3+	1999 02 12	699	0.0	0.9+
1994 02 07	809	0.5+	0.4+	1999 01 22	699	0.4−	0.0	1999 02 12	699	0.1+	0.2−
1994 02 07	809	1.3−	0.0	1999 02 10	704	0.9−	0.5−	1999 02 13	704	0.6+	0.9−
1994 02 12	809	0.8+	0.6+	1999 02 10	704	0.5+	1.3+	1999 02 13	704	1.3−	1.2+
1994 02 12	809	0.6−	0.5−	1999 02 10	704	0.2−	0.1−	1999 02 13	704	1.1+	1.3−
1994 02 12	809	0.3−	0.3−	1999 02 10	704	0.5−	0.1−				
1999 01 22	699	0.4+	0.6−	1999 02 12	699	0.2+	0.0				

1999 CN₈₃ = 4160 P-L = 1985 SZ₂ = 1985 UP₅ = 1989 SZ₈

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23707882	ω	78.93955	+0.38408097	−0.92258318		
<i>a</i>	2.5854782	Ω	348.27391	+0.76180714	+0.33890652		
<i>e</i>	0.1955595	<i>i</i>	10.30626	+0.52166243	+0.18434380		
<i>P</i>	4.16	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1960 09 24	675	0.9+	0.4−	1989 09 25	809	0.6+	0.5−	1999 02 12	699	0.2−	0.3+
1960 09 25	675	0.5+	0.9−	1989 09 26	809	0.3−	0.1+	1999 02 12	699	0.4−	1.3+
1960 09 26	675	0.3−	0.3−	1989 09 26	809	0.1−	0.1+	1999 02 12	699	0.4−	0.2−
1985 09 19	095	0.4−	0.7+	1989 09 26	809	0.2+	0.1+	1999 02 13	704	1.3−	0.5−
1989 09 24	809	0.9−	0.7+	1999 02 10	704	0.3+	0.1−	1999 02 13	704	0.4+	0.0
1989 09 24	809	0.3−	0.7+	1999 02 10	704	0.2+	0.1−	1999 02 13	704	0.3+	0.6+
1989 09 24	809	0.2+	0.7+	1999 02 10	704	0.4+	0.4−	1999 02 13	704	(2.5−	2.5−)
1989 09 25	809	0.3−	0.4−	1999 02 10	704	1.0+	0.1+				
1989 09 25	809	0.1+	0.4−	1999 02 10	704	0.4−	0.8−				

1999 CO₈₄ = 1993 SG₆ = 1995 BU₁₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24273662	ω	138.30278	−0.89365795	−0.44792625		
<i>a</i>	2.5451449	Ω	15.15417	+0.37931950	−0.78634529		
<i>e</i>	0.1848910	<i>i</i>	5.96303	+0.23977529	−0.42546816		
<i>P</i>	4.06	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 09 17	809	0.6+	0.2−	1995 02 03	033	0.2+	0.0	1999 02 10	704	0.6−	0.0
1993 09 17	809	0.3−	1.0−	1999 01 22	699	0.2+	0.3−	1999 02 13	704	0.5+	0.4−
1993 09 17	809	1.0−	1.7−	1999 01 22	699	0.2+	0.1−	1999 02 13	704	0.1+	0.2+
1993 09 18	809	1.2+	1.3+	1999 01 22	699	0.5+	0.2−	1999 02 13	704	0.7+	0.8+
1993 09 18	809	0.3+	0.7+	1999 02 10	704	0.1−	0.3−	1999 02 13	704	1.0−	0.3−
1993 09 18	809	1.0−	1.1+	1999 02 10	704	0.1−	0.0	1999 02 13	704	0.3+	0.3+
1995 01 31	033	0.1−	0.1+	1999 02 10	704	0.1−	0.1+				
1995 01 31	033	0.1+	0.4+	1999 02 10	704	0.9−	0.5−				

1999 CF₈₅ = 1989 XS

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22924936	ω	316.52464	+0.36656666	−0.92720355		
<i>a</i>	2.6440153	Ω	111.83586	+0.87470219	+0.31525697		
<i>e</i>	0.1507397	<i>i</i>	4.75561	+0.31705671	+0.20225387		
<i>P</i>	4.30	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1989 12 02	372	0.8−	0.5+	1998 12 14	303	0.9+	0.4+	1999 02 13	704	0.2+	0.6−
1989 12 04	372	0.9+	0.5−	1998 12 14	303	0.7+	0.0	1999 02 13	704	0.7+	0.8+
1998 12 11	303	0.1+	0.0	1999 02 10	704	0.2+	0.2−	1999 02 13	704	0.7−	0.9−
1998 12 12	303	0.0	0.2+	1999 02 10	704	0.2−	0.1+	1999 02 13	704	0.3−	0.3+
1998 12 13	303	1.7−	0.5−	1999 02 10	704	0.0	0.4+				

1999 CQ₈₅ = 1996 GD₁₅

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29636233	ω	33.83889	−0.26473181	−0.95943815		
<i>a</i>	2.2280284	Ω	71.67636	+0.86059142	−0.28040984		
<i>e</i>	0.1315459	<i>i</i>	5.86055	+0.43508559	−0.02913334		
<i>P</i>	3.33	<i>H</i>	16.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 04 13	691	0.9−	0.5−	1999 02 10	704	0.8+	0.0	1999 02 13	704	0.7+	1.9+
1996 04 13	691	1.0−	0.5−	1999 02 10	704	0.1+	1.6−	1999 02 13	704	0.9+	0.1+
1996 04 13	691	0.7−	0.6−	1999 02 10	704	1.0−	0.4−	1999 02 19	566	0.4−	0.6+
1996 04 21	691	1.6+	0.5+	1999 02 10	704	0.1+	0.3−	1999 02 19	566	0.2+	0.5+
1996 04 21	691	0.5+	0.6+	1999 02 10	704	1.2−	0.7−	1999 02 19	566	0.1−	0.9+
1996 04 21	691	0.5+	0.4+	1999 02 13	704	0.0	0.8−				

1999 CW₈₅ = 1958 VE = 1984 QS₁ = 1984 SC₃

Id. A. Doppler

1999 APR. 2

M.P.C. 34253

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30112011	ω	350.84322	+0.74343421	+0.66700695		
<i>a</i>	2.2044971	Ω	327.15126	−0.60775239	+0.64312157		
<i>e</i>	0.2169102	<i>i</i>	5.18971	−0.27918203	+0.37616003		
<i>P</i>	3.27	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1958 11 11	760	0.8+	0.2−	1999 01 22	699	0.2−	0.5−	1999 02 13	704	0.6+	0.2+
1958 11 11	760	1.1−	1.1+	1999 02 10	704	0.6+	0.3−	1999 02 13	704	0.2+	0.5+
1984 08 31	688	1.2−	0.7+	1999 02 10	704	0.6+	0.1−	1999 02 13	704	0.6+	0.3−
1984 08 31	688	0.7−	0.8+	1999 02 10	704	0.6−	0.4−	1999 02 19	566	0.5−	1.8−
1984 09 28	688	1.4+	0.5+	1999 02 10	704	0.5+	0.7−	1999 02 19	566	1.3−	0.0
1984 09 28	688	0.4+	0.1+	1999 02 10	704	0.6+	0.4−	1999 02 19	566	0.6−	0.5+
1984 09 28	688	0.2+	1.5−	1999 02 11	699	1.2+	0.8+	1999 02 23	699	0.0	1.1+
1984 09 28	688	0.2+	1.0−	1999 02 11	699	0.1−	0.2+	1999 02 23	699	1.0−	0.5+
1999 01 22	699	0.5−	0.7−	1999 02 11	699	1.3+	0.7+	1999 02 23	699	0.1−	0.8+
1999 01 22	699	0.1−	0.7−	1999 02 13	704	1.6−	0.7+				

1999 CJ₈₆ = 1992 ET₂₉ = 1997 UF₁₇

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27161638	ω	232.21971	−0.42726252	+0.90409325		
<i>a</i>	2.3613775	Ω	12.49353	−0.81764538	−0.38265837		
<i>e</i>	0.1763860	<i>i</i>	2.08801	−0.38587921	−0.19023133		
<i>P</i>	3.63	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 03 03	809	0.2−	0.7−	1997 11 02	691	0.1−	0.2−	1999 02 13	704	1.4−	1.2+
1992 03 07	809	0.2+	0.1−	1997 11 02	691	0.4−	0.0	1999 02 13	704	2.0+	1.0−
1992 04 06	809	0.4−	0.2−	1999 02 10	704	0.1−	0.0	1999 02 13	704	0.9+	0.8+
1997 10 25	691	0.5+	0.1−	1999 02 10	704	1.4+	1.3+	1999 02 13	704	0.4−	0.6−
1997 10 25	691	0.5+	0.2+	1999 02 10	704	1.1−	0.7+	1999 02 18	566	0.4−	0.1+
1997 10 25	691	0.1−	0.4−	1999 02 10	704	0.1−	0.6−	1999 02 18	566	0.1+	0.0
1997 11 02	691	0.3−	0.2−	1999 02 13	704	0.4−	1.1−	1999 02 18	566	0.4−	0.1+

1999 CB₉₀ = 1996 KM₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28383212	ω	120.33750	−0.98127615	+0.13662146		
<i>a</i>	2.2931283	Ω	67.80735	−0.18355555	−0.87687648		
<i>e</i>	0.1146536	<i>i</i>	8.43142	+0.05834797	−0.46089285		
<i>P</i>	3.47	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 05 22	809	(2.5−	0.3−)	1999 02 10	704	0.3+	1.6−	1999 02 13	704	0.2−	0.0
1996 05 22	809	1.6−	0.2+	1999 02 10	704	0.9−	0.3−	1999 02 18	699	0.7+	0.7+
1996 05 22	809	1.6−	0.0	1999 02 10	704	0.6−	1.1+	1999 02 18	699	0.3+	0.5+
1996 05 23	809	1.2+	0.2−	1999 02 10	704	0.3−	1.2+	1999 02 18	699	0.1−	0.1−
1996 05 23	809	1.0+	0.6−	1999 02 10	704	0.3−	1.2+	1999 02 18	566	0.3−	0.6−
1996 05 23	809	1.1+	0.6+	1999 02 13	704	0.8+	0.3−	1999 02 18	566	0.0	0.6−
1999 01 09	699	0.8+	0.1−	1999 02 13	704	0.2+	0.4−	1999 02 18	566	0.4−	0.7−
1999 01 09	699	0.2−	0.6−	1999 02 13	704	0.1+	0.1+				
1999 01 09	699	0.3−	0.3+	1999 02 13	704	0.3+	0.0				

1999 CG₉₀ = 1992 PL₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22918542	ω	349.97366	+0.66093953	+0.73397405		
<i>a</i>	2.6445070	Ω	321.13541	−0.67010893	+0.48346357		
<i>e</i>	0.1432699	<i>i</i>	14.42714	−0.33780611	+0.47701685		
<i>P</i>	4.30	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1992 08 01	809	1.6−	0.3+	1992 08 04	809	0.7+	1.2−	1999 02 12	699	0.1+	0.3−
1992 08 01	809	1.2−	0.4+	1992 08 04	809	1.1+	1.4−	1999 02 12	699	0.1−	2.1−
1992 08 01	809	0.8−	0.1+	1999 02 10	704	0.6−	0.9−	1999 02 12	699	0.9+	0.8−
1992 08 02	809	0.4+	0.8+	1999 02 10	704	0.1+	0.8+	1999 02 13	704	0.1−	1.2+
1992 08 02	809	0.6+	0.6+	1999 02 10	704	0.2−	0.7+	1999 02 13	704	1.0−	0.9+
1992 08 02	809	1.0+	0.7+	1999 02 10	704	0.1+	0.6+	1999 02 13	704	0.0	0.6+
1992 08 04	809	0.4+	1.1−	1999 02 10	704	0.2+	0.2−	1999 02 13	704	0.1−	1.4−

1999 CK₉₁ = 1997 TE₁

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28186999	ω	117.50689	+0.08913868	−0.99480469		
<i>a</i>	2.3037578	Ω	327.26474	+0.87874693	+0.10178866		
<i>e</i>	0.1197074	<i>i</i>	5.21725	+0.46889031	−0.00164408		
<i>P</i>	3.50	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 03	910	0.1+	0.1+	1999 02 10	704	0.1+	0.4+	1999 02 13	704	0.5−	0.2+
1997 10 03	910	0.1−	0.1−	1999 02 10	704	0.2+	0.2+	1999 02 13	704	0.7−	0.7+
1997 10 03	910	0.1−	0.2+	1999 02 10	704	0.9+	0.4−	1999 02 16	691	0.5−	0.1+
1997 10 04	910	0.1−	0.2−	1999 02 10	704	0.2+	1.1+	1999 02 16	691	(2.7+	3.5+)
1997 10 04	910	0.1+	0.1+	1999 02 12	699	0.5+	0.3+	1999 02 16	691	0.6−	0.0
1997 10 04	910	0.1+	0.1−	1999 02 12	699	0.8+	0.8+	1999 02 18	566	0.2+	0.9−
1999 01 13	699	0.4−	0.1−	1999 02 12	699	0.5+	0.2−	1999 02 18	566	0.1+	1.0−
1999 01 13	699	0.2+	0.5−	1999 02 13	704	0.5−	0.2−	1999 02 18	566	0.8+	1.5−
1999 01 13	699	0.1−	0.2−	1999 02 13	704	1.4−	0.9+				
1999 02 10	704	0.3+	0.0	1999 02 13	704	0.0	0.1+				

1999 CH₉₂ = 1996 FP₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27075100	ω	354.78725	+0.70257348	−0.70557983		
<i>a</i>	2.3664064	Ω	50.53826	+0.65714195	+0.59344593		
<i>e</i>	0.1051340	<i>i</i>	6.87770	+0.27304754	+0.38727126		
<i>P</i>	3.64	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 03 24	809	0.5−	0.5+	1999 02 10	704	0.3−	0.6+	1999 03 12	557	0.2+	0.5−
1996 03 24	809	0.7−	0.1+	1999 02 10	704	0.1+	0.7+	1999 03 13	557	0.1+	0.2−
1996 03 24	809	1.4−	0.2−	1999 02 10	704	2.3−	2.2−	1999 03 13	557	0.4−	0.4+
1996 03 26	809	1.3+	0.4+	1999 02 13	704	0.3−	0.0	1999 03 13	557	0.1+	0.2−
1996 03 26	809	1.0+	0.2+	1999 02 13	704	1.2−	1.6+	1999 03 13	557	0.0	0.2−
1996 03 26	809	0.3+	1.0−	1999 02 13	704	1.6+	0.4−	1999 03 17	557	0.3+	0.7+
1999 02 10	704	0.8+	0.5−	1999 02 13	704	1.2+	0.6+				
1999 02 10	704	0.0	0.1+	1999 02 13	704	0.1+	0.4−				

1999 CU₉₂ = 1997 SM₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22032213	ω	47.27326	−0.26414265	−0.96138470		
<i>a</i>	2.7149633	Ω	58.19635	+0.85621098	−0.27060950		
<i>e</i>	0.0778783	<i>i</i>	5.21548	+0.44399485	−0.05009941		
<i>P</i>	4.47	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 09 25	721	1.4−	0.3+	1999 02 10	704	0.3+	0.3+	1999 02 13	704	1.0−	0.9+
1997 09 25	721	0.5+	0.0	1999 02 12	699	0.2+	0.4−	1999 02 13	704	0.6−	0.1−
1997 09 26	721	1.2−	0.6−	1999 02 12	699	0.2+	0.2+	1999 02 18	566	0.3+	0.2+
1997 09 26	721	2.1+	0.3+	1999 02 12	699	0.1+	0.3+	1999 02 18	566	0.1−	0.1−
1999 02 10	704	0.3+	0.6−	1999 02 13	704	0.2−	0.7−	1999 02 18	566	0.2+	0.4−
1999 02 10	704	0.2+	0.5+	1999 02 13	704	0.8−	0.2+				
1999 02 10	704	0.2+	0.8−	1999 02 13	704	0.6+	0.4+				

1999 CV₉₃ = 1997 UC₁₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	273.58013	(2000.0)		P	Q		
<i>n</i>	0.24020866	ω	140.42599	−0.52376823	+0.84995843		
<i>a</i>	2.5629705	Ω	97.91853	−0.79540322	−0.46405125		
<i>e</i>	0.1076213	<i>i</i>	3.29328	−0.30495993	−0.24945362		
<i>P</i>	4.10	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 25	691	0.2−	0.1+	1998 11 30	910	0.1−	0.1−	1999 02 12	699	0.1−	0.2+
1997 10 25	691	0.1+	0.4+	1999 02 10	704	(2.6+	0.8−)	1999 02 13	704	0.4−	0.5−
1997 10 25	691	0.0	0.1−	1999 02 10	704	0.2+	0.7+	1999 02 13	704	0.5+	0.1−
1997 11 01	691	0.1+	0.1−	1999 02 10	704	0.1+	0.8+	1999 02 13	704	0.2+	0.4−
1997 11 01	691	0.1+	0.1−	1999 02 10	704	0.7+	0.9+	1999 02 13	704	0.1+	0.7−
1997 11 01	691	0.1−	0.1−	1999 02 10	704	1.4−	0.9+	1999 02 13	704	0.2+	0.0
1998 11 30	910	0.1+	0.4−	1999 02 12	699	0.1−	0.8−				
1998 11 30	910	0.1−	0.3−	1999 02 12	699	0.1+	0.3−				

1999 CX₉₆ = 1976 UR₁ = 1990 VM₈ = 1997 UO₂₂

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	169.16178	(2000.0)		P	Q		
<i>n</i>	0.28158623	ω	332.84192	+0.88417285	+0.46715915		
<i>a</i>	2.3053053	Ω	359.30635	−0.41501670	+0.78465635		
<i>e</i>	0.1951540	<i>i</i>	3.98146	−0.21447498	+0.40752514		
<i>P</i>	3.50	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1976 10 26	095	0.0	0.3+	1997 10 29	098	0.4−	1.4+	1999 02 13	704	1.2−	0.2−
1990 11 10	046	1.1−	0.2+	1997 10 29	098	0.1−	1.0−	1999 02 13	704	0.6+	0.5+
1990 11 10	046	1.1−	1.1−	1999 02 10	704	1.4+	1.0−	1999 02 13	704	0.1−	1.2+
1990 11 15	400	0.7+	1.2+	1999 02 10	704	0.1−	0.3+	1999 02 18	566	0.2−	0.9+
1990 11 15	400	0.9+	0.0	1999 02 10	704	0.8+	1.1−	1999 02 18	566	0.3−	0.6+
1997 10 26	098	0.4−	0.4+	1999 02 10	704	0.7−	0.2−	1999 02 18	566	0.2−	0.9+
1997 10 26	098	1.4+	1.2−	1999 02 10	704	0.1−	2.0−				

1999 CA₉₇ = 1976 UG₁₀ = 1991 RR₁₅

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	198.87914	(2000.0)		P	Q		
<i>n</i>	0.19299613	ω	146.51119	+0.63612600	+0.77151041		
<i>a</i>	2.9655390	Ω	162.98427	−0.71572874	+0.59521935		
<i>e</i>	0.0824295	<i>i</i>	2.10378	−0.28822922	+0.22469005		
<i>P</i>	5.11	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1976 10 22	381	0.5−	1.0+	1999 02 10	704	0.9−	0.0	1999 02 18	566	0.5−	0.8−
1976 10 22	381	0.1−	0.7+	1999 02 14	691	0.1−	0.1−	1999 02 23	691	1.0−	0.3−
1976 10 24	381	0.4−	1.1+	1999 02 14	691	0.0	0.2−	1999 02 23	691	1.0−	0.4−
1991 09 11	675	1.5+	0.7−	1999 02 14	691	0.0	0.2−	1999 02 23	691	1.0−	0.3−
1991 09 11	675	0.0	1.8−	1999 02 16	704	0.2−	0.1+	1999 02 23	699	0.7+	0.4−
1991 09 15	675	0.0	1.3−	1999 02 16	704	0.7+	0.1+	1999 02 23	699	1.1+	0.1+
1991 09 15	675	0.8+	1.9−	1999 02 16	704	0.1−	0.3+	1999 02 23	699	1.2+	0.2−
1999 02 10	704	0.0	0.3−	1999 02 16	704	0.0	0.6+	1999 03 20	691	0.1+	0.9−

1999 02 10	704	0.0	0.2+	1999 02 16	704	0.4+	1.2+	1999 03 20	691	0.0	0.8−
1999 02 10	704	0.0	0.9+	1999 02 18	566	0.5−	0.9−	1999 03 20	691	0.1+	1.0−
1999 02 10	704	(1.1−	2.1+)	1999 02 18	566	0.6−	0.8−				

1999 CD₉₇ = 1992 OW₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	110.98600	(2000.0)		P	Q		
<i>n</i>	0.22666741	ω	52.54155	+0.89045448	−0.45405796		
<i>a</i>	2.6640559	Ω	334.42097	+0.39215790	+0.79949260		
<i>e</i>	0.0617449	<i>i</i>	4.03324	+0.23087444	+0.39324667		
<i>P</i>	4.35	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1992 07 24	809	1.7+	0.0	1999 02 10	704	0.4−	0.3+	1999 02 18	566	0.4−	0.1+
1992 07 24	809	0.1+	1.7−	1999 02 10	704	0.1−	0.1+	1999 03 06	691	0.3−	0.2+
1992 07 24	809	0.3−	0.6−	1999 02 12	699	1.0+	0.2+	1999 03 06	691	0.5−	0.1+
1992 07 26	809	0.2+	0.7−	1999 02 12	699	0.8+	0.8+	1999 03 06	691	0.5−	0.0
1992 07 26	809	0.5+	0.4−	1999 02 12	699	1.0+	0.4+	1999 03 12	691	0.6+	0.2−
1992 07 26	809	0.0	0.3−	1999 02 13	704	0.0	0.5−	1999 03 12	691	0.8+	0.2−
1992 07 30	809	0.2−	0.8+	1999 02 13	704	0.3−	0.4−	1999 03 12	691	0.4+	0.0
1992 07 30	809	0.6−	1.8+	1999 02 13	704	0.5−	0.1−	1999 03 20	691	0.1−	0.2+
1992 07 30	809	1.4−	1.4+	1999 02 13	704	0.3−	0.4−	1999 03 20	691	0.0	0.1−
1999 02 10	704	0.1−	0.4−	1999 02 13	704	0.4+	0.2−	1999 03 20	691	0.0	0.0
1999 02 10	704	0.3−	0.5+	1999 02 18	566	0.1−	0.0				
1999 02 10	704	0.3−	0.0	1999 02 18	566	0.3−	0.0				

1999 CE₉₇ = 1992 JK₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	241.56924	(2000.0)		P	Q		
<i>n</i>	0.26263087	ω	151.79111	+0.13967711	+0.98972858		
<i>a</i>	2.4149355	Ω	126.22233	−0.91543915	+0.14079514		
<i>e</i>	0.1702894	<i>i</i>	2.16364	−0.37744068	+0.02478017		
<i>P</i>	3.75	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 05 04	691	0.6+	0.1+	1999 02 10	704	(2.5+	1.7+)	1999 02 18	566	0.0	0.2−
1992 05 04	691	0.5+	0.1+	1999 02 10	704	(1.6+	2.8+)	1999 02 18	566	0.3−	0.1+
1992 05 06	691	0.4−	0.3−	1999 02 13	704	0.7+	0.2−	1999 03 10	691	0.1+	0.5−
1992 05 06	691	0.1−	0.4−	1999 02 13	704	0.4−	0.5−	1999 03 10	691	0.2+	0.1+
1992 05 06	691	0.7−	0.4+	1999 02 13	704	(2.0−	0.7−)	1999 03 10	691	0.1−	0.7+
1999 02 10	704	0.3−	0.1+	1999 02 13	704	(2.9−	0.7+)				
1999 02 10	704	0.2+	0.1+	1999 02 18	566	0.2−	0.3+				

1999 CZ₉₇ = 1996 FD₂₂

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	66.11156	(2000.0)		P	Q		
<i>n</i>	0.28412016	ω	26.60753	+0.39831753	−0.91654057		
<i>a</i>	2.2915782	Ω	39.94770	+0.83125203	+0.34410009		
<i>e</i>	0.0945660	<i>i</i>	3.21474	+0.38776695	+0.20383450		
<i>P</i>	3.47	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1996 03 24	809	0.4−	1.1+	1999 02 10	704	0.4+	1.3+	1999 02 13	704	1.2−	0.8−
1996 03 24	809	0.0	0.6+	1999 02 10	704	1.0−	0.7−	1999 02 19	566	0.3−	0.2−
1996 03 24	809	(0.6+	2.4+)	1999 02 10	704	0.5+	0.7+	1999 02 19	566	0.1−	0.0
1996 03 27	809	0.9+	0.6−	1999 02 10	704	1.0+	1.4+	1999 02 19	566	0.2−	0.6+
1996 03 27	809	0.5−	0.5−	1999 02 10	704	0.3−	0.4+	1999 02 23	699	0.3−	0.8+
1996 03 27	809	0.1−	0.9−	1999 02 13	704	1.5+	0.8−	1999 02 23	699	0.2−	0.1−
1998 11 30	910	0.5−	0.1+	1999 02 13	704	0.6+	1.2−	1999 02 23	699	0.1+	0.7+
1998 11 30	910	0.2−	0.7−	1999 02 13	704	0.3−	0.3−				
1998 11 30	910	0.4+	0.2−	1999 02 13	704	0.1+	1.1−				

1999 APR. 2

M.P.C. 34255

1999 CA₉₈ = 1993 BQ = 1994 HP₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	16.26838	(2000.0)	P	Q
<i>n</i>	0.17897064	ω 77.17008	-0.52109977	-0.85285273
<i>a</i>	3.1185175	Ω 44.28744	+0.76351724	-0.48315742
<i>e</i>	0.1694566	<i>i</i> 2.71908	+0.38143998	-0.19799274
<i>P</i>	5.51	<i>H</i> 14.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1993 01 16	010	0.0	0.3+	1994 04 19	691	0.2+	0.3-	1999 02 13	704	0.3-	0.9+
1993 01 16	010	0.2+	0.1+	1994 04 20	691	0.1-	0.1-	1999 02 13	704	0.5+	0.1+
1993 01 16	010	0.0	0.4+	1994 04 20	691	0.0	0.1-	1999 02 13	704	3.0-	1.4-
1993 01 17	010	0.1+	0.4-	1994 04 20	691	0.2-	0.0	1999 02 13	704	0.7-	0.7-
1993 01 17	010	0.1-	0.7-	1999 02 10	704	0.5-	1.0-	1999 02 13	704	1.4-	0.2+
1993 01 17	010	0.0	0.1-	1999 02 10	704	1.2+	1.3-	1999 02 23	699	1.0-	0.2+
1994 04 19	691	0.0	0.1-	1999 02 10	704	2.0+	1.6+	1999 02 23	699	0.4+	1.7+
1994 04 19	691	0.1-	0.1+	1999 02 10	704	2.3+	0.6+	1999 02 23	699	0.6+	0.6-

1999 CQ₉₈ = 1987 SV₁₀ = 1996 FR₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	57.45038	(2000.0)	P	Q
<i>n</i>	0.28611478	ω 2.01618	+0.35919925	-0.93148496
<i>a</i>	2.2809155	Ω 66.93668	+0.85537245	+0.30393336
<i>e</i>	0.1665731	<i>i</i> 3.58598	+0.37324774	+0.19990068
<i>P</i>	3.44	<i>H</i> 14.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1987 09 29	033	0.2-	0.0	1996 03 26	809	0.8+	0.6+	1999 02 13	704	0.1+	0.8-
1987 09 29	033	0.2+	0.2-	1996 03 26	809	0.8+	0.5+	1999 02 13	704	0.6-	0.4-
1987 09 30	033	0.0	0.3+	1996 03 26	809	0.8+	0.2+	1999 02 13	704	0.8+	0.0
1987 09 30	033	0.6-	0.9-	1999 02 10	704	0.2-	0.1+	1999 02 13	704	0.5+	0.3-
1987 10 01	033	0.6+	0.8+	1999 02 10	704	0.1-	0.5-	1999 02 13	704	0.7+	1.4-
1996 03 24	809	0.9-	0.5-	1999 02 10	704	0.6-	0.4-	1999 02 23	699	0.1+	0.9+
1996 03 24	809	0.5-	0.5-	1999 02 10	704	0.1-	0.1-	1999 02 23	699	0.9+	1.0+
1996 03 24	809	1.2-	0.6-	1999 02 10	704	1.1-	1.2+	1999 02 23	699	0.4-	0.9+

1999 CG₉₉ = 1980 FK₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	358.20743	(2000.0)	P	Q
<i>n</i>	0.25774645	ω 160.71469	-0.84984937	-0.52619763
<i>a</i>	2.4453494	Ω 347.40852	+0.46399425	-0.72046030
<i>e</i>	0.0799829	<i>i</i> 7.78557	+0.24993076	-0.45172227
<i>P</i>	3.82	<i>H</i> 15.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1980 03 16	809	0.4-	0.2-	1999 02 10	704	0.0	1.0+	1999 03 19	704	0.7+	0.5+
1980 03 16	809	0.3-	0.8-	1999 02 10	704	0.6+	1.2+	1999 03 19	704	0.6+	1.0-
1980 03 17	809	0.7+	0.5-	1999 02 13	704	1.3+	0.2-	1999 03 19	704	0.1-	0.3-
1980 03 17	809	0.4-	0.2+	1999 02 13	704	0.3-	1.1-	1999 03 19	704	1.5-	0.7+
1980 03 17	809	0.1+	0.9+	1999 02 13	704	1.2-	0.5-	1999 03 20	704	1.3+	0.4+
1980 03 17	809	0.4+	0.2-	1999 02 13	704	2.1-	0.8-	1999 03 20	704	0.7+	0.1+
1980 03 23	809	0.1-	0.3+	1999 02 18	699	0.0	0.7+	1999 03 20	704	0.3-	1.5+
1999 02 10	704	0.2-	0.2+	1999 02 18	699	1.4+	0.8+	1999 03 20	704	1.0-	0.7-
1999 02 10	704	0.1+	1.0-	1999 02 18	699	0.1+	0.1-	1999 03 20	704	0.0	1.1-

1999 CP₉₉ = 1993 RZ₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	294.71554	(2000.0)	P	Q
<i>n</i>	0.26843156	ω 232.03105	-0.72304855	+0.69072274
<i>a</i>	2.3800185	Ω 351.63904	-0.60990742	-0.64520820
<i>e</i>	0.0979061	<i>i</i> 4.00009	-0.32436666	-0.32650953
<i>P</i>	3.67	<i>H</i> 15.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1993 09 15	809	2.2+	1.2+	1993 09 18	675	0.3+	0.2-	1999 02 13	704	0.4-	0.0
1993 09 15	809	2.2+	0.7+	1999 02 10	704	0.1-	0.1+	1999 03 19	704	1.1+	0.3-
1993 09 15	809	0.5+	0.9+	1999 02 10	704	0.2+	0.8+	1999 03 19	704	0.5+	1.4-
1993 09 17	809	0.9+	0.3+	1999 02 10	704	1.0-	1.5+	1999 03 19	704	0.4+	0.4-
1993 09 17	809	0.7-	0.6-	1999 02 10	704	0.9+	0.5-	1999 03 20	704	0.9-	1.8+
1993 09 17	809	0.0	0.7-	1999 02 13	704	0.9+	2.3-	1999 03 20	704	0.5-	1.0+
1993 09 18	809	0.8+	0.2+	1999 02 13	704	1.5-	0.5-	1999 03 20	704	1.9-	1.0-
1993 09 18	809	3.0-	1.3-	1999 02 13	704	0.5+	1.3+	1999 03 20	704	0.9+	1.3+
1993 09 18	809	3.3-	0.3-	1999 02 13	704	0.2-	0.6-	1999 03 20	704	1.0+	0.7-

1999 CU₉₉ = 1997 WE₄₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	159.42338	(2000.0)	P	Q
<i>n</i>	0.20604469	ω 282.69276	+0.95563625	+0.27150041
<i>a</i>	2.8389763	Ω 61.65101	-0.19363613	+0.87128859
<i>e</i>	0.1116585	<i>i</i> 7.45735	-0.22195586	+0.40883214
<i>P</i>	4.78	<i>H</i> 14.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 11 29	704	0.2-	0.5-	1999 02 10	704	(2.7+	2.3-)	1999 02 13	704	(2.1-	0.3-)
1997 11 29	704	(1.5-	5.9-)	1999 02 10	704	0.3+	0.2-	1999 02 13	704	(2.9-	0.3-)
1997 11 29	704	(2.2-	2.8-)	1999 02 10	704	0.1+	0.6-	1999 02 14	327	0.3+	0.0
1997 11 29	704	0.4-	1.1-	1999 02 10	704	1.1+	0.3-	1999 02 14	327	0.6-	0.1-
1997 11 29	704	1.1-	0.5-	1999 02 12	327	0.4+	0.1-	1999 02 14	327	0.1-	0.4+
1997 12 04	704	1.1+	1.6-	1999 02 12	327	0.0	0.0	1999 02 19	566	0.1-	0.8+
1997 12 04	704	0.2+	1.8+	1999 02 12	327	0.5-	0.3+	1999 02 19	566	0.0	0.6+
1997 12 04	704	0.7-	1.5+	1999 02 13	704	0.6-	0.3-	1999 02 19	566	0.3-	0.1+
1997 12 04	704	0.6+	1.0+	1999 02 13	704	0.4-	0.3-				
1997 12 04	704	0.7+	0.6-	1999 02 13	704	0.1+	0.4-				

1999 CL₁₀₀ = 1990 EB₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	20.65995	(2000.0)	P	Q
<i>n</i>	0.22000279	ω 327.70486	-0.47573916	-0.87622772
<i>a</i>	2.7175899	Ω 150.49320	+0.83651364	-0.47770096
<i>e</i>	0.1864534	<i>i</i> 8.97000	+0.27187716	-0.06345686
<i>P</i>	4.48	<i>H</i> 15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1990 03 02	809	0.9-	0.5+	1999 02 10	704	1.3+	1.5+	1999 02 21	678	(0.1-	3.9-)
1990 03 02	809	0.4-	0.3+	1999 02 13	704	0.9+	0.6-	1999 02 23	678	0.2-	0.9-
1990 03 02	809	0.2-	0.0	1999 02 13	704	0.2+	0.6-	1999 02 23	678	0.5+	0.8-
1990 03 03	809	0.4+	0.6+	1999 02 13	704	0.2+	0.3-	1999 02 23	678	1.0-	0.5-
1990 03 03	809	0.7+	0.6+	1999 02 13	704	1.5-	0.1+	1999 03 19	704	1.2-	0.4+
1990 03 03	809	1.0+	0.5+	1999 02 13	704	0.8-	0.2-	1999 03 19	704	0.5-	0.4-
1999 02 09	678	1.9-	0.1+	1999 02 18	699	0.4+	0.1+	1999 03 19	704	0.2+	0.3-
1999 02 09	678	0.6+	0.8-	1999 02 18	699	0.7+	0.2+	1999 03 19	704	1.0+	0.4-
1999 02 09	678	0.7-	1.3+	1999 02 18	699	0.6-	0.9-	1999 03 20	704	0.0	0.7+
1999 02 09	678	1.6+	0.1-	1999 02 18	566	0.7+	0.1-	1999 03 20	704	0.3+	0.7+
1999 02 10	704	0.6+	0.5-	1999 02 18	566	0.5+	0.1-	1999 03 20	704	0.8-	1.3-
1999 02 10	704	0.8-	0.3-	1999 02 18	566	0.8+	0.3-	1999 03 20	704	(2.3-	0.1+)
1999 02 10	704	0.3+	0.5+	1999 02 21	678	0.3+	0.5-	1999 03 20	704	1.0-	1.5+
1999 02 10	704	0.8-	0.6+	1999 02 21	678	0.2+	0.3-				

1999 CT₁₀₁ = 1988 TN₃ = 1991 ED₉ = 1991 FQ₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	222.10258	(2000.0)	P	Q
<i>n</i>	0.23876169	ω 294.66497	+0.52348157	+0.85145832
<i>a</i>	2.5733150	Ω 7.14750	-0.66166710	+0.42946065
<i>e</i>	0.1303969	<i>i</i> 14.61596	-0.53680880	+0.30096890
<i>P</i>	4.13	<i>H</i> 13.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1988 10 15	071	0.1−	0.3−	1999 02 10	704	0.2+	0.3−	1999 02 13	704	0.7−	0.0
1988 10 15	071	0.1+	0.3+	1999 02 10	704	0.2+	0.9+	1999 02 13	704	0.3−	0.3−
1991 03 09	675	0.6+	1.4−	1999 02 10	704	2.1−	0.3−	1999 02 18	699	0.7+	1.0+
1991 03 09	675	1.3+	2.7−	1999 02 10	704	0.6+	0.7−	1999 02 18	699	0.9+	1.1+
1991 03 19	808	1.3−	0.1−	1999 02 10	704	0.3+	0.9−	1999 02 18	699	0.8+	0.6+
1991 03 19	808	1.9+	4.0+	1999 02 13	704	0.1−	0.2−	1999 03 20	699	0.1−	0.2−
1991 03 21	808	2.3−	0.2+	1999 02 13	704	0.6+	0.1−	1999 03 20	699	0.2−	0.6−
1991 03 21	808	(7.0−	1.0+)	1999 02 13	704	0.0	0.1+	1999 03 20	699	0.8−	0.2−

1999 CN₁₀₂ = 1989 AT₅

Id. B. G. Marsden

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	33.62509		(2000.0)	P	Q
n	0.29521355	ω	152.06506	+0.05119484	−0.99608068
a	2.2338047	Ω	294.92320	+0.90082015	+0.07723778
e	0.0538647	i	4.56179	+0.43116372	−0.04310000
P	3.34	H	14.6	G 0.15	U 5

Residuals in seconds of arc

1989 01 04	413	0.5+	0.2−	1998 12 13	303	0.1−	0.4−	1999 02 16	704	0.1−	0.2−
1989 01 04	413	2.1+	1.0+	1998 12 14	303	0.0	0.2−	1999 02 16	704	0.3+	0.6−
1989 01 10	413	1.6−	0.1+	1998 12 14	303	0.2−	0.4−	1999 02 16	704	0.6+	1.0−
1989 01 10	413	0.4−	0.3+	1999 02 12	704	0.5−	0.1+	1999 02 16	704	0.8−	1.3−
1998 12 11	303	0.0	0.0	1999 02 12	704	1.2−	1.3+	1999 02 16	704	0.9−	1.7−
1998 12 12	303	0.2+	0.1−	1999 02 12	704	0.1−	0.7+	1999 02 23	699	0.6+	0.5+
1998 12 12	303	0.0	0.4+	1999 02 12	704	1.2+	0.3+	1999 02 23	699	0.1−	1.0+
1998 12 13	303	0.3−	0.0	1999 02 12	704	1.5+	0.3−	1999 02 23	699	0.7−	0.7+

1999 CP₁₀₃ = 1176 T-3

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	1.45213		(2000.0)	P	Q
n	0.24371775	ω	247.82842	−0.58212264	−0.80094350
a	2.5383097	Ω	238.53096	+0.79333750	−0.52172775
e	0.1279235	i	9.45290	+0.17818203	−0.29375101
P	4.04	H	15.1	G 0.15	U 5

Residuals in seconds of arc

1977 10 07	675	1.1+	0.2+	1977 10 17	675	2.3−	0.5+	1999 02 12	704	0.0	0.2−
1977 10 11	675	1.1+	0.8+	1977 10 22	675	0.7−	1.4−	1999 02 12	704	0.6+	0.6+
1977 10 11	675	0.7+	0.6+	1977 10 22	675	1.2+	0.7−	1999 02 12	704	1.1−	0.8+
1977 10 12	675	1.7+	0.0	1999 01 15	699	0.3+	0.1+	1999 02 16	704	0.0	0.7−
1977 10 12	675	2.1+	0.6+	1999 01 15	699	0.1+	0.1−	1999 02 16	704	0.3+	0.5+
1977 10 16	675	2.0−	1.3−	1999 01 15	699	0.4+	0.2+	1999 02 16	704	1.0+	1.3−
1977 10 16	675	1.0−	0.5+	1999 02 12	704	0.3+	0.3−	1999 02 16	704	1.5−	0.0
1977 10 17	675	1.7−	0.1+	1999 02 12	704	0.5−	0.4+				

1999 CA₁₀₄ = 1983 RK₆ = 1986 KC = 1993 LT₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

M	206.58739		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.28459159	ω	58.61563	+0.29105755	+0.95259158
a	2.2890468	Ω	228.57458	−0.91300206	+0.24888796
e	0.2075546	i	6.78813	−0.28585441	+0.17499731
P	3.46	H	14.8	G 0.15	U 2

Residuals in seconds of arc

1983 09 05	095	0.8−	0.5−	1999 02 12	704	0.2+	0.7+	1999 02 16	704	0.0	1.4−
1983 09 07	095	1.3+	0.6−	1999 02 12	704	0.5−	0.9+	1999 02 16	704	0.5+	0.3−
1986 05 29	095	0.1−	0.1−	1999 02 12	704	0.1−	1.0−	1999 02 19	566	0.2−	0.0
1993 06 15	675	1.2−	1.0+	1999 02 12	704	1.5−	0.8+	1999 02 19	566	0.1+	0.4−
1993 06 18	675	0.3+	1.1−	1999 02 16	704	0.9+	0.1+	1999 02 19	566	0.5+	0.2−
1993 06 20	675	0.9+	0.8−	1999 02 16	704	0.3−	1.2−				

1999 CY₁₀₅ = 1992 DF₃

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	50.56435		(2000.0)	P	Q
n	0.27577149	ω	264.75538	+0.49715490	−0.86653245
a	2.3375979	Ω	155.27814	+0.83208780	+0.46169593
e	0.1986365	i	6.07439	+0.24590017	+0.18962696
P	3.57	H	16.0	G 0.15	U 5

Residuals in seconds of arc

1992 02 25	691	1.1+	0.1−	1992 03 11	691	0.7−	0.3+	1999 02 12	704	1.5−	0.1+
1992 02 25	691	0.8+	0.2+	1999 01 14	699	0.1−	0.6−	1999 02 12	704	0.4+	0.1+
1992 02 25	691	1.1+	0.1−	1999 01 14	699	0.9−	0.5+	1999 02 12	704	1.0−	1.4+
1992 03 06	691	1.0−	0.1−	1999 01 14	699	0.4+	0.5+	1999 02 16	704	1.4+	0.9−
1992 03 06	691	0.7+	0.0	1999 02 11	699	1.3+	0.2−	1999 02 16	704	0.8+	0.2+
1992 03 06	691	1.0−	0.2+	1999 02 11	699	0.4−	0.3−	1999 02 16	704	0.7−	1.0−
1992 03 11	691	0.6−	0.1+	1999 02 11	699	0.1+	0.2−	1999 02 16	704	(3.7−	2.2−)
1992 03 11	691	0.4−	0.2−	1999 02 12	704	0.3+	0.2+				

1999 CZ₁₀₅ = 1980 VO₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	143.99305		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.23159388	ω	36.77760	+0.93022560	+0.36094293
a	2.6261408	Ω	301.93645	−0.35257210	+0.82879728
e	0.2042186	i	4.48330	−0.10184919	+0.42756903
P	4.26	H	13.8	G 0.15	U 6

Residuals in seconds of arc

1980 11 01	675	0.2+	0.2−	1999 02 12	704	0.3−	0.4+	1999 02 14	691	0.3+	0.5−
1980 11 02	675	0.2−	0.2+	1999 02 12	704	1.3−	0.9+	1999 02 16	704	0.1−	0.7−
1999 02 10	691	0.1+	0.4+	1999 02 12	704	0.2−	1.0−	1999 02 16	704	0.5−	0.4+
1999 02 10	691	0.4+	0.6+	1999 02 12	704	0.6−	0.2+	1999 02 16	704	0.3+	1.4+
1999 02 10	691	0.3+	1.4−	1999 02 14	691	0.6+	0.8−				
1999 02 12	704	0.9+	0.9+	1999 02 14	691	0.3+	0.9−				

1999 CE₁₀₆ = 1983 QQ

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	89.40400		(2000.0)	P	Q
n	0.27842855	ω	207.45628	+0.89729230	−0.44143429
a	2.3227022	Ω	178.73621	+0.41654882	+0.84556394
e	0.1605120	i	3.93279	+0.14612871	+0.30026221
P	3.54	H	14.5	G 0.15	U 6

Residuals in seconds of arc

1983 08 30	675	0.5−	0.4−	1999 02 06	120	0.6+	0.6−	1999 02 12	704	0.6−	0.6+
1983 08 31	675	0.2+	0.1−	1999 02 12	699	0.0	0.1−	1999 02 12	704	0.7−	0.2+
1983 09 01	675	0.0	0.0	1999 02 12	699	0.9+	0.3+	1999 02 16	704	0.4−	0.4−
1983 09 02	675	0.1−	0.0	1999 02 12	699	0.0	0.1−	1999 02 16	704	1.1+	1.3−
1983 09 02	675	0.5+	0.5+	1999 02 12	704	0.5−	0.4−	1999 02 16	704	0.2−	0.1+
1999 02 06	120	0.7+	0.1−	1999 02 12	704	1.1−	0.8+	1999 02 16	704	0.7+	1.0+
1999 02 06	120	0.3−	0.5+	1999 02 12	704	0.2−	0.3−	1999 02 16	704	0.1+	0.2−

1999 CR₁₀₆ = 1991 GB₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	349.87604		(2000.0)	P	Q
n	0.23640335	ω	298.28963	−0.83673623	−0.54040300
a	2.5904008	Ω	209.25981	+0.54407895	−0.80209226
e	0.1813694	i	10.43514	+0.06205297	−0.25419011
P	4.17	H	14.8	G 0.15	U 5

Residuals in seconds of arc

1991 04 08	809	0.7−	0.2−	1991 04 19	809	0.6+	1.2−	1999 02 16	704	0.3−	0.7−
1991 04 08	809	0.3−	0.3+	1991 04 19	675	0.3+	0.3−	1999 02 16	704	0.7−	0.3+
1991 04 08	809	1.2−	0.1+	1991 04 19	675	1.2+	0.4+	1999 02 16	704	0.6−	0.1−
1991 04 10	809	0.0	1.1+	1999 02 12	704	0.1−	0.1+	1999 02 16	704	0.1+	0.4−
1991 04 10	809	0.4−	0.4+	1999 02 12	704	0.2+	0.3−	1999 02 16	704	0.1−	0.4+

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1991 04 10	809	0.5−	0.7+	1999 02 12	704	0.3−	0.0	1999 02 21	699	0.1−	0.4+
1991 04 19	809	0.3+	0.9−	1999 02 12	704	0.5+	0.1+	1999 02 21	699	0.8+	0.4−
1991 04 19	809	0.6+	0.5−	1999 02 12	704	0.2−	0.4+	1999 02 21	699	0.5+	0.1+

1999 CK₁₀₉ = 1991 LP₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	356.36784		(2000.0)	P	Q		
<i>n</i>	0.22295809	ω	272.80487	−0.75818280	−0.63793832		
<i>a</i>	2.6935222	Ω	227.60208	+0.64691199	−0.71004915		
<i>e</i>	0.1473761	<i>i</i>	10.52416	+0.08163160	−0.29810217		
<i>P</i>	4.42	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 06 06	809	(4.1+ 0.6+)	1991 06 08	809	0.6−	0.9−	1999 02 16	704	0.2+	0.2−
1991 06 06	809	(3.8+ 0.1+)	1991 06 08	809	0.7−	1.3−	1999 02 16	704	0.3+	0.1+
1991 06 06	809	(2.4+ 0.4+)	1999 01 17	699	0.2+	0.1+	1999 02 16	704	0.3+	1.0−
1991 06 06	809	0.8−	1999 01 17	699	0.4+	0.1+	1999 02 16	704	0.1+	0.9−
1991 06 06	809	0.6−	1999 01 17	699	0.0	0.2−	1999 02 18	566	0.4−	0.0
1991 06 06	809	(2.7− 0.7+)	1999 02 12	704	0.2−	1.9+	1999 02 18	566	0.3−	0.1+
1991 06 08	809	1.8+	1999 02 12	704	0.1−	0.4−	1999 02 18	566	0.3−	0.0
1991 06 08	809	1.8+	1999 02 12	704	0.4−	0.4+	1999 03 13	650	(2.0− 2.5+)	
1991 06 08	809	0.4−	1999 02 12	704	0.0	0.2+	1999 03 13	650	0.0	0.7+
1991 06 08	809	0.6−	1999 02 16	704	0.3+	0.8−				

1999 CA₁₁₀ = 1989 EO₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	51.07416		(2000.0)	P	Q		
<i>n</i>	0.19334527	ω	237.34885	+0.04473423	−0.99596473		
<i>a</i>	2.9619679	Ω	210.37791	+0.96035235	+0.06432521		
<i>e</i>	0.0213230	<i>i</i>	8.85006	+0.27517668	−0.06258216		
<i>P</i>	5.10	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1989 03 02	413	1.3−	0.4+	1999 02 12	704	0.1+	0.3+	1999 02 16	704	0.5−	0.6+
1989 03 02	413	0.5−	0.0	1999 02 12	704	0.1+	0.3−	1999 02 21	699	0.1−	0.3+
1989 03 07	413	0.2+	0.4+	1999 02 16	704	0.0	0.6−	1999 02 21	699	1.4−	0.6−
1989 03 07	413	1.6+	0.8−	1999 02 16	704	0.5+	0.5+	1999 02 21	699	0.0	0.3+
1999 02 12	704	0.4+	0.1−	1999 02 16	704	1.4+	0.2−				
1999 02 12	704	0.0	0.1−	1999 02 16	704	0.5−	0.1−				

1999 CK₁₁₁ = 1997 UH₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	211.76988		(2000.0)	P	Q		
<i>n</i>	0.23508836	ω	124.06329	+0.40252604	+0.91536362		
<i>a</i>	2.6000516	Ω	169.66102	−0.85564210	+0.37974757		
<i>e</i>	0.0947289	<i>i</i>	2.89616	−0.32534503	+0.13379545		
<i>P</i>	4.19	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 30	566	0.6−	0.0	1999 02 12	699	1.2+	0.6+	1999 03 13	104	0.0	0.6+
1997 10 30	566	0.4−	0.0	1999 02 12	699	1.2+	0.2−	1999 03 13	104	0.4+	0.3+
1997 10 30	566	0.4−	0.4−	1999 02 12	699	1.9−	1.4+	1999 03 13	104	0.1−	0.2+
1997 11 20	691	0.6+	0.1−	1999 02 12	691	0.4−	0.2−	1999 03 13	104	0.4−	0.7+
1997 11 20	691	0.6+	0.1+	1999 02 12	691	0.6−	0.0	1999 03 13	104	0.6−	0.3+
1997 11 20	691	0.9+	0.1+	1999 02 12	691	0.5−	0.1+	1999 03 14	104	1.3−	1.0−
1997 11 29	704	1.6−	0.7−	1999 02 12	704	0.3−	0.1+	1999 03 14	104	0.6−	1.0−
1997 11 29	704	0.1+	1.0+	1999 02 12	704	0.0	0.4+	1999 03 14	104	0.0	1.5−
1997 11 29	704	0.2+	0.2−	1999 02 12	704	0.0	0.8−	1999 03 14	104	0.3+	0.3−
1997 11 29	704	0.7+	0.0	1999 02 12	704	0.6+	0.1−	1999 03 15	104	0.3+	0.1+
1997 11 29	704	(3.8− 1.2+)		1999 02 16	704	0.9−	0.9+	1999 03 15	104	0.0	0.1+
1999 02 09	691	0.2+	0.3+	1999 02 16	704	1.1+	1.3−	1999 03 15	104	0.2+	0.0
1999 02 09	691	0.1+	0.1+	1999 02 16	704	1.3+	0.5+				
1999 02 09	691	0.3+	0.2+	1999 02 16	704	0.3+	0.7−				

1999 CE₁₁₄ = 2139 T-1

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
<i>M</i>	26.48262		(2000.0)	P	Q		
<i>n</i>	0.20976624	ω	290.60801	−0.14359078	−0.98932793		
<i>a</i>	2.8052979	Ω	167.57039	+0.94538503	−0.14451835		
<i>e</i>	0.2420510	<i>i</i>	6.59956	+0.29262405	−0.01856608		
<i>P</i>	4.70	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1971 03 24	675	(3.2+ 0.5−)	1999 02 12	704	0.1+	0.1−	1999 02 16	704	0.2+	1.0−
1971 03 25	675	0.8−	1999 02 12	704	0.2−	1.6−	1999 02 16	704	0.5−	0.6+
1971 03 25	675	0.4+	1999 02 12	699	0.1+	0.6+	1999 02 16	704	0.8+	1.4+
1971 03 26	675	1.0+	1999 02 12	704	0.7−	0.9−	1999 02 18	566	0.1+	0.1−
1971 03 27	675	0.6−	1999 02 12	699	0.5+	0.7+	1999 02 18	566	0.0	0.5−
1999 02 12	704	0.2+	1999 02 16	704	0.5−	0.5−	1999 02 18	566	0.1−	0.1−
1999 02 12	699	0.2+	1999 02 16	704	0.2−	0.4+				

1999 CX₁₁₄ = 1991 VL₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	32.80024		(2000.0)	P	Q		
<i>n</i>	0.30514932	ω	259.61491	−0.23130173	−0.97228761		
<i>a</i>	2.1850486	Ω	203.84183	+0.92228230	−0.20801235		
<i>e</i>	0.0812725	<i>i</i>	4.82572	+0.30966898	−0.10671297		
<i>P</i>	3.23	<i>H</i>	16.3	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 11 06	691	0.1+	0.1+	1999 02 12	704	0.1+	1.3+	1999 02 16	704	0.2+	0.3+
1991 11 06	691	0.3−	0.0	1999 02 12	704	0.6−	0.1+	1999 02 16	704	0.3+	0.5−
1991 11 06	691	0.1−	0.3+	1999 02 12	704	0.7−	0.6−	1999 02 16	704	0.4+	0.7−
1991 11 07	691	0.1−	0.3−	1999 02 12	704	1.2+	0.2+	1999 02 21	699	0.0	0.6+
1991 11 07	691	0.1+	0.2−	1999 02 16	704	0.4−	0.1+	1999 02 21	699	0.2−	0.3−
1991 11 07	691	0.3+	0.1+	1999 02 16	704	0.4−	0.6−	1999 02 21	699	0.3+	0.2+

1999 CD₁₁₆ = 1997 QQ₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	267.71998		(2000.0)	P	Q		
<i>n</i>	0.28374770	ω	77.12773	−0.35750420	+0.93390525		
<i>a</i>	2.2935831	Ω	171.92277	−0.86602023	−0.33014054		
<i>e</i>	0.1006495	<i>i</i>	1.39647	−0.34957074	−0.13721589		
<i>P</i>	3.47	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 08 30	910	0.1+	0.1−	1999 02 12	704	0.1+	1.3−	1999 02 16	704	0.7−	1.7+
1997 08 30	910	0.2+	0.0	1999 02 12	699	0.9+	0.0	1999 03 19	704	0.8−	0.0
1997 08 30	910	0.2−	0.4+	1999 02 12	704	0.3+	0.8−	1999 03 19	704	0.7+	0.1−
1997 09 01	910	0.1−	0.2−	1999 02 12	704	1.2+	1.0−	1999 03 19	704	0.7+	0.1−
1997 09 01	910	0.2−	0.0	1999 02 12	704	0.0	0.3+	1999 03 20	704	0.8+	0.4−
1997 09 01	910	0.1+	0.0	1999 02 16	704	0.4−	0.2−	1999 03 20	704	1.2−	0.4−
1999 02 12	699	0.6+	0.0	1999 02 16	704	0.6−	0.4+	1999 03 20	704	0.6+	1.6−
1999 02 12	699	0.1−	0.1−	1999 02 16	704	0.1−	0.7+	1999 03 20	704	0.7−	1.3+
1999 02 12	704	1.0−	1.1−	1999 02 16	704	0.6−	1.3+	1999 03 20	704	0.2+	1.6+

1999 CN₁₁₇ = 1990 SP₁₈ = 1996 FF₂₃ = 1997 RB₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	274.14283		(2000.0)	P	Q		
<i>n</i>	0.29887934	ω	60.13622	−0.37752853	+0.92596024		
<i>a</i>	2.2155019	Ω	187.69710	−0.86965997	−0.35764525		
<i>e</i>	0.1106731	<i>i</i>	3.57760	−0.31806249	−0.12119207		
<i>P</i>	3.30	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1990 09 16	675	0.9−	0.4+	1997 09 05	910	0.2−	1.3+	1999 03 19	704	0.9−	0.0
1990 09 16	675	0.7+	0.1+	1999 02 12	704	0.0	0.4+	1999 03 19	699	0.6+	1.1+
1996 03 24	809	0.7−	0.7+	1999 02 12	704	0.7+	0.4−	1999 03 19	704	0.6−	0.7+

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1996 03 24	809	0.6−	1.1+	1999 02 12	704	0.5−	1.4+	1999 03 19	704	(2.8−	0.6−)
1996 03 24	809	0.8−	0.5+	1999 02 12	704	0.1+	1.5−	1999 03 19	699	0.7+	0.1+
1996 03 27	809	1.4+	0.4+	1999 02 16	704	0.4+	0.3−	1999 03 20	704	0.0	0.2−
1996 03 27	809	1.0+	0.4+	1999 02 16	704	1.7−	0.9−	1999 03 20	704	0.8−	0.5−
1996 03 27	809	0.7+	0.7+	1999 02 16	704	0.1+	0.5+	1999 03 20	704	0.7−	0.5+
1997 09 04	910	0.1−	0.5+	1999 02 16	704	0.3+	0.5−	1999 03 20	704	0.1−	0.2+
1997 09 04	910	0.3−	0.9+	1999 02 16	704	0.9+	0.2+	1999 03 20	704	0.1−	0.1+
1997 09 04	910	0.5−	1.0+	1999 03 19	704	0.1−	0.3−	1999 03 23	699	0.4+	0.7+
1997 09 05	910	0.3−	1.2+	1999 03 19	704	0.3−	0.7−	1999 03 23	699	0.9+	0.2−
1997 09 05	910	0.2−	1.0+	1999 03 19	699	0.7+	0.7+	1999 03 23	699	0.4+	0.2+

1999 CM₁₁₈ = 1991 RM₄ = 1993 FW₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	89.07738	<i>P</i>	<i>Q</i>
	(2000.0)		
<i>n</i>	0.31076942	<i>ω</i>	191.20748
<i>a</i>	2.1586250	<i>Ω</i>	208.39003
<i>e</i>	0.0542867	<i>i</i>	3.07907
<i>P</i>	3.17	<i>H</i>	14.5
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1991 09 10	033	0.2−	0.3−	1993 03 26	809	0.1+	0.1−	1999 02 16	704	0.3−	0.4−
1991 09 10	033	0.1−	0.3−	1999 02 13	704	0.3−	0.6−	1999 02 16	704	0.6−	0.4−
1991 09 11	033	0.3+	0.7+	1999 02 13	704	0.6+	0.1+	1999 02 16	704	0.0	0.1+
1993 03 17	372	1.4−	0.1−	1999 02 13	704	0.1−	0.3−	1999 02 20	699	0.2+	0.2+
1993 03 17	372	0.3+	0.5−	1999 02 13	704	0.2+	0.4−	1999 02 20	699	0.4+	0.1+
1993 03 18	372	0.2−	0.9+	1999 02 13	704	0.1−	0.1+	1999 02 20	699	0.4−	1.3+
1993 03 21	809	0.1−	0.0	1999 02 16	704	0.0	0.1−				
1993 03 22	809	1.3+	0.3−	1999 02 16	704	0.3+	0.5+				

1999 CR₁₁₈ = 1994 CN₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	73.40570	<i>P</i>	<i>Q</i>
	(2000.0)		
<i>n</i>	0.19143638	<i>ω</i>	49.63146
<i>a</i>	2.9816253	<i>Ω</i>	12.28675
<i>e</i>	0.1039792	<i>i</i>	10.01577
<i>P</i>	5.15	<i>H</i>	13.4
		<i>G</i>	0.15
		<i>U</i>	5

Residuals in seconds of arc

1994 02 08	809	0.1+	0.1−	1994 02 13	809	0.4−	0.5−	1999 02 09	327	0.2−	0.1−
1994 02 08	809	0.0	0.2+	1994 02 13	809	0.3−	1.6−	1999 02 13	699	0.9−	0.2+
1994 02 08	809	0.2+	0.5+	1994 02 15	691	0.6−	0.6+	1999 02 13	699	0.3+	0.0
1994 02 10	809	0.2+	0.7−	1994 02 15	691	0.5−	0.4+	1999 02 13	699	0.9+	0.2+
1994 02 10	809	0.6+	0.2+	1994 02 15	691	0.7−	0.2+	1999 02 14	327	0.4+	0.0
1994 02 10	809	0.0	0.8+	1999 02 09	327	0.6−	0.1+	1999 02 14	327	0.2+	0.1+
1994 02 13	809	1.5+	0.1+	1999 02 09	327	0.4−	0.2−	1999 02 14	327	0.3+	0.1−

1999 CV₁₂₃ = 1988 VH₈ = 1992 QN₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	215.85060	<i>P</i>	<i>Q</i>
	(2000.0)		
<i>n</i>	0.23172252	<i>ω</i>	254.44322
<i>a</i>	2.6251687	<i>Ω</i>	39.20307
<i>e</i>	0.1806515	<i>i</i>	13.25923
<i>P</i>	4.25	<i>H</i>	13.0
		<i>G</i>	0.15
		<i>U</i>	3

Residuals in seconds of arc

1988 11 04	033	0.6+	0.1−	1999 02 11	704	0.7−	0.7−	1999 02 18	704	0.4−	0.0
1988 11 04	033	0.7−	0.1+	1999 02 11	704	0.4−	0.9−	1999 02 18	704	0.3+	1.0+
1992 08 25	675	0.4−	0.5−	1999 02 11	704	0.2−	0.0	1999 02 22	699	0.7+	0.2+
1992 08 25	675	0.5−	0.0	1999 02 11	704	1.2+	1.2+	1999 02 22	699	0.0	0.1−
1992 08 27	675	0.4+	0.4+	1999 02 18	704	0.2+	0.7−	1999 02 22	699	0.2+	0.1−
1992 08 27	675	0.6+	0.1+	1999 02 18	704	0.1+	0.2−				
1999 02 11	704	1.0−	0.1−	1999 02 18	704	0.1+	0.4+				

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1999 CE₁₃₃ = 1997 WV₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	103.19246	<i>P</i>	<i>Q</i>
	(2000.0)		
<i>n</i>	0.18131599	<i>ω</i>	72.21260
<i>a</i>	3.0915669	<i>Ω</i>	307.61064
<i>e</i>	0.1879603	<i>i</i>	0.43786
<i>P</i>	5.44	<i>H</i>	14.2
		<i>G</i>	0.15
		<i>U</i>	6

Residuals in seconds of arc

1997 11 29	704	0.2−	0.8+	1997 12 04	704	0.0	0.5+	1999 02 11	691	0.2+	0.0
1997 11 29	704	0.6+	1.5−	1997 12 04	704	0.4+	1.4−	1999 02 11	691	0.1−	0.1−
1997 11 29	704	0.3+	0.5−	1997 12 04	704	0.5+	1.3+	1999 02 11	691	0.6+	0.1+
1997 11 29	704	0.0	0.1−	1999 02 07	691	0.1+	0.0	1999 03 09	691	0.1+	0.1−
1997 11 29	704	0.7−	0.6−	1999 02 07	691	0.4−	0.2+	1999 03 09	691	0.4−	0.1−
1997 12 04	704	1.0−	1.5+	1999 02 07	691	0.2−	0.1−	1999 03 09	691	0.2+	0.1+

1999 CL₁₃₅ = 1996 HC₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	224.34151	<i>P</i>	<i>Q</i>
	(2000.0)		
<i>n</i>	0.28876765	<i>ω</i>	99.97778
<i>a</i>	2.2669243	<i>Ω</i>	202.94927
<i>e</i>	0.1706431	<i>i</i>	0.99666
<i>P</i>	3.41	<i>H</i>	16.4
		<i>G</i>	0.15
		<i>U</i>	6

Residuals in seconds of arc

1996 04 17	809	0.4−	0.4+	1999 02 08	691	0.2+	0.3+	1999 03 12	691	0.7+	0.4+
1996 04 17	809	1.6−	0.6+	1999 02 08	691	0.1−	0.1−	1999 03 12	691	0.3−	0.6−
1996 04 17	809	0.0	0.2+	1999 02 08	691	0.5−	0.3−	1999 03 12	691	0.5+	0.2−
1996 04 18	809	0.2+	0.1−	1999 02 12	691	0.2+	0.4+	1999 03 13	691	0.4−	0.2−
1996 04 18	809	1.1+	0.0	1999 02 12	691	0.2+	0.2+	1999 03 13	691	0.5−	0.1−
1996 04 18	809	0.7+	1.0−	1999 02 12	691	0.0	0.2+	1999 03 13	691	0.0	0.1+

1999 CV₁₃₆ = 1979 OO₃ = 1988 QL

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden			
<i>M</i>	116.81244	<i>P</i>	<i>Q</i>
	(2000.0)		
<i>n</i>	0.22422057	<i>ω</i>	48.04675
<i>a</i>	2.6834020	<i>Ω</i>	304.73363
<i>e</i>	0.1628491	<i>i</i>	3.63520
<i>P</i>	4.40	<i>H</i>	15.3
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1979 07 24	675	1.0−	1.3+	1998 12 12	303	0.1+	0.1−	1999 02 09	691	0.0	0.0
1979 07 24	413	1.1+	0.4−	1998 12 12	303	0.7+	0.4+	1999 02 09	691	0.0	0.2+
1979 07 25	675	0.5−	0.7+	1998 12 13	303	0.2−	0.2+	1999 02 12	691	0.3+	0.3+
1988 08 19	413	2.9+	0.5+	1998 12 13	303	0.2+	0.0	1999 02 12	691	0.2+	0.6+
1988 08 20	413	3.0−	0.1−	1998 12 14	303	0.2+	0.1+	1999 02 12	691	0.2+	0.5+
1998 12 11	303	0.2−	0.2+	1998 12 14	303	0.7−	0.1+				

1999 CZ₁₃₇ = 1994 EL₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	282.66339	<i>P</i>	<i>Q</i>
	(2000.0)		
<i>n</i>	0.18976288	<i>ω</i>	21.44326
<i>a</i>	2.9991295	<i>Ω</i>	210.24002
<i>e</i>	0.0916058	<i>i</i>	0.06539
<i>P</i>	5.19	<i>H</i>	16.4
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1994 03 06	691	0.1−	0.1+	1999 02 09	691	0.9+	0.2+	1999 03 14	691	0.1+	0.3−
1994 03 06	691	0.2−	0.2+	1999 02 12	691	0.3−	0.3+	1999 03 14	691	0.1+	0.5−
1994 03 06	691	0.1−	0.4−	1999 02 12	691	0.5−	0.6+	1999 03 14	691	0.4+	0.2−
1994 03 10	691	0.3+	0.5+	1999 02 12	691	0.3−	0.3+	1999 03 20	691	1.0−	0.4−
1994 03 10	691	0.1+	0.3+	1999 03 06	691	0.2−	0.2+	1999 03 20	691	0.2+	0.6−
1999 02 09	691	0.3+	0.0	1999 03 06	691	0.3−	0.0	1999 03 20	691	0.1−	0.3−
1999 02 09	691	0.5+	0.1+	1999 03 06	691	0.2−	0.3−				

1999 CB₁₄₇ = 1997 SU₃₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	88.36168		(2000.0)	P	Q
<i>n</i>	0.29854654	ω	73.89314	+0.62184258	-0.78151873
<i>a</i>	2.2171480	Ω	337.42213	+0.65897214	+0.55693745
<i>e</i>	0.1156241	<i>i</i>	7.54322	+0.42316370	+0.28115681
<i>P</i>	3.30	<i>H</i>	16.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 27	327	0.2-	0.1+	1999 02 09	691	0.2+	0.3-	1999 03 06	691	0.0	0.1-
1997 09 27	327	0.1-	0.0	1999 02 14	691	0.5+	0.1+	1999 03 06	691	0.1+	0.1-
1997 09 27	327	0.3+	0.0	1999 02 14	691	0.4+	0.0	1999 03 11	691	0.6-	0.1-
1997 09 28	327	0.1-	0.1-	1999 02 14	691	0.5+	0.1+	1999 03 11	691	0.6-	0.1+
1997 09 28	327	0.0	0.0	1999 02 16	691	0.0	0.2-	1999 03 11	691	0.5-	0.4+
1997 09 28	327	0.2+	0.2-	1999 02 16	691	0.9-	0.2+	1999 03 16	691	0.2+	0.7-
1999 02 09	691	0.2+	0.1-	1999 02 16	691	0.8-	0.2+	1999 03 16	691	0.3+	0.2+
1999 02 09	691	0.2+	0.1-	1999 03 06	691	0.2+	0.1-	1999 03 16	691	0.5+	0.5+

1999 CD₁₅₀ = 1975 VS₃ = 1975 VO₁₀ = 1986 TD₃Id. G. V. Williams; 1997 WK₃₇ = 1986 TD₃ (*MPC* 31121) is invalid

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	101.58421		(2000.0)	P	Q
<i>n</i>	0.26676015	ω	246.81791	+0.76451680	-0.64429161
<i>a</i>	2.3899497	Ω	153.28147	+0.60652816	+0.70847296
<i>e</i>	0.2061696	<i>i</i>	2.55711	+0.21826052	+0.28801802
<i>P</i>	3.69	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1975 11 02	095	0.1+	0.4-	1999 01 20	910	0.3+	0.5-	1999 02 14	691	0.0	0.2-
1975 11 07	095	(6.1+)	(6.1-)	1999 01 20	910	0.0	0.8-	1999 03 16	691	0.3-	0.3+
1986 10 04	046	0.6-	1.1+	1999 02 13	691	0.1+	0.1+	1999 03 16	691	0.5-	0.2+
1986 10 04	046	0.3+	0.5+	1999 02 13	691	0.2-	0.3+	1999 03 16	691	0.6-	0.3+
1986 10 05	046	(1.3+)	(2.5+)	1999 02 13	691	0.1+	0.2+	1999 03 18	691	0.2+	0.2+
1986 10 05	046	0.2-	0.4-	1999 02 14	691	0.2+	0.4+	1999 03 18	691	0.1+	0.2+
1999 01 20	910	0.0	0.4-	1999 02 14	691	0.5+	0.3+	1999 03 18	691	0.7+	0.2+

1999 CG₁₅₂ = 1997 XE₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	1.06247		(2000.0)	P	Q
<i>n</i>	0.18215568	ω	354.95027	-0.77850458	-0.62762928
<i>a</i>	3.0820587	Ω	146.17351	+0.57606603	-0.71672444
<i>e</i>	0.1301235	<i>i</i>	0.35806	+0.24915566	-0.30395323
<i>P</i>	5.41	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 12 05	910	0.1+	0.1+	1999 02 12	699	0.7+	1.0+	1999 03 09	691	0.6-	0.1-
1997 12 05	910	0.3-	0.1+	1999 02 12	691	0.0	0.1+	1999 03 09	691	0.5-	0.2-
1997 12 05	910	0.1+	0.3+	1999 02 12	691	0.1+	0.1-	1999 03 14	691	0.3+	0.2-
1997 12 07	910	0.2+	0.2-	1999 02 12	691	0.1+	0.1+	1999 03 14	691	0.2+	0.1-
1997 12 07	910	0.0	0.2-	1999 02 16	691	0.6-	0.0	1999 03 14	691	0.7+	0.2-
1997 12 07	910	0.1-	0.2-	1999 02 16	691	0.4-	0.0	1999 03 20	691	0.2-	0.3-
1999 02 12	699	0.7+	0.2+	1999 02 16	691	0.6-	0.0	1999 03 20	691	0.1+	0.2-
1999 02 12	699	0.5+	0.0	1999 03 09	691	0.6-	0.0	1999 03 20	691	0.0	0.2-

1999 DC = 1972 TC₃ = 1980 TX₂ = 1980 TD₈ = 1991 BR₄

Id. A. Doppler, G. V. Williams (d)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	47.11353		(2000.0)	P	Q
<i>n</i>	0.12364690	ω	252.31000	+0.02360832	-0.99932231
<i>a</i>	3.9903768	Ω	196.41447	+0.95093077	+0.03116451
<i>e</i>	0.1211120	<i>i</i>	5.73568	+0.30850174	-0.01958811
<i>P</i>	7.97	<i>H</i>	12.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1972 10 05	095	0.3+	0.8-	1999 02 12	704	0.2+	0.2+	1999 02 16	704	0.2-	0.3+
1980 10 10	095	1.2-	0.3+	1999 02 12	704	1.2-	0.8-	1999 02 16	704	0.4-	0.1+
1980 10 14	511	1.6+	1.8+	1999 02 12	699	0.2+	0.6+	1999 02 16	704	0.1+	0.0
1980 10 14	511	0.3+	0.2+	1999 02 12	704	0.9-	0.1+	1999 02 16	704	0.1-	1.3+
1980 10 14	511	1.1-	1.2-	1999 02 12	699	0.4+	0.5+	1999 02 16	704	0.3-	0.9+
1991 01 22	675	1.7-	1.4-	1999 02 12	704	1.3-	1.2+	1999 02 17	910	0.5+	0.6-
1991 01 22	675	1.1+	0.7-	1999 02 16	910	0.6+	0.2-	1999 02 17	910	0.5+	0.5-
1999 02 12	704	0.6+	0.1-	1999 02 16	910	0.5+	0.3-	1999 02 17	910	0.6+	0.5-
1999 02 12	699	0.2+	0.2+	1999 02 16	910	0.6+	0.2-				

1999 DV₁ = 1991 LM₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	307.07516		(2000.0)	P	Q
<i>n</i>	0.21730409	ω	90.39530	-0.97191359	+0.13580338
<i>a</i>	2.7400434	Ω	97.41728	-0.19956685	-0.90844958
<i>e</i>	0.0426812	<i>i</i>	11.17600	+0.12472792	-0.39531861
<i>P</i>	4.54	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1991 06 06	809	1.3+	1.0+	1999 02 10	704	0.3+	0.0	1999 02 18	566	0.5+	0.6-
1991 06 06	809	0.5+	0.3+	1999 02 10	704	0.7+	0.6+	1999 02 18	566	0.5+	0.6-
1991 06 06	809	0.2-	0.9+	1999 02 10	704	0.5+	0.0	1999 02 18	566	0.5+	0.6-
1991 06 08	809	0.5+	0.1-	1999 02 13	704	(2.1+)	(1.9+)	1999 02 19	566	0.4+	0.3+
1991 06 08	809	0.8-	0.9-	1999 02 13	704	0.3-	0.1+	1999 02 19	566	0.5+	0.5+
1991 06 08	809	1.3-	1.2-	1999 02 13	704	0.7-	1.3+	1999 02 19	566	0.2+	0.3+
1999 02 10	704	0.9-	0.5-	1999 02 13	704	0.2-	0.7+				
1999 02 10	704	0.5-	0.8-	1999 02 13	704	1.4-	0.6-				

1999 DY₁ = 1997 QM₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	94.38959		(2000.0)	P	Q
<i>n</i>	0.29147964	ω	357.08935	+0.76369700	-0.64160974
<i>a</i>	2.2528411	Ω	43.10256	+0.59439512	+0.65565141
<i>e</i>	0.1286055	<i>i</i>	6.00136	+0.25191532	+0.39806804
<i>P</i>	3.38	<i>H</i>	15.4	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 08 30	566	0.0	0.3+	1997 09 02	566	0.4+	0.2-	1999 02 13	704	1.0-	1.4+
1997 08 30	566	0.1-	0.2+	1999 02 10	704	0.9-	0.6-	1999 02 13	704	0.1-	0.5+
1997 08 30	566	0.2-	0.8-	1999 02 10	704	1.4+	0.3-	1999 02 18	566	0.1+	0.5+
1997 09 01	566	0.2-	0.3+	1999 02 10	704	0.2-	1.0-	1999 02 18	566	0.3-	0.2+
1997 09 01	566	0.1-	0.2+	1999 02 10	704	0.7+	0.8+	1999 02 18	566	0.4-	0.4+
1997 09 01	566	0.3-	0.3+	1999 02 13	704	0.4+	0.9-	1999 02 19	566	0.4+	0.4-
1997 09 02	566	0.3+	0.1-	1999 02 13	704	(2.2-)	(0.3+)	1999 02 19	566	0.1-	0.3-
1997 09 02	566	0.2+	0.1-	1999 02 13	704	0.1-	0.4+	1999 02 19	566	0.2+	0.7-

1999 DF₂ = 1995 KR₄ = 1997 WW₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	86.06797		(2000.0)	P	Q
<i>n</i>	0.21553795	ω	207.53935	+0.46321445	-0.88509794
<i>a</i>	2.7549912	Ω	214.91910	+0.82691818	+0.44995157
<i>e</i>	0.1379921	<i>i</i>	4.51891	+0.31880824	+0.11893366
<i>P</i>	4.57	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 05 27	691	0.0	0.1-	1997 11 29	704	0.4-	0.2+	1999 02 22	428	0.3+	0.0
1995 05 27	691	0.1+	0.2+	1997 11 29	704	0.6-	0.1+	1999 02 23	428	0.7+	0.2+
1995 05 27	691	0.1-	0.1+	1997 11 29	704	1.8+	0.3+	1999 02 23	428	0.2-	0.5+
1995 05 30	691	(2.5+)	(0.5+)	1997 11 29	704	0.2-	0.9+	1999 03 05	428	0.2-	0.3-
1995 05 30	691	(2.2+)	(1.1+)	1997 12 04	704	0.9+	1.1+	1999 03 05	428	0.0	0.2-
1995 05 30	691	(2.4+)	(0.1+)	1997 12 04	704	0.2+	1.3-	1999 03 14	428	0.7-	1.6-
1997 11 22	691	0.2+	0.3-	1997 12 04	704	0.4-	0.3-	1999 03 14	428	0.2-	1.5-
1997 11 22	691	0.0	0.1-	1997 12 04	704	1.6-	0.9-	1999 03 23	699	0.5+	0.1-
1997 11 22	691	0.1+	0.1-	1999 02 17	428	0.9-	0.7+	1999 03 23	699	0.4-	1.2+

1997 11 28	691	0.2+	0.3+	1999 02 20	428	0.4+	1.2+	1999 03 23	699	(2.3+	0.0)
1997 11 28	691	0.0	0.0	1999 02 20	428	0.5+	0.4+	1999 03 25	428	0.1-	0.0
1997 11 28	691	0.3+	0.2-	1999 02 22	428	0.4-	0.2+	1999 03 25	428	0.3+	1.0-
1997 11 29	704	0.5-	0.3+	1999 02 22	428	0.3+	0.4+				

1999 DK₂ = 1993 VV₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	16.72604		(2000.0)		P		Q
<i>n</i>	0.23813081	ω	88.06484	-0.64341287	-0.74219578		
<i>a</i>	2.5778580	Ω	43.94177	+0.54975348	-0.61845390		
<i>e</i>	0.0755278	<i>i</i>	15.67832	+0.53272037	-0.25818636		
<i>P</i>	4.14	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 11 14	408	(1.6+	4.7-)	1999 02 11	704	0.4-	0.3-	1999 02 19	411	1.2-	0.2-
1993 11 14	408	(0.3+	3.2-)	1999 02 11	704	0.9+	0.1-	1999 02 20	411	0.5-	0.5+
1993 11 15	408	0.5-	0.2+	1999 02 11	704	0.4+	0.6+	1999 02 20	411	0.4-	0.4+
1993 11 15	408	0.6-	0.3+	1999 02 18	704	0.2+	0.2-	1999 02 23	411	0.5-	0.3-
1993 11 22	408	1.0-	0.4-	1999 02 18	704	0.2+	0.5+	1999 02 23	411	0.8-	0.1-
1993 11 22	408	0.7+	0.8+	1999 02 18	704	0.4-	0.1-	1999 03 21	699	0.5+	0.0
1993 11 22	408	1.5+	0.9-	1999 02 18	704	0.2-	0.8+	1999 03 21	699	0.5+	0.1+
1999 02 11	704	0.2+	0.8-	1999 02 18	704	0.4+	0.2-	1999 03 21	699	0.5+	0.2-
1999 02 11	704	0.3+	0.1-	1999 02 19	411	0.3+	0.2-				

1999 DM₂ = 1963 VF = 1985 GY = 1992 ST₁₄ = 1995 JP₁ = 1997 WC₄₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	84.94049		(2000.0)		P		Q
<i>n</i>	0.20270351	ω	352.37097	+0.60289979	-0.76592131		
<i>a</i>	2.8700879	Ω	60.27217	+0.74489322	+0.44014635		
<i>e</i>	0.1690714	<i>i</i>	14.90263	+0.28573751	+0.46865311		
<i>P</i>	4.86	<i>H</i>	12.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1963 11 11	760	0.1+	0.5+	1995 05 08	010	(0.5+	2.2+)	1999 02 11	704	0.9-	0.4+
1963 11 11	760	0.4-	0.5+	1995 05 08	010	0.4+	1.9+	1999 02 13	699	0.1+	0.9+
1985 04 15	688	(3.6-	0.9-)	1995 05 08	010	(1.2+	2.4+)	1999 02 13	699	0.0	0.7+
1985 04 15	688	(2.7-	0.5-)	1997 11 29	704	0.0	0.3-	1999 02 13	699	0.1+	0.2-
1985 04 24	688	0.3-	0.3+	1997 11 29	704	0.6+	1.7+	1999 02 18	704	0.4-	0.3-
1985 04 24	688	1.3+	2.2-	1997 11 29	704	0.2+	0.7+	1999 02 18	704	1.0-	0.2+
1992 09 30	675	0.5-	1.2-	1997 11 29	704	0.8+	0.7+	1999 02 18	704	0.2-	0.4+
1992 09 30	675	1.1-	0.8-	1997 11 29	704	0.5+	0.9+	1999 02 18	704	0.1-	0.2-
1992 10 03	675	1.5-	1.3-	1997 11 30	566	0.2+	0.9+	1999 02 18	704	0.4+	0.3-
1992 10 03	675	(2.2-	0.1-)	1997 11 30	566	0.4-	0.6+	1999 02 19	411	0.9+	0.5+
1992 10 04	675	(0.6+	2.1-)	1997 11 30	566	0.3+	0.1+	1999 02 19	411	0.8+	0.4+
1992 10 04	675	0.7+	1.5-	1999 02 11	704	0.5-	0.8-	1999 02 20	411	0.5-	0.1-
1995 05 05	010	0.7+	0.4-	1999 02 11	704	0.2+	0.7-	1999 02 20	411	0.6-	0.2-
1995 05 05	010	0.7+	0.8-	1999 02 11	704	0.4-	0.7-	1999 02 23	411	1.1-	0.0
1995 05 05	010	1.2+	1.9+	1999 02 11	704	0.6-	0.0	1999 02 23	411	0.0	0.5+

1999 DP₂ = 1981 UL₁₀ = 1991 XL₁

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	100.80373		(2000.0)		P		Q
<i>n</i>	0.30194955	ω	305.92833	+0.79630999	-0.59865698		
<i>a</i>	2.2004582	Ω	91.00332	+0.57913057	+0.71321047		
<i>e</i>	0.1988160	<i>i</i>	4.96902	+0.17463729	+0.36461027		
<i>P</i>	3.26	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1981 10 22	095	(9.0+	3.4-)	1991 12 12	033	0.1-	0.2+	1999 02 23	699	0.1+	0.1-
1981 10 24	330	0.8-	0.7-	1999 02 19	411	0.1+	0.2-	1999 02 23	699	1.0+	0.2+
1981 10 27	095	(7.4+	2.2-)	1999 02 19	411	0.3+	0.5-	1999 02 23	699	0.4-	0.8+
1981 10 28	095	(3.5+	0.5-)	1999 02 20	411	0.1+	0.2+	1999 02 27	411	0.5-	0.1+
1981 10 29	330	0.6+	1.0+	1999 02 20	411	1.0+	1.0-	1999 02 27	411	1.6-	1.3+

1991 12 10	033	0.4-	0.1-	1999 02 22	411	0.1+	0.8-
1991 12 11	033	0.5+	0.4-	1999 02 22	411	0.1+	0.3+

1999 DU₂ = 1997 WT₂₇

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	265.30286		(2000.0)		P		Q
<i>n</i>	0.24602605	ω	210.13916	-0.46017843	+0.88714512		
<i>a</i>	2.5224079	Ω	32.49872	-0.80109172	-0.39801769		
<i>e</i>	0.0726649	<i>i</i>	3.71108	-0.38273735	-0.23357108		
<i>P</i>	4.01	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 11 29	691	0.0	0.1-	1997 12 05	691	0.3-	0.1+	1999 02 21	411	0.2+	0.9-
1997 11 29	691	0.1-	0.2-	1997 12 05	691	0.0	0.2+	1999 02 21	411	0.3-	0.2+
1997 11 29	691	0.5+	0.2-	1999 02 20	411	0.4+	0.3+	1999 02 22	411	0.0	0.1+
1997 12 05	691	0.1-	0.1+	1999 02 20	411	0.6-	0.1+	1999 02 22	411	0.2+	0.2+

1999 DB₃ = 1987 KJ₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	272.18039		(2000.0)		P		Q
<i>n</i>	0.24033911	ω	129.39863	+0.14089358	+0.98156912		
<i>a</i>	2.5620430	Ω	147.98758	-0.96663243	+0.16457239		
<i>e</i>	0.1639959	<i>i</i>	14.09726	-0.21394098	-0.09714931		
<i>P</i>	4.10	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1987 05 29	675	0.4-	0.4+	1999 02 20	704	0.0	0.9-	1999 02 22	411	0.2-	0.0
1987 05 30	675	0.7+	0.3-	1999 02 20	704	1.0+	1.8+	1999 02 23	411	0.5-	0.2-
1987 06 01	675	0.2-	0.2-	1999 02 21	411	0.2+	0.5-	1999 02 23	411	0.4+	0.2+
1999 02 20	704	1.1-	1.2-	1999 02 21	411	0.1-	0.1+				
1999 02 20	704	0.3+	0.3+	1999 02 22	411	0.0	0.4+				

1999 DO₃ = 1992 ED₂₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	336.93681		(2000.0)		P		Q
<i>n</i>	0.28761659	ω	204.99074	-0.95443339	+0.29829000		
<i>a</i>	2.2729685	Ω	352.34783	-0.26127282	-0.84971901		
<i>e</i>	0.1545983	<i>i</i>	3.85070	-0.14419920	-0.43474209		
<i>P</i>	3.43	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1992 03 08	809	0.2-	0.1-	1999 02 24	120	0.7+	0.6-	1999 03 20	704	0.2-	0.5-
1992 03 09	809	0.2+	0.2+	1999 03 19	704	1.1+	0.6-	1999 03 20	704	0.4+	0.2-
1999 02 18	120	0.1+	0.1+	1999 03 19	704	0.6-	0.9-	1999 03 20	704	0.2-	0.4+
1999 02 19	120	0.1-	0.1-	1999 03 19	704	0.3-	0.4+	1999 03 20	704	0.5+	0.5+
1999 02 19	120	1.1-	0.5+	1999 03 19	704	0.4+	1.5-	1999 03 20	704	0.6-	2.1+
1999 02 24	120	0.4+	0.3-	1999 03 19	704	0.6-	0.6+				

1999 DQ₃ = 1978 GG₅ = 1987 LB = 1991 JB₂

Id. G. V. Williams, T. Urata

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	357.42111		(2000.0)		P		Q
<i>n</i>	0.23488329	ω	64.60905	-0.93060451	-0.28921733		
<i>a</i>	2.6015647	Ω	97.91804	+0.19705248	-0.91237274		
<i>e</i>	0.1021359	<i>i</i>	13.09108	+0.30845675	-0.28970557		
<i>P</i>	4.20	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1978 04 11	095	0.5+	1.4+	1999 02 18	704	0.3-	0.4+	1999 02 25	385	0.2+	0.2-
1987 06 02	413	0.6-	0.2-	1999 02 18	704	0.8-	0.3-	1999 02 25	385	0.1+	0.0
1987 06 02	413	0.8+	0.6+	1999 02 18	704	0.2-	0.0	1999 02 25	385	0.2+	0.3-
1991 05 08	413	0.5-	0.7+	1999 02 18	704	0.1-	0.8+	1999 02 27	888	0.2-	0.0
1991 05 08	413	1.1+	0.1-	1999 02 20	905	0.1+	0.5+	1999 02 27	888	0.1-	0.1-

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1991 05 11	413	1.2−	1.5−	1999 02 20	905	1.2+	0.4+	1999 03 21	699	1.0+	0.4+
1991 05 11	413	(3.6+	2.9−)	1999 02 21	905	1.6−	1.5−	1999 03 21	699	0.8+	0.0
1999 02 18	704	0.2+	0.3+	1999 02 21	905	1.7−	1.5−	1999 03 21	699	0.7+	0.2+

1999 DS₃ = 1982 KJ₂ = 1997 WA₃₃

Id. T. Urata

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	334.04357		(2000.0)		P		Q
<i>n</i>	0.22736898	ω	123.74332	−0.95329340			+0.23995717
<i>a</i>	2.6585729	Ω	70.73144	−0.29840563			−0.84221458
<i>e</i>	0.1571107	<i>i</i>	11.20568	+0.04675230			−0.48279930
<i>P</i>	4.33	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1982 05 16	675	0.6+	0.4−	1997 11 29	704	1.7−	0.3+	1999 02 21	905	1.0−	0.7−
1982 05 16	675	1.1−	0.0	1997 12 04	704	0.7+	0.1−	1999 02 21	905	1.4+	1.7−
1982 05 17	675	0.2−	0.3−	1997 12 04	704	(1.0+ 2.1−)		1999 02 25	385	0.2−	0.3+
1982 05 18	675	0.7+	0.3+	1997 12 04	704	(1.6+ 2.2+)		1999 02 25	385	0.2−	0.0
1997 11 29	704	0.3+	0.2+	1997 12 04	704	1.6+	0.1−	1999 02 25	385	0.4+	0.5+
1997 11 29	704	0.8−	0.2−	1997 12 04	704	0.9−	1.3+	1999 02 27	888	0.4+	0.2+
1997 11 29	704	0.6+	0.0	1999 02 20	905	1.1−	0.4+	1999 02 27	888	0.4+	0.5+
1997 11 29	704	0.4+	1.5−	1999 02 20	905	0.1−	0.6+				

1999 DU₃ = 1994 LL₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	338.45745		(2000.0)		P		Q
<i>n</i>	0.17472862	ω	83.09508	−0.96842360			+0.24598415
<i>a</i>	3.1687892	Ω	111.13864	−0.24246235			−0.89135952
<i>e</i>	0.1579781	<i>i</i>	2.49419	−0.05803224			−0.38074927
<i>P</i>	5.64	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 06 03	809	0.6−	0.2−	1999 02 24	118	0.2−	0.1−	1999 02 27	118	0.7+	0.5+
1994 06 03	809	0.5+	1.1+	1999 02 24	118	0.4−	0.2−	1999 02 28	118	0.1+	0.3−
1994 06 03	809	1.4+	1.5+	1999 02 24	118	0.1−	0.2−	1999 03 08	118	0.2−	0.2+
1994 06 04	809	0.3−	0.8−	1999 02 25	118	0.8−	0.0	1999 03 08	118	0.0	0.4−
1994 06 04	809	0.9−	0.6−	1999 02 25	118	0.2−	0.3−	1999 03 15	118	0.4−	0.5+
1994 06 04	809	0.2−	1.0−	1999 02 25	118	0.3−	0.2−	1999 03 15	118	0.3−	0.0
1999 02 23	118	0.4−	0.6+	1999 02 27	118	0.0	0.2−	1999 03 16	118	0.2−	0.3+
1999 02 23	118	0.0	0.7+	1999 02 27	118	0.9+	1.1−	1999 03 24	118	0.5+	0.2−
1999 02 23	118	0.7+	0.6+	1999 02 27	118	0.5+	0.1−	1999 03 24	118	0.0	0.1−

1999 DV₃ = 1997 WT₄₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	253.03220		(2000.0)		P		Q
<i>n</i>	0.23759940	ω	211.56097	−0.08301675			+0.97391542
<i>a</i>	2.5817003	Ω	54.51499	−0.85179669			+0.04064471
<i>e</i>	0.1497212	<i>i</i>	15.03148	−0.51725295			−0.22324150
<i>P</i>	4.15	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 26	704	0.7−	1.4−	1999 02 18	704	0.6−	0.2+	1999 03 13	104	0.1−	0.5+
1997 11 26	704	1.0−	1.4−	1999 02 23	108	0.0	1.0+	1999 03 15	108	0.1+	0.6−
1997 11 26	704	1.4−	0.1−	1999 02 23	108	0.4+	0.1+	1999 03 15	108	1.9+	0.9−
1997 11 29	704	1.8+	0.2+	1999 02 23	108	0.7+	0.9+	1999 03 15	108	0.0	1.2−
1997 11 29	704	0.4−	0.1+	1999 02 24	108	1.1+	1.7−	1999 03 19	108	0.8−	0.9+
1997 11 29	704	0.7+	0.1+	1999 02 25	108	0.4+	0.8−	1999 03 19	108	0.6−	0.7+
1997 11 29	704	0.3+	0.7+	1999 02 25	108	(2.7+ 0.3−)		1999 03 19	108	(0.3+ 2.3−)	
1997 11 29	704	0.7+	1.8+	1999 02 25	108	1.1+	0.0	1999 03 19	108	(0.0 3.0−)	
1999 02 18	704	0.0	0.2−	1999 02 25	108	0.1+	1.2+	1999 03 20	108	0.4+	0.5−
1999 02 18	704	1.4−	0.2−	1999 02 25	108	0.2+	0.4−	1999 03 20	108	0.7−	0.4+
1999 02 18	704	0.1+	0.2+	1999 03 13	104	0.8−	0.4+	1999 03 20	108	0.5−	0.0
1999 02 18	704	1.2−	0.2−	1999 03 13	104	0.1−	0.5+				

1999 DH₄ = 1990 KJ₁ = 1998 BR₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	275.17037		(2000.0)		P		Q
<i>n</i>	0.21547527	ω	164.68372	+0.45917051			+0.87841068
<i>a</i>	2.7555254	Ω	132.44573	−0.83274801			+0.47755669
<i>e</i>	0.1246518	<i>i</i>	10.34437	−0.30934317			+0.01828354
<i>P</i>	4.57	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1990 05 26	413	0.6−	0.4+	1999 02 24	758	(2.3− 1.6−)		1999 03 04	758	0.6−	0.3+
1990 05 26	413	0.4+	0.3+	1999 02 25	758	0.4−	0.2+	1999 03 04	758	0.3+	0.6−
1990 05 29	413	0.3+	0.5−	1999 02 25	758	1.1+	0.1+	1999 03 04	758	0.0	0.3−
1990 05 29	413	(7.7− 1.1+)		1999 02 25	758	0.3−	0.6−	1999 03 05	758	0.2+	0.5−
1998 01 26	691	0.3−	0.0	1999 02 25	758	0.2−	0.6−	1999 03 05	758	1.0+	0.3+
1998 01 26	691	0.2−	0.1+	1999 02 26	758	0.6+	0.6−	1999 03 16	758	0.8+	0.2+
1998 01 26	691	0.1+	0.2+	1999 02 26	758	0.4−	0.5+	1999 03 16	758	0.2+	0.6+
1998 01 29	691	0.2+	0.3+	1999 02 26	758	0.7+	0.3−	1999 03 16	758	0.6−	1.0+
1998 01 29	691	0.1+	0.0	1999 02 26	758	0.3−	0.5+	1999 03 20	758	1.2−	0.2+
1998 01 29	691	0.1+	0.1−	1999 03 01	758	1.6+	1.1+	1999 03 20	758	0.3−	1.1+
1999 02 24	758	0.4−	1.8−	1999 03 01	758	0.7+	0.9−				
1999 02 24	758	2.0−	1.2−	1999 03 01	758	0.5−	0.6+				

1999 DW₆ = 1977 EH₇ = 1977 HE = 1986 RA₁₅ = 1988 GE₂**= 1997 YD₉**

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	82.36381		(2000.0)		P		Q
<i>n</i>	0.27044399	ω	85.32187	+0.34903940			−0.93602744
<i>a</i>	2.3681970	Ω	344.02381	+0.78188341			+0.31735202
<i>e</i>	0.2109731	<i>i</i>	9.40777	+0.51655574			+0.15211944
<i>P</i>	3.64	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1977 03 12	381	0.3−	0.1+	1999 02 23	704	(2.1+ 0.1−)		1999 03 19	704	0.9+	0.8−
1977 03 12	381	0.5+	0.6+	1999 02 23	704	(2.0+ 2.3−)		1999 03 19	704	0.5+	0.1−
1977 03 14	381	0.5+	0.4+	1999 02 23	704	(2.1+ 0.8−)		1999 03 19	704	0.6−	0.6+
1977 03 14	381	1.3+	0.2+	1999 02 23	704	2.0−	1.1+	1999 03 20	704	0.2+	0.8+
1977 03 15	381	0.2−	0.2−	1999 02 26	704	0.4+	0.8−	1999 03 20	704	0.7+	0.4+
1977 03 15	381	1.7−	0.1+	1999 02 26	704	1.1−	0.5+	1999 03 20	704	0.8+	0.5+
1977 04 22	801	(3.0+ 0.8+)		1999 02 26	704	1.6−	1.6−	1999 03 20	704	0.2+	1.2+
1986 09 12	095	0.9−	1.9+	1999 02 26	704	(5.7− 0.8+)		1999 03 20	704	0.4+	1.0+
1988 04 13	054	1.3+	0.3−	1999 03 14	860	0.2+	0.4−	1999 03 26	860	1.1+	0.1+
1997 12 26	566	0.4−	0.5−	1999 03 14	860	0.1+	0.1+	1999 03 26	860	1.0+	0.1+
1997 12 26	566	0.1−	0.4−	1999 03 14	860	1.0−	0.1+	1999 03 26	860	0.4+	0.1+
1997 12 26	566	0.0	0.3−	1999 03 18	860	0.0	1.1+	1999 03 27	859	0.7+	0.1+
1997 12 30	566	0.5−	1.3+	1999 03 18	860	1.5−	0.0	1999 03 27	859	0.8+	0.1+
1997 12 30	566	0.9−	1.2+	1999 03 19	704	1.1−	0.3−	1999 03 27	859	0.7+	0.0
1997 12 30	566	0.4−	1.3+	1999 03 19	704	0.3+	1.4−				

1999 DD₇ = 1991 RZ₂₁

Id. B. G. Marsden

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	81.94366		(2000.0)		P		Q
<i>n</i>	0.19473462	ω	69.19292	+0.31308243			−0.94967983
<i>a</i>	2.9478629	Ω	2.61667	+0.77719663			+0.25053044
<i>e</i>	0.0213987	<i>i</i>	11.83075	+0.54584319			+0.18799658
<i>P</i>	5.06	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 09 15	675	0.5+	0.1−	1999 02 25	012	0.5+	0.1−	1999 03 15	012	0.4−	0.2−
1991 09 15	675	0.3+	0.1−	1999 02 25	012	0.4+	0.1+	1999 03 15	012	0.3−	0.2+
1991 09 16	675	0.1−	0.7+	1999 02 25	012	0.4−	0.1−	1999 03 15	012	0.0	0.0
1991 09 16	675	0.7−	0.1+	1999 03 11	012	0.1−	0.6+	1999 03 15	012	0.2−	0.3+
1991 09 17	675	0.7+	0.7−	1999 03 11	012	0.4+	0.2+	1999 03 15	012	0.5−	0.0
1991 09 17	675	0.6−	0.1−	1999 03 11	012	0.2+	0.2+	1999 03 20	910	0.3+	0.5−

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1999 02 25 012 0.2+ 0.2- 1999 03 11 012 0.1- 0.2- 1999 03 21 910 0.3+ 0.4-
 1999 02 25 012 0.1- 0.5- 1999 03 11 012 0.7- 0.5+ 1999 03 21 910 0.4+ 0.3-

1999 DE₇ = 1996 TY₄₁

Id. G. Forti

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17730936	ω	144.56732	-0.70562519	+0.70707030		
<i>a</i>	3.1379663	Ω	80.50158	-0.66046250	-0.63262275		
<i>e</i>	0.1139049	<i>i</i>	2.69128	-0.25667563	-0.31597475		
<i>P</i>	5.56	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1996 10 08 809 0.7- 2.2+ 1999 02 23 159 1.1- 0.2- 1999 03 07 159 0.2- 0.4+
 1996 10 08 809 0.4- 0.2- 1999 02 23 159 0.1- 0.1- 1999 03 14 159 0.9+ 0.0
 1996 10 08 809 2.0+ 1.1- 1999 02 23 159 0.1- 0.5+ 1999 03 14 159 0.2+ 0.8+
 1996 10 10 809 0.2- 0.6+ 1999 02 23 159 1.1+ 0.0 1999 03 14 159 0.1- 0.6-
 1996 10 10 809 0.5- 0.6- 1999 03 07 159 1.6+ 2.6- 1999 03 14 159 1.1- 0.5+
 1996 10 10 809 0.1- 0.8- 1999 03 07 159 1.5- 0.5+ 1999 03 14 159 0.3+ 0.7+

1999 EA = 1991 ER₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24227370	ω	285.79918	+0.15281407	+0.98792367		
<i>a</i>	2.5483860	Ω	352.84275	-0.80979346	+0.11033603		
<i>e</i>	0.2590410	<i>i</i>	11.85070	-0.56646484	+0.10877858		
<i>P</i>	4.07	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 03 11 809 0.2- 0.7+ 1991 03 13 809 0.9+ 0.7- 1999 03 07 684 0.5- 0.1+
 1991 03 11 809 0.3- 0.6+ 1999 03 06 684 1.3+ 0.0 1999 03 10 684 0.0 0.1+
 1991 03 11 809 0.4- 0.9+ 1999 03 06 684 0.3- 0.6- 1999 03 10 684 0.2+ 0.3+
 1991 03 13 809 0.3- 0.7- 1999 03 06 684 0.3- 0.3- 1999 03 12 684 0.1+ 0.2+
 1991 03 13 809 0.4+ 0.8- 1999 03 07 684 0.5- 0.1- 1999 03 12 684 0.0 0.2+

1999 EG = 1993 RO₉ = 1995 DC₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26227074	ω	186.76502	-0.41555425	-0.90904771		
<i>a</i>	2.4171457	Ω	287.79290	+0.83601972	-0.36840596		
<i>e</i>	0.1212000	<i>i</i>	1.85202	+0.35830950	-0.19470315		
<i>P</i>	3.76	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 09 14 809 2.9+ 2.6+ 1995 02 27 098 0.2- 0.8+ 1999 03 21 120 0.4- 0.0
 1993 09 14 809 2.3+ 2.7+ 1995 02 27 098 0.9- 0.1- 1999 03 21 120 0.3- 0.0
 1993 09 14 809 1.7+ 1.2+ 1999 03 07 428 1.1- 1.1- 1999 03 21 120 0.0 0.6+
 1993 09 19 809 2.4- 1.5- 1999 03 07 428 0.2- 0.1+ 1999 03 22 699 1.2+ 0.1+
 1993 09 19 809 2.1- 2.7- 1999 03 09 428 1.5- 0.1- 1999 03 22 699 0.2- 0.4-
 1993 09 19 809 2.3- 2.5- 1999 03 09 428 1.6+ 0.5+ 1999 03 22 699 0.1- 0.4+
 1995 02 24 098 1.2+ 0.4+ 1999 03 10 428 0.1- 0.3+ 1999 03 23 428 0.9- 0.2+
 1995 02 24 098 0.6+ 0.9- 1999 03 10 428 1.0- 0.8- 1999 03 23 428 0.5+ 0.3+
 1995 02 25 098 0.4- 0.6+ 1999 03 13 428 0.9+ 0.4-
 1995 02 26 098 0.2- 0.6- 1999 03 13 428 1.4+ 0.1-

1999 EA₂ = 1995 DQ₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23825032	ω	224.51853	+0.99877388	-0.00771601		
<i>a</i>	2.5769959	Ω	135.85335	+0.02439681	+0.93621718		
<i>e</i>	0.2422570	<i>i</i>	4.02595	-0.04307590	+0.35133723		
<i>P</i>	4.14	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	6

1999 APR. 2

Residuals in seconds of arc

1995 02 26 691 0.2+ 0.0 1999 03 09 691 0.9- 0.1+ 1999 03 15 691 0.7+ 0.2+
 1995 02 26 691 0.5- 0.0 1999 03 09 691 0.3+ 0.2- 1999 03 15 691 0.7+ 0.1+
 1995 02 26 691 0.3+ 0.4+ 1999 03 10 691 0.4- 0.2+ 1999 03 24 691 0.0 0.1-
 1995 03 05 691 0.1- 0.2- 1999 03 10 691 0.5- 0.0 1999 03 24 691 0.0 0.0
 1995 03 05 691 0.1+ 0.2- 1999 03 10 691 0.3- 0.3- 1999 03 24 691 0.0 0.1-
 1995 03 05 691 0.1- 0.0 1999 03 15 691 0.7+ 0.0

1999 EA₃ = 1993 DH₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.16919036	ω	128.76939	-0.70678019	-0.70684609		
<i>a</i>	3.2375686	Ω	6.44229	+0.54286518	-0.56803209		
<i>e</i>	0.0610723	<i>i</i>	14.88155	+0.45360684	-0.42155444		
<i>P</i>	5.83	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 02 17 372 (0.9- 2.6+) 1999 03 12 757 0.1- 0.2- 1999 03 22 699 0.4- 1.5+
 1993 02 17 372 1.3- 1.1+ 1999 03 13 757 0.4- 0.1- 1999 03 22 699 0.4+ 0.1+
 1993 02 25 372 1.1- 0.1- 1999 03 13 757 1.6+ 0.7- 1999 03 22 699 1.0- 1.0+
 1993 02 25 372 1.7+ 0.5- 1999 03 16 757 0.2+ 0.0 1999 03 23 763 0.2- 0.1+
 1993 02 28 372 0.9+ 1.0- 1999 03 16 757 0.7- 0.2- 1999 03 23 763 0.3- 0.1-
 1993 02 28 372 0.2- 0.6+ 1999 03 22 757 0.2- 0.4-
 1999 03 12 757 0.6+ 0.1- 1999 03 22 757 0.4+ 0.7-

1999 EG₃ = 1978 RZ₇ = 1997 YM₂₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17494498	ω	17.51319	-0.41824455	+0.90827879		
<i>a</i>	3.1661760	Ω	227.76429	-0.83499811	-0.38881153		
<i>e</i>	0.1442088	<i>i</i>	0.77830	-0.35756070	-0.15445142		
<i>P</i>	5.63	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1978 09 02 809 0.2+ 1.0- 1997 12 26 566 0.4+ 0.5- 1999 03 14 557 0.3+ 0.2-
 1978 09 02 809 0.2+ 0.7- 1998 01 02 704 0.6+ 1.0+ 1999 03 14 557 0.1+ 0.2+
 1978 09 02 809 0.1- 0.4- 1998 01 02 704 0.5+ 0.7- 1999 03 14 557 0.1- 0.2-
 1978 09 02 809 0.5+ 0.6+ 1998 01 02 704 0.3- 0.4- 1999 03 18 557 0.3- 0.2-
 1978 09 02 809 0.2- 0.4- 1998 01 02 704 0.2- 0.3- 1999 03 18 557 0.2+ 0.0
 1978 09 06 809 0.2+ 0.0 1999 03 13 557 0.1- 0.2- 1999 03 24 557 0.2- 0.1-
 1997 12 26 566 0.5- 0.4- 1999 03 13 557 0.1- 0.2- 1999 03 25 557 0.3- 0.3-
 1997 12 26 566 0.7- 0.6+ 1999 03 13 557 0.1- 0.3-

**1999 ES₄ = 1962 TN = 1968 BF = 1975 TJ₁ = 1980 YK = 1986 EH₅
= 1988 SX₄**

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22731988	ω	44.59486	+0.80300383	-0.59516259		
<i>a</i>	2.6589557	Ω	351.75641	+0.46811148	+0.66214863		
<i>e</i>	0.1806409	<i>i</i>	12.52148	+0.36885836	+0.45534677		
<i>P</i>	4.34	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1962 10 04 760 (2.5- 3.3+) 1988 09 17 095 1.6- 2.2+ 1999 03 21 120 0.1+ 0.0
 1962 10 04 760 0.1- 1.3+ 1999 03 14 120 0.3- 1.0+ 1999 03 21 120 0.4+ 0.2+
 1968 01 24 095 1.2- 1.6- 1999 03 14 120 0.5+ 1.1+ 1999 03 22 699 0.6+ 0.1-
 1975 10 03 095 0.7- 0.1+ 1999 03 15 120 0.5- 0.0 1999 03 22 699 0.6+ 0.0
 1980 12 29 046 1.2- 1.9- 1999 03 15 120 0.2+ 0.1- 1999 03 22 699 0.6+ 0.1-
 1980 12 29 046 0.3- 2.1+ 1999 03 15 120 0.1- 0.4- 1999 03 23 120 0.1+ 0.3+
 1981 01 01 688 2.4+ 1.0+ 1999 03 15 120 0.5+ 0.7+ 1999 03 23 120 0.0 0.6+
 1981 01 01 688 (3.2+ 3.9-) 1999 03 15 120 0.1+ 0.1- 1999 03 23 120 0.2- 0.6+
 1986 03 05 809 0.7- 1.7- 1999 03 16 120 0.1+ 0.4- 1999 03 24 699 0.8+ 0.9+
 1986 03 05 809 0.2- 0.4- 1999 03 16 120 0.8+ 0.0 1999 03 24 699 0.4+ 0.9+
 1986 03 13 809 0.6- 0.7- 1999 03 16 120 0.1- 0.4+ 1999 03 24 699 0.1+ 1.4+
 1986 03 13 809 1.4- 0.1+ 1999 03 21 120 1.7+ 0.2+

1999 APR. 2

M.P.C. 34263

1999 FJ = 1978 RT₉ = 1997 WM₄₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	17.04325		(2000.0)	P		Q	
<i>n</i>	0.21814101	ω	293.22258	−0.86979712	−0.49309259		
<i>a</i>	2.7330306	Ω	217.24008	+0.46270477	−0.80270112		
<i>e</i>	0.0953083	<i>i</i>	1.67441	+0.17133962	−0.33545583		
<i>P</i>	4.52	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1978 09 02	809	0.9+	0.5−	1997 11 29	704	0.3+	0.0
1978 09 02	809	0.5−	0.6−	1997 11 29	704	1.5+	0.7−
1978 09 02	809	0.1−	0.6+	1997 11 29	704	0.0	0.9−
1997 11 26	704	0.8−	0.4+	1999 03 16	120	0.7+	1.5+
1997 11 26	704	0.1−	1.0+	1999 03 16	120	3.3+	0.8−
1997 11 26	704	0.6−	0.2+	1999 03 16	120	1.1−	0.3−
1997 11 29	704	0.3−	0.2−	1999 03 18	120	(4.7−	0.9−)

1999 FF₇ = 1997 SO₁₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	301.47343		(2000.0)	P		Q	
<i>n</i>	0.31549531	ω	237.91223	−0.60952811	+0.79273924		
<i>a</i>	2.1370144	Ω	354.51954	−0.70321260	−0.54434011		
<i>e</i>	0.0912898	<i>i</i>	3.79603	−0.36601575	−0.27433253		
<i>P</i>	3.12	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1997 09 27	910	0.2−	0.0	1997 09 30	910	0.0	0.3+
1997 09 27	910	0.0	0.4−	1999 03 16	120	1.2+	0.8+
1997 09 27	910	0.4+	0.3−	1999 03 16	120	1.1−	0.7+
1997 09 30	910	0.1−	0.1+	1999 03 16	120	0.3−	1.4−
1997 09 30	910	0.0	0.3+	1999 03 21	120	0.7+	0.2−

1999 FL₁₉ = 1996 TU₆₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	37.85578		(2000.0)	P		Q	
<i>n</i>	0.18361348	ω	28.23373	−0.67846241	−0.73272864		
<i>a</i>	3.0657237	Ω	104.54325	+0.66331480	−0.64195094		
<i>e</i>	0.1349890	<i>i</i>	3.13233	+0.31575660	−0.22584889		
<i>P</i>	5.37	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	6
Residuals in seconds of arc							
1996 10 07	809	0.9+	0.5−	1999 03 19	704	1.8−	1.3−
1996 10 07	809	1.3+	0.6+	1999 03 19	704	0.4−	1.1−
1996 10 07	809	1.0+	0.0	1999 03 19	704	1.2−	0.2+
1996 10 08	809	1.7−	0.7+	1999 03 20	704	0.2−	0.3+
1996 10 08	809	1.6−	0.2−	1999 03 20	704	0.0	1.4+
1996 10 08	809	0.2+	0.6−	1999 03 20	704	1.1+	0.1+
1999 03 19	704	0.4−	0.1−	1999 03 20	704	0.3−	0.2+
1999 03 19	704	1.0+	0.2−	1999 03 20	704	0.7−	0.6+

2022 P-L = 1999 CM₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	198.27543		(2000.0)	P		Q	
<i>n</i>	0.21445062	ω	295.70518	+0.30824197	+0.95123225		
<i>a</i>	2.7642958	Ω	352.21920	−0.83794657	+0.26551544		
<i>e</i>	0.0426403	<i>i</i>	5.08676	−0.45036921	+0.15703105		
<i>P</i>	4.60	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	6
Residuals in seconds of arc							
1960 09 24	675	0.2−	0.1+	1960 10 25	675	0.1+	0.7−
1960 09 26	675	0.6+	0.7+	1960 10 26	675	0.2−	0.6+
1960 09 28	675	0.9−	0.8−	1999 02 10	704	0.3−	1.2+
1960 09 29	675	0.8+	0.1+	1999 02 10	704	0.4+	0.3+

1960 10 17	675	0.0	0.5+	1999 02 10	704	0.2−	0.6−	1999 02 13	704	0.3−	0.5+
1960 10 22	675	0.0	0.2−	1999 02 10	704	0.9−	0.8−	1999 02 13	704	(1.9−	2.2−)

2039 P-L = 1998 RZ₅₉

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	7.76891		(2000.0)	P		Q	
<i>n</i>	0.23318048	ω	188.29401	+0.74667444	−0.66358645		
<i>a</i>	2.6142147	Ω	213.42693	+0.61500650	+0.71511924		
<i>e</i>	0.2992951	<i>i</i>	4.80620	+0.25346458	+0.21967590		
<i>P</i>	4.23	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1960 09 24	675	0.8−	0.6−	1998 09 14	704	0.9+	2.1+
1960 09 26	675	0.3−	0.5−	1998 09 14	704	0.3−	0.9+
1960 09 28	675	0.1+	0.2−	1998 09 18	704	1.1−	0.5+
1960 09 29	675	0.6+	1.1+	1998 09 18	704	0.3+	0.9−
1960 10 17	675	0.3+	0.0	1998 09 18	704	0.6+	1.0−
1960 10 22	675	0.6+	0.3−	1998 09 18	704	0.4−	0.2−
1960 10 25	675	0.1−	0.8+	1998 09 18	704	0.5+	0.5+
1960 10 26	675	0.1+	0.0	1998 09 26	704	0.2+	0.5+
1998 09 14	704	0.8+	0.5−	1998 09 26	704	0.2+	0.9−

2155 P-L = 1997 GY₁₁

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	353.71496		(2000.0)	P		Q	
<i>n</i>	0.17862400	ω	33.92424	+0.90360552	+0.42816376		
<i>a</i>	3.1225507	Ω	300.71939	−0.39633484	+0.82399997		
<i>e</i>	0.1811036	<i>i</i>	0.87629	−0.16252925	+0.37107929		
<i>P</i>	5.52	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1960 09 24	675	0.3−	0.7−	1997 04 03	704	0.2−	0.5+
1960 09 26	675	0.4+	0.0	1997 04 03	704	1.2−	1.4−
1960 09 28	675	0.4−	0.4+	1997 04 05	704	0.1−	0.8−
1960 09 29	675	0.5+	0.5+	1997 04 05	704	0.9+	0.2−
1960 10 26	675	0.3−	0.1−	1997 04 06	704	0.3−	1.3+

2156 P-L = 1993 TW₁₅

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	359.55019		(2000.0)	P		Q	
<i>n</i>	0.17975449	ω	168.20414	+0.99818005	−0.02933529		
<i>a</i>	3.1094451	Ω	193.80733	+0.01874523	+0.98135950		
<i>e</i>	0.1468328	<i>i</i>	12.75416	+0.05731669	+0.18992884		
<i>P</i>	5.48	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	6
Residuals in seconds of arc							
1960 09 24	675	0.5+	0.5+	1960 09 29	675	1.2−	0.3+
1960 09 24	675	0.1+	0.4−	1960 09 29	675	0.8−	0.1+
1960 09 26	675	0.1+	0.0	1993 10 09	809	1.5−	1.6−
1960 09 26	675	0.4+	0.4+	1993 10 09	809	1.5−	1.3−
1960 09 28	675	0.1−	0.3−	1993 10 09	809	1.7−	0.3−
1960 09 28	675	1.1+	0.6−	1993 10 11	809	1.2+	1.3+

2231 P-L = 1987 YH₁ = 1993 FH₅₁

Id. A. Doppler, T. Kobayashi

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	177.97340	(2000.0)	P		Q	
<i>n</i>	0.22337357	ω	211.90509	-0.17087272	-0.98506907	
<i>a</i>	2.6901812	Ω	247.94079	+0.90868786	-0.14930804	
<i>e</i>	0.2164462	<i>i</i>	1.29901	+0.38090536	-0.08570903	
<i>P</i>	4.41	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 4	
Residuals in seconds of arc						
1960 09 24	675	0.7-	0.2-	1987 12 25	033	0.2+ 0.1-
1960 09 26	675	0.1+	0.1+	1987 12 25	033	0.2- 0.1+
1960 09 28	675	0.7+	0.1+	1993 03 19	809	0.2- 0.0
				1993 03 20	809	0.2+ 0.0
				1993 03 24	809	(3.4+ 3.8-)
				1993 04 17	413	(3.0+ 4.3-)

2234 P-L = 1998 SG₈

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	21.28802	(2000.0)	P		Q	
<i>n</i>	0.28530978	ω	20.91205	+0.90844022	-0.41793511	
<i>a</i>	2.2852038	Ω	3.82179	+0.36403365	+0.78137931	
<i>e</i>	0.1448839	<i>i</i>	7.03345	+0.20546502	+0.46343999	
<i>P</i>	3.45	<i>H</i>	17.5	<i>G</i> 0.15	<i>U</i> 4	
Residuals in seconds of arc						
1960 09 24	675	0.1+	0.4+	1960 09 29	675	0.6+ 0.1-
1960 09 24	675	0.4+	0.5-	1960 10 17	675	(3.3- 1.5-)
1960 09 26	675	0.2+	0.2-	1960 10 22	675	0.6- 0.3-
1960 09 26	675	0.1-	0.3+	1960 10 26	675	0.4+ 0.4+
1960 09 28	675	0.0	0.1+	1998 09 20	691	0.1+ 0.1+
1960 09 28	675	0.9-	0.3+	1998 09 20	691	0.0 0.1+
1960 09 29	675	0.0	0.9-	1998 09 20	691	0.0 0.0

2654 P-L = 1998 YD₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	353.77417	(2000.0)	P		Q	
<i>n</i>	0.18329976	ω	306.59462	+0.05772049	-0.99816544	
<i>a</i>	3.0692207	Ω	140.08440	+0.92480941	+0.04656458	
<i>e</i>	0.1710555	<i>i</i>	1.63234	+0.37602647	+0.03869736	
<i>P</i>	5.38	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 6	
Residuals in seconds of arc						
1960 09 24	675	0.3+	0.5-	1998 12 23	691	0.5- 0.3+
1960 09 24	675	0.5-	0.0	1998 12 23	691	0.5- 0.4-
1960 09 26	675	0.3+	0.8-	1998 12 23	327	0.2+ 0.2-
1960 09 26	675	0.3+	0.1+	1998 12 23	327	0.3+ 0.2-
1960 09 28	675	0.8-	0.3+	1998 12 23	327	0.0 0.1-
1960 09 28	675	0.3+	0.9+	1998 12 24	327	0.1+ 0.3+
1998 12 23	691	(3.3+ 2.8-)		1998 12 24	327	0.3+ 0.2-

2734 P-L = 1993 TO₂₇

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	357.75615	(2000.0)	P		Q	
<i>n</i>	0.18040614	ω	261.81332	+0.99027678	-0.13439330	
<i>a</i>	3.1019527	Ω	105.90469	+0.13774814	+0.91126131	
<i>e</i>	0.2173054	<i>i</i>	2.14056	+0.01942548	+0.38928300	
<i>P</i>	5.46	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 6	
Residuals in seconds of arc						
1960 09 24	675	0.3-	0.0	1960 09 28	675	0.4- 1.3+
1960 09 24	675	1.3+	0.3-	1993 10 09	809	1.5+ 0.3+
1960 09 26	675	0.4-	0.6-	1993 10 09	809	0.4+ 0.5-
1960 09 26	675	0.5+	0.5-	1993 10 09	809	0.2+ 0.3+
1960 09 28	675	0.6-	0.1+	1993 10 11	809	0.4- 0.3+
				1993 10 11	809	1.0- 0.2+
				1993 10 11	809	1.8- 0.3-
				1993 10 20	809	0.9+ 0.0
				1993 10 20	809	0.7+ 0.1+
				1993 10 20	809	0.6- 0.4-

2768 P-L = 3188 T-3 = 1997 LT₁₇Id. T. Kobayashi (*MPC* 15902), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	144.67450	(2000.0)	P		Q	
<i>n</i>	0.23304785	ω	111.46504	-0.52808633	+0.84830043	
<i>a</i>	2.6152065	Ω	126.59956	-0.79594466	-0.47850034	
<i>e</i>	0.1204218	<i>i</i>	2.77546	-0.29596776	-0.22676817	
<i>P</i>	4.23	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 3	
Residuals in seconds of arc						
1960 09 24	675	0.4+	0.4+	1977 10 17	675	1.2+ 0.7+
1960 09 26	675	0.6+	0.6+	1977 10 17	675	1.7+ 0.5+
1960 09 28	675	0.6-	0.1+	1977 10 17	675	0.1+ 0.3+
1960 09 29	675	0.6-	0.3-	1977 10 17	675	0.0 1.2-
1977 10 07	675	(0.0 3.5-)		1977 10 21	675	(2.1+ 3.6-)
1977 10 11	675	1.8-	1.5+	1977 10 21	675	(3.1+ 3.2-)
1977 10 11	675	1.8-	0.6+	1977 10 22	675	(2.5+ 4.4-)
1977 10 12	675	1.2-	0.6-	1997 06 08	809	0.2+ 1.0+
1977 10 12	675	1.0-	0.0	1997 06 08	809	1.2- 0.8+
1977 10 16	675	(1.4+ 3.0-)		1997 06 08	809	0.0 1.3+
1977 10 16	675	0.1+	0.7-	1997 06 09	809	0.8+ 0.9-
1977 10 16	675	1.5+	1.0-	1997 06 09	809	0.0 1.1-
1977 10 16	675	0.8+	0.8+	1997 06 09	809	0.3+ 0.8-

2849 P-L = 1996 TN₃₄

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	265.19420	(2000.0)	P		Q	
<i>n</i>	0.27479403	ω	336.44974	+0.92611955	+0.37722971	
<i>a</i>	2.3431379	Ω	1.38845	-0.34223818	+0.84084987	
<i>e</i>	0.2149428	<i>i</i>	1.35392	-0.15866824	+0.38816137	
<i>P</i>	3.59	<i>H</i>	17.6	<i>G</i> 0.15	<i>U</i> 4	
Residuals in seconds of arc						
1960 09 24	675	0.3+	0.4+	1960 10 26	675	0.2- 0.5+
1960 09 26	675	0.6-	0.0	1996 10 10	691	0.4- 0.1+
1960 09 26	675	0.1+	0.7+	1996 10 10	691	0.0 0.1-
1960 09 28	675	0.7-	0.0	1996 10 10	691	0.1- 0.0
1960 09 28	675	0.4-	0.6-	1996 10 11	691	0.2- 0.0
1960 09 29	675	0.9+	0.4-	1996 10 11	691	0.3- 0.0
1960 09 29	675	0.5+	0.3-	1996 10 11	691	0.1- 0.2+

3009 P-L = 1997 PB₄

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	51.38118	(2000.0)	P		Q	
<i>n</i>	0.18453393	ω	73.45867	+0.93231296	-0.33992402	
<i>a</i>	3.0555207	Ω	306.24875	+0.24488109	+0.84458302	
<i>e</i>	0.1357389	<i>i</i>	8.80653	+0.26613116	+0.41368005	
<i>P</i>	5.34	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 5	
Residuals in seconds of arc						
1960 09 24	675	0.6+	1.1+	1997 08 10	658	1.1+ 0.1+
1960 09 25	675	2.4-	0.2-	1997 08 10	658	1.0+ 0.2+
1960 09 25	675	0.8+	0.3-	1997 08 13	658	0.8+ 0.0
1960 09 26	675	1.4+	1.2+	1997 08 13	658	2.0- 0.5-
1960 09 26	675	0.2-	0.3-	1997 08 13	658	0.1+ 0.1+
1960 09 27	675	0.4+	1.0-	1997 08 14	658	0.2- 0.2-
1960 09 28	675	0.2-	0.9-	1997 08 14	658	0.3- 0.0
1960 09 29	675	0.4-	0.4+	1997 08 14	658	0.2+ 0.1-
1997 08 10	658	1.0+	0.3+	1997 08 15	658	0.0 0.1+

3056 P-L = 1993 PR

Id. A. Doppler

1999 APR. 2

M.P.C. 34265

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	221.91877		(2000.0)	P	Q						
<i>n</i>	0.26614824	ω	316.97337	-0.29170044	+0.94982027						
<i>a</i>	2.3936114	Ω	295.77606	-0.84002503	-0.31084877						
<i>e</i>	0.1368823	<i>i</i>	7.20407	-0.45745908	-0.03484955						
<i>P</i>	3.70	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	7				
Residuals in seconds of arc											
1960 09 24	675	1.3+	0.2-	1993 08 13	691	0.7-	0.1-	1993 08 14	691	0.1+	0.7+
1960 09 26	675	1.0-	0.4-	1993 08 13	691	0.4-	0.3+	1993 08 14	010	0.9+	0.3-
1960 09 26	675	1.5+	0.3+	1993 08 13	691	0.2-	0.2+	1993 08 14	010	0.2+	0.4-
1960 09 28	675	0.1-	0.6+	1993 08 14	691	0.2+	0.4+	1993 08 14	010	1.1-	0.4-
1960 09 29	675	1.6-	0.3-	1993 08 14	691	0.1+	0.4+	1993 08 15	010	0.8+	1.0-

4128 P-L = 1999 FV₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	22.46661		(2000.0)	P	Q						
<i>n</i>	0.19180924	ω	322.90551	-0.89241716	-0.45004035						
<i>a</i>	2.9777601	Ω	190.49753	+0.44482539	-0.86543402						
<i>e</i>	0.0555272	<i>i</i>	10.27087	+0.07564385	-0.22019911						
<i>P</i>	5.14	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1960 09 24	675	0.7-	1.0+	1960 10 24	675	0.0	0.6+	1999 03 20	704	0.4+	0.3+
1960 09 25	675	0.1-	0.1+	1999 03 19	704	0.2-	0.2-	1999 03 20	704	0.4+	0.6-
1960 09 26	675	0.1+	0.6-	1999 03 19	704	0.1+	1.0+	1999 03 20	704	0.4-	1.3-
1960 09 28	675	0.9+	0.6-	1999 03 19	704	0.6+	0.2+	1999 03 20	704	0.8+	0.4-
1960 10 17	675	0.9+	0.0	1999 03 19	704	1.9-	0.2-				
1960 10 22	675	1.0-	1.2-	1999 03 20	704	0.1+	0.4+				

4218 P-L = 1998 FF₁₀₃

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	22.79682		(2000.0)	P	Q						
<i>n</i>	0.22737986	ω	302.04428	-0.23750445	+0.96963028						
<i>a</i>	2.6584881	Ω	314.09754	-0.86157287	-0.23803409						
<i>e</i>	0.2464612	<i>i</i>	4.66318	-0.44864666	-0.05618629						
<i>P</i>	4.33	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1960 09 24	675	0.3-	0.6-	1998 03 31	704	0.1+	0.4-	1998 04 18	704	0.3-	0.7-
1960 09 25	675	0.6+	0.7+	1998 04 01	704	0.6+	0.6+	1998 04 18	704	0.5-	0.2-
1960 09 26	675	0.2-	0.8-	1998 04 01	704	0.5-	0.2+	1998 04 19	704	0.9+	0.3-
1960 09 28	675	0.4-	0.2+	1998 04 01	704	0.2+	0.6-	1998 04 19	704	0.8-	0.1+
1960 10 26	675	0.3+	0.4+	1998 04 01	704	0.1+	0.4+	1998 04 19	704	0.1+	0.7+
1998 03 31	704	0.2-	0.3-	1998 04 01	704	0.0	0.4+	1998 04 19	704	0.0	0.0
1998 03 31	704	0.1-	0.9-	1998 04 18	704	0.3+	0.6+	1998 04 19	704	0.4-	0.2-
1998 03 31	704	0.0	0.2+	1998 04 18	704	0.3+	0.4+				

4326 P-L = 1998 RG₄₆

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	44.85624		(2000.0)	P	Q						
<i>n</i>	0.23319142	ω	50.51539	+0.85241195	+0.52113951						
<i>a</i>	2.6141329	Ω	278.03691	-0.49194170	+0.77178397						
<i>e</i>	0.2702834	<i>i</i>	2.46082	-0.17716443	+0.36436673						
<i>P</i>	4.23	<i>H</i>	17.2	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1960 09 24	675	0.6-	0.1+	1998 09 14	704	0.7-	0.3+	1998 09 26	704	1.2+	1.0-
1960 09 25	675	1.1-	0.5+	1998 09 14	704	0.3-	0.4+	1998 09 26	704	0.7+	0.9-
1960 09 25	675	0.7+	0.6+	1998 09 14	704	1.8+	0.5+	1998 09 27	704	1.6-	1.4+
1960 09 26	675	1.1+	0.8-	1998 09 18	704	0.5-	0.6+	1998 09 27	704	0.9+	0.4+
1960 09 26	675	0.1-	0.2-	1998 09 18	704	1.1-	0.0	1998 09 27	704	1.1-	1.1+

1960 09 28	675	0.1+	0.4-	1998 09 18	704	0.4-	0.7-	1998 09 27	704	0.1+	0.7-
1998 09 14	704	0.5+	1.4-	1998 09 26	704	0.8+	0.2+	1998 09 27	704	0.6-	0.2+

4737 P-L = 1996 EZ₂

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	290.43710		(2000.0)	P	Q						
<i>n</i>	0.20447480	ω	67.72425	+0.27421049	-0.96116817						
<i>a</i>	2.8534889	Ω	6.59644	+0.75243648	+0.19432846						
<i>e</i>	0.1429073	<i>i</i>	15.68372	+0.59887224	+0.19593926						
<i>P</i>	4.82	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1960 09 24	675	0.5-	1.6+	1960 09 28	675	1.8-	0.7+	1996 03 10	327	0.2-	0.4+
1960 09 24	675	0.6+	0.2-	1960 09 28	675	0.3-	1.0-	1996 03 10	327	0.1-	0.8+
1960 09 26	675	0.5+	0.7+	1996 03 09	327	0.3-	0.5-	1996 03 11	327	1.7-	1.2+
1960 09 26	675	1.6+	0.4-	1996 03 09	327	1.3+	1.4-	1996 03 11	327	1.8-	1.0+
1960 09 27	675	0.6-	0.2-	1996 03 09	327	1.4+	1.7-	1996 03 11	327	2.6+	0.2+
1960 09 27	675	0.5+	1.1-	1996 03 10	327	1.2-	0.1+				

4809 P-L = 1996 VP₁₂

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	219.86426		(2000.0)	P	Q						
<i>n</i>	0.27529722	ω	6.20247	+0.66020782	-0.75014618						
<i>a</i>	2.3402818	Ω	42.49039	+0.68669715	+0.58263330						
<i>e</i>	0.1634873	<i>i</i>	3.18264	+0.30425753	+0.31276052						
<i>P</i>	3.58	<i>H</i>	16.9	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1960 09 24	675	0.6-	0.5-	1996 11 05	691	0.3-	0.2-	1996 11 08	587	1.3+	0.2+
1960 09 26	675	0.4-	0.5-	1996 11 05	691	0.1-	0.3-	1996 11 10	691	0.4-	0.0
1960 09 27	675	0.9+	0.7+	1996 11 05	691	0.3-	0.1-	1996 11 10	691	0.4-	0.3+
1960 09 28	675	0.3-	0.8+	1996 11 08	587	0.1-	0.1-	1996 11 10	691	0.4-	0.1+
1960 10 26	675	0.5+	0.8-	1996 11 08	587	0.6+	0.1+				

4844 P-L = 1998 BW₉

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	26.33466		(2000.0)	P	Q						
<i>n</i>	0.29636443	ω	21.81569	-0.98644445	-0.16162259						
<i>a</i>	2.2280178	Ω	148.84123	+0.14128018	-0.92446973						
<i>e</i>	0.0918199	<i>i</i>	3.14439	+0.08347016	-0.34530255						
<i>P</i>	3.33	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1960 09 24	675	0.4+	0.3+	1998 01 22	691	0.0	0.1-	1998 01 26	691	0.1+	0.2-
1960 09 24	675	0.6-	0.3+	1998 01 22	691	0.4+	0.3-	1998 02 02	691	0.3-	0.0
1960 09 26	675	0.9-	0.2-	1998 01 22	691	0.6-	0.3+	1998 02 02	691	0.4-	0.5+
1960 09 28	675	0.8+	0.9+	1998 01 26	691	0.2+	0.4-	1998 02 02	691	0.2+	0.4+
1960 09 28	675	0.3+	1.2-	1998 01 26	691	0.2+	0.2-				

4868 P-L = 1962 CE₁ = 1997 TT₁₁ = 1998 XT₄₈

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	4.04417		(2000.0)	P	Q						
<i>n</i>	0.18533960	ω	79.95337	-0.18412198	-0.98283703						
<i>a</i>	3.0466593	Ω	20.66719	+0.88864600	-0.17141987						
<i>e</i>	0.1825889	<i>i</i>	1.85463	+0.42000879	-0.06816599						
<i>P</i>	5.32	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	2				

Residuals in seconds of arc

1960 09 24	675	0.4+	0.5−	1997 10 07	691	0.3+	0.2+	1998 12 14	704	0.0	0.5+
1960 09 24	675	0.2−	0.3+	1997 10 08	691	0.0	0.1−	1998 12 14	704	0.4−	0.8+
1960 09 26	675	0.2+	0.5+	1997 10 08	691	0.1+	0.2+	1998 12 14	704	0.5+	1.2−
1960 09 26	675	0.0	0.9−	1997 10 08	691	0.1+	0.0	1998 12 14	704	0.1−	0.3+
1960 09 28	675	0.2+	0.3−	1997 10 09	691	0.3−	0.7+	1998 12 17	704	0.0	0.4+
1960 09 28	675	0.0	0.4−	1997 10 09	691	0.5−	0.2+	1998 12 17	704	0.5+	0.4+
1962 02 10	033	1.1−	0.3+	1997 10 09	691	0.3−	0.1+	1998 12 17	704	0.2+	0.7−
1962 02 10	033	1.2+	0.3+	1997 10 23	691	0.3+	0.4+	1998 12 17	704	0.4+	0.6+
1997 10 07	691	0.1+	0.3+	1997 10 23	691	0.1−	0.2−	1998 12 17	704	1.1−	1.3−
1997 10 07	691	0.4−	0.1−	1997 10 23	691	0.1−	0.2+				

4882 P-L = 2165 T-1 = 1998 UU₇Id. G. V. Williams (*MPC* 19318), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	201.44031		(2000.0)	P	Q		
<i>n</i>	0.23519252	ω	191.53255	−0.84826121	+0.52603252		
<i>a</i>	2.5992838	Ω	20.56035	−0.47097330	−0.69651683		
<i>e</i>	0.0519299	<i>i</i>	10.03205	−0.24215091	−0.48801034		
<i>P</i>	4.19	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1960 09 26	675	0.0	0.9−	1998 10 21	120	1.8+	0.9+	1998 10 29	704	0.7−	0.2+
1960 09 27	675	0.4+	0.1−	1998 10 21	120	0.4−	1.3−	1998 10 29	704	0.7−	0.0
1960 09 28	675	1.0+	0.1+	1998 10 23	120	0.5+	0.7+	1998 11 10	704	0.3−	0.4+
1960 10 17	675	0.8+	1.1+	1998 10 23	120	1.1+	0.7+	1998 11 10	704	1.3+	0.7+
1960 10 22	675	0.5+	0.4−	1998 10 24	120	1.1−	0.3+	1998 11 10	704	0.0	1.3−
1960 10 25	675	1.5−	0.4−	1998 10 24	120	0.7−	0.7+	1998 11 11	704	0.5−	0.6−
1960 10 26	675	0.6−	0.6−	1998 10 27	120	3.6+	1.1−	1998 11 11	704	0.1+	0.2−
1971 03 24	675	2.2−	0.4−	1998 10 27	120	0.8−	0.0	1998 11 11	704	0.2−	0.3+
1971 03 25	675	1.5−	0.9+	1998 10 27	120	0.4+	0.1+	1998 11 11	704	0.1−	1.3+
1971 03 25	675	1.4−	0.7+	1998 10 28	704	0.6−	0.9+	1998 11 11	120	0.4−	0.5+
1971 03 26	675	0.5−	0.2+	1998 10 28	704	0.2−	1.7−	1998 11 11	120	0.4+	0.2+
1971 04 16	675	2.9+	0.2−	1998 10 28	704	0.6−	0.4+	1998 11 11	120	0.4+	0.1−
1971 04 16	675	2.4+	2.3−	1998 10 28	704	0.7+	1.9−	1998 11 12	120	0.9−	0.7+
1998 10 11	699	0.5+	0.1+	1998 10 28	120	0.7+	0.0	1998 11 12	120	1.1−	1.7−
1998 10 11	699	0.5+	0.0	1998 10 28	120	1.6−	0.5+	1998 11 15	120	0.5−	0.1−
1998 10 11	699	1.2+	0.2+	1998 10 29	704	0.6−	1.1+	1998 11 15	120	0.0	0.5−
1998 10 15	120	0.5−	0.7+	1998 10 29	704	0.2+	0.3−				
1998 10 15	120	0.5−	0.2+	1998 10 29	704	0.7−	1.0−				

4899 P-L = 1996 RM₆

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	199.30424		(2000.0)	P	Q		
<i>n</i>	0.21848006	ω	160.40468	+0.92111654	+0.38926951		
<i>a</i>	2.7302024	Ω	176.67939	−0.36511124	+0.86715689		
<i>e</i>	0.1859935	<i>i</i>	3.64622	−0.13504851	+0.31065765		
<i>P</i>	4.51	<i>H</i>	16.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1960 09 24	675	0.5−	0.4−	1960 09 28	675	0.6−	0.3−	1996 09 08	691	0.3+	0.1+
1960 09 24	675	0.3−	0.8−	1960 09 28	675	0.1−	0.2−	1996 09 08	691	0.3+	0.0
1960 09 26	675	0.2+	0.9−	1996 09 05	691	0.1−	0.1+	1996 09 19	691	0.2−	0.1−
1960 09 26	675	0.3−	0.0	1996 09 05	691	0.4−	0.1+	1996 09 19	691	0.1+	0.1−
1960 09 27	675	0.5+	1.5+	1996 09 05	691	0.1−	0.3+	1996 09 19	691	0.2−	0.2−
1960 09 27	675	1.2+	1.2+	1996 09 08	691	0.3+	0.2−				

4905 P-L = 1998 TN₁₉

Id. A. Gnädig

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

				(2000.0)				P	Q
<i>M</i>	313.40754								
<i>n</i>	0.26051476	ω	123.13407	−0.44598195	−0.89503153				
<i>a</i>	2.4279952	Ω	353.34779	+0.80826048	−0.40066206				
<i>e</i>	0.1448092	<i>i</i>	2.13759	+0.38446729	−0.19592979				
<i>P</i>	3.78	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1960 09 24	675	0.4+	0.0	1960 09 28	675	0.3+	0.2−	1998 10 18	327	0.4−	0.0
1960 09 24	675	0.3+	0.0	1998 10 15	327	0.1−	0.0	1998 10 18	327	0.7−	0.6−
1960 09 26	675	0.1+	0.7−	1998 10 15	327	0.8+	0.9+	1998 10 18	327	0.2−	0.0
1960 09 26	675	0.2+	0.7+	1998 10 15	327	0.6+	0.2−	1998 10 28	691	0.1+	0.1+
1960 09 27	675	0.1−	0.1+	1998 10 17	327	0.3−	0.1−	1998 10 28	691	0.1+	0.1+
1960 09 27	675	1.5−	0.4+	1998 10 17	327	0.1+	0.0	1998 10 28	691	0.1+	0.1+
1960 09 28	675	0.2+	0.3−	1998 10 17	327	0.1−	0.3−				

4908 P-L = 1992 EU₂₇

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

				(2000.0)				P	Q
<i>M</i>	73.26145								
<i>n</i>	0.20256889	ω	81.30127	−0.47020080	+0.88199763				
<i>a</i>	2.8713594	Ω	160.55559	−0.84236658	−0.43785783				
<i>e</i>	0.0500419	<i>i</i>	5.42739	−0.26330544	−0.17424323				
<i>P</i>	4.87	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1960 09 24	675	1.0−	1.4+	1960 09 28	675	0.1−	0.0	1992 03 06	691	1.3−	1.5+
1960 09 24	675	0.0	1.6−	1992 02 29	691	0.7+	0.1−	1992 03 06	691	1.2−	1.2+
1960 09 26	675	0.2+	0.0	1992 02 29	691	0.8+	0.8−	1992 03 08	809	2.4+	3.4−
1960 09 27	675	0.3+	0.5−	1992 03 06	809	0.2−	0.8+				
1960 09 28	675	0.5+	0.6+	1992 03 06	691	1.1−	0.7+				

6329 P-L = 1995 UO₁₃

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

				(2000.0)				P	Q
<i>M</i>	207.72307								
<i>n</i>	0.17062317	ω	170.79659	+0.94803952	−0.31484698				
<i>a</i>	3.2194180	Ω	207.68953	+0.28527883	+0.90489849				
<i>e</i>	0.1196481	<i>i</i>	5.64935	+0.14084407	+0.28640897				
<i>P</i>	5.78	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1960 09 24	675	0.1−	0.2−	1960 09 28	675	0.3+	0.0	1995 10 22	691	0.1+	0.5−
1960 09 24	675	0.3−	0.3+	1960 09 28	675	0.5−	0.2+	1995 10 22	691	0.3+	0.3−
1960 09 25	675	0.2−	0.8−	1995 10 17	691	0.2+	0.1+	1995 10 27	691	0.1+	0.0
1960 09 25	675	0.7+	1.1+	1995 10 17	691	0.3−	0.3+	1995 10 27	691	0.2−	0.2+
1960 09 26	675	0.2+	0.0	1995 10 17	691	0.1+	0.1+	1995 10 27	691	0.0	0.3+
1960 09 26	675	0.0	0.6−	1995 10 22	691	0.3−	0.2−				

6349 P-L = 1997 WC₂₄

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

				(2000.0)				P	Q
<i>M</i>	78.87034								
<i>n</i>	0.21481334	ω	180.69030	+0.51488105	−0.85617372				
<i>a</i>	2.7611832	Ω	238.32108	+0.78676510	+0.49194089				
<i>e</i>	0.0739093	<i>i</i>	2.90809	+0.34043821	+0.15798962				
<i>P</i>	4.59	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	3		

Residuals in seconds of arc

1960 09 24	675	1.0−	1.1−	1997 10 01	910	0.0	0.4+	1997 12 04	691	0.4+	0.4+
1960 09 26	675	1.1+	0.9+	1997 11 22	691	0.4−	0.2−	1997 12 04	691	0.8+	0.5+
1960 09 26	675	0.0	0.8−	1997 11 22	691	0.3−	0.4−	1997 12 04	691	0.5+	0.3+
1960 09 28	675	0.3+	0.5+	1997 11 22	691	0.2−	0.3−	1999 02 17	910	0.8−	0.0
1960 09 28	675	0.1+	0.7−	1997 11 28	691	0.3−	0.4−	1999 02 17	910	0.2+	0.3−

1999 APR. 2

M.P.C. 34267

1997 10 01 910 0.1+ 0.5+ 1997 11 28 691 0.4- 0.1+ 1999 02 17 910 0.3+ 0.3-
 1997 10 01 910 0.0 0.6+ 1997 11 28 691 0.1- 0.6-

6514 P-L = 1998 HK₁₂₉

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	262.46196	(2000.0)	P	Williams	Q
<i>n</i>	0.22434698	ω	353.48220	+0.99903917	+0.03967036
<i>a</i>	2.6823940	Ω	4.37580	-0.02012562	+0.79284592
<i>e</i>	0.1385408	<i>i</i>	14.13161	-0.03893205	+0.60812960
<i>P</i>	4.39	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1960 09 24	675	0.9-	0.9-	1998 03 22	704	1.9-	1.5+	1998 04 01	704	0.3+	0.9+
1960 09 26	675	0.5-	0.8-	1998 03 28	704	0.2+	0.0	1998 04 01	704	0.2+	1.5+
1960 09 27	675	0.5+	1.1+	1998 03 28	704	0.1+	1.2-	1998 04 01	704	2.5-	0.4-
1960 09 28	675	0.6+	0.2-	1998 03 28	704	1.5-	0.1+	1998 04 19	704	0.8+	1.1+
1960 10 17	675	0.1-	0.3+	1998 03 28	704	1.4-	2.7-	1998 04 19	704	0.0	0.2-
1960 10 22	675	0.1+	0.1-	1998 03 29	704	0.0	0.6-	1998 04 19	704	1.3+	1.1+
1960 10 24	675	0.3+	0.2-	1998 03 29	704	0.7+	0.2+	1998 04 19	704	0.8-	0.4+
1960 10 26	675	0.7+	0.1-	1998 03 29	704	0.2-	0.6-	1998 04 19	704	1.2+	0.9-
1998 03 22	704	0.5+	0.3+	1998 03 29	704	0.2+	1.4+	1998 04 20	704	1.9-	2.0-
1998 03 22	704	2.2+	0.1+	1998 03 29	704	1.8-	0.6-	1998 04 20	704	0.8-	0.7+
1998 03 22	704	1.8+	0.6+	1998 04 01	704	0.5+	0.1+	1998 04 20	704	0.2+	1.1-
1998 03 22	704	0.1-	1.1-	1998 04 01	704	0.2+	1.1-	1998 04 20	704	1.8+	1.6+

6705 P-L = 1998 FH₆

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	150.74509	(2000.0)	P	Williams	Q
<i>n</i>	0.27387447	ω	76.42135	-0.15885982	-0.98609265
<i>a</i>	2.3483799	Ω	22.89301	+0.85034610	-0.16178927
<i>e</i>	0.1663687	<i>i</i>	7.21171	+0.50167227	-0.03802010
<i>P</i>	3.60	<i>H</i>	15.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.9+	0.4-	1998 03 18	691	0.1-	0.1+	1998 03 22	704	0.5-	0.2+
1960 09 26	675	0.4-	0.4-	1998 03 18	691	0.3-	0.1-	1998 03 22	704	0.5+	0.2+
1960 09 27	675	0.5-	0.4+	1998 03 20	704	0.1+	0.4-	1998 03 22	704	0.7+	0.7-
1960 09 28	675	0.3+	0.6+	1998 03 20	704	0.0	1.1-	1998 03 25	691	0.2+	0.2+
1960 10 22	675	1.2-	0.2-	1998 03 20	704	1.3-	1.9+	1998 03 25	691	0.4+	0.0
1960 10 26	675	0.8+	0.2+	1998 03 20	704	(2.2-	0.4+)	1998 03 25	691	0.7+	0.1-
1998 03 18	691	0.2-	0.1+	1998 03 22	704	0.2-	0.0				

6747 P-L = 1998 SM₁₉

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	77.79167	(2000.0)	P	Williams	Q
<i>n</i>	0.23383206	ω	285.57030	+0.39206321	+0.91910874
<i>a</i>	2.6093561	Ω	7.85507	-0.69583651	+0.32405937
<i>e</i>	0.2430287	<i>i</i>	16.60614	-0.60174579	+0.22410856
<i>P</i>	4.22	<i>H</i>	16.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.3-	0.2-	1998 09 19	691	0.3+	0.2-	1998 09 26	704	0.5-	1.9-
1960 09 24	675	0.0	0.3-	1998 09 23	691	1.2-	0.3+	1998 09 27	704	0.2-	0.5-
1960 09 26	675	0.8-	0.2-	1998 09 23	691	0.9-	0.4+	1998 09 27	704	(1.7+	2.2+)
1960 09 26	675	0.1-	0.6-	1998 09 23	691	0.7-	0.4+	1998 09 27	704	0.5+	0.4+
1960 09 28	675	0.1+	0.9+	1998 09 26	704	1.4+	0.8+	1998 09 27	704	0.6-	0.2-
1960 09 28	675	1.2+	0.5+	1998 09 26	704	0.9+	1.0-	1998 09 27	704	0.4+	1.3+
1998 09 19	691	0.3+	0.1+	1998 09 26	704	(1.5-	2.7-)				
1998 09 19	691	0.3+	0.2+	1998 09 26	704	(2.5+	0.2-)				

6790 P-L = 1998 SX₂₅

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	82.95509	(2000.0)	P	Williams	Q
<i>n</i>	0.26013468	ω	202.10512	+0.47837605	+0.87619000
<i>a</i>	2.4303596	Ω	96.51691	-0.79658716	+0.46111179
<i>e</i>	0.1979468	<i>i</i>	3.38797	-0.36960147	+0.14023909
<i>P</i>	3.79	<i>H</i>	15.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.4-	0.5+	1998 09 17	699	0.3-	0.7-	1998 09 26	704	0.1-	0.3-
1960 09 26	675	0.3-	0.1-	1998 09 22	699	1.1+	0.1+	1998 09 26	704	0.1-	0.2-
1960 09 27	675	0.6+	0.6-	1998 09 22	699	0.1-	1.0+	1998 09 26	704	0.4-	0.0
1960 09 28	675	0.5+	0.2-	1998 09 22	699	0.3-	1.2+	1998 09 27	704	0.9+	0.7-
1960 10 22	675	0.6-	0.6-	1998 09 24	699	0.6+	0.4-	1998 09 27	704	0.4-	0.4-
1960 10 24	675	0.6+	0.3-	1998 09 24	699	1.0+	0.7+	1998 09 27	704	0.9-	0.3+
1960 10 26	675	0.4-	1.2+	1998 09 24	699	1.1-	0.8-	1998 09 27	704	0.6+	0.2-
1998 09 17	699	0.3-	1.0+	1998 09 26	704	0.2-	0.5-	1998 09 27	704	0.2-	0.3+
1998 09 17	699	0.4-	0.5+	1998 09 26	704	0.5+	0.8-				

6799 P-L = 1998 BX₁₉

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	131.01206	(2000.0)	P	Williams	Q
<i>n</i>	0.24378246	ω	296.30664	+0.50431061	-0.86289849
<i>a</i>	2.5378605	Ω	123.36939	+0.80561900	+0.45647191
<i>e</i>	0.1869414	<i>i</i>	2.25208	+0.31088397	+0.21688613
<i>P</i>	4.04	<i>H</i>	16.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1960 09 24	675	1.0-	0.3+	1960 09 28	675	0.7-	0.6+	1998 01 29	691	0.3+	0.2+
1960 09 24	675	0.7+	0.4+	1960 09 28	675	0.7+	0.4-	1998 01 29	691	0.0	0.0
1960 09 26	675	0.4-	0.3+	1998 01 22	691	0.0	0.1+	1998 02 03	691	0.2-	0.2-
1960 09 26	675	0.2+	0.6-	1998 01 22	691	0.1-	0.0	1998 02 03	691	0.2-	0.2+
1960 09 27	675	0.3+	1.1+	1998 01 22	691	0.1+	0.8-	1998 02 03	691	0.0	0.1+
1960 09 27	675	0.2+	1.6-	1998 01 29	691	0.0	0.3+				

6801 P-L = 1998 RK₇₆

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	53.44201	(2000.0)	P	Williams	Q
<i>n</i>	0.25956354	ω	198.45187	+0.86749837	+0.49560370
<i>a</i>	2.4339235	Ω	131.76198	-0.44888180	+0.81692033
<i>e</i>	0.2084939	<i>i</i>	3.28191	-0.21436348	+0.29498839
<i>P</i>	3.80	<i>H</i>	15.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.0	0.4+	1998 09 14	704	0.1-	0.8-	1998 09 26	704	0.4-	0.1-
1960 09 24	675	0.8-	0.7-	1998 09 18	704	0.5+	0.2+	1998 09 27	704	0.1+	0.2+
1960 09 26	675	0.5-	0.0	1998 09 18	704	0.0	1.0+	1998 09 27	704	0.0	0.4+
1960 09 26	675	0.2-	1.1-	1998 09 18	704	0.3-	0.2+	1998 09 27	704	0.9-	0.1+
1960 09 27	675	1.0+	1.0+	1998 09 18	704	0.5-	0.2+	1998 09 27	704	0.1-	1.5+
1960 09 27	675	1.1+	0.4-	1998 09 18	704	0.4-	0.3-	1998 09 27	704	0.4+	0.4-
1960 09 28	675	0.8-	0.2-	1998 09 26	704	0.1-	1.0+	1998 10 17	699	0.8+	1.0-
1960 09 28	675	0.8+	0.8-	1998 09 26	704	0.2+	0.1-	1998 10 17	699	0.5-	0.0
1998 09 14	704	1.2+	0.1-	1998 09 26	704	0.1-	0.0	1998 10 17	699	0.0	0.3-
1998 09 14	704	0.0	0.6-	1998 09 26	704	0.3-	0.7+				

9548 P-L = 1997 RM₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	102.63833		(2000.0)	P		Q		Doppler	
<i>n</i>	0.18654169	ω	157.98572	+0.76238894	+0.64668256				
<i>a</i>	3.0335567	Ω	161.65972	-0.60441270	+0.72471501				
<i>e</i>	0.2389073	<i>i</i>	4.33141	-0.23118908	+0.23788617				
<i>P</i>	5.28	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1960 10 17	675	0.1+	0.5+	1997 09 04	552	0.2-	0.4-	1997 09 05	552	1.0+	0.3+
1960 10 22	675	0.7-	0.9-	1997 09 04	552	0.4-	0.3+	1997 09 05	552	0.3+	0.2-
1960 10 24	675	1.0+	0.0	1997 09 04	552	1.2-	1.2+	1997 09 08	552	0.8-	0.8-
1960 10 26	675	0.3-	0.6+	1997 09 05	552	0.9+	0.4+	1997 09 08	552	0.1-	1.4-
1997 09 04	552	0.7+	0.3+	1997 09 05	552	0.2-	0.1+				

9609 P-L = 1998 HZ₇₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	6.48019		(2000.0)	P		Q		Doppler	
<i>n</i>	0.30626584	ω	122.62431	+0.64974782	+0.76010700				
<i>a</i>	2.1797349	Ω	187.91331	-0.71558976	+0.60804347				
<i>e</i>	0.1838034	<i>i</i>	3.36056	-0.25643532	+0.22917349				
<i>P</i>	3.22	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1960 09 24	675	0.2+	0.1-	1998 03 29	910	0.4+	0.8-	1998 04 21	704	0.1+	0.7+
1960 09 26	675	0.6-	0.0	1998 03 29	910	0.3+	0.3-	1998 04 22	704	0.2+	0.3+
1960 10 17	675	1.2+	0.6-	1998 03 29	910	0.3-	0.6-	1998 04 22	704	0.1+	0.4-
1960 10 22	675	0.5-	0.3-	1998 04 21	704	0.9-	0.6-	1998 04 22	704	0.0	0.4+
1960 10 25	675	0.2+	0.2+	1998 04 21	704	0.3+	0.3-	1998 04 22	704	0.6-	0.8+
1960 10 26	675	1.0-	0.0	1998 04 21	704	0.6-	0.3+	1998 04 22	704	0.8+	0.1-

1034 T-1 = 1982 SZ₆ = 1998 RL₄₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	297.57027		(2000.0)	P		Q		Gnädig	
<i>n</i>	0.30535888	ω	262.15414	-0.21318375	-0.97668157				
<i>a</i>	2.1840489	Ω	200.20924	+0.92288217	-0.19276692				
<i>e</i>	0.0592286	<i>i</i>	4.21872	+0.32068862	-0.09451999				
<i>P</i>	3.23	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	3		

Residuals in seconds of arc

1971 03 24	675	1.9+	0.9+	1998 09 14	704	1.4+	1.4-	1998 09 26	704	1.7-	2.8+
1971 03 25	675	0.0	1.0+	1998 09 18	704	1.4+	0.5-	1998 09 26	704	1.8-	2.5+
1971 03 25	675	0.0	1.6+	1998 09 18	704	0.5+	1.5-	1998 09 27	704	0.6-	1.1+
1971 03 26	675	0.5+	0.9+	1998 09 18	704	0.9+	0.5-	1998 09 27	704	0.6+	0.8+
1971 03 27	675	1.1-	0.3-	1998 09 18	704	1.0+	0.2+	1998 09 27	704	1.0-	0.7+
1982 09 16	095	0.5+	1.6-	1998 09 18	704	0.4-	0.3-	1998 09 27	704	0.3-	0.3+
1998 09 14	704	1.6+	1.7-	1998 09 26	704	0.3-	2.1+	1998 09 27	704	0.8-	0.4+
1998 09 14	704	0.9+	2.3-	1998 09 26	704	1.7-	1.8+				
1998 09 14	704	0.9+	1.8-	1998 09 26	704	2.6-	3.0+				

1056 T-1 = 1232 T-3

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	153.99846		(2000.0)	P		Q		Williams	
<i>n</i>	0.22872571	ω	216.89835	-0.91612832	+0.39805965				
<i>a</i>	2.6480493	Ω	346.31801	-0.30279403	-0.76475969				
<i>e</i>	0.1330360	<i>i</i>	11.58780	-0.26272546	-0.50664695				
<i>P</i>	4.31	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1971 03 24	675	0.6+	1.0-	1977 10 12	675	1.4+	0.8+	1998 08 17	704	0.4+	0.5-
1971 03 25	675	0.5-	0.6+	1977 10 12	675	1.1+	0.2+	1998 08 17	704	(3.0-	0.0)
1971 03 25	675	0.7-	0.9+	1977 10 16	675	0.1+	0.6-	1998 08 23	704	0.8-	1.3+
1971 03 26	675	0.1+	0.7-	1977 10 16	675	0.5+	0.6-	1998 08 23	704	0.8+	1.6-

1971 03 27	675	0.5+	0.2+	1998 08 17	704	0.3+	0.0	1998 08 23	704	0.0	1.6+
1977 10 11	675	1.6-	0.4+	1998 08 17	704	0.3-	0.8+	1998 08 23	704	0.6+	1.4-
1977 10 11	675	1.5-	0.2-	1998 08 17	704	1.0-	0.3-				

1080 T-1 = 1999 CM₈₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	43.16022		(2000.0)	P		Q		Williams	
<i>n</i>	0.24456470	ω	241.21515	+0.17750843	-0.98283726				
<i>a</i>	2.5324460	Ω	198.76139	+0.94857219	+0.18446423				
<i>e</i>	0.2315175	<i>i</i>	8.98245	+0.26210981	-0.00196765				
<i>P</i>	4.03	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1971 03 24	675	0.6+	0.3-	1999 02 12	704	0.6+	0.3-	1999 03 19	704	(2.1-	0.2+)
1971 03 25	675	0.9-	0.8+	1999 02 14	699	1.1+	0.5+	1999 03 19	704	1.3-	0.2+
1971 03 25	675	1.2-	0.3+	1999 02 14	699	0.7+	0.1+	1999 03 20	704	0.1-	0.4-
1971 03 26	675	0.3+	0.1-	1999 02 14	699	0.7+	0.0	1999 03 20	704	0.6-	0.0
1971 03 27	675	0.7+	0.5-	1999 02 16	704	0.7-	0.5-	1999 03 20	704	0.5-	0.4+
1971 04 02	675	1.0-	0.2+	1999 02 16	704	0.4-	0.6+	1999 03 20	704	0.9-	1.7-
1971 05 13	675	0.9+	0.5+	1999 02 16	704	0.5-	0.2-	1999 03 22	699	0.0	0.4+
1971 05 14	675	1.0+	0.7-	1999 02 16	704	0.1-	0.4+	1999 03 22	699	0.4-	0.6+
1999 02 12	704	0.5+	0.5-	1999 02 16	704	0.6+	0.7+	1999 03 22	699	0.7+	0.4+
1999 02 12	704	0.0	0.3-	1999 03 19	704	0.9-	0.6-	1999 03 24	699	0.5+	0.1+
1999 02 12	704	0.9+	0.2-	1999 03 19	704	1.0-	0.3-	1999 03 24	699	0.7+	0.9+
1999 02 12	704	0.2-	0.1-	1999 03 19	704	0.9-	0.9-	1999 03 24	699	1.3+	0.4+

1211 T-1 = 1979 OV₁ = 1998 TD₁₆

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	111.80083		(2000.0)	P		Q		Marsden	
<i>n</i>	0.26755369	ω	18.92047	+0.32188096	+0.94630703				
<i>a</i>	2.3852217	Ω	269.86504	-0.87246827	+0.28419290				
<i>e</i>	0.1620832	<i>i</i>	1.71498	-0.36768433	+0.15406948				
<i>P</i>	3.68	<i>H</i>	16.2	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1971 03 25	675	0.4+	0.4-	1979 07 24	413	1.1-	0.1+	1998 10 20	910	0.3+	0.4-
1971 03 25	675	0.8+	0.3+	1979 07 25	675	(6.1-	0.3+)	1998 10 20	910	0.3+	0.0
1971 03 26	675	(2.8+	1.4-)	1979 07 25	675	0.8-	0.3+	1998 10 20	910	0.0	0.2-
1971 03 27	675	0.6-	0.2-	1979 07 27	675	1.0+	0.3-	1998 10 21	910	0.2-	0.0
1971 04 02	675	0.7-	0.1-	1998 10 15	910	0.1+	0.0	1998 10 21	910	0.3-	0.2-
1979 07 24	675	(5.2-	0.3-)	1998 10 15	910	0.1+	0.2+	1998 10 21	910	0.1-	0.1-
1979 07 24	675	0.9+	0.3-	1998 10 15	910	0.1-	0.2+				

2127 T-1 = 1977 DD₂ = 1994 TK₁Id. T. Kobayashi (*MPC* 21122), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	149.86555		(2000.0)	P		Q		Williams	
<i>n</i>	0.31585613	ω	256.45288	+0.99824834	-0.05398486				
<i>a</i>	2.1353866	Ω	106.63762	+0.05915221	+0.91848196				
<i>e</i>	0.0905052	<i>i</i>	1.44759	-0.00112299	+0.39176080				
<i>P</i>	3.12	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	3		

Residuals in seconds of arc

1971 03 24	675	2.4-	0.2-	1977 02 18	381	0.3-	0.5+	1994 10 07	400	0.2+	0.9+
1971 03 25	675	0.0	0.4-	1977 02 19	381	0.9-	0.8+	1994 10 07	400	0.7-	0.6-
1971 03 25	675	1.3+	0.5+	1977 02 19	381	0.9-	0.0	1999 03 13	683	0.3-	0.1-
1971 03 26	675	1.2-	1.1-	1994 10 02	400	0.1+	0.9-	1999 03 13	683	0.1-	0.1-
1971 03 27	675	0.8+	1.4-	1994 10 02	400	0.7+	1.0-	1999 03 13	683	0.0	0.1+
1971 04 02	675	0.3+	0.6-	1994 10 03	400	1.3-	0.6+	1999 03 14	683	0.3+	0.3+
1977 02 18	381	2.4+	0.1-	1994 10 03	400	1.7+	1.0-	1999 03 14	683	0.1+	0.1-

2128 T-1 = 1990 RW₅

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	122.86586		(2000.0)	P	Q
<i>n</i>	0.27371620	ω	177.03445	+0.86810297	+0.49611428
<i>a</i>	2.3492850	Ω	153.20271	-0.45616736	+0.81033642
<i>e</i>	0.1420124	<i>i</i>	2.08040	-0.19572575	+0.31181005
<i>P</i>	3.60	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1971 03 24	675	1.5-	1.1-	1990 09 09	809	0.2+	0.7+	1990 09 15	809	0.5+	0.3+
1971 03 25	675	0.3+	0.9+	1990 09 09	809	0.3+	0.4-	1990 09 15	809	0.3+	0.1+
1971 03 25	675	0.2-	0.1-	1990 09 10	809	0.6+	0.3-	1990 09 15	809	0.5-	0.5+
1971 03 26	675	0.8-	0.3-	1990 09 10	809	1.0+	0.3-	1990 09 16	809	0.4-	0.3+
1971 03 27	675	2.2+	0.6+	1990 09 14	675	0.7-	0.6-	1990 09 16	809	0.1-	0.6+
1990 09 08	809	1.3-	0.0	1990 09 14	675	0.4-	1.9-				
1990 09 09	809	0.4-	0.5+	1990 09 14	809	1.0+	0.6+				

3041 T-1 = 1997 CA₂₉

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	8.61119		(2000.0)	P	Q
<i>n</i>	0.22341892	ω	337.85076	+0.65555314	+0.75393121
<i>a</i>	2.6898171	Ω	333.05274	-0.67787540	+0.56250543
<i>e</i>	0.1987706	<i>i</i>	5.42828	-0.33276873	+0.33937499
<i>P</i>	4.41	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1971 03 25	675	0.8+	0.6+	1971 04 02	675	0.4-	1.1+	1997 02 10	691	0.2+	0.0
1971 03 26	675	1.3-	0.1-	1997 02 07	327	0.3+	0.4+	1997 02 10	691	0.3+	0.4-
1971 03 26	675	2.0-	0.2-	1997 02 07	327	0.5+	0.2-	1997 02 14	327	0.4-	0.5-
1971 03 27	675	2.4+	2.2-	1997 02 07	327	1.0-	0.4+	1997 02 14	327	0.1-	0.1+
1971 03 27	675	0.4+	0.7+	1997 02 10	691	0.1+	0.3+	1997 02 14	327	0.2+	0.2-

3119 T-1 = 1995 WR₂₂ = 1997 ED₅₀Id. G. V. Williams (*MPC* 26415), A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	202.42741		(2000.0)	P	Q
<i>n</i>	0.26476831	ω	260.48839	-0.88673354	-0.46156229
<i>a</i>	2.4019210	Ω	252.01992	+0.43405268	-0.81211455
<i>e</i>	0.1080898	<i>i</i>	1.55226	+0.15906571	-0.35697369
<i>P</i>	3.72	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1971 03 24	675	0.4+	1.0-	1971 05 13	675	1.0+	0.9+	1997 03 05	809	0.3-	0.1-
1971 03 25	675	1.5+	1.3-	1971 05 14	675	0.8-	1.2+	1997 03 05	809	0.2-	0.5-
1971 03 26	675	0.7+	0.9-	1995 11 18	691	0.3+	0.1+	1997 03 06	809	1.0+	1.4+
1971 03 26	675	0.2+	0.6-	1995 11 18	691	0.3+	0.1+	1997 03 06	809	0.5+	0.9+
1971 03 27	675	0.4-	0.2+	1995 11 18	691	0.1+	0.2+	1997 03 06	809	0.3+	0.5+
1971 04 02	675	0.9-	0.1-	1995 11 28	691	0.2-	0.9-	1998 09 16	691	0.1+	0.3+
1971 04 02	675	1.6-	1.0-	1995 11 28	691	0.0	0.3-	1998 09 16	691	0.0	0.7-
1971 04 16	675	0.7-	0.1-	1995 11 28	691	0.1-	0.5-	1998 09 16	691	0.1+	0.2-
1971 04 16	675	0.9-	0.6-	1997 03 05	809	0.2-	0.4+				

3188 T-1 = 1999 FE₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	316.68503		(2000.0)	P	Q
<i>n</i>	0.17617064	ω	56.92083	-0.43554543	+0.89789814
<i>a</i>	3.1514738	Ω	188.07549	-0.89981668	-0.43230025
<i>e</i>	0.2149925	<i>i</i>	27.04229	+0.02510222	+0.08303867
<i>P</i>	5.59	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1971 03 25	675	0.3-	1.3-	1971 04 16	675	0.5-	0.4-	1999 03 19	704	0.7-	0.7+
1971 03 26	675	0.5-	0.1+	1971 04 16	675	0.1+	0.2-	1999 03 20	704	0.7+	0.5+
1971 03 26	675	1.0-	0.4+	1999 03 19	704	0.0	0.2+	1999 03 20	704	0.3-	1.3+

1971 03 27	675	1.7+	0.4+	1999 03 19	704	0.1-	0.6-	1999 03 20	704	0.1+	0.1+
1971 04 02	675	1.2-	2.5+	1999 03 19	704	0.1+	0.6-	1999 03 20	704	1.0+	0.1-
1971 04 02	675	1.6+	1.4-	1999 03 19	704	0.0	2.0-	1999 03 20	704	0.8-	0.4+

4104 T-1 = 1999 CC₆₉

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	157.38333		(2000.0)	P	Q
<i>n</i>	0.24243710	ω	169.24426	+0.92479614	+0.37866792
<i>a</i>	2.5472408	Ω	168.29835	-0.36118554	+0.90428894
<i>e</i>	0.0959134	<i>i</i>	10.48699	-0.11957051	+0.19716014
<i>P</i>	4.07	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1971 03 24	675	0.8+	1.5-	1971 05 14	675	0.3-	0.2+	1999 02 16	704	0.4-	0.9-
1971 03 26	675	0.1+	0.1-	1971 05 16	675	0.1-	0.1+	1999 02 16	704	0.7-	1.0-
1971 03 26	675	0.1+	0.6+	1999 02 12	704	0.5+	0.2+	1999 02 16	704	0.2-	1.4-
1971 03 27	675	1.7-	1.7-	1999 02 12	704	0.4+	0.5+	1999 02 19	566	0.1-	0.1+
1971 04 02	675	1.3-	1.3+	1999 02 12	704	0.0	1.0+	1999 02 19	566	0.2+	0.1+
1971 04 02	675	0.4-	2.5+	1999 02 12	704	0.5+	0.1+	1999 02 19	566	0.5+	0.2+
1971 04 16	675	0.8+	0.6-	1999 02 12	704	0.5-	0.3+	1999 02 20	699	0.2+	0.5+
1971 04 16	675	2.2+	1.0-	1999 02 16	704	0.6-	0.2-	1999 02 20	699	0.7+	0.7+
1971 05 13	675	0.1-	0.1+	1999 02 16	704	0.9-	0.5-	1999 02 20	699	0.4+	0.4+

4105 T-1 = 1973 VG = 1978 PL₁ = 1999 CH₁₃₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	223.96077		(2000.0)	P	Q
<i>n</i>	0.17090377	ω	134.76923	+0.21638823	+0.97623271
<i>a</i>	3.2158932	Ω	147.72207	-0.90200954	+0.20463857
<i>e</i>	0.1607667	<i>i</i>	1.29578	-0.37357050	+0.07136358
<i>P</i>	5.77	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1971 03 24	675	0.5-	0.3-	1971 05 13	675	0.4-	0.8+	1999 02 10	691	0.7-	0.0
1971 03 26	675	0.2+	1.8-	1971 05 14	675	0.1-	1.0+	1999 02 10	691	0.5-	0.0
1971 03 26	675	0.2-	2.1-	1971 05 16	675	0.6-	0.4+	1999 02 10	691	0.3+	0.3+
1971 03 27	675	2.3+	1.1-	1973 11 02	033	0.1-	0.1+	1999 02 16	691	0.1+	0.0
1971 04 02	675	0.6+	1.4+	1978 08 08	095	0.1+	0.2-	1999 02 16	691	0.5+	0.0
1971 04 02	675	1.5-	0.8+	1999 02 08	691	0.5+	0.0	1999 02 16	691	0.2+	0.2+
1971 04 16	675	0.8+	0.0	1999 02 08	691	0.4+	0.0				
1971 04 16	675	0.7-	1.0+	1999 02 08	691	0.8-	0.5-				

4142 T-1 = 1998 RH₅₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	98.75526		(2000.0)	P	Q
<i>n</i>	0.30086157	ω	233.48146	+0.16250285	+0.98480518
<i>a</i>	2.2057599	Ω	45.99269	-0.87588336	+0.17255570
<i>e</i>	0.1294033	<i>i</i>	4.88513	-0.45433596	+0.01957800
<i>P</i>	3.28	<i>H</i>	16.7	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1971 03 24	675	0.9+	1.0-	1998 09 14	704	0.1-	0.8-	1998 09 26	704	0.4-	0.6+
1971 03 26	675	0.5+	0.7+	1998 09 18	704	0.9+	0.9-	1998 09 27	704	0.8-	0.1+
1971 03 26	675	1.5-	0.3+	1998 09 18	704	0.2-	0.5+	1998 09 27	704	0.5+	1.6-
1971 03 27	675	0.9-	1.3-	1998 09 18	704	1.2-	1.1+	1998 09 27	704	1.6-	1.0-
1971 04 02	675	(5.3+	1.9-)	1998 09 18	704	1.1+	0.0	1998 09 27	704	(0.7+	3.6-)
1971 04 02	675	0.9+	1.3+	1998 09 18	704	1.0+	1.7+	1998 09 27	704	(0.2-	2.3-)
1998 09 14	704	0.4-	0.5+	1998 09 26	704	0.4-	0.5+				
1998 09 14	704	1.3+	0.8-	1998 09 26	704	0.1+	0.2+				

4273 T-1 = 1998 PK₁

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	274.84576		(2000.0)	P			Q				
n	0.19553645	ω	313.72978	+0.00753941			−0.99757079				
a	2.9397985	Ω	135.69575	+0.94359662			−0.01582681				
e	0.1160402	i	5.69003	+0.33101145			+0.06783820				
P	5.04	H	15.0	G	0.15		U	6			
Residuals in seconds of arc											
1971 03 24	675	1.2+	1.0−	1998 08 15	426	0.6+	0.2+	1998 08 17	426	0.4+	0.1+
1971 03 26	675	0.2−	0.6+	1998 08 15	426	0.6−	0.0	1998 08 17	426	0.1+	0.1−
1971 03 26	675	0.2−	0.4+	1998 08 15	426	0.1+	1.0+	1998 08 17	426	0.1+	0.1+
1971 03 27	675	1.8−	1.4−	1998 08 16	426	0.1+	0.0	1998 08 18	426	0.6−	0.4−
1971 04 02	675	1.0+	1.3+	1998 08 16	426	0.4+	0.5−	1998 08 18	426	0.6−	0.4−

4371 T-1 = 1999 CY₁₃₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	325.99572		(2000.0)		P		Q				
<i>n</i>	0.28079385	ω	44.81395		−0.95564232		+0.29374820				
<i>a</i>	2.3096402	Ω	152.24754		−0.28148982		−0.88948684				
<i>e</i>	0.1471304	<i>i</i>	2.63924		−0.08666745		−0.35003593				
<i>P</i>	3.51	<i>H</i>	16.4		<i>G</i> 0.15		<i>U</i> 5				
Residuals in seconds of arc											
1971 03 24	675	0.9−	0.4+	1971 05 13	675	1.2+	0.4−	1999 02 12	691	0.7+	0.0
1971 03 26	675	0.7−	0.1+	1971 05 14	675	0.2−	1.2−	1999 02 12	691	0.6+	0.1+
1971 03 26	675	0.7−	0.3−	1971 05 16	675	1.7−	0.6+	1999 02 14	691	0.5−	0.2+
1971 03 27	675	0.6+	0.9−	1999 02 08	691	0.0	0.2−	1999 02 14	691	0.4−	0.1+
1971 04 02	675	0.4+	0.1−	1999 02 08	691	0.1−	0.1−	1999 02 14	691	0.4−	0.2+
1971 04 16	675	0.4+	0.3+	1999 02 08	691	0.3−	0.3−				
1971 04 16	675	1.5+	1.2+	1999 02 12	691	0.5+	0.1+				

4841 T-1 = 1998 QH₀₈

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	62.35913		(2000.0)		P		Q				
<i>n</i>	0.22925613	ω	295.40436		+0.70703492		+0.70268611				
<i>a</i>	2.6439632	Ω	20.27191		−0.53773374		+0.60729937				
<i>e</i>	0.1784506	<i>i</i>	13.27943		−0.45928646		+0.37070165				
<i>P</i>	4.30	<i>H</i>	14.0		<i>G</i> 0.15		<i>U</i> 5				
Residuals in seconds of arc											
1971 04 16	675	0.1+	1.3+	1998 08 31	704	2.4+	0.5−	1998 09 17	699	0.0	0.8+
1971 04 16	675	0.2−	1.2+	1998 08 31	704	1.3−	0.2−	1998 09 17	699	0.1+	0.8+
1971 05 13	675	0.4+	0.6+	1998 08 31	704	1.0−	0.7−	1998 09 17	699	0.2+	0.9+
1971 05 14	675	0.2−	0.1−	1998 08 31	704	0.4−	1.3−	1998 09 18	704	0.4−	0.6+
1971 05 16	675	1.2+	1.6−	1998 08 31	704	0.1−	0.5−	1998 09 18	704	0.5−	0.5+
1998 08 28	704	1.4+	0.0	1998 09 14	704	0.0	0.0	1998 09 18	704	0.7−	0.2+
1998 08 28	704	0.3+	1.4−	1998 09 14	704	0.3−	0.6−	1998 09 18	704	1.0−	0.2+
1998 08 28	704	0.1−	1.5+	1998 09 14	704	0.3+	0.1−	1998 09 18	704	0.4+	1.1+

1104 T-2 = 1999 ED₃

Id. B. G. Marsden

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	64.30259		(2000.0)	P			Q				
<i>n</i>	0.28575101	ω	60.66796	+0.27590036			−0.96109572				
<i>a</i>	2.2828508	Ω	13.33598	+0.86085244			+0.24097242				
<i>e</i>	0.1206445	<i>i</i>	3.27841	+0.42756528			+0.13500853				
<i>P</i>	3.45	<i>H</i>	14.5	<i>G</i>	0.15		<i>U</i>	6			
Residuals in seconds of arc											
1973 09 19	675	0.2+	2.4−	1973 09 29	675	0.9+	0.5+	1999 03 13	684	0.7−	0.3−
1973 09 19	675	1.9+	2.0+	1973 09 30	675	1.5−	0.2−	1999 03 13	684	0.4−	0.1+
1973 09 19	675	0.3+	1.7−	1973 09 30	675	0.6−	0.2+	1999 03 19	704	1.1−	0.2−
1973 09 19	675	0.5−	0.6+	1973 09 30	675	0.2−	0.2+	1999 03 19	699	0.2+	0.6+

1973 09 20	675	1.0+	1.4+	1973 09 30	675	0.3−	0.5+	1999 03 19	704	0.4+	0.3−
1973 09 24	675	(0.6−	2.5+)	1973 10 04	675	0.3+	0.3−	1999 03 19	704	0.4+	0.0
1973 09 24	675	(0.6+	3.1−)	1973 10 04	675	1.3+	0.8+	1999 03 19	699	1.0+	0.6+
1973 09 24	675	0.7−	2.3+	1973 10 04	675	0.4−	1.6−	1999 03 19	704	0.7+	0.1+
1973 09 25	675	1.8−	2.3−	1973 10 04	675	1.2+	0.1+	1999 03 19	699	0.4+	0.4+
1973 09 25	675	0.5−	0.5+	1973 10 05	675	1.0−	1.1+	1999 03 20	704	0.5+	0.6−
1973 09 25	675	1.0−	1.5−	1973 10 05	675	0.5+	0.2−	1999 03 20	704	0.1−	0.1+
1973 09 25	675	0.3−	1.5+	1973 10 05	675	0.8−	2.1+	1999 03 20	704	0.5+	0.1−
1973 09 29	675	0.2+	1.6−	1973 10 05	675	1.3+	0.4−	1999 03 20	704	0.0	0.3−
1973 09 29	675	0.0	0.7−	1999 03 12	684	1.2−	0.2+	1999 03 20	704	0.7+	0.5−
1973 09 29	675	0.5+	1.0−	1999 03 12	684	1.3−	0.1+				

1131 T-2 = 1998 JJ₂

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	46.73863		(2000.0)		P		Q				
<i>n</i>	0.26821115	<i>ω</i>	306.43447		−0.21001940		+0.97737054				
<i>a</i>	2.3813222	<i>Ω</i>	311.42196		−0.88588894		−0.20117019				
<i>e</i>	0.1740889	<i>i</i>	1.93138		−0.41363347		−0.06540170				
<i>P</i>	3.67	<i>H</i>	17.2	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1973 09 24	675	1.4−	0.9−	1973 10 04	675	0.3+	2.7−	1998 05 02	566	0.2+	0.8−
1973 09 24	675	0.7+	0.8+	1973 10 04	675	(3.4+	1.0−)	1998 05 02	566	0.1−	0.0
1973 09 29	675	1.2+	1.3+	1998 04 25	699	0.6+	0.8+	1998 05 03	566	0.3−	0.9−
1973 09 29	675	0.5+	1.0+	1998 04 25	699	0.0	0.2−	1998 05 03	566	0.7+	0.2−
1973 09 30	675	1.4−	0.4+	1998 04 25	699	0.0	0.1+	1998 05 03	566	0.0	1.0+
1973 09 30	675	(3.1−	0.1−)	1998 05 02	566	1.2−	0.3+				

1245 T-2 = 1996 FS

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

M	293.51803		(2000.0)		P		Q			
n	0.23733283	ω	124.81700		−0.49386419		−0.86946906			
a	2.5836331	Ω	354.74184		+0.75330300		−0.42147496			
e	0.1164617	i	6.91427		+0.43431872		−0.25764783			
P	4.15	H	14.5		G 0.15		U 6			
Residuals in seconds of arc										
1973 09 25	675 (1.5+ 3.6−)		1973 10 05	675	0.4+	0.7+	1996 03 18	566	0.1+	0.7−
1973 09 29	675 0.5+ 1.3−		1973 10 05	675	(2.6+ 0.2+)		1996 03 19	566	1.1−	0.1−
1973 09 29	675 0.5− 0.7−		1996 03 18	566	0.8+ 0.4+		1996 03 19	566	0.8−	0.1+
1973 09 30	675 (2.6− 1.0−)		1996 03 18	566	0.7+ 0.4+		1996 03 19	566	1.2−	0.0
1973 09 30	675 0.2− 1.0+		1996 03 18	566	0.8+ 0.5−		1996 03 20	098 (8.8− 0.4−)		
1973 10 04	675 0.2+ 0.4+		1996 03 18	566	0.2+ 0.5+		1996 03 20	098 (6.3− 2.4−)		
1973 10 04	675 0.1+ 0.0		1996 03 18	566	0.5+ 0.4−					

1283 T-2 = 1994 LR₇ = 1999 EL₃

Id. A. Gnädig, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	41.03445		(2000.0)		P		Q				
<i>n</i>	0.17236257	ω	298.69495		−0.63675554		−0.77105960				
<i>a</i>	3.1977223	Ω	190.85700		+0.71301644		−0.58729408				
<i>e</i>	0.1602011	<i>i</i>	0.93595		+0.29351310		−0.24607468				
<i>P</i>	5.72	<i>H</i>	14.6		<i>G</i> 0.15		<i>U</i> 5				
Residuals in seconds of arc											
1973 09 19	675	2.3+	0.4−	1994 06 08	809	1.1−	1.9−	1999 03 15	734	0.5+	0.2+
1973 09 19	675	(1.2+	3.5−)	1994 06 08	809	0.9−	1.4−	1999 03 15	734	0.8−	0.2+
1973 09 20	675	2.0−	1.3+	1994 06 08	809	(3.8−	0.9−)	1999 03 15	734	0.4+	0.0
1973 09 24	675	1.0−	0.2+	1994 06 09	809	1.4+	1.0+	1999 03 17	691	0.9−	0.1+
1973 09 24	675	0.1−	0.7+	1994 06 09	809	0.3+	1.2+	1999 03 17	691	0.1+	0.6+
1973 09 25	675	2.3−	0.4+	1994 06 09	809	0.3+	0.7+	1999 03 17	691	0.0	0.0
1973 09 25	675	0.5+	0.8+	1999 03 14	734	0.3+	0.2+	1999 03 21	734	0.1+	0.0
1973 09 29	675	0.6+	1.3−	1999 03 14	734	0.3−	0.1+	1999 03 21	734	0.1+	0.3−
1973 09 29	675	0.2−	0.5−	1999 03 14	734	0.4+	0.3−	1999 03 21	734	0.5+	0.6−

1999 APR. 2

1973 09 30	675	0.2−	0.4−	1999 03 14	734	0.2−	0.6−	1999 03 21	734	0.2+	0.4−
1973 09 30	675	0.3+	0.4−	1999 03 14	734	0.4+	0.1+	1999 03 23	691	0.5−	0.4+
1973 10 04	675	0.3−	0.3+	1999 03 14	734	0.7−	0.6−	1999 03 23	691	0.3−	0.0
1973 10 04	675	0.6+	0.1+	1999 03 14	734	0.2+	0.8+	1999 03 23	691	0.0	0.3+
1973 10 05	675	1.7+	0.4+	1999 03 14	734	0.1+	0.3+				
1973 10 05	675	0.3−	0.1+	1999 03 14	734	0.9+	0.5+				

1346 T-2 = 1999 FQ₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	14.07675		(2000.0)		P		Q
<i>n</i>	0.17279331	ω	100.78724	−0.92088550		−0.38899989	
<i>a</i>	3.1924059	Ω	56.32502	+0.34463771		−0.84292379	
<i>e</i>	0.1725517	<i>i</i>	1.75421	+0.18219424		−0.37169688	
<i>P</i>	5.70	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1973 09 19	675	0.7+	0.9+	1973 09 30	675	0.7−	2.0+	1973 10 05	675	0.8−	1.8+
1973 09 19	675	0.8−	1.4+	1973 09 30	675	0.5+	0.2+	1999 03 19	704	0.2+	0.3−
1973 09 20	675	0.5+	0.5−	1973 09 30	675	0.5+	0.1+	1999 03 19	704	0.7+	1.8−
1973 09 24	675	0.9−	0.8−	1973 09 30	675	0.5+	1.7−	1999 03 19	704	0.1+	0.3+
1973 09 24	675	1.2−	1.3−	1973 10 04	675	1.4+	0.6−	1999 03 19	704	0.8+	0.4+
1973 09 25	675	1.1−	0.2+	1973 10 04	675	1.7−	0.3+	1999 03 19	704	0.1−	0.0
1973 09 25	675	0.5−	1.8+	1973 10 04	675	0.9+	0.5+	1999 03 20	704	0.1−	0.4−
1973 09 29	675	0.6+	1.5−	1973 10 04	675	1.3−	0.6+	1999 03 20	704	0.4−	0.3+
1973 09 29	675	1.5+	1.1−	1973 10 05	675	0.3+	0.4−	1999 03 20	704	0.1−	0.5+
1973 09 29	675	0.1+	0.8+	1973 10 05	675	1.0+	0.2+	1999 03 20	704	0.8−	0.7+
1973 09 29	675	0.4+	2.9−	1973 10 05	675	0.2+	0.2−	1999 03 20	704	0.4−	0.1+

1510 T-2 = 1283 T-1

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	330.60629		(2000.0)		P		Q
<i>n</i>	0.17626483	ω	33.82746	−0.81862903		+0.57431997	
<i>a</i>	3.1503509	Ω	181.22875	−0.54340253		−0.77554221	
<i>e</i>	0.1279019	<i>i</i>	4.69743	−0.18590372		−0.26208941	
<i>P</i>	5.59	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1971 03 24	675	1.6−	0.8−	1971 03 27	675	0.3−	0.6−	1973 09 30	675	0.9+	1.0−
1971 03 24	675	2.1+	0.7+	1971 04 02	675	1.0−	1.7+	1973 09 30	675	1.3−	2.3+
1971 03 25	675	0.3−	1.1−	1973 09 24	675	0.3−	0.2−	1973 10 04	675	0.6+	0.7−
1971 03 25	675	1.1−	1.3−	1973 09 24	675	0.8−	0.3−	1973 10 05	675	0.3+	0.3−
1971 03 26	675	1.4+	0.6−	1973 09 29	675	0.5+	2.4−	1973 10 05	675	0.9+	0.3+

2028 T-2 = 1999 CL₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	279.21234		(2000.0)		P		Q
<i>n</i>	0.21012701	ω	223.80333	−0.70881580		+0.70539017	
<i>a</i>	2.8020860	Ω	1.06542	−0.61006753		−0.61145231	
<i>e</i>	0.0703423	<i>i</i>	6.82219	−0.35411548		−0.35853980	
<i>P</i>	4.69	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1973 09 19	675	0.5+	0.7+	1973 09 30	675	(2.2+	0.4+)	1973 10 05	675	0.3−	1.0−
1973 09 19	675	0.6+	0.3−	1973 09 30	675	0.8+	0.4−	1999 02 10	704	0.1−	0.3−
1973 09 20	675	1.0−	0.6−	1973 09 30	675	0.2−	0.2+	1999 02 10	704	0.5−	0.6−
1973 09 24	675	0.9−	0.1−	1973 09 30	675	1.3+	0.1−	1999 02 10	704	0.9−	0.1+
1973 09 24	675	1.0−	0.5−	1973 10 04	675	0.7+	1.1+	1999 02 10	704	0.1−	1.3+
1973 09 25	675	0.4+	0.7−	1973 10 04	675	0.3+	1.4−	1999 02 13	704	0.3−	0.8−
1973 09 25	675	1.0+	0.7+	1973 10 04	675	0.5−	0.4+	1999 02 13	704	0.8+	0.0
1973 09 29	675	0.1+	0.7+	1973 10 04	675	0.8−	0.0	1999 02 13	704	1.2+	0.4+
1973 09 29	675	0.6−	1.8+	1973 10 05	675	0.7−	0.8−				

M.P.C. 34271

2070 T-2 = 1999 FH₂₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	330.27557		(2000.0)		P		Q
<i>n</i>	0.17587586	ω	217.56482	−0.77264121		+0.63474156	
<i>a</i>	3.1549941	Ω	1.95049	−0.47097904		−0.56113521	
<i>e</i>	0.0883430	<i>i</i>	19.47027	−0.42568099		−0.53125364	
<i>P</i>	5.60	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1973 09 19	675	1.2+	0.3−	1973 09 29	675	0.3−	0.7+	1999 03 19	704	1.4+	1.1−
1973 09 19	675	0.8−	0.6+	1973 09 30	675	0.4+	0.4−	1999 03 19	704	1.8−	1.3−
1973 09 20	675	0.1+	0.5−	1973 09 30	675	0.5+	0.7−	1999 03 19	704	0.1+	1.0+
1973 09 24	675	0.1+	0.0	1973 10 04	675	1.3+	0.2−	1999 03 20	704	0.3+	0.0
1973 09 24	675	1.5+	0.2−	1973 10 04	675	0.1+	0.8−	1999 03 20	704	0.2+	0.9+
1973 09 25	675	1.5−	0.5−	1973 10 05	675	0.2+	0.0	1999 03 20	704	0.0	1.1−
1973 09 25	675	1.3−	0.6+	1973 10 05	675	1.5−	0.1+	1999 03 20	704	0.0	0.7+
1973 09 29	675	0.0	1.6+	1999 03 19	704	0.2−	0.9+				

2141 T-2 = 1987 SQ₂₇ = 1999 CN₄₅

Id. A. Milani, G. V. Williams, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	173.13505		(2000.0)		P		Q
<i>n</i>	0.21003351	ω	323.29881	+0.89087372		+0.45399715	
<i>a</i>	2.8029175	Ω	9.73598	−0.39250089		+0.78616766	
<i>e</i>	0.0533468	<i>i</i>	5.15197	−0.22866365		+0.41931730	
<i>P</i>	4.69	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1973 09 19	675	0.5+	1.0−	1973 09 30	675	0.1−	0.4+	1999 02 13	704	0.6−	0.1−
1973 09 19	675	1.7+	0.5−	1973 10 04	675	1.1+	0.6+	1999 02 13	704	0.8+	0.2−
1973 09 20	675	1.6−	0.6−	1973 10 04	675	0.4+	0.5−	1999 02 13	704	1.2−	0.4−
1973 09 24	675	2.2−	0.2+	1973 10 05	675	0.1−	0.7+	1999 02 13	704	0.3+	0.3+
1973 09 24	675	1.3−	0.2+	1973 10 05	675	0.3+	0.0	1999 02 13	704	0.3−	0.1+
1973 09 25	675	1.6−	1.2−	1987 09 24	095	0.6−	1.2+	1999 02 19	566	0.4+	0.2+
1973 09 25	675	1.4+	1.0+	1999 02 10	704	0.4−	0.1−	1999 02 19	566	0.3+	0.4+
1973 09 29	675	1.0+	0.3+	1999 02 10	704	0.5+	0.4−	1999 02 19	566	0.3+	0.4+
1973 09 29	675	0.0	0.5−	1999 02 10	704	0.1−	1.1−				
1973 09 30	675	1.0+	0.3−	1999 02 10	704	0.0	1.1+				

2148 T-2 = 1998 RF₆₈

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	17.76562		(2000.0)		P		Q
<i>n</i>	0.23671424	ω	193.75448	+0.92545737		−0.37760512	
<i>a</i>	2.5881323	Ω	188.62212	+0.36407841		+0.90885748	
<i>e</i>	0.1920315	<i>i</i>	11.82002	+0.10476431		+0.17717916	
<i>P</i>	4.16	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1973 09 19	675	0.0	0.1−	1973 10 04	675	0.1−	1.5−	1998 10 28	704	0.2−	0.3−
1973 09 19	675	0.4+	0.4−	1973 10 05	675	0.3+	0.7−	1998 10 28	704	0.2−	0.5−
1973 09 20	675	0.9−	1.6−	1973 10 05	675	1.8+	1.0+	1998 10 28	704	0.3+	0.4−
1973 09 24	675	(2.9−	1.0+)	1998 09 14	704	0.4−	0.7+	1998 10 28	704	0.4+	0.6−
1973 09 24	675	(3.4−	0.2+)	1998 09 14	704	0.3−	0.3+	1998 10 29	704	0.3−	0.7+
1973 09 25	675	0.5+	1.8−	1998 09 14	704	0.3+	0.9+	1998 10 29	704	1.1+	1.2+
1973 09 25	675	0.6−	1.9−	1998 09 18	704	0.5−	0.8+	1998 10 29	704	0.3−	1.2+
1973 09 29	675	0.2+	0.5−	1998 09 18	704	0.3+	1.2+	1998 10 29	704	0.8+	1.1+
1973 09 29	675	0.4−	0.4+	1998 09 18	704	0.2−	0.9+	1998 10 29	704	0.2+	0.7+
1973 09 30	675	0.6+	0.3+	1998 09 18	704	1.0−	0.4+	1998 11 15	699	0.8−	0.3−
1973 09 30	675	0.9−	0.2−	1998 09 18	704	0.2+	0.7+	1998 11 15	699	0.3−	1.1−
1973 10 04	675	0.5+	0.4−	1998 10 28	704	0.5+	0.0	1998 11 15	699	1.1−	0.1−

2176 T-2 = 1998 FV₆₁

Id. A. Milani

M.P.C. 34272

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	284.40676		(2000.0)	P			Q				
<i>n</i>	0.22316800	ω	338.37432		+0.94633731		+0.32295912				
<i>a</i>	2.6918329	Ω	2.86543		−0.25017832		+0.75550237				
<i>e</i>	0.1148157	<i>i</i>	13.84511		−0.20458863		+0.57001191				
<i>P</i>	4.42	<i>H</i>	14.3	<i>G</i>	0.15		<i>U</i>	5			
Residuals in seconds of arc											
1973 09 19	675	0.2+	1.8−	1998 03 20	704	3.9+	0.6+	1998 04 01	704	0.3+	2.3+
1973 09 19	675	0.4+	1.0−	1998 03 22	704	1.1−	0.3+	1998 04 01	704	0.7−	1.0+
1973 09 20	675	0.4−	0.3−	1998 03 22	704	0.8+	0.9−	1998 04 18	704	0.1−	0.5+
1973 09 24	675	2.6−	0.3−	1998 03 22	704	1.2−	0.6−	1998 04 18	704	0.9+	0.6−
1973 09 24	675	3.9−	1.2+	1998 03 22	704	1.4+	1.2+	1998 04 18	704	1.2+	0.4−
1973 09 25	675	0.5−	2.0−	1998 03 22	704	1.6+	0.0	1998 04 18	704	0.4−	0.6−
1973 09 25	675	0.6−	1.8−	1998 03 28	704	1.1−	0.5−	1998 04 19	704	0.7−	0.3−
1973 09 29	675	0.4+	1.4+	1998 03 28	704	0.1+	0.4+	1998 04 19	704	1.8−	1.6+
1973 09 29	675	0.1−	2.7+	1998 03 28	704	0.2−	0.8−	1998 04 19	704	0.7+	3.3+
1973 09 30	675	0.3+	0.6−	1998 03 28	704	0.1+	1.4−	1998 04 19	704	0.1+	1.8+
1973 09 30	675	0.7+	0.6+	1998 03 28	704	0.8−	1.1+	1998 04 19	704	0.4−	0.4−
1973 10 04	675	2.6+	0.5+	1998 03 29	704	1.1−	1.1−	1998 04 20	704	0.3−	0.3+
1973 10 04	675	2.1+	0.6−	1998 03 29	704	1.7−	0.3−	1998 04 20	704	1.2−	1.6−
1973 10 05	675	2.3+	0.6−	1998 03 29	704	0.6−	0.2−	1998 04 20	704	0.7+	0.9+
1973 10 05	675	1.5+	0.5−	1998 03 29	704	0.2−	2.0−	1998 04 20	704	1.6−	0.3−
1998 03 20	704	1.3−	0.6−	1998 03 29	704	2.1−	0.7+	1998 04 20	704	(4.6−	1.5+)
1998 03 20	704	1.8+	1.8−	1998 04 01	704	0.9+	0.1−				
1998 03 20	704	0.6+	2.7−	1998 04 01	704	0.7+	2.4−				

2638 T-2 = 1998 SP₁₄₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	302.56117		(2000.0)		P		Q				
<i>n</i>	0.08274216	ω	48.70947		-0.19634826		-0.97999761				
<i>a</i>	5.2157668	Ω	52.64310		+0.88698674		-0.19161917				
<i>e</i>	0.0423706	<i>i</i>	2.33863		+0.41797353		-0.05372868				
<i>P</i>	11.91	<i>H</i>	12.0		<i>G</i>	0.15	<i>U</i>	7			
Residuals in seconds of arc											
1973 09 19	675	1.3+	0.4+	1973 09 29	675	0.9-	0.7-	1973 10 05	675	0.4+	0.3-
1973 09 19	675	0.2-	0.2+	1973 09 29	675	(1.1+	2.9-)	1973 10 05	675	0.7+	0.4-
1973 09 20	675	(2.6-	0.4+)	1973 09 29	675	1.0-	0.9-	1973 10 05	675	(2.4-	1.5+)
1973 09 24	675	(2.6-	0.0)	1973 09 29	675	0.7+	0.4-	1998 09 20	809	1.2+	0.0+
1973 09 24	675	0.6+	0.8+	1973 09 30	675	(0.6+	2.7-)	1998 09 20	809	0.8-	0.9-
1973 09 24	675	0.7-	0.1+	1973 09 30	675	1.1+	1.8+	1998 09 20	809	0.8-	0.1+
1973 09 24	675	0.9-	0.3+	1973 09 30	675	(0.3+	2.8-)	1998 09 21	809	0.9+	1.0+
1973 09 25	675	(0.2-	2.9-)	1973 09 30	675	(1.5+	2.0+)	1998 09 21	809	0.5-	0.4-
1973 09 25	675	(0.0	2.5+)	1973 10 04	675	0.9+	0.0	1998 09 21	809	0.0	0.4+
1973 09 25	675	0.8-	1.2-	1973 10 04	675	0.4-	1.7-				
1973 09 25	675	(1.5-	2.3+)	1973 10 04	675	1.0-	1.8+				

3156 T-2 = 1998 SJ₁₄₆

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	326.69083		(2000.0)	P		Q					
<i>n</i>	0.08389508	ω	28.43712	+0.21505568		−0.97608496					
<i>a</i>	5.1678718	Ω	49.16272	+0.88787319		+0.18186579					
<i>e</i>	0.0496374	<i>i</i>	2.40653	+0.40673363		+0.11909234					
<i>P</i>	11.75	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1973 09 25	675	0.4−	2.0+	1973 10 04	675	0.6+	0.3+	1998 09 21	809	1.6−	0.4−
1973 09 25	675	0.2−	0.2−	1973 10 05	675	0.4+	1.0−	1998 09 21	809	1.6−	0.1−
1973 09 29	675	0.7+	0.3−	1973 10 05	675	0.1−	0.8−	1999 01 14	691	0.4−	0.9−
1973 09 29	675	0.6+	0.0	1998 09 20	809	2.2+	1.8+	1999 01 14	691	0.1−	0.5−
1973 09 30	675	0.1+	0.3+	1998 09 20	809	0.1−	0.1−	1999 01 14	691	0.4−	0.6−
1973 09 30	675	0.2−	0.3+	1998 09 20	809	0.4+	0.6+	1999 01 18	691	1.4+	0.0
1973 10 04	675	1.1−	1.2−	1998 09 21	809	0.5−	0.8+	1999 01 18	691	0.8+	0.1−

1999 APR. 2

3190 T-2 = 1999 CY₄₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	273.35858		(2000.0)		P		Q				
<i>n</i>	0.21310721	ω	91.77579		-0.37156833		+0.92601073				
<i>a</i>	2.7759009	Ω	156.07141		-0.90368846		-0.34429009				
<i>e</i>	0.1131010	<i>i</i>	9.45685		-0.21280069		-0.15481751				
<i>P</i>	4.63	<i>H</i>	14.9		<i>G</i>	0.15	<i>U</i>	6			
Residuals in seconds of arc											
1973 09 19	675	0.3+	1.4+	1973 09 29	675	1.8-	0.5-	1999 02 10	704	0.9-	0.0
1973 09 19	675	1.6+	0.2-	1973 09 30	675	(2.9+	2.6-)	1999 02 10	704	0.3-	0.2+
1973 09 20	675	0.4-	0.7-	1973 09 30	675	0.5-	1.6-	1999 02 10	704	(3.9-	0.2-)
1973 09 24	675	0.2+	0.9-	1973 10 04	675	1.2+	1.2+	1999 02 13	704	0.3+	0.3+
1973 09 24	675	1.0-	0.8+	1973 10 04	675	0.6-	0.0	1999 02 13	704	0.7+	1.2-
1973 09 25	675	(1.4-	3.1-)	1973 10 05	675	1.2+	0.1+	1999 02 13	704	1.1+	0.8+
1973 09 25	675	(0.3+	2.3-)	1973 10 05	675	1.2+	0.2+	1999 02 13	704	(2.4-	0.6-)
1973 09 29	675	1.7-	0.1+	1999 02 10	704	0.8-	0.0				

3311 T-2 = 1998 SE₁₃₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	36.22590		(2000.0)			P		Q			
<i>n</i>	0.27663451	ω	242.26005			+0.99293187		-0.11312939			
<i>a</i>	2.3327336	Ω	124.21478			+0.11831075		+0.91943917			
<i>e</i>	0.2366050	<i>i</i>	2.48744			+0.00942690		+0.37660770			
<i>P</i>	3.56	<i>H</i>	17.0		<i>G</i>	0.15		<i>U</i>	4		
Residuals in seconds of arc											
1973 09 19	675	0.1+	0.4+	1973 09 30	675	(2.5-	0.9-)	1998 09 27	704	0.1-	0.3+
1973 09 19	675	1.8-	0.8-	1973 09 30	675	0.7+	0.9+	1998 09 27	704	(2.2-	1.9+)
1973 09 20	675	0.8-	0.1-	1973 10 04	675	0.2+	0.3+	1998 09 27	704	0.4-	0.1+
1973 09 24	675	(1.2+	2.2+)	1973 10 04	675	0.1-	0.2-	1998 09 27	704	0.2+	0.1+
1973 09 24	675	1.3+	0.8+	1973 10 05	675	1.5-	0.2-	1998 10 28	704	0.9+	0.2-
1973 09 25	675	0.4-	0.3+	1973 10 05	675	1.3-	1.3+	1998 10 28	704	0.3-	0.3+
1973 09 25	675	0.4+	0.7-	1998 09 26	704	0.7-	1.7-	1998 10 28	704	0.2-	0.8+
1973 09 29	675	1.3+	1.5-	1998 09 26	704	1.1+	0.0	1998 10 28	704	0.9-	1.0-
1973 09 29	675	1.4+	0.3-	1998 09 26	704	0.6+	0.3-	1998 10 29	704	0.1+	0.4-
1973 09 30	675	0.4-	0.8+	1998 09 26	704	0.0	0.5+	1998 10 29	704	(3.1+	1.6-)
1973 09 30	675	0.4-	1.2-	1998 09 27	704	0.5-	0.8+	1998 10 29	704	0.4+	0.3+

3370 T-2 = 1998 VR₂₈

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	10.53823		(2000.0)		P		Q				
n	0.23941359	ω	34.25855		+0.48443481		-0.87417134				
a	2.5686416	Ω	26.81294		+0.78488597		+0.41720357				
e	0.1713773	i	4.30658		+0.38636374		+0.24852695				
P	4.12	H	15.0		G	0.15	U	5			
Residuals in seconds of arc											
1973 09 19	675	0.6+	1.1+	1998 11 10	704	0.1-	0.1-	1998 11 18	704	0.3+	1.4-
1973 09 19	675	1.5-	0.5+	1998 11 10	704	1.5-	1.1+	1998 11 18	704	1.4+	1.7-
1973 09 20	675	0.6+	1.1+	1998 11 10	704	1.4+	2.0+	1998 11 18	704	1.9+	3.2-
1973 09 24	675	0.6-	0.7-	1998 11 10	699	0.4+	0.9+	1998 11 21	704	0.0	0.0
1973 09 24	675	0.2-	0.5+	1998 11 10	699	0.5+	0.5-	1998 11 21	704	0.6-	1.1-
1973 09 25	675	1.2+	1.0-	1998 11 11	704	1.5-	0.2+	1998 11 21	704	0.9+	1.4+
1973 09 25	675	0.1-	1.9-	1998 11 11	704	3.8-	0.3-	1998 11 21	704	0.2+	1.2+
1998 11 10	699	0.5-	0.6+	1998 11 18	704	0.5+	0.3+	1998 11 21	704	0.3+	0.9+

4089 T-2 = 1999 AR₁₈

Id. A. Doppler

1999 APR. 2

M.P.C. 34273

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	72.81241		(2000.0)	P	Q
<i>n</i>	0.24269825	ω	246.43329	+0.92199361	-0.38468525
<i>a</i>	2.5454132	Ω	136.15604	+0.37440909	+0.85668331
<i>e</i>	0.2141252	<i>i</i>	3.65037	+0.09871988	+0.34367275
<i>P</i>	4.06	<i>H</i>	16.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1973 09 19	675	0.6-	1.2-	1973 09 29	675	(3.0+	0.8-)	1973 10 05	675	0.7-	2.0+
1973 09 19	675	0.2+	0.7-	1973 09 29	675	(0.5+	2.9-)	1999 01 13	691	0.4+	0.1+
1973 09 20	675	1.6-	0.6+	1973 09 30	675	0.3-	1.5+	1999 01 13	691	0.7+	0.1-
1973 09 24	675	0.3+	0.5+	1973 09 30	675	1.1-	0.2-	1999 01 13	691	0.6+	0.2-
1973 09 24	675	1.3+	0.9+	1973 10 04	675	1.4+	1.7-	1999 01 14	691	0.9-	0.2+
1973 09 25	675	1.5+	0.6-	1973 10 04	675	0.4-	0.9-	1999 01 14	691	0.4-	0.1+
1973 09 25	675	0.6+	0.9-	1973 10 05	675	0.6-	0.6+	1999 01 14	691	0.4-	0.2-

4231 T-2 = 1998 SZ₆₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	32.47437		(2000.0)	P	Q
<i>n</i>	0.27499977	ω	323.57435	+0.99132527	+0.11464887
<i>a</i>	2.3419691	Ω	30.03449	-0.06790091	+0.86539626
<i>e</i>	0.1343988	<i>i</i>	7.37678	-0.11253296	+0.48779600
<i>P</i>	3.58	<i>H</i>	15.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1973 09 19	675	1.2+	0.6-	1973 09 29	675	1.2-	0.2-	1998 09 19	704	0.4+	0.5+
1973 09 19	675	0.7+	0.6+	1973 09 30	675	0.5+	0.4+	1998 09 19	704	0.0	0.2-
1973 09 20	675	1.6-	0.6-	1973 09 30	675	0.5+	0.8+	1998 09 21	704	0.4-	0.4+
1973 09 24	675	0.6+	0.9-	1973 10 04	675	0.7+	0.8-	1998 09 21	704	0.3+	0.1+
1973 09 24	675	0.2-	0.2+	1973 10 04	675	0.4+	0.2-	1998 09 21	704	0.2-	0.2-
1973 09 25	675	1.3+	0.3+	1973 10 05	675	0.2-	0.7-	1998 09 21	704	0.4-	0.6-
1973 09 25	675	1.2-	1.2+	1973 10 05	675	0.6+	0.9+				
1973 09 29	675	1.5-	0.1-	1998 09 19	704	0.4+	0.1+				

4249 T-2 = 1997 SV₂₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	174.68899		(2000.0)	P	Q
<i>n</i>	0.28877417	ω	314.84780	+0.90820087	+0.41520463
<i>a</i>	2.2668902	Ω	20.79451	-0.32980772	+0.78748203
<i>e</i>	0.1319654	<i>i</i>	8.53521	-0.25767820	+0.45549661
<i>P</i>	3.41	<i>H</i>	16.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1973 09 20	675	1.7+	0.8-	1973 09 30	675	(2.8+	0.2-)	1997 09 28	691	0.3-	0.1-
1973 09 24	675	0.2-	1.0+	1973 09 30	675	2.0+	0.5+	1997 09 28	691	0.2-	0.2-
1973 09 24	675	1.0-	0.5+	1973 10 04	675	0.3+	0.4+	1997 10 03	691	0.2+	0.1-
1973 09 25	675	0.1-	1.6+	1973 10 04	675	0.7+	1.0+	1997 10 03	691	0.3+	0.2+
1973 09 25	675	0.1-	0.2+	1973 10 05	675	1.2-	0.1-	1997 10 03	691	0.3+	0.0
1973 09 29	675	0.3-	1.9-	1973 10 05	675	1.1-	0.0				
1973 09 29	675	0.7-	2.3-	1997 09 28	691	0.1-	0.0				

4259 T-2 = 1998 QB₁₀₁

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	56.35364		(2000.0)	P	Q
<i>n</i>	0.27540113	ω	204.13325	+0.73841605	+0.67381223
<i>a</i>	2.3396931	Ω	113.47703	-0.61384873	+0.68809897
<i>e</i>	0.2451460	<i>i</i>	1.67503	-0.27916211	+0.26925245
<i>P</i>	3.58	<i>H</i>	16.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1973 09 19	675	1.5-	0.9+	1973 09 29	675	2.0+	2.1-	1998 08 27	809	0.3-	0.7+
1973 09 19	675	0.7+	1.1+	1973 09 30	675	0.7+	1.3+	1998 08 27	809	0.8+	0.9+

1973 09 19	675	0.6+	2.8+	1973 09 30	675	2.0+	0.8-	1998 09 14	704	1.9-	0.5-
1973 09 19	675	0.0	0.3+	1973 10 04	675	0.4-	1.2+	1998 09 14	704	1.3+	1.5-
1973 09 20	675	0.8-	0.6+	1973 10 04	675	1.3-	0.1+	1998 09 14	704	0.1+	0.3-
1973 09 20	675	1.5-	1.1+	1973 10 05	675	0.7+	0.5-	1998 09 14	704	1.2+	0.9+
1973 09 24	675	1.4-	0.1+	1973 10 05	675	0.1-	0.5-	1998 09 18	704	0.9+	0.3-
1973 09 24	675	0.8-	1.0+	1998 08 26	809	0.1-	0.3+	1998 09 18	704	2.0+	0.4-
1973 09 25	675	1.7-	0.6-	1998 08 26	809	0.8+	0.4-	1998 09 18	704	1.6-	0.4-
1973 09 25	675	0.6+	1.1-	1998 08 26	809	0.6-	0.9-	1998 09 18	704	0.7-	0.4-
1973 09 29	675	1.3+	2.3-	1998 08 27	809	0.6-	0.4+	1998 09 18	704	0.4-	0.5-

4500 T-2 = 1998 YQ₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	187.69131		(2000.0)	P	Q
<i>n</i>	0.20432986	ω	213.01744	-0.16150131	+0.98612412
<i>a</i>	2.8548382	Ω	47.72010	-0.89380851	-0.12965423
<i>e</i>	0.0449416	<i>i</i>	2.97706	-0.41835832	-0.10367735
<i>P</i>	4.82	<i>H</i>	15.6	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1973 09 19	675	1.3-	1.7+	1973 09 30	675	(0.8+	3.7-)	1998 12 16	704	0.2-	0.9-
1973 09 19	675	1.0-	0.9+	1973 10 04	675	0.7-	0.9+	1998 12 16	704	1.0+	0.2-
1973 09 20	675	0.9+	0.1-	1973 10 04	675	(3.0-	0.6+)	1998 12 17	704	2.0-	1.7+
1973 09 24	675	1.6+	0.7-	1973 10 05	675	0.5+	0.0	1998 12 17	704	1.1-	0.1-
1973 09 24	675	1.7+	1.2-	1973 10 05	675	2.0-	1.2-	1998 12 17	704	1.1-	1.4+
1973 09 25	675	(4.8+	0.4+)	1998 12 16	704	1.7+	0.9-	1998 12 17	704	(2.7-	1.5+)
1973 09 25	675	0.4+	0.2-	1998 12 16	704	1.6+	1.0-	1998 12 17	704	(2.5-	2.4+)
1973 09 30	675	(2.2+	4.0-)	1998 12 16	704	(0.3+	3.2-)				

4742 T-2 = 1998 UQ₂₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	343.65599		(2000.0)	P	Q
<i>n</i>	0.08214052	ω	272.37366	+0.22633270	-0.97345653
<i>a</i>	5.2412044	Ω	164.41809	+0.93641262	+0.20784569
<i>e</i>	0.1181280	<i>i</i>	7.27134	+0.26815092	+0.09582559
<i>P</i>	12.00	<i>H</i>	11.9	<i>G</i> 0.15	<i>U</i> 7

Residuals in seconds of arc

1973 09 29	675	0.8+	0.1-	1973 10 04	675	0.1+	0.8+	1998 10 18	809	1.5-	0.6-
1973 09 29	675	0.4-	0.8-	1973 10 05	675	0.4-	0.5+	1998 10 19	809	0.9+	0.8+
1973 09 30	675	0.4-	1.4+	1973 10 05	675	0.6-	0.6-	1998 10 19	809	0.2+	0.0
1973 09 30	675	0.1-	0.3-	1998 10 18	809	0.2+	0.1-	1998 10 19	809	0.8+	0.2+
1973 10 04	675	1.0+	0.9-	1998 10 18	809	0.7-	0.4-				

4810 T-2 = 1999 CD₁₀₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	293.82395		(2000.0)	P	Q
<i>n</i>	0.21048097	ω	47.09771	-0.85018575	+0.52458382
<i>a</i>	2.7989437	Ω	164.37177	-0.51832636	-0.81911586
<i>e</i>	0.1012894	<i>i</i>	9.54612	-0.09231456	-0.23207977
<i>P</i>	4.68	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1973 09 19	675	0.5+	0.5+	1973 09 25	675	0.7-	0.1-	1999 02 16	704	0.9+	0.1-
1973 09 19	675	0.3+	1.4-	1999 02 12	704	0.4+	0.7-	1999 02 16	704	0.4+	0.1-
1973 09 20	675	1.2-	0.5+	1999 02 12	704	0.1+	0.6+	1999 02 16	704	0.0	0.1-
1973 09 24	675	1.6+	0.2+	1999 02 12	704	0.5+	1.5+	1999 02 16	704	0.1+	0.2-
1973 09 24	675	1.1+	1.0+	1999 02 12	704	1.4-	1.0-				
1973 09 25	675	1.9-	0.7-	1999 02 16	704	0.9-	0.0				

4834 T-2 = 1993 FT₃

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	197.65313	(2000.0)	P	Q
<i>n</i>	0.28088033	ω 130.41634	−0.55424386	+0.82853791
<i>a</i>	2.3091660	Ω 105.75196	−0.78653329	−0.49003289
<i>e</i>	0.0944918	<i>i</i> 4.74507	−0.27235846	−0.27091088
<i>P</i>	3.51	<i>H</i> 13.8	<i>G</i> 0.15	<i>U</i> 6
Residuals in seconds of arc				
1973 09 19	675	0.4+ 0.1+	1973 09 25	675 0.8+ 0.5+ 1993 03 19 675 1.6− 0.3−
1973 09 19	675	0.9− 0.4−	1973 09 25	675 0.4+ 0.0 1993 03 21 675 0.8− 1.1+
1973 09 20	675	0.7+ 1.7−	1993 03 17	809 1.0+ 0.7+ 1993 03 21 675 0.2− 0.1−
1973 09 24	675	2.2− 0.8+	1993 03 18	809 0.6+ 0.1− 1993 03 23 809 1.3+ 1.4+
1973 09 24	675	0.8+ 0.7+	1993 03 19	675 0.3− 2.8−

5003 T-2 = 1997 SW₁

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	97.76633	(2000.0)	P	Q
<i>n</i>	0.24527146	ω 124.86577	+0.90599987	−0.41227300
<i>a</i>	2.5275788	Ω 259.65047	+0.34954013	+0.85648215
<i>e</i>	0.2575384	<i>i</i> 5.59394	+0.23871728	+0.31059506
<i>P</i>	4.02	<i>H</i> 16.4	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1973 09 20	675	0.6− 1.1+	1997 09 24	046 0.1− 0.2+ 1997 10 05 046 0.3+ 0.9−
1973 09 20	675	0.8+ 0.3+	1997 09 24	046 0.0 0.2+ 1997 10 05 046 0.1− 0.3−
1973 09 24	675	0.7+ 0.2−	1997 09 25	046 0.3+ 0.2+ 1997 10 06 046 0.1− 0.2−
1973 09 24	675	0.5− 1.1+	1997 09 25	046 0.4+ 0.2+ 1997 10 06 046 0.1− 0.3−
1973 09 25	675	0.3+ 0.7−	1997 09 25	046 0.1+ 0.3+ 1997 10 06 046 0.1+ 0.1−
1973 09 25	675	1.0− 1.1−	1997 09 26	046 0.1− 0.1+ 1997 10 22 046 0.2− 0.4−
1997 09 23	046	0.6− 0.1−	1997 09 26	046 0.0 0.1+ 1997 10 22 046 0.1− 0.1+
1997 09 23	046	0.2− 0.2−	1997 09 26	046 0.4− 0.0 1997 10 22 046 0.0 0.3+
1997 09 23	046	0.6− 0.0	1997 09 28	046 0.5+ 0.4− 1997 10 23 046 0.1+ 0.0
1997 09 23	046	0.2− 0.2+	1997 09 28	046 1.1+ 0.1+ 1997 10 23 046 0.0 0.4+
1997 09 24	046	0.2+ 0.5+	1997 09 28	046 0.1+ 0.8− 1997 10 23 046 0.2+ 0.0
1997 09 24	046	0.0 0.3+	1997 10 05	046 0.0 0.2−

5022 T-2 = 1998 TQ₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	72.64965	(2000.0)	P	Q
<i>n</i>	0.27709484	ω 79.15434	+0.68017110	+0.72365924
<i>a</i>	2.3301493	Ω 234.35586	−0.71617363	+0.62194497
<i>e</i>	0.2516578	<i>i</i> 8.27647	−0.15640526	+0.29916845
<i>P</i>	3.56	<i>H</i> 16.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1973 09 20	675	0.2+ 0.0	1998 10 14	327 0.2− 0.9+ 1998 10 19 327 0.2− 1.0+
1973 09 20	675	1.2+ 0.9+	1998 10 14	327 0.9− 0.8+ 1998 10 19 327 0.1+ 0.1+
1973 09 24	675	0.8− 0.6−	1998 10 14	327 0.2+ 1.1+ 1998 10 19 327 0.6− 0.4−
1973 09 24	675	0.7+ 0.0	1998 10 15	327 0.0 0.1+ 1998 10 22 327 0.3+ 0.4−
1973 09 25	675	0.1− 0.0	1998 10 15	327 0.6+ 1.2− 1998 10 22 327 0.3+ 0.2−
1973 09 25	675	0.9− 0.3−	1998 10 15	327 0.1− 1.5− 1998 10 22 327 0.5+ 0.1−

5155 T-2 = 1999 FX₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	356.21571	(2000.0)	P	Q
<i>n</i>	0.28637516	ω 241.02270	−0.85237494	−0.51532156
<i>a</i>	2.2795326	Ω 267.82997	+0.50539105	−0.76814335
<i>e</i>	0.1281065	<i>i</i> 5.10317	+0.13430133	−0.37999932
<i>P</i>	3.44	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1973 09 20	675	0.4+ 0.2−	1999 03 19	704 0.3− 0.5− 1999 03 20 704 0.1+ 1.2+
1973 09 20	675	2.3+ 0.1−	1999 03 19	704 0.1− 1.2− 1999 03 20 704 0.2+ 0.8+

1973 09 24	675	0.9− 0.1+	1999 03 19	704 1.1− 0.6− 1999 03 20 704 0.0 0.8+
1973 09 24	675	0.0 0.4+	1999 03 19	704 1.2+ 0.4+ 1999 03 20 704 0.0 0.2+
1973 09 25	675	1.3− 0.2+	1999 03 19	704 0.1− 1.4−
1973 09 25	675	0.5− 0.4−	1999 03 20	704 0.0 0.1+

1061 T-3 = 1999 AX₂₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	6.17590	(2000.0)	P	Q
<i>n</i>	0.19071505	ω 172.15710	+0.50565597	−0.84864796
<i>a</i>	2.9891387	Ω 247.34870	+0.78213136	+0.52688642
<i>e</i>	0.0596882	<i>i</i> 9.68593	+0.36411891	+0.04676910
<i>P</i>	5.17	<i>H</i> 14.3	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1977 10 07	675	(0.2+ 2.8−)	1977 10 16	675 0.4− 0.6− 1999 01 13 910 0.6+ 0.1+
1977 10 11	675	0.1+ 0.1−	1977 10 17	675 0.3− 1.3+ 1999 01 13 910 0.5+ 0.2+
1977 10 11	675	1.0+ 1.5−	1977 10 17	675 (0.1+ 2.1+) 1999 01 14 910 0.4− 0.1−
1977 10 12	675	1.0+ 0.5−	1977 10 22	675 1.1− 1.4− 1999 01 14 910 0.7− 0.1−
1977 10 12	675	(0.7− 2.3+)	1977 10 22	675 (1.1− 2.0−) 1999 01 14 910 0.4− 0.5−
1977 10 16	675	0.6− 0.4−	1999 01 13	910 0.5+ 0.5+

2017 T-3 = 1999 CH₉₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	98.83083	(2000.0)	P	Q
<i>n</i>	0.24466102	ω 18.93575	+0.91705370	−0.39865484
<i>a</i>	2.5317813	Ω 4.59053	+0.34918301	+0.79152612
<i>e</i>	0.2161408	<i>i</i> 6.68635	+0.19257140	+0.46320699
<i>P</i>	4.03	<i>H</i> 15.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1977 10 07	675	1.2+ 1.5−	1977 10 16	675 0.5− 0.7− 1999 02 10 704 0.6+ 0.0
1977 10 11	675	0.7+ 0.4+	1977 10 16	675 1.1+ 0.4− 1999 02 10 704 0.1− 0.5−
1977 10 11	675	1.2− 0.2+	1977 10 21	675 0.7+ 0.5− 1999 02 13 704 1.4− 0.3−
1977 10 12	675	1.0− 1.1+	1977 10 21	675 (2.2+ 0.9−) 1999 02 13 704 0.8+ 0.2−
1977 10 12	675	1.2− 1.2+	1999 02 10	704 0.4+ 0.0 1999 02 13 704 0.3− 1.1+

2075 T-3 = 1998 XK₅₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	64.74446	(2000.0)	P	Q
<i>n</i>	0.24036026	ω 82.88631	+0.90991055	−0.41388266
<i>a</i>	2.5618927	Ω 301.55917	+0.36662492	+0.83360569
<i>e</i>	0.1738396	<i>i</i> 1.85882	+0.19403342	+0.36579051
<i>P</i>	4.10	<i>H</i> 14.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1977 10 07	675	0.5+ 0.8−	1977 10 21	675 1.7+ 1.2− 1998 12 17 704 0.7− 0.5−
1977 10 11	675	0.5− 0.5+	1977 10 22	675 1.0+ 0.1+ 1998 12 17 704 (2.2− 1.9−)
1977 10 11	675	1.3− 0.6+	1977 10 22	675 0.9+ 0.3+ 1999 01 16 704 0.1+ 0.3+
1977 10 12	675	0.2− 1.0+	1998 12 14	704 0.1− 0.1+ 1999 01 16 704 0.4+ 0.2−
1977 10 12	675	1.8− 0.9+	1998 12 14	704 0.9+ 0.0 1999 01 16 704 0.2+ 0.2+
1977 10 16	675	0.4− 1.0−	1998 12 14	704 0.1− 0.2− 1999 01 16 704 0.1− 0.0
1977 10 16	675	0.9− 0.3−	1998 12 14	704 0.8− 1.4− 1999 01 19 704 1.3− 0.2−
1977 10 17	675	0.1+ 1.7+	1998 12 17	704 0.4− 0.1+ 1999 01 19 704 1.6+ 0.3+
1977 10 17	675	(0.7− 2.2+)	1998 12 17	704 1.0− 0.2+ 1999 01 19 704 0.4+ 1.0+
1977 10 21	675	1.1+ 1.4−	1998 12 17	704 0.6− 0.3− 1999 01 19 704 1.3+ 0.8+

2107 T-3 = 1999 CY₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	89.84726	(2000.0)	P	Q
<i>n</i>	0.24580320	ω 57.54279	+0.76072985	−0.64798906
<i>a</i>	2.5239323	Ω 342.75172	+0.54508155	+0.66909090
<i>e</i>	0.0280498	<i>i</i> 7.25010	+0.35238643	+0.36390594
<i>P</i>	4.01	<i>H</i> 15.7	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1977 10 07	675	1.4+	1.0-	1977 10 16	675	1.0+	0.3-	1999 02 13	704	0.6+	0.7+
1977 10 11	675	0.6-	0.4-	1977 10 16	675	1.3+	0.8-	1999 02 13	704	0.2-	0.3-
1977 10 11	675	0.8-	0.6+	1999 02 10	704	1.7-	0.4+	1999 02 13	704	0.4-	0.7-
1977 10 12	675	1.5-	1.3+	1999 02 10	704	0.1+	0.6+				
1977 10 12	675	0.7-	0.7+	1999 02 10	704	1.6+	0.7-				

2356 T-3 = 1998 XS₇₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	319.04542		(2000.0)	P	Q
<i>n</i>	0.28661736	ω	273.77541	-0.73116729	-0.68166985
<i>a</i>	2.2782483	Ω	223.25303	+0.64042569	-0.67230676
<i>e</i>	0.0817674	<i>i</i>	2.24519	+0.23505178	-0.28866908
<i>P</i>	3.44	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1977 10 07	675	0.8+	1.0-	1977 10 16	675	(0.4+	2.6-)	1977 10 22	675	0.1+	0.2-
1977 10 11	675	0.0	0.3+	1977 10 16	675	0.0	0.3+	1998 12 15	704	0.9-	0.7-
1977 10 11	675	0.5-	1.7+	1977 10 17	675	0.9-	1.5-	1998 12 15	704	0.1-	0.7+
1977 10 11	675	0.3-	0.6+	1977 10 17	675	0.0	0.1-	1998 12 15	704	0.5+	0.2+
1977 10 11	675	1.0-	1.5+	1977 10 17	675	1.6-	1.2-	1998 12 15	704	0.4+	0.9+
1977 10 12	675	1.2+	0.9-	1977 10 17	675	0.3-	0.9+	1998 12 15	704	0.5+	0.5+
1977 10 12	675	0.0	0.3+	1977 10 21	675	(3.1-	0.1-)	1998 12 22	704	0.0	1.0-
1977 10 12	675	0.8+	0.2-	1977 10 21	675	0.6+	1.5-	1998 12 22	704	0.9+	0.2+
1977 10 12	675	(0.5+	2.4-)	1977 10 21	675	(3.0-	0.3+)	1998 12 22	704	0.4-	0.2-
1977 10 16	675	(1.3+	3.0-)	1977 10 21	675	(0.7+	2.9-)	1998 12 22	704	0.3-	1.0-
1977 10 16	675	0.2-	0.1+	1977 10 22	675	1.2+	0.7+	1998 12 22	704	0.6-	0.6+

2391 T-3 = 1998 XD₉₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	104.99085		(2000.0)	P	Q
<i>n</i>	0.19778080	ω	15.18402	+0.97933650	-0.20223141
<i>a</i>	2.9175164	Ω	356.48232	+0.18277713	+0.88840039
<i>e</i>	0.0830316	<i>i</i>	1.46847	+0.08655944	+0.41212522
<i>P</i>	4.98	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1977 10 07	675	0.4-	0.1-	1977 10 16	675	(1.0+	2.2-)	1977 10 22	675	0.9+	0.4+
1977 10 07	675	0.2+	0.7+	1977 10 16	675	0.5-	1.1-	1977 10 22	675	0.5+	0.2+
1977 10 11	675	0.9+	0.9+	1977 10 16	675	1.3+	1.9-	1998 12 11	303	0.1-	0.4-
1977 10 11	675	1.0-	0.7+	1977 10 16	675	0.6-	0.8-	1998 12 12	303	(0.8-	2.7+)
1977 10 11	675	0.2-	0.1-	1977 10 17	675	1.3-	0.4-	1998 12 12	303	0.0	1.3+
1977 10 11	675	1.1-	1.1+	1977 10 17	675	0.3-	0.2+	1998 12 13	303	0.3+	0.0
1977 10 12	675	1.0+	0.6-	1977 10 17	675	1.5+	0.9+	1998 12 13	303	0.2-	1.0-
1977 10 12	675	0.8+	0.3-	1977 10 17	675	0.5-	0.2-	1998 12 14	303	0.4+	0.6+
1977 10 12	675	0.4+	0.6-	1977 10 21	675	0.3-	0.5+	1998 12 14	303	0.4-	0.6-
1977 10 12	675	0.1+	0.2-	1977 10 21	675	1.4-	0.9+				

2466 T-3 = 1998 XB₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	74.01099		(2000.0)	P	Q
<i>n</i>	0.19222933	ω	353.13176	+0.99862022	+0.05116627
<i>a</i>	2.9734202	Ω	3.99289	-0.03636298	+0.83612000
<i>e</i>	0.0992364	<i>i</i>	9.77130	-0.03788643	+0.54615506
<i>P</i>	5.13	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1977 10 16	675	0.8+	1.2-	1977 10 22	675	0.7-	1.0+	1998 12 17	704	0.3-	0.2-
1977 10 16	675	0.1-	0.3-	1977 10 22	675	0.8-	0.4+	1998 12 17	704	1.1+	0.2-
1977 10 17	675	1.2-	0.5+	1998 12 14	704	0.8+	0.8+	1998 12 17	704	1.9-	0.7+
1977 10 17	675	0.1-	1.6+	1998 12 14	704	0.2+	0.5+	1998 12 17	704	0.3-	0.1-
1977 10 21	675	1.8+	0.7-	1998 12 14	704	1.1+	1.4-	1998 12 17	704	0.1+	0.3+
1977 10 21	675	0.2+	1.4-	1998 12 14	704	0.8-	0.4-				

3129 T-3 = 1999 CV₃₈

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	85.20984		(2000.0)	P	Q
<i>n</i>	0.24430000	ω	312.57345	+0.76495365	-0.64310584
<i>a</i>	2.5342750	Ω	87.48232	+0.60085980	+0.69267583
<i>e</i>	0.1521367	<i>i</i>	2.03683	+0.23197719	+0.32651963
<i>P</i>	4.03	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1977 10 07	675	1.4+	1.0-	1977 10 17	675	0.5-	0.6+	1999 02 10	704	0.9-	0.0
1977 10 11	675	1.1+	0.7+	1977 10 21	675	0.6-	0.9+	1999 02 10	704	0.2+	0.2+
1977 10 11	675	0.9-	1.2+	1977 10 21	675	0.5-	1.1+	1999 02 10	704	0.2-	1.2-
1977 10 12	675	0.0	1.2-	1977 10 22	675	0.4-	2.1-	1999 02 10	704	1.2-	0.2+
1977 10 12	675	0.6-	1.2-	1977 10 22	675	0.9+	1.5-	1999 02 10	704	0.6-	1.6-
1977 10 16	675	0.2+	0.0	1999 01 22	699	0.6+	0.2+	1999 02 13	704	1.1+	0.2-
1977 10 16	675	0.3+	0.2+	1999 01 22	699	0.8+	0.3-	1999 02 13	704	1.2-	0.7+
1977 10 17	675	0.6-	2.1+	1999 01 22	699	0.2-	0.2+	1999 02 13	704	1.5+	1.6+

3192 T-3 = 1998 XF₈₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	0.03010		(2000.0)	P	Q
<i>n</i>	0.28471825	ω	293.25313	-0.16367560	-0.98637855
<i>a</i>	2.2883679	Ω	166.13734	+0.92823179	-0.15960028
<i>e</i>	0.2397224	<i>i</i>	3.91532	+0.33405994	-0.03981334
<i>P</i>	3.46	<i>H</i>	16.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1977 10 07	675	(3.2+	1.6-)	1977 10 16	675	0.2+	0.2+	1998 12 15	704	0.2-	0.3+
1977 10 11	675	(1.3-	2.7+)	1977 10 16	675	0.6+	0.1+	1998 12 15	704	0.1-	0.6+
1977 10 11	675	0.1+	1.7+	1977 10 17	675	1.8-	0.2-	1998 12 15	704	0.4+	0.5+
1977 10 11	675	(3.6+	0.4+)	1977 10 17	675	0.4+	0.4+	1998 12 15	704	0.0	0.4+
1977 10 12	675	0.5-	0.7-	1977 10 17	675	1.6-	0.2+	1998 12 15	704	0.1-	0.4+
1977 10 12	675	0.3+	0.6-	1977 10 17	675	0.1+	1.2+	1998 12 22	704	0.1-	0.8-
1977 10 12	675	1.1-	0.2+	1977 10 21	675	0.3-	0.9-	1998 12 22	704	0.2-	0.3-
1977 10 12	675	1.7+	0.1+	1977 10 21	675	0.8+	1.3-	1998 12 22	704	0.1-	0.8-
1977 10 16	675	0.4+	0.8-	1977 10 22	675	(4.4-	3.4-)	1998 12 22	704	0.3+	0.1+
1977 10 16	675	0.5-	0.9+	1977 10 22	675	0.3+	1.1-	1998 12 22	704	0.2+	0.2-

3283 T-3 = 1997 GG₁₀

Id. M. E. Sansaturio

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	218.18895		(2000.0)	P	Q
<i>n</i>	0.22560499	ω	310.17577	-0.49751766	-0.86738124
<i>a</i>	2.6724131	Ω	169.64244	+0.81364215	-0.47110164
<i>e</i>	0.0370602	<i>i</i>	3.57903	+0.30077006	-0.16035283
<i>P</i>	4.37	<i>H</i>	15.9	<i>G</i> 0.15	<i>U</i> 7

Residuals in seconds of arc

1977 10 11	675	1.5-	0.2+	1977 10 16	675	0.3+	0.6+	1997 04 05	704	1.2+	0.1-
1977 10 11	675	0.9-	0.1-	1977 10 17	675	1.2+	0.0	1997 04 05	704	0.5+	0.4+
1977 10 12	675	1.4+	0.1-	1977 10 17	675	0.1-	0.3-	1997 04 07	704	0.7-	0.2-
1977 10 12	675	0.4-	1.0-	1997 04 03	704	0.2-	0.7-	1997 04 07	704	0.6-	0.1+
1977 10 16	675	0.0	0.7+	1997 04 03	704	0.2-	0.6+				

3391 T-3 = 1999 AG₂₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	46.86442		(2000.0)	P	Q
<i>n</i>	0.28694140	ω	206.49696	+0.59708871	-0.80205641
<i>a</i>	2.2765328	Ω	206.84809	+0.74129982	+0.55827141
<i>e</i>	0.1885529	<i>i</i>	1.75168	+0.30652838	+0.21222288
<i>P</i>	3.43	<i>H</i>	16.5	<i>G</i> 0.15	<i>U</i> 6

M.P.C. 34276

Residuals in seconds of arc

1977 10 11	675	(1.4− 2.7+)	1977 10 17	675	0.3− 1.0−	1999 01 15	327	0.7+ 0.7+
1977 10 11	675	(1.2− 2.6+)	1977 10 17	675	0.6+ 1.2+	1999 01 15	327	0.9+ 0.2+
1977 10 12	675	1.2+ 0.1−	1999 01 13	327	0.5− 0.6−	1999 01 18	704	0.4+ 0.1−
1977 10 12	675	1.1− 0.6−	1999 01 13	327	0.6− 0.6−	1999 01 18	704	1.5− 0.4+
1977 10 16	675	0.6− 0.3−	1999 01 13	327	0.3− 0.7−	1999 01 18	704	0.1+ 0.1+
1977 10 16	675	0.1− 0.7+	1999 01 15	327	0.7+ 0.6+			

3479 T-3 = 1998 UN₈

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	32.27095		(2000.0)	P	Q
<i>n</i>	0.23649977	ω	198.87296	+0.87955562	−0.47564778
<i>a</i>	2.5896967	Ω	189.55481	+0.44522538	+0.83159091
<i>e</i>	0.2861734	<i>i</i>	4.10376	+0.16779833	+0.28673288
<i>P</i>	4.17	<i>H</i>	15.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1977 10 07	675	1.2+ 2.1−	1977 10 17	675	0.6− 0.7+	1998 10 24	411	0.4+ 0.0
1977 10 11	675	0.7− 0.3+	1977 10 17	675	2.3− 0.3−	1998 10 25	411	0.3+ 0.2−
1977 10 11	675	0.0 0.6+	1977 10 21	675	0.6− 0.4+	1998 10 25	411	0.2+ 0.1−
1977 10 12	675	0.9+ 1.1+	1977 10 21	675	0.1− 1.4+	1998 11 11	699	0.6− 0.1+
1977 10 12	675	1.1+ 0.2−	1977 10 22	675	0.8+ 1.3−	1998 11 11	699	0.0 0.3−
1977 10 16	675	1.1− 0.0	1977 10 22	675	2.3+ 0.5−	1998 11 11	699	0.6+ 0.6−
1977 10 16	675	0.8− 0.1−	1998 10 24	411	0.8− 1.1+			

3511 T-3 = 1998 XT₂₅

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	320.58993		(2000.0)	P	Q
<i>n</i>	0.19172414	ω	251.13281	−0.55255724	−0.83304717
<i>a</i>	2.9786411	Ω	232.43908	+0.77681723	−0.50312186
<i>e</i>	0.1411043	<i>i</i>	1.93023	+0.30205213	−0.23000174
<i>P</i>	5.14	<i>H</i>	16.4	<i>G</i> 0.15	<i>U</i> 7

Residuals in seconds of arc

1977 10 11	675	0.4+ 0.8−	1977 10 12	675	0.6− 2.3−	1998 12 14	691	0.8− 0.3−
1977 10 11	675	0.6+ 0.6−	1977 10 12	675	0.7+ 0.6−	1998 12 14	691	0.9− 0.5−
1977 10 11	675	0.2− 1.2−	1977 10 16	675	0.5+ 0.8−	1998 12 14	691	1.4− 0.5−
1977 10 11	675	0.9+ 0.6−	1977 10 16	675	0.6− 1.7+	1998 12 15	691	0.8+ 0.1+
1977 10 12	675	0.2+ 1.1+	1977 10 17	675	0.3+ 0.9+	1998 12 15	691	1.1+ 0.6+
1977 10 12	675	0.7− 1.2+	1977 10 17	675	1.6− 2.1+	1998 12 15	691	1.2+ 0.5+

4079 T-3 = 1998 VK₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	236.41842		(2000.0)	P	Q
<i>n</i>	0.19008932	ω	142.67477	−0.99328158	+0.00506176
<i>a</i>	2.9956948	Ω	38.11301	−0.06553881	−0.84798554
<i>e</i>	0.0409417	<i>i</i>	10.79596	+0.09537485	−0.52999520
<i>P</i>	5.18	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1977 10 11	675	0.2− 0.2−	1977 10 21	675	1.0+ 1.0−	1998 11 11	704	0.8− 1.2+
1977 10 11	675	0.5− 0.1+	1998 09 23	910	0.4+ 0.2−	1998 11 11	704	(4.4− 1.1+)
1977 10 12	675	0.6− 0.7−	1998 09 23	910	0.3+ 0.1−	1998 11 16	691	0.0 0.2−
1977 10 12	675	0.7− 0.4+	1998 09 23	910	0.4+ 0.1−	1998 11 16	691	0.6+ 0.0
1977 10 16	675	0.1− 2.0+	1998 11 10	704	0.9+ 0.6−	1998 11 16	691	0.1+ 0.3−
1977 10 16	675	0.1+ 1.6+	1998 11 10	704	0.8− 0.4+	1998 11 16	691	0.2+ 0.2−
1977 10 17	675	0.8− 0.4−	1998 11 10	704	0.6+ 1.8−	1998 11 21	691	0.1− 0.3−
1977 10 17	675	0.2+ 0.4−	1998 11 11	704	2.1− 0.2−	1998 11 21	691	0.5− 0.3+
1977 10 21	675	1.5+ 1.2−	1998 11 11	704	1.3+ 1.7+	1998 11 21	691	0.4− 0.1+

4101 T-3 = 1989 TF₆ = 1996 FR₁₆Id. T. Kobayashi (*MPC* 15909), A. Milani

1999 APR. 2

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	246.70380		(2000.0)	P	Q
<i>n</i>	0.08195533	ω	19.02154	+0.67678506	−0.70824109
<i>a</i>	5.2490967	Ω	29.46429	+0.61135145	+0.38867176
<i>e</i>	0.0132342	<i>i</i>	24.10503	+0.41013581	+0.58934610
<i>P</i>	12.03	<i>H</i>	11.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1977 10 07	675	1.1+ 1.3−	1977 10 21	675	1.4+ 1.3−	1989 11 02	675	0.2− 0.6+
1977 10 11	675	1.1+ 0.7+	1977 10 22	675	0.3+ 1.7−	1996 03 22	809	1.2+ 0.1+
1977 10 11	675	0.1+ 0.9−	1977 10 22	675	1.7+ 0.9−	1996 03 22	809	0.1− 0.3−
1977 10 12	675	0.5+ 0.8−	1989 10 07	809	0.7− 1.5+	1996 03 22	809	0.3− 0.1−
1977 10 12	675	0.3− 0.6−	1989 10 07	809	0.9− 0.6+	1996 03 24	809	0.7+ 0.7+
1977 10 16	675	1.0+ 0.0	1989 10 07	809	1.7− 0.3+	1996 03 24	809	1.1− 1.8−
1977 10 16	675	0.5+ 0.2+	1989 10 08	809	0.5− 1.5+	1996 03 24	809	2.5− 1.8−
1977 10 17	675	0.6+ 0.7−	1989 10 08	809	1.0− 1.0+	1996 03 26	809	0.7+ 0.3+
1977 10 17	675	0.6− 1.1−	1989 10 08	809	2.9− 1.2+	1996 03 26	809	0.0 0.6+
1977 10 21	675	2.3+ 1.3−	1989 11 02	675	0.2+ 1.0+	1996 03 26	809	0.5− 0.2+

4236 T-3 = 1998 MA₃₂

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	100.07030		(2000.0)	P	Q
<i>n</i>	0.17717266	ω	148.65656	−0.80520488	+0.58402710
<i>a</i>	3.1395801	Ω	67.42419	−0.56449004	−0.70182597
<i>e</i>	0.0989674	<i>i</i>	6.38889	−0.18164827	−0.40786352
<i>P</i>	5.56	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1977 10 11	675	0.6+ 0.1−	1977 10 21	675	0.3− 0.4−	1998 06 26	704	0.6+ 0.3+
1977 10 11	675	0.8+ 0.2+	1977 10 21	675	0.1− 0.7−	1998 06 26	704	1.2+ 1.0−
1977 10 12	675	0.0 1.3−	1977 10 22	675	1.0+ 1.1+	1998 06 26	704	1.3− 0.5−
1977 10 12	675	0.5+ 0.8−	1977 10 22	675	1.1+ 1.0−	1998 06 26	704	0.2+ 1.0+
1977 10 16	675	1.5− 1.4+	1998 06 24	704	0.7+ 0.5+	1998 06 28	809	0.6+ 0.9+
1977 10 16	675	0.5− 2.2+	1998 06 24	704	1.2+ 0.8+	1998 06 28	809	0.5− 0.1−
1977 10 17	675	0.8− 0.3−	1998 06 24	704	0.6− 0.4−	1998 06 28	809	0.7− 0.5−
1977 10 17	675	0.8− 0.3−	1998 06 24	704	1.3− 1.0−			

4268 T-3 = 1996 JN₁₃ = 1999 CX₈₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	358.42063		(2000.0)	P	Q
<i>n</i>	0.28931912	ω	64.15267	−0.63331133	−0.76412674
<i>a</i>	2.2640428	Ω	65.69619	+0.65314648	−0.61271208
<i>e</i>	0.1757615	<i>i</i>	7.73002	+0.41511014	−0.20172811
<i>P</i>	3.41	<i>H</i>	15.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1977 10 11	675	1.0+ 0.8+	1996 05 11	691	0.1+ 0.0	1999 02 13	704	0.5− 0.1−
1977 10 11	675	0.7+ 0.3−	1996 05 11	691	0.1− 0.0	1999 02 13	704	0.4− 0.6−
1977 10 12	675	0.5− 1.0−	1996 05 11	691	0.0 0.0	1999 02 13	704	1.5+ 0.4−
1977 10 12	675	0.5− 0.2−	1996 05 20	691	0.2+ 0.2−	1999 02 13	704	0.2− 1.5+
1977 10 16	675	0.9− 0.3−	1996 05 20	691	0.1+ 0.3+	1999 02 13	704	0.5+ 1.0+
1977 10 16	675	0.7+ 1.2+	1996 05 20	691	0.3− 0.0	1999 02 18	699	0.0 0.5−
1977 10 17	675	0.2− 0.2+	1999 02 10	704	0.0 0.5−	1999 02 18	699	0.7+ 0.7+
1977 10 17	675	1.3− 0.5+	1999 02 10	704	0.3− 0.2+	1999 02 18	699	0.0 0.1−
1977 10 21	675	0.3+ 0.6−	1999 02 10	704	1.0− 0.3−			
1977 10 21	675	0.7+ 0.2−	1999 02 10	704	0.3− 0.7−			

4340 T-3 = 1998 FA₈₀

Id. A. Milani

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	305.11902	(2000.0)	P	Q
<i>n</i>	0.26733184	ω 287.33952	+0.95477226	+0.27868193
<i>a</i>	2.3865411	Ω 56.59378	-0.20303514	+0.86575836
<i>e</i>	0.1378301	<i>i</i> 7.13344	-0.21722492	+0.41569080
<i>P</i>	3.69	<i>H</i> 14.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1977 10 16	675	0.8-	0.2+	1998 03 24	704	0.5+	0.7-	1998 04 21	704	1.5-	1.4+
1977 10 16	675	0.2+	0.2-	1998 03 24	704	0.0	0.5-	1998 04 21	704	1.0-	0.0
1977 10 17	675	0.0	1.5-	1998 03 24	704	(7.1-	1.5-)	1998 04 21	704	1.0-	1.1+
1977 10 17	675	0.6-	0.3-	1998 03 25	704	0.5-	0.2+	1998 04 22	704	1.4+	0.4+
1977 10 21	675	0.3+	0.8-	1998 03 25	704	0.0	0.3+	1998 04 22	704	1.6+	1.2-
1977 10 21	675	0.8+	0.0	1998 03 25	704	0.0	0.6+	1998 04 22	704	0.1+	0.9-
1977 10 22	675	0.5-	0.4+	1998 03 25	704	0.1-	0.8+	1998 04 22	704	0.6-	0.5+
1977 10 22	675	0.5+	2.6+	1998 04 21	704	1.1+	0.9-				
1998 03 24	704	0.2-	0.9-	1998 04 21	704	0.2+	0.2+				

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
(215)	9.59	0.15	19990122	159.90361	316.44440	25.11631	1.69111	0.0344498	2.7667381	132	26 1908-1999	0.82	M-v 1	Bowell	32041	(215)
(222)	9.13	0.15	19990122	295.57831	179.12832	80.44525	2.16003	0.1440445	3.1330974	258	39 1899-1999	0.81	M-v 0	Bowell	32509	(222)
(442)	10.03	0.15	19990122	229.27107	85.41143	135.06484	6.06145	0.0721992	2.3445375	95	31 1892-1999	0.84	M-v 0	Bowell	32042	(442)
(459)	10.44	0.15	19990122	44.26375	18.97103	29.66457	10.28771	0.2075583	2.6210967	65	20 1934-1998	0.78	M-v 0	Bowell	22696	(459)
(677)	9.7	0.15	19990122	185.71565	278.32849	273.10096	8.46679	0.0448842	2.9606512	78	27 1906-1999	0.94	M-v 1	Bowell	31415	(677)
(730)	14.0	0.15	19990122	285.59485	122.90855	95.26015	4.23313	0.1780245	2.2431678	19	8 1912-1999	1.00	M-v 1	Bowell	26917	(730)
(748)	9.01	0.15	19990122	59.26718	180.28375	265.87343	2.25663	0.1898272	3.9394751	159	31 1920-1999	0.87	M-v 1	Bowell	22270	(748)
(853)	11.67	0.15	19990122	162.76290	59.85045	183.08365	9.21203	0.1066671	2.3120746	48	18 1920-1999	0.88	M-v 1	Bowell	26919	(853)
(894)	9.4	0.15	19990122	195.97013	113.50693	190.97608	12.70286	0.1206564	3.1134942	84	27 1907-1999	0.90	M-v 1	Bowell	26919	(894)
(909)	8.95	0.15	19990122	104.87157	235.69773	146.68951	18.75608	0.1019471	3.5398499	100	24 1920-1999	0.92	M-v 1	Bowell	22492	(909)
(976)	9.22	0.15	19990122	157.84475	305.36056	245.38466	7.57542	0.0968442	3.2140303	91	25 1930-1998	0.81	M-v 0	Bowell	32211	(976)
(1053)	12.4	0.15	19990122	88.88035	42.08589	17.85359	8.32893	0.0959226	2.6151809	34	14 1925-1999	0.84	M-v 1	Bowell	25972	(1053)
(1118)	9.5	0.15	19990122	221.03120	334.97777	319.20333	14.01472	0.0548502	3.2089184	89	20 1927-1999	0.88	M-v 1	Bowell	26922	(1118)
(1121)	11.8	0.15	19990122	76.57280	50.25490	358.10595	6.15849	0.1575352	2.5469486	148	19 1938-1999	0.81	M-v 1	Bowell	26922	(1121)
(1128)	10.7	0.15	19990122	248.32141	234.46577	59.41619	1.01759	0.0450128	2.7880429	150	35 1920-1999	0.77	M-v 0	Bowell	31580	(1128)
(1186)	9.20	0.15	19990122	54.64379	295.35922	43.23065	10.75952	0.1098074	3.0181420	105	22 1929-1999	0.90	M-v 1	Bowell	34003	(1186)
(1230)	12.8	0.15	19990122	105.42511	184.64624	200.85350	10.48115	0.1772739	2.5733170	36	9 1931-1999	0.82	M-v 1	Bowell	32215	(1230)
(1330)	10.17	0.15	19990122	351.40133	10.65214	158.98544	15.96271	0.0728235	3.1731723	66	13 1934-1999	0.73	M-v 1	Bowell	32739	(1330)
(1350)	10.78	0.15	19990122	118.90184	237.22164	139.72705	2.93665	0.0857748	2.8586270	131	25 1929-1999	0.81	M-v 0	Bowell	34003	(1350)
(1369)	10.7	0.15	19990122	228.83150	123.94925	181.35351	14.25246	0.2193145	3.1115988	70	15 1928-1999	0.77	M-v 0	Bowell	31782	(1369)
(1381)	12.29	0.15	19990122	122.30494	29.12047	352.14829	4.69212	0.1805940	2.4889520	216	19 1930-1999	0.85	M-v 0	Bowell	27931	(1381)
(1392)	11.72	0.15	19990122	93.48347	44.12544	358.42087	12.25319	0.2006026	2.6087432	56	16 1936-1999	0.86	M-v 1	Bowell	26738	(1392)
(1486)	13.0	0.15	19990122	198.06847	347.77480	335.07728	0.07866	0.1241272	2.1986624	108	17 1938-1999	0.86	M-v 0	Bowell	31782	(1486)
(1578)	10.26	0.15	19990122	53.24059	3.42891	73.94923	0.81226	0.2385613	3.9283464	120	20 1949-1999	0.81	M-v 1	Bowell	34004	(1578)
(1585)	10.66	0.15	19990122	49.32798	264.08031	150.43346	26.20761	0.3041213	2.9330872	89	21 1947-1999	0.83	M-v 1	Bowell	20500	(1585)
(1612)	11.6	0.15	19990122	290.73422	247.89110	319.69466	16.86436	0.0964303	3.0996322	43	13 1939-1999	0.77	M-v 1	Bowell	33925	(1612)
(1619)	12.15	0.15	19990122	168.55204	327.89020	61.64287	6.21238	0.1755665	2.2415279	86	22 1931-1999	0.97	M-v 1	Bowell	33740	(1619)
(1741)	11.2	0.15	19990122	90.66123	338.29050	55.69911	2.89116	0.0657661	2.8850964	82	17 1953-1999	0.74	M-v 1	Bowell	32741	(1741)
(1764)	11.2	0.15	19990122	289.61648	81.19353	152.41855	2.22782	0.1292075	3.0889019	131	20 1939-1999	0.79	M-v 1	Bowell	33542	(1764)
(1795)	11.8	0.15	19990122	161.54924	78.04782	192.70262	7.54593	0.1896574	2.7844500	45	13 1955-1999	0.71	M-v 1	Bowell	32044	(1795)
(1887)	11.3	0.15	19990122	95.32165	28.40348	348.98036	9.64022	0.1107902	3.0060561	160	11 1950-1999	0.65	M-v 0	Bowell	34005	(1887)
(1908)	11.7	0.15	19990122	267.47559	217.68476	14.69614	4.77707	0.0388961	2.8906804	63	16 1940-1999	0.73	M-v 1	Bowell	24760	(1908)
(1913)	11.5	0.15	19990122	122.50863	35.74524	358.82869	1.57392	0.0743205	2.8806535	117	17 1928-1999	0.72	M-v 1	Bowell	32045	(1913)
(2015)	12.4	0.15	19990122	214.35637	273.61319	344.76123	11.90937	0.1052159	2.3347820	42	10 1954-1998	0.70	M-v 1	Bowell	28315	(2015)
(2020)	11.4	0.15	19990122	34.34733	334.84108	149.04659	11.13062	0.0660884	3.0232326	58	9 1936-1999	0.70	M-v 1	Bowell	32301	(2020)
(2023)	11.6	0.15	19990122	167.38289	356.90339	3.38086	22.27562	0.2754521	2.8840559	23	8 1952-1999	0.84	M-v 1	Bowell	33741	(2023)
(2036)	12.7	0.15	19990122	251.51981	305.71873	346.52359	3.97550	0.1848603	2.2449623	34	11 1929-1999	0.88	M-v 1	Bowell	34005	(2036)
(2043)	10.8	0.15	19990122	146.46645	54.78518	321.86199	3.09510	0.1032860	3.1114888	75	17 19 8-1999	0.81	M-v 1	Bowell	30894	(2043)
(2067)	10.48	0.15	19990122	58.30560	299.81992	150.67802	3.06989	0.1839255	3.9579047	106	21 1936-1999	0.88	M-v 1	Bowell	33543	(2067)
(2090)	10.99	0.15	19990122	177.11864	337.10695	340.22698	11.83630	0.1404024	3.0684465	94	17 1951-1999	0.81	M-v 1	Bowell	34005	(2090)
(2103)	10.8	0.15	19990122	323.74577	239.66606	292.28057	7.69232	0.1898751	3.1449237	92	15 1930-1999	0.72	M-v 1	Bowell	33223	(2103)
(2190)	12.5	0.15	19990122	307.47703	315.82406	262.84425	0.82837	0.0918827	2.4704585	71	16 1933-1999	0.84	M-v 1	Bowell	32301	(2190)

(2211)	12.8	0.15	19990122	178.13056	196.22414	146.33346	17.34414	0.0869253	3.1805842	37	9	1951-1999	0.87	M-v	1	Bowell	33335	(2211)
(2281)	13.7	0.15	19990122	218.47093	108.85009	206.82463	1.48218	0.1443493	2.1885691	72	13	1955-1999	0.86	M-v	1	Bowell	33928	(2281)
(2294)	11.5	0.15	19990122	58.58505	42.77050	291.30609	6.30452	0.1193689	2.5811557	72	16	1944-1999	0.80	M-v	1	Bowell	31273	(2294)
(2356)	10.8	0.15	19990122	321.49446	12.16867	189.25862	15.59620	0.0390305	3.2360883	66	14	1970-1999	0.98	M-v	1	Bowell	34006	(2356)
(2374)	11.5	0.15	19990122	170.00782	13.24753	347.80264	15.05531	0.2053399	3.0950215	50	12	1936-1999	0.77	M-v	1	Bowell	33335	(2374)
(2380)	13.2	0.15	19990122	43.67971	108.35607	324.89789	1.92459	0.0592938	2.1918396	83	16	1939-1999	0.83	M-v	1	Bowell	33544	(2380)
(2394)	11.6	0.15	19990122	114.94122	301.46313	127.54244	1.62390	0.2030327	3.1874375	81	12	1950-1999	0.81	M-v	1	Bowell	31274	(2394)
(2457)	12.7	0.15	19990122	312.79248	78.19059	140.84747	6.26294	0.0659082	2.6405038	28	12	1956-1999	0.89	M-v	1	Bowell	33929	(2457)
(2541)	12.1	0.15	19990122	147.98530	330.44881	77.22867	3.20170	0.0781602	2.9370544	73	13	1951-1999	0.74	M-v	1	Bowell	33678	(2541)
(2562)	11.3	0.15	19990122	313.88189	237.90683	340.26223	10.26003	0.0494146	3.0087794	36	11	1949-1999	0.92	M-v	1	Bowell	32302	(2562)
(2666)	11.7	0.15	19990122	110.64584	205.05246	200.89283	13.35208	0.2110211	3.1946473	33	11	1934-1999	0.97	M-v	1	Bowell	20820	(2666)
(2828)	13.3	0.15	19990122	39.08860	24.03280	74.51698	3.30683	0.0897540	2.2419305	57	7	1942-1999	0.84	M-v	1	Bowell	32303	(2828)
(3010)	12.2	0.15	19990122	253.92138	170.45077	127.23181	2.03376	0.1815656	3.2131614	41	10	1977-1999	0.82	M-v	1	Bowell	26758	(3010)
(3113)	13.2	0.15	19990122	117.18313	196.29447	186.08350	4.96690	0.0745348	2.4276151	54	9	1963-1999	0.87	M-v	1	Bowell	19516	(3113)
(3320)	13.3	0.15	19990122	280.58378	349.25486	218.47113	4.06725	0.0490056	2.4584481	72	9	1978-1999	0.68	M-v	1	Bowell	32744	(3320)
(3460)	12.3	0.15	19990122	150.88105	292.80574	83.49463	2.37045	0.2123628	3.1920726	26	7	1973-1999	0.66	M-v	1	Williams	33934	(3460)
(3498)	13.5	0.15	19990122	95.64624	190.56359	223.69724	6.23748	0.1010834	2.3554506	118	10	1979-1999	0.70	M-v	1	Williams	33071	(3498)
(3516)	12.2	0.15	19990122	152.61362	207.60207	161.94081	2.31247	0.0790515	2.8835232	95	11	1962-1999	0.70	M-v	1	Bowell	34009	(3516)
(3536)	13.8	0.15	19990122	66.40769	115.30369	341.30071	6.55474	0.0489356	2.3431313	54	8	1977-1999	0.90	M-v	1	Williams	33548	(3536)
(3598)	11.6	0.15	19990122	310.36230	69.28623	161.69722	0.77575	0.1072894	3.1737317	49	11	1977-1999	0.66	M-v	1	Bowell	24230	(3598)
(3682)	11.5	0.15	19990122	142.24012	113.24006	256.04500	13.56345	0.3187514	2.7585614	34	10	1923-1999	1.03	M-v	1	Williams	32305	(3682)
(3763)	12.5	0.15	19990122	335.16738	169.22982	23.31583	7.02921	0.1053934	2.2524719	55	13	1928-1999	0.78	M-v	1	Bowell	29102	(3763)
(3765)	12.7	0.15	19990122	91.89604	185.49429	250.18411	1.01740	0.0390862	2.8439935	48	15	1956-1999	0.79	M-v	1	Bowell	33746	(3765)
(3774)	11.3	0.15	19990122	306.25218	278.39982	292.38202	9.21129	0.0584929	3.0046256	74	10	1933-1999	0.77	M-v	1	Bowell	31233	(3774)
(3823)	12.6	0.15	19990122	33.29873	16.40161	112.11204	5.50421	0.2463078	3.0697151	54	9	1966-1999	0.65	M-v	1	Bowell	30079	(3823)
(3857)	13.4	0.15	19990122	321.86864	177.22807	49.07639	3.10049	0.1625210	2.3923905	33	11	1951-1999	1.01	M-v	1	Bowell	33339	(3857)
(3859)	12.0	0.15	19990122	69.37809	350.93115	126.23066	2.88332	0.1343755	3.2030574	58	11	1958-1999	0.78	M-v	1	Bowell	33746	(3859)
(3866)	12.2	0.15	19990122	131.64603	122.02191	223.05134	3.60223	0.1981508	3.1389283	80	12	1941-1999	0.70	M-v	1	Bowell	32050	(3866)
(3884)	12.7	0.15	19990122	35.67265	115.40282	9.69130	1.16615	0.1335946	3.1162249	49	10	1977-1999	0.90	M-v	1	Bowell	31723	(3884)
(3938)	13.3	0.15	19990122	300.92767	75.89589	158.14330	2.08180	0.0427233	2.4894095	33	11	1949-1999	0.61	M-v	1	Bowell	32930	(3938)
(3977)	12.3	0.15	19990122	226.09310	73.11375	218.51270	12.53241	0.1688244	2.6408627	55	8	1978-1999	0.81	M-v	1	Bowell	32306	(3977)
(4016)	13.9	0.15	19990122	358.87920	36.17717	103.71646	0.79008	0.2259506	2.4106311	97	10	1949-1999	0.76	M-v	1	Williams	26402	(4016)
(4055)	14.8	0.15	19990122	95.12769	154.14752	164.97053	23.23765	0.3264024	1.8200401	91	7	1985-1999	0.84	M-v	2	Sicoli	32050	(4055)
(4070)	13.3	0.15	19990122	144.15439	123.50822	253.44759	3.77822	0.1670306	2.2515852	50	9	1953-1999	0.83	M-v	1	Bowell	33549	(4070)
(4093)	11.9	0.15	19990122	35.73352	221.02219	260.78137	9.35610	0.0303613	3.0181946	46	8	1979-1999	0.85	M-v	1	Bowell	33746	(4093)
(4110)	11.6	0.15	19990122	272.28537	67.11596	194.79267	2.09384	0.1273329	3.0916748	72	12	1950-1999	0.78	M-v	1	Bowell	31139	(4110)
(4113)	13.6	0.15	19990122	313.70240	48.40173	128.91303	6.35077	0.0966758	2.2606399	40	7	1965-1999	1.03	M-v	2	Sicoli	33936	(4113)
(4121)	12.4	0.15	19990122	105.55355	280.08845	46.88014	23.10001	0.2545708	2.3735132	34	6	1950-1999	0.93	M-v	2	Sicoli	32306	(4121)
(4131)	11.8	0.15	19990122	107.76354	92.34944	283.46847	12.39118	0.1072438	3.1644491	38	7	1975-1999	0.74	M-v	1	Sicoli	33936	(4131)
(4157)	11.9	0.15	19990122	255.89546	206.04716	67.28605	12.80222	0.1630359	2.6733381	47	7	1934-1999	0.93	M-v	2	Williams	33936	(4157)
(4169)	10.9	0.15	19990122	153.27189	24.09383	356.97164	10.18380	0.1771012	3.3866209	44	11	1964-1999	0.68	M-v	1	Bowell	32050	(4169)
(4170)	11.4	0.15	19990122	210.65402	115.11409	172.08444	10.33942	0.0907768	3.0204591	76	11	1937-1999	0.73	M-v	1	Bowell	34010	(4170)
(4176)	11.9	0.15	19990122	88.99462	358.75624	114.39498	2.59817	0.1410714	3.1029217	64	13	1952-1999	0.75	M-v	1	Bowell	33746	(4176)
(4196)	10.7	0.15	19990122	34.80825	199.05278	167.14375	1.49938	0.0454927	3.9067519	90	12	1955-1999	0.85	M-v	1	Bowell	33485	(4196)
(4217)	12.3	0.15	19990122	168.35920	348.49581	355.61616	23.14820	0.2122370	2.3143950	30	8	1944-1999	0.89	M-v	1	Bowell	33937	(4217)
(4281)	13.6	0.15	19990122	143.89771	208.86361	188.11144	0.72723	0.1110236	2.4642106	60	10	1977-1999	0.90	M-v	1	Williams	33937	(4281)
(4283)	12.6	0.15	19990122	354.23581	167.39510	328.11615	24.20755	0.1706977	2.3532386	44	8	1952-1999	0.76	M-v	1	Bowell	31276	(4283)
(4342)	12.1	0.15	19990122	192.36786	180.98995	133.64990	6.08326	0.0915750	2.7655156	44	8	1950-1999	0.72	M-v	1	Bowell	32307	(4342)
(4576)	11.4	0.15	19990122	137.34387	219.28301	168.17485	10.41370	0.1165357	2.9980625	42	9	1955-1999	0.82	M-v	1	Bowell	32051	(4576)
(4601)	12.4	0.15	19990122	15.16039	359.18059	177.88140	13.26540	0.0990107	2.6764980	34	7	1933-1999	0.86	M-v	2	Williams	32051	(4601)
(4605)	13.3	0.15	19990122	138.14661	98.85692	284.61060	2.14166	0.1535030	2.2285401	40	8	1932-1999	0.57	M-v	1	Bowell	32051	(4605)
(4851)	12.8	0.15	19990122	26.97362	90.66179	27.34799	15.48905	0.0606772	2.6015505	45	6	1949-1999	0.74	M-v	1	Bowell	32747	(4851)
(4882)	13.1	0.15	19990122	108.15870	215.23555	200.51242	4.77823	0.1006805	2.4866616	54	7	1956-1999	0.75	M-v	1	Bowell	32747	(4882)

(4898)	13.9	0.15	19990122	8.24938	146.38553	3.74525	18.63299	0.0817641	1.9535807	49	6	1982-1999	0.88	M-v	2	Williams	33551	(4898)
(5001)	12.8	0.15	19990122	250.26803	149.67068	170.26935	13.66540	0.1701408	2.6648929	35	9	1952-1999	0.84	M-v	1	Bowell	29921	(5001)
(5032)	11.7	0.15	19990122	151.55993	208.83297	183.93712	10.54576	0.1001065	3.0091161	32	5	1980-1999	0.72	M-v	1	Williams	34011	(5032)
(5224)	14.3	0.15	19990122	76.64309	87.40134	359.59847	7.94192	0.0084942	2.2459100	37	5	1982-1999	0.68	M-v	1	Bowell	32749	(5224)
(5240)	12.4	0.15	19990122	89.48315	185.69347	242.08362	5.61127	0.0997604	2.3833573	39	8	1973-1999	0.70	M-v	1	Williams	25431	(5240)
(5243)	12.9	0.15	19990122	257.52733	61.03151	194.68970	7.46964	0.1770763	2.7771754	43	7	1953-1999	0.91	M-v	1	Williams	34012	(5243)
(5252)	13.3	0.15	19990122	277.70255	145.69962	144.14098	8.59281	0.1466272	2.3741649	30	7	1978-1999	0.75	M-v	1	Bowell	33074	(5252)
(5478)	13.0	0.15	19990122	38.22455	251.78428	233.32361	8.04289	0.1416474	2.5460182	42	6	1985-1999	0.57	M-v	1	Williams	32308	(5478)
(5570)	11.9	0.15	19990122	22.68927	331.81490	174.21360	10.77256	0.0646907	3.2375777	31	8	1976-1999	0.72	M-v	1	Bowell	29624	(5570)
(5669)	13.5	0.15	19990122	338.54379	80.14179	120.10055	3.74905	0.0350586	2.2717759	90	8	1980-1999	0.72	M-v	1	Bowell	26423	(5669)
(5724)	13.0	0.15	19990122	14.68399	41.60045	100.50530	6.36233	0.1918928	2.4393201	42	6	1938-1999	0.78	M-v	1	Bowell	32309	(5724)
(5736)	13.4	0.15	19990122	196.02564	90.82968	224.03379	21.61468	0.2742157	2.3766260	27	6	1978-1999	0.92	M-v	2	Williams	30292	(5736)
(5737)	13.2	0.15	19990122	84.20307	104.67412	323.25841	5.83581	0.2144400	2.5298444	64	9	1977-1999	0.82	M-v	2	Williams	34013	(5737)
(5764)	13.2	0.15	19990122	304.30694	76.47115	173.12008	4.95064	0.2138544	2.2767274	77	5	1985-1999	0.75	M-v	1	Bowell	26906	(5764)
(5766)	13.2	0.15	19990122	249.55309	252.51212	28.74696	4.75236	0.0844918	2.3023109	44	7	1955-1999	0.97	M-v	1	Bowell	32465	(5766)
(5801)	13.1	0.15	19990122	122.11542	81.05032	304.62563	4.23890	0.1019259	2.3725054	58	8	1953-1999	0.82	M-v	1	Williams	31791	(5801)
(5819)	13.6	0.15	19990122	81.44227	277.68044	151.73468	5.60934	0.1623061	2.5296820	128	7	1969-1999	0.60	M-v	1	Bowell	26761	(5819)
(5820)	13.6	0.15	19990122	258.39533	226.59096	51.45588	2.52161	0.1110860	2.4549388	53	6	1985-1999	0.64	M-v	1	Williams	33750	(5820)
(5821)	14.2	0.15	19990122	166.20592	292.19170	85.60542	1.69334	0.1389423	2.4496553	61	7	1954-1999	0.66	M-v	1	Williams	34013	(5821)
(5856)	12.9	0.15	19990122	141.95445	287.66238	105.83767	16.06643	0.1102924	2.6036473	30	6	1954-1999	0.88	M-v	1	Williams	32310	(5856)
(5983)	13.3	0.15	19990122	108.03111	45.23111	10.05092	9.06659	0.1305586	2.8018179	42	8	1954-1999	0.84	M-v	1	Williams	32948	(5983)
(6033)	12.2	0.15	19990122	260.83613	71.50167	217.14362	16.27688	0.1272728	3.1752953	46	6	1949-1999	0.65	M-v	1	Williams	33554	(6033)
(6268)	14.7	0.15	19990122	84.94330	331.52933	100.16486	1.78795	0.1843773	2.3103786	35	6	1979-1999	0.65	M-v	1	Williams	34014	(6268)
(6305)	14.5	0.15	19990122	41.14234	356.01227	130.33651	4.65972	0.1012936	2.2193192	38	7	1989-1999	0.85	M-v	1	Bowell	34014	(6305)
(6454)	13.0	0.15	19990122	222.51210	276.56904	66.02894	29.71273	0.3936023	2.7579584	45	5	1973-1999	0.57	M-v	2	Williams	32310	(6454)
(6489)	19.2	0.15	19990122	322.53416	64.94163	212.45897	2.29526	0.5980437	2.5175899	417	3	1991-1999	0.71	M-v	0	Williams	31791	(6489)
(6606)	12.4	0.15	19990122	236.97846	108.67089	209.18413	4.99839	0.1703548	3.1000667	38	8	1977-1999	0.73	M-v	1	Bowell	32055	(6606)
(7054)	14.3	0.15	19990122	68.97116	15.57466	58.28688	6.94732	0.1163699	2.2505682	37	7	1987-1999	0.87	M-v	1	Bowell	31794	(7054)
(7108)	13.0	0.15	19990122	109.41830	197.23887	197.55805	3.03146	0.1797946	2.9791586	41	7	1971-1999	0.81	M-v	1	Williams	29639	(7108)
(7111)	13.0	0.15	19990122	6.65276	324.24191	208.05749	7.55477	0.0772909	2.4056918	38	7	1978-1999	0.69	M-v	1	Williams	32751	(7111)
(7171)	14.0	0.15	19990122	333.64150	250.55444	306.75838	2.75438	0.1446822	2.3311823	71	9	1985-1999	0.76	M-v	1	Williams	29928	(7171)
(7211)	13.3	0.15	19990122	190.64657	338.81047	2.05290	9.10150	0.1613716	2.8008364	46	7	1971-1999	0.76	M-v	1	Bowell	32058	(7211)
(7238)	13.4	0.15	19990122	261.30580	47.14715	243.95156	4.34668	0.1325942	2.3198567	34	7	1951-1999	0.96	M-v	2	Williams	32520	(7238)
(7246)	12.5	0.15	19990122	75.67141	39.88900	39.33267	12.02921	0.1659359	3.0870034	29	8	1950-1999	0.72	M-v	1	Bowell	32752	(7246)
(7262)	12.9	0.15	19990122	284.61945	169.05475	121.64831	10.20218	0.2600952	2.2725696	32	7	1951-1999	0.78	M-v	2	Williams	33076	(7262)
(7927)	12.7	0.15	19990122	43.88314	297.27499	156.61147	1.67057	0.1632275	3.1438508	49	5	1969-1999	0.71	M-v	1	Williams	31146	(7927)
(7947)	15.4	0.15	19990122	55.17926	263.81192	193.64422	5.18329	0.0752745	2.2300172	41	6	1977-1999	0.75	M-v	1	Williams	31147	(7947)
(7962)	14.8	0.15	19990122	146.98536	256.02833	103.61598	4.06691	0.2213475	2.1847300	40	5	1981-1999	0.69	M-v	2	Williams	31015	(7962)
(8022)	13.7	0.15	19990122	276.95113	264.50082	346.80786	3.42338	0.0036944	2.2906813	57	5	1990-1999	0.70	M-v	1	Bowell	33960	(8022)
(8056)	13.7	0.15	19990122	86.60844	58.76806	358.21604	6.97870	0.2076691	2.5636177	46	6	1952-1999	0.70	M-v	1	Bowell	31281	(8056)
(8058)	15.0	0.15	19990122	121.88314	341.22216	37.16137	2.32638	0.2117444	2.2428057	34	5	1977-1999	0.77	M-v	2	Williams	33961	(8058)
(8129)	14.0	0.15	19990122	5.49119	161.04980	2.39463	2.49701	0.0553568	2.3640110	52	5	1975-1999	0.79	M-v	1	Bowell	34018	(8129)
(8153)	14.4	0.15	19990122	125.82575	15.99282	14.01967	2.35233	0.2205240	2.3952041	57	5	1982-1999	0.75	M-v	2	Williams	34019	(8153)
(8160)	14.0	0.15	19990122	227.61634	218.31968	88.79698	3.61164	0.1862138	2.1899337	40	6	1957-1999	0.79	M-v	1	Bowell	31152	(8160)
(8206)	14.3	0.15	19990122	169.04896	73.11153	287.70926	1.46786	0.0461017	2.1813461	30	7	1949-1999	0.64	M-v	1	Bowell	31282	(8206)
(8226)	11.8	0.15	19990122	144.55024	195.70981	189.45532	10.04098	0.1006921	3.0162458	40	7	1978-1999	0.63	M-v	1	Bowell	31395	(8226)
(8235)	14.7	0.15	19990122	106.26181	205.70035	200.91655	2.91304	0.1186286	2.3893851	38	6	1960-1999	0.86	M-v	1	Bowell	34019	(8235)
(8238)	13.6	0.15	19990122	22.78919	124.06069	15.38153	7.92123	0.1691892	2.7911781	29	6	1952-1999	0.83	M-v	1	Bowell	31424	(8238)
(8243)	13.2	0.15	19990122	297.43843	246.83263	29.87091	8.49533	0.1374205	2.5894913	26	6	1957-1999	0.58	M-v	1	Bowell	33966	(8243)
(8278)	11.8	0.15	19990122	305.94662	165.46680	62.72934	14.13066	0.1265104	2.5945437	39	6	1976-1999	0.70	M-v	1	Bowell	31155	(8278)
(8283)	12.0	0.15	19990122	168.35840	313.63022	71.43261	10.26044	0.0866173	2.8113407	24	5	1991-1999	0.66	M-v	1	Bowell	31283	(8283)
(8304)	13.7	0.15	19990122	289.39780	302.61902	311.40813	1.95366	0.1427610	2.4582389	39	6	1991-1999	0.81	M-v	1	Bowell	32683	(8304)
(8312)	12.6	0.15	19990122	215.95613	282.12230	39.40531	10.09638	0.0885568	3.0642765	33	5	1990-1999	0.79	M-v	1	Bowell	34019	(8312)

(8430)	14.1	0.15	19990122	352.77870	107.50760	78.98340	3.66881	0.1024797	2.8085135	60	6	1978–1999	0.82	M-v	1	Williams	32255	(8430)
(9120)	13.7	0.15	19990122	155.63909	114.87241	246.41016	5.41276	0.2009719	2.2680532	60	7	1966–1999	0.72	M-v	1	Bowell	32323	(9120)
(9451)	12.7	0.15	19990122	336.33964	66.71301	150.44058	1.82663	0.1262129	3.1845580	49	5	1976–1999	0.64	M-v	1	Williams	32755	(9451)
1936 UD	12.9	0.15	19990122	225.35039	180.98066	162.63072	2.46944	0.3158328	3.0869924	19	5	1936–1999	0.98	M-v	2	Williams	32508	1936 UD
1951 RX	14.7	0.15	19990122	120.47496	38.65915	338.66506	5.75423	0.2089990	2.2134531	39	4	1951–1999	0.71	M-v	2	Williams	34001	1951 RX
1968 OK	14.0	0.15	19990122	130.95254	82.69436	278.99456	15.81681	0.2622249	2.5586697	27	3	1968–1999	0.60	M-v	3	Williams	34001	1968 OK
1969 TY ₁	12.7	0.15	19990122	141.01514	153.54568	200.66113	5.78234	0.0958253	3.1227807	25	4	1969–1999	0.87	M-v	2	Williams	33920	1969 TY ₁
1971 QO ₁	12.5	0.15	19990122	76.13570	32.50881	321.74946	9.45414	0.1092597	3.0170095	26	5	1971–1999	0.68	M-v	1	Williams	34001	1971 QO ₁
1972 TE	13.8	0.15	19990122	46.80001	158.08011	218.74191	4.38516	0.2682088	2.6378855	53	7	1959–1999	0.68	M-v	2	Williams	34001	1972 TE
1972 TR ₈	13.7	0.15	19990122	173.47247	6.90281	318.36580	12.57856	0.1710852	2.5648622	23	2	1972–1999	0.59	M-v	4	Williams	33920	1972 TR ₈
1973 SZ	12.0	0.15	19990122	22.87324	276.64265	143.59963	5.77779	0.0883172	5.1153885	23	3	1973–1998	0.98	M-v	5	Williams	33671	1973 SZ
1973 SS ₁	11.9	0.15	19990122	335.41030	53.37118	27.97319	9.20436	0.0215489	5.1623300	15	2	1973–1996	0.95	M-v	6	Williams	33920	1973 SS ₁
1973 SX ₂	12.5	0.15	19990122	44.40056	186.52006	201.65824	14.67386	0.1146732	2.5668037	44	3	1973–1999	0.69	M-v	3	Williams	34001	1973 SX ₂
1973 SP ₄	13.7	0.15	19990122	188.82053	346.99471	353.99871	8.80319	0.1791465	2.4903760	38	2	1973–1999	0.70	M-v	4	Williams	33920	1973 SP ₄
1974 OU ₁	12.4	0.15	19990122	286.27775	235.10783	0.74584	10.20416	0.0625154	3.0237918	34	2	1974–1999	0.57	M-v	4	Williams	33921	1974 OU ₁
1974 SE	14.0	0.15	19990122	110.59477	91.43954	283.34725	2.87407	0.1567023	2.2231232	31	4	1974–1999	0.71	M-v	2	Williams	34001	1974 SE
1975 SE	12.9	0.15	19990122	112.65163	339.87097	8.89349	11.59541	0.0584599	2.6955547	39	4	1975–1999	0.67	M-v	2	Williams	34001	1975 SE
1975 TJ ₃	13.7	0.15	19990122	350.12407	33.58325	35.64796	8.23619	0.2990201	2.7727715	67	4	1975–1999	0.66	M-v	2	Williams	33738	1975 TJ ₃
1975 XD	14.7	0.15	19990122	110.82957	266.87412	119.65526	7.35094	0.1165316	2.3964996	39	4	1975–1999	0.77	M-v	2	Williams	34001	1975 XD
1976 SD ₅	13.2	0.15	19990122	81.99470	179.49122	213.49073	9.62246	0.1095361	3.0221894	30	3	1976–1999	0.81	M-v	4	Williams	34001	1976 SD ₅
1976 SQ ₇	13.4	0.15	19990122	216.14262	142.08375	197.58276	5.36673	0.2103615	2.2630303	44	6	1952–1999	0.62	M-v	1	Williams	31134	1976 SQ ₇
1976 UY	14.0	0.15	19990122	113.19783	153.34032	238.15993	11.15315	0.2104440	2.6433451	45	4	1976–1999	0.83	M-v	2	Williams	34001	1976 UY
1976 UZ ₇	13.5	0.15	19990122	143.48991	134.22412	207.68343	10.48399	0.1100933	2.9955917	30	3	1976–1999	0.66	M-v	4	Williams	33921	1976 UZ ₇
1976 UP ₁₈	15.9	0.15	19990122	133.50531	214.21347	183.89105	6.41955	0.1839924	2.2981300	21	6	1971–1999	0.93	M-v	2	Williams	22598	1976 UP ₁₈
1977 AC ₂	13.1	0.15	19990122	66.29386	103.13852	318.00894	11.88276	0.1721556	2.6577962	41	3	1977–1999	0.63	M-v	2	Williams	33921	1977 AC ₂
1977 DY ₃	12.9	0.15	19990122	280.24836	253.10834	37.43146	1.94167	0.1750650	3.0507478	19	5	1977–1999	0.69	M-v	1	Williams	26187	1977 DY ₃
1977 EL ₅	12.8	0.15	19990122	229.35750	106.93164	178.51303	21.20412	0.1138901	3.1525903	26	3	1977–1999	0.83	M-v	3	Williams	34001	1977 EL ₅
1977 EM ₅	14.2	0.15	19990122	79.56790	223.48822	178.05136	9.57945	0.2109572	2.3920669	52	7	1977–1999	0.59	M-v	1	Williams	34001	1977 EM ₅
1977 FN	13.0	0.15	19990122	295.62073	354.09386	266.93693	12.35234	0.1369432	2.6745822	16	4	1977–1999	0.54	M-v	1	Williams	28610	1977 FN
1977 RD	14.0	0.15	19990122	250.18558	301.87919	343.59445	33.06711	0.2808001	2.7749692	23	4	1977–1999	0.90	M-v	3	Williams	20139	1977 RD
1977 TU ₃	13.0	0.15	19990122	3.42137	174.83835	215.23101	14.75487	0.1977431	3.0460434	47	2	1977–1999	0.68	M-v	3	Williams	33738	1977 TU ₃
1977 XZ ₂	13.4	0.15	19990122	196.37810	310.80886	344.15659	1.26051	0.0896584	2.9442468	48	5	1977–1999	0.91	M-v	3	Williams	34001	1977 XZ ₂
1978 NY	14.5	0.15	19990122	162.18743	74.32501	303.44093	5.92582	0.1226028	2.3402913	24	6	1978–1999	0.60	M-v	2	Williams	31271	1978 NY
1978 NU ₃	14.7	0.15	19990122	222.97542	185.84720	137.18866	6.10795	0.2199605	2.3614354	28	7	1949–1999	0.83	M-v	2	Williams	24910	1978 NU ₃
1978 NX ₇	13.0	0.15	19990122	166.72366	241.62551	103.51350	5.38699	0.1250217	3.2072155	37	4	1978–1999	0.74	M-v	2	Williams	33921	1978 NX ₇
1978 PS ₂	14.3	0.15	19990122	240.95423	82.71980	211.97494	2.04630	0.0417907	2.3796828	40	4	1978–1999	0.82	M-v	2	Williams	31134	1978 PS ₂
1978 PC ₃	14.2	0.15	19990122	123.89568	2.46532	326.98809	6.29500	0.1705821	2.4473725	18	3	1978–1999	0.80	M-v	4	Williams	34001	1978 PC ₃
1978 QE ₂	14.6	0.15	19990122	194.49936	328.83811	13.60814	2.39025	0.2282391	2.3846316	27	6	1978–1999	0.81	M-v	2	Williams	27725	1978 QE ₂
1978 RM ₇	15.2	0.15	19990122	300.39985	15.51862	238.37514	1.43719	0.1890315	2.3514098	35	6	1978–1999	0.79	M-v	1	Williams	30892	1978 RM ₇
1978 SC ₅	15.1	0.15	19990122	129.67573	308.41428	63.45425	2.22471	0.1985060	2.4331580	21	3	1978–1999	0.74	M-v	4	Williams	31271	1978 SC ₅
1978 SJ ₅	14.7	0.15	19990122	185.15872	330.79142	31.46805	5.77255	0.2129998	2.3927300	18	5	1978–1999	0.62	M-v	2	Williams	31134	1978 SJ ₅
1978 SP ₅	13.5	0.15	19990122	141.02586	195.75164	186.50408	3.94211	0.1089407	2.7751823	28	6	1978–1999	0.73	M-v	2	Williams	29939	1978 SP ₅
1978 SS ₆	13.8	0.15	19990122	125.83109	37.83610	331.61436	2.67092	0.1906866	2.4347644	43	3	1978–1999	0.69	M-v	3	Williams	34002	1978 SS ₆
1978 SJ ₇	13.6	0.15	19990122	50.85946	329.50634	1.40661	14.56576	0.1405569	2.9286463	54	4	1978–1998	0.73	M-v	4	Williams	33064	1978 SJ ₇
1978 SO ₇	14.1	0.15	19990122	111.86423	32.82716	334.20771	2.69897	0.1961696	2.4489150	28	2	1978–1999	0.77	M-v	4	Williams	34002	1978 SO ₇
1978 SA ₈	14.4	0.15	19990122	136.98911	163.64213	211.97262	2.61468	0.1895330	2.4241665	63	4	1978–1999	0.50	M-v	1	Williams	31414	1978 SA ₈
1978 TT ₇	12.9	0.15	19990122	265.20236	257.04543	85.21265	10.42289	0.2606366	2.6657230	19	3	1978–1999	0.38	M-v	3	Williams	31706	1978 TT ₇
1978 UK ₇	14.7	0.15	19990122	105.41383	199.33131	201.84438	1.64847	0.1739436	2.4366875	51	6	1978–1999	0.72	M-v	1	Williams	32738	1978 UK ₇
1978 VO ₄	14.5	0.15	19990122	268.03966	196.47358	89.46397	3.63921	0.1541253	2.4116487	32	4	1978–1999	0.79	M-v	2	Williams	31134	1978 VO ₄
1978 VY ₅	14.8	0.15	19990122	327.23644	10.52534	75.33126	2.16314	0.1589887	2.2569720	69	2	1978–1998	0.68	M-v	4	Williams	33539	1978 VY ₅
1978 VK ₈	13.9	0.15	19990122	112.38771	320.43596	86.01398	2.21629	0.1578766	2.8169908	35	7	1978–1999	0.68	M-v	1	Williams	31134	1978 VK ₈
1978 XU	14.1	0.15	19990122	163.08513	148.74053	215.79284	6.94384	0.1453163	2.4242790	34	9	1954–1999	0.71	M-v	1	Williams	31579	1978 XU
1979 HN ₅	12.0	0.15	19990122	184.94594	203.57180	101.42608	7.57059	0.2427709	3.0773429	20	3	1979–1999	0.65	M-v	5	Williams	34002	1979 HN ₅

1979 KD	13.3	0.15	19990122	262.92169	101.46812	150.18797	7.84319	0.1535089	2.5925983	56	7	1979–1999	0.57	M-v	2	Williams	34002	1979 KD
1979 KJ	12.9	0.15	19990122	347.29281	56.66091	132.94898	11.33864	0.0497276	3.0082441	32	3	1979–1999	0.38	M-v	3	Williams	31271	1979 KJ
1979 MM ₁	13.2	0.15	19990122	81.94088	257.61649	129.25727	16.62200	0.1049066	3.1805921	30	2	1979–1999	0.67	M-v	5	Williams	34002	1979 MM ₁
1979 MW ₁	14.1	0.15	19990122	138.99898	125.73458	245.14200	4.64066	0.1781761	2.6447532	29	4	1979–1999	0.77	M-v	3	Williams	34002	1979 MW ₁
1979 MF ₂	15.8	0.15	19990122	242.70758	135.09697	176.17795	1.06910	0.2071714	2.2719402	24	4	1979–1999	1.00	M-v	2	Williams	25338	1979 MF ₂
1979 ML ₂	13.2	0.15	19990122	252.15621	146.85215	130.65137	12.86980	0.2000121	3.0530064	24	3	1979–1999	0.81	M-v	3	Williams	34002	1979 ML ₂
1979 MK ₅	15.0	0.15	19990122	354.77916	321.15184	221.42625	2.63881	0.0872665	2.5877695	33	4	1979–1999	0.73	M-v	3	Williams	31271	1979 MK ₅
1979 MG ₆	14.8	0.15	19990122	258.81981	42.58221	254.89130	5.83912	0.1364969	2.2679905	18	4	1979–1999	0.97	M-v	2	Williams	30753	1979 MG ₆
1979 MB ₉	13.9	0.15	19990122	85.68938	253.92600	170.82389	1.54159	0.1678890	3.1225114	35	4	1979–1999	0.59	M-v	3	Williams	31096	1979 MB ₉
1979 QD ₂	15.0	0.15	19990122	210.07195	299.50087	29.98301	1.22122	0.2187546	3.0902283	17	3	1979–1999	0.52	M-v	4	Williams	33922	1979 QD ₂
1979 SC	14.2	0.15	19990122	288.43743	226.18534	33.74922	4.65673	0.1258396	2.2941337	47	5	1979–1999	0.68	M-v	2	Williams	31271	1979 SC
1980 PY ₂	13.5	0.15	19990122	144.14075	340.59359	37.74487	15.68329	0.1309031	2.5458637	16	3	1980–1999	0.84	M-v	4	Williams	31096	1980 PY ₂
1980 PE ₃	13.7	0.15	19990122	216.42213	208.92163	65.20898	15.67645	0.1610239	2.5566774	26	3	1980–1999	0.72	M-v	2	Williams	34002	1980 PE ₃
1980 WE ₅	12.3	0.15	19990122	99.99091	192.33782	230.10965	14.16961	0.1012713	3.1327238	20	6	1974–1999	0.79	M-v	1	Williams	32042	1980 WE ₅
1981 CH	14.2	0.15	19990122	345.94631	186.48279	316.39488	24.67054	0.1895613	2.3528342	56	3	1981–1999	0.70	M-v	3	Williams	33922	1981 CH
1981 DM	14.8	0.15	19990122	281.31835	338.36328	262.72425	6.62128	0.0838992	2.3592273	33	5	1979–1999	0.89	M-v	2	Williams	34002	1981 DM
1981 DA ₁	14.0	0.15	19990122	296.03502	11.30050	234.91770	11.46926	0.0945299	2.7228182	30	4	1954–1999	0.95	M-v	4	Williams	30271	1981 DA ₁
1981 DJ ₂	13.7	0.15	19990122	124.07041	150.71136	213.89613	14.75066	0.1461251	2.7833604	34	3	1981–1999	0.73	M-v	4	Williams	34002	1981 DJ ₂
1981 DD ₃	14.8	0.15	19990122	86.83623	121.69433	296.42296	6.74188	0.0840075	2.7492573	31	4	1981–1999	0.69	M-v	1	Williams	34002	1981 DD ₃
1981 EQ ₂	14.7	0.15	19990122	299.70127	279.57047	277.41293	5.93768	0.0633934	2.3729815	27	3	1981–1999	0.99	M-v	4	Williams	33923	1981 EQ ₂
1981 EX ₃	14.4	0.15	19990122	28.24513	237.62235	234.03619	7.90727	0.0968243	2.7469229	36	4	1977–1999	0.78	M-v	1	Williams	34002	1981 EX ₃
1981 EA ₅	14.7	0.15	19990122	76.10618	167.72148	257.12143	8.67324	0.1557036	2.7401531	23	5	1979–1999	0.87	M-v	2	Williams	34002	1981 EA ₅
1981 ET ₇	14.9	0.15	19990122	84.97425	150.41998	294.52718	4.18280	0.0917443	2.3320391	24	4	1979–1999	0.89	M-v	2	Williams	23990	1981 ET ₇
1981 EU ₇	15.2	0.15	19990122	121.98779	84.24466	291.30620	6.04477	0.1210299	2.3660988	29	4	1981–1999	0.84	M-v	2	Williams	34002	1981 EU ₇
1981 EV ₇	14.0	0.15	19990122	188.88648	67.24780	255.12745	4.27486	0.0510748	2.7464436	31	5	1978–1999	0.82	M-v	1	Williams	34002	1981 EV ₇
1981 EZ ₇	14.3	0.15	19990122	225.72099	114.34159	220.38079	5.68359	0.1514834	2.6897914	37	7	1977–1999	0.84	M-v	1	Williams	31271	1981 EZ ₇
1981 EA ₉	15.4	0.15	19990122	168.46695	21.60601	333.03104	6.86687	0.2425668	2.3489556	19	4	1981–1999	0.82	M-v	2	Williams	31134	1981 EA ₉
1981 EH ₉	15.4	0.15	19990122	13.86878	246.80316	264.09774	3.46219	0.1891652	2.3384404	41	5	1979–1999	0.84	M-v	2	Williams	22696	1981 EH ₉
1981 EB ₁₀	15.2	0.15	19990122	349.84772	339.98736	204.14833	4.51156	0.1005364	2.3396514	47	4	1981–1999	0.91	M-v	2	Williams	30892	1981 EB ₁₀
1981 EG ₁₀	13.9	0.15	19990122	110.76801	115.13988	281.09502	3.99497	0.0589622	2.7454515	45	3	1981–1999	0.79	M-v	4	Williams	34002	1981 EG ₁₀
1981 EL ₁₀	13.8	0.15	19990122	223.97781	359.87301	301.72472	4.81559	0.1052984	2.7405182	38	5	1981–1999	0.86	M-v	2	Williams	34002	1981 EL ₁₀
1981 EX ₁₀	14.4	0.15	19990122	294.94427	34.22898	204.72851	7.16661	0.2035651	2.7387893	35	5	1954–1999	0.89	M-v	3	Williams	34002	1981 EX ₁₀
1981 EK ₁₁	14.7	0.15	19990122	92.24758	186.37923	214.40725	9.42813	0.2172693	2.3569628	28	4	1981–1999	0.90	M-v	2	Williams	34002	1981 EK ₁₁
1981 EO ₁₁	15.3	0.15	19990122	339.99065	257.33175	283.51593	1.76708	0.1683729	2.3495493	52	3	1978–1999	0.93	M-v	3	Williams	34002	1981 EO ₁₁
1981 EE ₁₄	15.2	0.15	19990122	238.47469	85.83910	212.29052	6.36011	0.1090377	2.3505413	34	6	1978–1999	1.01	M-v	2	Williams	25338	1981 EE ₁₄
1981 ER ₁₅	15.6	0.15	19990122	302.34196	341.61003	258.02907	4.10617	0.1051186	2.3450086	23	3	1979–1999	0.88	M-v	4	Williams	22429	1981 ER ₁₅
1981 EW ₁₈	15.2	0.15	19990122	201.82928	344.87804	349.06364	6.62944	0.1340571	2.3411152	18	4	1981–1999	0.78	M-v	2	Williams	31224	1981 EW ₁₈
1981 EN ₁₉	14.4	0.15	19990122	44.34402	241.98154	207.71189	3.47779	0.1591120	2.7410429	22	2	1981–1999	0.92	M-v	5	Williams	33923	1981 EN ₁₉
1981 EH ₂₀	15.3	0.15	19990122	304.43343	67.55321	183.61050	2.44831	0.1465943	2.7050822	35	5	1977–1999	0.88	M-v	2	Williams	21967	1981 EH ₂₀
1981 EO ₂₀	15.1	0.15	19990122	272.15254	113.71317	169.23144	2.75472	0.2187656	2.3418788	35	4	1981–1999	0.95	M-v	2	Williams	28882	1981 EO ₂₀
1981 EL ₂₁	13.6	0.15	19990122	193.50449	130.52012	211.20152	2.10372	0.0938925	2.7174973	39	6	1978–1999	0.76	M-v	2	Williams	29653	1981 EL ₂₁
1981 EA ₂₂	14.2	0.15	19990122	220.30618	128.71918	170.53261	12.70023	0.0252897	2.7360190	25	4	1951–1999	0.69	M-v	2	Williams	34002	1981 EA ₂₂
1981 EJ ₂₃	14.3	0.15	19990122	66.10810	108.80970	347.66773	4.07011	0.0621961	2.7188203	32	5	1979–1999	0.90	M-v	1	Williams	31271	1981 EJ ₂₃
1981 EG ₂₆	14.5	0.15	19990122	354.07240	145.52339	354.42759	9.24057	0.1334119	2.7565361	58	4	1981–1999	0.73	M-v	2	Williams	34003	1981 EG ₂₆
1981 EX ₂₇	15.8	0.15	19990122	302.14959	57.83707	156.23940	0.30017	0.1611021	2.3648309	42	3	1981–1999	0.74	M-v	3	Williams	34003	1981 EX ₂₇
1981 ED ₂₈	14.6	0.15	19990122	244.07417	144.03526	153.55521	2.81793	0.0878189	2.7221639	25	5	1951–1999	0.83	M-v	3	Williams	27931	1981 ED ₂₈
1981 EG ₂₉	15.0	0.15	19990122	16.86951	282.78855	185.89939	9.21180	0.1960387	2.7504982	28	2	1981–1999	0.93	M-v	4	Williams	33924	1981 EG ₂₉
1981 EC ₃₃	16.4	0.15	19990122	37.20777	151.42846	299.54053	4.70749	0.1697080	2.3617420	24	3	1981–1999	0.78	M-v	4	Williams	33924	1981 EC ₃₃
1981 EU ₃₃	14.5	0.15	19990122	182.63725	105.56103	234.19344	5.69294	0.1353749	2.3551461	32	5	1977–1999	0.90	M-v	2	Williams	31135	1981 EU ₃₃
1981 EA ₃₄	15.0	0.15	19990122	72.64814	226.78243	210.23165	8.65783	0.1303113	2.7290476	19	3	1981–1999	0.82	M-v	4	Williams	30868	1981 EA ₃₄
1981 EU ₃₄	15.6	0.15	19990122	341.71572	34.65237	117.21832	1.28298	0.1295441	2.3663565	23	2	1981–1999	0.76	M-v	4	Williams	33924	1981 EU ₃₄
1981 EW ₃₈	14.3	0.15	19990122	290.86966	303.89048	281.81934	4.11628	0.0617992	2.7509190	42	5	1969–1999	0.77	M-v	3	Williams	34003	1981 EW ₃₈
1981 EK ₄₀	14.0	0.15	19990122	143.52191	187.13016	187.47071	4.70686	0.1237181	2.7317492	28	4	1981–1999	0.96	M-v	2	Williams	32213	1981 EK ₄₀

1981 ES ₄₀	14.7	0.15	19990122	28.78683	249.28406	187.68574	8.59433	0.2695825	2.7668439	18	2	1981–1999	0.69	M-v	4	Williams	33924	1981 ES ₄₀
1981 EO ₄₁	13.8	0.15	19990122	133.06072	356.52759	6.27383	9.73999	0.1386340	2.7653960	29	3	1981–1999	0.72	M-v	4	Williams	34003	1981 EO ₄₁
1981 ET ₄₁	14.8	0.15	19990122	178.13465	190.29008	173.46803	8.15118	0.1341957	2.3334262	21	4	1981–1999	0.71	M-v	2	Williams	31272	1981 ET ₄₁
1981 EV ₄₁	14.7	0.15	19990122	62.82114	140.94214	327.30876	2.61309	0.0405988	2.7175226	18	4	1979–1999	0.80	M-v	3	Williams	31003	1981 EV ₄₁
1981 EK ₄₅	15.5	0.15	19990122	187.26594	5.73627	332.84137	6.46672	0.1183751	2.3532093	18	3	1981–1999	0.75	M-v	4	Williams	25527	1981 EK ₄₅
1981 EM ₄₅	14.9	0.15	19990122	189.07474	1.32885	331.39721	10.70558	0.1005168	2.7436178	19	5	1978–1999	0.88	M-v	2	Williams	23245	1981 EM ₄₅
1981 EQ ₄₇	15.2	0.15	19990122	17.07263	279.64884	127.19806	1.65081	0.1527026	2.4291202	56	4	1981–1998	0.69	M-v	2	Williams	33540	1981 EQ ₄₇
1981 QD	14.3	0.15	19990122	223.49407	7.89535	328.59578	2.69200	0.2103843	2.4278302	23	3	1981–1999	0.75	M-v	4	Williams	31225	1981 QD
1981 RQ ₁	13.6	0.15	19990122	182.08568	195.93896	154.24971	2.53999	0.0924607	2.9018396	51	5	1955–1999	0.90	M-v	2	Williams	31272	1981 RQ ₁
1981 SN	14.2	0.15	19990122	150.46864	156.04210	216.16511	5.17629	0.1570277	2.4843179	82	8	1981–1999	0.73	M-v	2	Williams	34003	1981 SN
1981 SC ₇	13.8	0.15	19990122	101.91867	344.53754	40.49198	8.64901	0.2421343	2.5313439	42	6	1977–1999	0.68	M-v	2	Williams	34003	1981 SC ₇
1981 UE ₂₆	12.9	0.15	19990122	185.25066	277.94976	100.98333	3.13479	0.0732527	2.9132836	46	5	1981–1999	0.54	M-v	1	Williams	31782	1981 UE ₂₆
1981 VN	12.9	0.15	19990122	8.66203	16.30719	39.90836	15.90848	0.1052176	2.6208110	74	3	1981–1999	0.75	M-v	3	Williams	33739	1981 VN
1981 WO	12.5	0.15	19990122	86.18076	48.40480	24.29962	11.05628	0.0898904	2.9987545	35	10	1950–1999	0.84	M-v	1	Williams	31782	1981 WO
1982 HJ	13.3	0.15	19990122	298.73741	202.63845	58.66225	7.72767	0.1800342	2.2587124	30	8	1949–1999	0.97	M-v	2	Williams	31004	1982 HJ
1982 JB ₂	14.9	0.15	19990122	106.05478	334.81375	106.43495	2.69257	0.0828523	2.2687271	45	4	1982–1999	0.80	M-v	2	Williams	31272	1982 JB ₂
1982 QK ₃	13.9	0.15	19990122	196.28836	23.07033	326.82775	2.48546	0.1866066	2.3477688	30	6	1982–1999	0.65	M-v	1	Williams	31580	1982 QK ₃
1982 RK ₁	14.0	0.15	19990122	126.68755	357.53936	297.75884	4.23191	0.1065330	2.4709701	22	3	1982–1998	0.58	M-v	4	Williams	33924	1982 RK ₁
1982 SW ₃	14.3	0.15	19990122	60.57201	176.38477	202.45447	5.82127	0.2202945	2.1585697	38	3	1982–1999	0.85	M-v	3	Williams	33739	1982 SW ₃
1982 US ₆	13.6	0.15	19990122	32.25459	323.16169	46.71678	8.06627	0.1577081	2.5351929	91	6	1982–1999	0.75	M-v	2	Williams	33739	1982 US ₆
1982 UF ₇	12.9	0.15	19990122	133.13802	146.79346	218.25412	8.20286	0.1645233	2.9115526	35	5	1982–1999	0.85	M-v	3	Williams	34003	1982 UF ₇
1982 VB ₄	14.2	0.15	19990122	297.28385	77.38189	57.57213	3.88213	0.1413023	2.5348218	41	4	1978–1998	0.64	M-v	4	Williams	33333	1982 VB ₄
1982 YR ₁	14.7	0.15	19990122	88.33932	46.86516	7.09099	5.93684	0.2176277	2.4580371	40	4	1982–1999	0.71	M-v	2	Williams	31782	1982 YR ₁
1983 RG ₂	14.2	0.15	19990122	144.40489	296.61962	70.20377	6.33744	0.2017344	2.2941855	32	6	1979–1999	0.62	M-v	2	Williams	31272	1983 RG ₂
1983 RP ₂	14.3	0.15	19990122	152.72213	222.95141	150.66359	4.16233	0.1706867	2.2721458	54	5	1983–1999	0.75	M-v	2	Williams	31272	1983 RP ₂
1983 RZ ₄	14.8	0.15	19990122	175.40300	95.51477	240.06733	4.18342	0.2615525	2.2831699	27	3	1983–1999	0.71	M-v	3	Williams	31272	1983 RZ ₄
1983 VQ ₁	14.6	0.15	19990122	95.95227	346.90541	55.93803	26.79917	0.2903260	2.3356397	23	4	1983–1999	0.60	M-v	2	Williams	22697	1983 VQ ₁
1983 WM	13.9	0.15	19990122	89.22793	190.44550	253.43451	5.72311	0.0781108	2.3208538	50	5	1954–1999	0.88	M-v	2	Williams	31135	1983 WM
1984 RA	14.6	0.15	19990122	77.99196	272.91296	142.70854	23.21605	0.1016647	1.9263289	28	4	1984–1999	0.68	M-v	2	Williams	34003	1984 RA
1984 SL	12.8	0.15	19990122	49.52488	228.10176	157.37309	9.73397	0.3039336	2.7330046	43	3	1984–1999	0.83	M-v	3	Williams	34003	1984 SL
1984 SA ₂	14.2	0.15	19990122	349.75076	162.00331	302.41814	4.52686	0.1052804	2.2747437	28	2	1984–1999	0.59	M-v	4	Williams	34003	1984 SA ₂
1984 SM ₅	13.2	0.15	19990122	128.57605	144.43419	156.35957	6.78674	0.1377024	2.2436879	54	2	1984–1999	0.58	M-v	4	Williams	34003	1984 SM ₅
1984 SY ₅	13.0	0.15	19990122	153.86165	251.09189	117.45371	2.38704	0.1465424	3.2524794	70	5	1984–1999	0.61	M-v	1	Williams	31272	1984 SY ₅
1984 SN ₆	13.4	0.15	19990122	346.40958	129.13676	61.94366	3.29880	0.0880471	2.5621559	65	5	1984–1999	0.69	M-v	2	Williams	31135	1984 SN ₆
1984 YL ₁	14.2	0.15	19990122	27.78531	41.98264	65.35274	6.22844	0.1363527	2.2655399	42	4	1984–1999	0.73	M-v	2	Williams	34003	1984 YL ₁
1984 YY ₁	15.6	0.15	19990122	109.12041	23.82137	13.66475	2.53129	0.1718681	2.2355103	17	4	1977–1999	0.72	M-v	3	Williams	33740	1984 YY ₁
1985 CM ₁	14.0	0.15	19990122	320.56387	69.64089	133.00177	4.87466	0.0966165	2.2968932	57	4	1954–1999	0.82	M-v	4	Williams	33740	1985 CM ₁
1985 CF ₂	14.4	0.15	19990122	267.65991	359.61498	175.79263	9.32116	0.1645204	2.3850863	44	2	1985–1998	0.72	M-v	4	Williams	33474	1985 CF ₂
1985 CS ₂	13.9	0.15	19990122	306.66660	294.42861	295.43589	3.99061	0.0927734	2.2925351	60	5	1978–1999	0.83	M-v	2	Williams	33541	1985 CS ₂
1985 DA ₂	14.2	0.15	19990122	280.28091	297.54274	303.10555	6.58517	0.2367346	2.3152584	49	3	1978–1999	0.66	M-v	4	Williams	33925	1985 DA ₂
1985 GP ₁	13.2	0.15	19990122	260.49361	202.42253	98.53931	24.87968	0.1688437	2.3141604	23	4	1985–1999	0.64	M-v	2	Williams	31272	1985 GP ₁
1985 RS ₁	13.8	0.15	19990122	222.97907	312.55470	26.58824	2.68934	0.2171074	2.4029153	80	5	1970–1999	0.68	M-v	1	Williams	31272	1985 RS ₁
1985 RD ₂	13.9	0.15	19990122	186.03097	346.44834	343.72159	10.67844	0.2239249	2.4474902	26	5	1985–1999	0.95	M-v	2	Williams	34004	1985 RD ₂
1985 RF ₃	14.8	0.15	19990122	40.86381	213.71578	122.73626	6.03230	0.2497317	2.6471348	36	3	1985–1998	0.61	M-v	3	Williams	33474	1985 RF ₃
1985 RG ₃	14.7	0.15	19990122	120.04310	282.09352	99.79144	5.23250	0.1762414	2.4875604	21	3	1985–1999	0.44	M-v	3	Williams	30868	1985 RG ₃
1985 RP ₃	14.2	0.15	19990122	277.61953	282.33919	3.85914	2.11949	0.2019542	2.3749754	38	3	1985–1999	0.75	M-v	4	Williams	28295	1985 RP ₃
1985 RR ₃	13.0	0.15	19990122	234.85697	145.14025	170.48280	10.93536	0.0919722	3.0030390	44	6	1985–1999	0.54	M-v	1	Williams	31135	1985 RR ₃
1985 TJ ₁	12.3	0.15	19990122	240.81175	290.58066	26.61341	10.91438	0.0832118	3.0077510	46	5	1975–1999	0.93	M-v	2	Williams	31782	1985 TJ ₁
1985 UF	13.9	0.15	19990122	219.06305	305.20060	25.68204	8.93853	0.1649916	2.4291940	28	4	1985–1999	0.79	M-v	3	Williams	31004	1985 UF
1985 VL	12.3	0.15	19990122	337.33765	345.05182	209.46028	14.43910	0.0266588	3.1736954	24	4	1985–1999	0.47	M-v	1	Williams	29133	1985 VL
1985 VA ₁	13.2	0.15	19990122	204.13117	189.47062	88.10381	18.91122	0.0818094	3.1467929	24	3	1985–1999	0.62	M-v	2	Williams	33925	1985 VA ₁
1986 CZ ₁	14.2	0.15	19990122	273.13172	319.58211	289.71482	4.94305	0.1142132	2.1786766	46	2	1986–1999	0.54	M-v	5	Williams	33925	1986 CZ ₁
1986 EA ₅	15.0	0.15	19990122	322.60327	199.30070	358.18704	0.40273	0.1822997	2.6755817	30	2	1986–1999	0.65	M-v	4	Williams	33925	1986 EA ₅

1986 PE ₁	13.3	0.15	19990122	48.32177	244.66821	138.70323	8.39778	0.0966052	2.4351296	61	2	1986–1999	0.50	M-v	4	Williams	34004	1986 PE ₁
1986 QG ₁	14.6	0.15	19990122	321.31372	85.71096	111.77650	4.57233	0.0141414	2.3212953	56	4	1986–1999	0.80	M-v	2	Williams	33740	1986 QG ₁
1986 QN ₁	13.6	0.15	19990122	115.15995	29.93130	345.96360	13.46434	0.1186984	2.9847040	35	3	1986–1999	0.65	M-v	4	Williams	34004	1986 QN ₁
1986 QS ₁	14.2	0.15	19990122	161.51822	229.84824	133.89156	5.58250	0.1496349	2.3182608	61	5	1986–1999	0.67	M-v	1	Williams	27932	1986 QS ₁
1986 QH ₂	14.2	0.15	19990122	108.14040	308.21952	129.55370	7.25348	0.0640438	2.2900695	39	4	1986–1999	0.52	M-v	1	Williams	31135	1986 QH ₂
1986 QO ₃	14.5	0.15	19990122	97.44561	332.61511	53.88243	3.43013	0.2255814	2.3906356	47	5	1986–1999	0.69	M-v	2	Williams	34004	1986 QO ₃
1986 RD	13.4	0.15	19990122	254.84086	101.86879	212.93741	6.86759	0.2245918	2.7952158	54	7	1986–1999	0.63	M-v	1	Williams	31272	1986 RD
1986 RK	13.9	0.15	19990122	225.66041	88.35366	235.78757	7.56288	0.2022957	2.2866283	25	4	1986–1999	0.79	M-v	2	Williams	27454	1986 RK
1986 RQ	13.7	0.15	19990122	210.49734	113.56306	210.87629	9.31383	0.1860655	2.3105518	44	8	1965–1999	0.87	M-v	2	Williams	27932	1986 RQ
1986 RG ₃	14.7	0.15	19990122	225.42836	152.14377	163.77598	7.95578	0.2591734	2.2872098	28	6	1979–1999	0.89	M-v	2	Williams	30894	1986 RG ₃
1986 RJ ₄	13.9	0.15	19990122	108.61935	66.24541	333.19769	25.58492	0.2268821	2.3556680	39	4	1977–1999	0.75	M-v	2	Williams	30780	1986 RJ ₄
1986 RN ₅	14.5	0.15	19990122	204.96570	343.37302	359.52932	6.49225	0.2241534	2.2874239	53	4	1955–1999	0.88	M-v	2	Williams	29655	1986 RN ₅
1986 TB	13.8	0.15	19990122	162.77316	353.77482	1.23408	14.65286	0.2215635	2.3425306	55	3	1986–1999	0.80	M-v	3	Williams	31272	1986 TB
1986 TZ ₃	14.4	0.15	19990122	257.48924	227.91834	60.51783	3.76611	0.2144357	2.2949132	33	3	1986–1999	0.66	M-v	3	Williams	34004	1986 TZ ₃
1986 VA	12.6	0.15	19990122	173.54758	55.25911	272.61441	8.86981	0.0998025	3.0256383	39	3	1986–1999	0.79	M-v	3	Williams	34004	1986 VA
1986 VM ₆	14.7	0.15	19990122	156.86266	324.54911	43.13998	4.11390	0.2231591	2.3562185	45	4	1986–1999	0.63	M-v	3	Williams	31136	1986 VM ₆
1986 XR ₅	12.7	0.15	19990122	122.18052	338.39966	31.94610	4.16073	0.2947308	3.0761911	25	3	1986–1999	0.92	M-v	4	Williams	34004	1986 XR ₅
1987 DN ₆	14.6	0.15	19990122	323.28005	179.80471	287.80959	2.41065	0.1679045	2.6278158	102	4	1987–1998	0.78	M-v	3	Williams	33333	1987 DN ₆
1987 KG ₅	13.5	0.15	19990122	244.99102	147.13059	142.73024	14.98440	0.1723166	2.6077299	18	2	1987–1999	0.50	M-v	5	Williams	33925	1987 KG ₅
1987 OT	13.5	0.15	19990122	216.32189	120.87248	173.14147	8.66523	0.2659705	2.7168391	28	5	1977–1999	0.96	M-v	2	Williams	34004	1987 OT
1987 PM	12.7	0.15	19990122	203.99546	22.65274	278.41393	7.50387	0.0648774	2.7752938	22	3	1987–1999	0.69	M-v	4	Williams	33925	1987 PM
1987 QM	13.1	0.15	19990122	153.34265	11.44402	334.52311	17.12345	0.2735871	2.8023790	40	4	1987–1999	0.76	M-v	3	Williams	34004	1987 QM
1987 QO ₅	14.5	0.15	19990122	128.87181	63.61163	333.99964	3.99607	0.1395149	2.1933503	38	3	1987–1999	0.66	M-v	3	Williams	31377	1987 QO ₅
1987 QG ₁₀	13.9	0.15	19990122	185.48340	221.24671	120.67346	4.30988	0.1897260	2.1887781	24	4	1986–1999	0.61	M-v	2	Williams	31226	1987 QG ₁₀
1987 RW	14.6	0.15	19990122	80.07705	53.12436	340.73226	5.82172	0.1726486	2.2706251	37	3	1987–1999	0.61	M-v	4	Williams	33925	1987 RW
1987 RF ₁	14.5	0.15	19990122	51.54266	247.93950	167.97944	5.42729	0.1650280	2.2840930	49	2	1987–1999	0.73	M-v	4	Williams	34004	1987 RF ₁
1987 RO ₅	11.9	0.15	19990122	151.60681	216.93712	158.54683	6.81537	0.2912645	3.9488409	46	4	1987–1999	0.73	M-v	2	Williams	31782	1987 RO ₅
1987 SU ₁	14.7	0.15	19990122	151.68117	122.25678	254.73440	6.02088	0.1331967	2.2097623	33	5	1954–1999	0.69	M-v	2	Williams	31136	1987 SU ₁
1987 SZ ₂	14.5	0.15	19990122	101.92883	355.41398	26.69420	7.45759	0.1359905	2.2639744	34	4	1953–1999	0.56	M-v	2	Williams	34004	1987 SZ ₂
1987 SM ₃	14.1	0.15	19990122	254.70061	309.11730	307.44117	5.94513	0.1044658	2.1955162	35	2	1987–1999	0.64	M-v	4	Williams	33926	1987 SM ₃
1987 SE ₇	15.0	0.15	19990122	159.65807	53.73289	297.34378	4.82633	0.1913186	2.2201333	17	4	1954–1999	1.07	M-v	3	Williams	34004	1987 SE ₇
1987 SG ₁₃	14.3	0.15	19990122	111.14697	28.20482	22.43531	4.72346	0.1139919	2.2215400	56	6	1954–1999	0.71	M-v	2	Williams	31136	1987 SG ₁₃
1987 UX	14.8	0.15	19990122	37.35336	159.87739	205.34998	24.44619	0.2443994	2.3846855	66	2	1987–1998	0.73	M-v	3	Williams	33542	1987 UX
1987 UF ₅	12.6	0.15	19990122	178.39842	318.79533	55.38012	5.74303	0.1628606	2.7637697	18	6	1978–1999	0.52	M-v	1	Williams	31581	1987 UF ₅
1987 WP	13.4	0.15	19990122	284.03375	293.65211	234.19386	21.08577	0.2787371	2.4027502	28	2	1987–1999	0.61	M-v	4	Williams	34004	1987 WP
1988 BJ	14.8	0.15	19990122	339.97650	234.14763	309.92322	22.82457	0.0639537	1.9308402	43	5	1988–1999	0.86	M-v	2	Williams	30780	1988 BJ
1988 BN ₄	12.5	0.15	19990122	16.91485	229.91661	273.66712	8.64902	0.0345674	3.0168295	48	4	1988–1999	0.49	M-v	1	Williams	34004	1988 BN ₄
1988 CQ ₁	14.6	0.15	19990122	12.46138	354.38199	122.98302	6.58804	0.1123289	2.3614377	35	2	1988–1999	0.61	M-v	4	Williams	34004	1988 CQ ₁
1988 CA ₂	14.4	0.15	19990122	45.25542	335.60984	124.37244	7.09763	0.0580975	2.3384998	43	2	1988–1999	0.73	M-v	4	Williams	33926	1988 CA ₂
1988 CE ₂	13.9	0.15	19990122	167.33859	57.90496	307.69598	6.45252	0.1491706	2.2822569	30	5	1978–1999	0.66	M-v	2	Williams	31273	1988 CE ₂
1988 CY ₂	14.5	0.15	19990122	262.89054	315.25904	325.43086	3.46044	0.0909303	2.2966276	36	4	1988–1999	0.80	M-v	1	Williams	31098	1988 CY ₂
1988 CZ ₂	16.0	0.15	19990122	349.71807	40.07181	127.53942	4.02504	0.1723618	2.3446697	25	3	1988–1999	0.51	M-v	3	Williams	30755	1988 CZ ₂
1988 CT ₄	12.9	0.15	19990122	287.64853	62.58868	198.46363	9.40297	0.0562578	3.0194466	37	5	1980–1999	0.49	M-v	1	Williams	31136	1988 CT ₄
1988 CV ₄	12.9	0.15	19990122	162.39232	146.07900	182.19906	18.25484	0.1733000	3.1733389	43	4	1988–1999	0.68	M-v	1	Williams	34004	1988 CV ₄
1988 CF ₆	13.6	0.15	19990122	4.93142	237.85469	260.16483	3.64773	0.1408809	2.3725725	52	4	1979–1999	0.67	M-v	2	Williams	34004	1988 CF ₆
1988 DK	13.5	0.15	19990122	19.81725	277.83758	218.12090	9.30437	0.1729243	3.0796511	26	4	1988–1999	0.92	M-v	2	Williams	31273	1988 DK
1988 EC	14.3	0.15	19990122	151.67903	33.10475	340.31275	19.29852	0.0996052	1.9336886	80	5	1988–1999	0.98	M-v	3	Williams	34004	1988 EC
1988 FE	14.4	0.15	19990122	314.10951	139.49632	47.69129	10.28685	0.1807135	2.4142230	55	3	1988–1999	0.82	M-v	2	Williams	34004	1988 FE
1988 FM	13.5	0.15	19990122	211.02040	183.15646	15.19547	13.72556	0.1142952	2.5629060	68	7	1951–1998	0.80	M-v	2	Williams	33334	1988 FM
1988 FN	14.4	0.15	19990122	323.51270	204.12521	334.05772	23.61531	0.2431771	2.3996977	40	4	1978–1999	0.74	M-v	2	Williams	34004	1988 FN
1988 FM ₁	12.0	0.15	19990122	126.62673	83.35965	327.45803	9.95326	0.1014100	3.0348552	40	4	1981–1999	0.56	M-v	2	Williams	33741	1988 FM ₁
1988 GF	12.7	0.15	19990122	149.67171	49.87819	227.23815	13.34188	0.1768083	2.5940640	39	4	1988–1999	0.65	M-v	3	Williams	33741	1988 GF
1988 GZ	12.4	0.15	19990122	268.66647	258.69534	30.07295	5.66511	0.1187219	3.0999677	33	4	1988–1999	0.71	M-v	1	Williams	32300	1988 GZ

1988 MH	12.6	0.15	19990122	136.05497	36.27042	292.78133	13.03001	0.1937915	2.5940202	59	3	1988–1999	0.74	M-v	3	Williams	34004	1988 MH
1988 RX ₂	13.4	0.15	19990122	138.05457	235.71286	135.48242	0.40527	0.1093963	2.6667427	44	3	1988–1999	0.73	M-v	4	Williams	31136	1988 RX ₂
1988 RM ₄	14.7	0.15	19990122	271.46282	113.07705	177.00302	2.64172	0.1858044	2.4828765	39	4	1988–1999	0.65	M-v	2	Williams	25339	1988 RM ₄
1988 RM ₅	13.8	0.15	19990122	110.76818	243.92248	159.91459	15.01787	0.0993439	2.6126495	38	2	1988–1999	0.72	M-v	4	Williams	33675	1988 RM ₅
1988 RB ₆	14.4	0.15	19990122	205.01236	160.51460	162.73320	12.55372	0.2526653	2.5613909	62	5	1988–1999	0.85	M-v	3	Williams	30288	1988 RB ₆
1988 RL ₉	13.8	0.15	19990122	2.26131	62.94576	328.12692	5.11879	0.1064264	2.2138190	75	3	1988–1999	0.75	M-v	2	Williams	34004	1988 RL ₉
1988 RB ₁₂	14.5	0.15	19990122	205.23426	344.67799	350.88775	5.40517	0.2516267	2.5460640	37	9	1972–1999	0.98	M-v	2	Williams	31273	1988 RB ₁₂
1988 SV ₁	14.5	0.15	19990122	117.98103	251.27309	130.93679	10.43547	0.0494344	2.6442642	25	2	1988–1999	0.62	M-v	5	Williams	33926	1988 SV ₁
1988 SL ₂	13.6	0.15	19990122	23.82719	307.12574	162.75629	3.16627	0.1830436	3.9473524	37	2	1988–1999	0.81	M-v	5	Williams	33927	1988 SL ₂
1988 SX ₂	13.8	0.15	19990122	57.98451	54.21445	11.45977	2.30348	0.1978986	4.0008814	21	3	1988–1999	0.67	M-v	4	Williams	34005	1988 SX ₂
1988 SF ₃	13.5	0.15	19990122	77.12610	44.94093	58.00611	16.02672	0.0940541	2.5774486	27	4	1988–1999	0.69	M-v	2	Williams	31136	1988 SF ₃
1988 VE ₁	13.5	0.15	19990122	156.33796	267.37411	45.59841	8.31294	0.1440740	2.7735930	23	3	1988–1999	0.77	M-v	4	Williams	34005	1988 VE ₁
1988 VJ ₁	13.8	0.15	19990122	36.90627	118.68502	235.30473	5.09975	0.2186893	2.2613752	34	2	1988–1999	0.78	M-v	3	Williams	34005	1988 VJ ₁
1988 VR ₂	13.6	0.15	19990122	354.66453	0.55488	88.20151	13.23077	0.2722609	2.9345174	57	3	1988–1999	0.80	M-v	2	Williams	34005	1988 VR ₂
1988 VT ₃	14.5	0.15	19990122	325.64182	216.70789	245.93415	3.98717	0.1144176	2.2520385	53	2	1988–1999	0.89	M-v	5	Williams	33741	1988 VT ₃
1988 VM ₅	14.7	0.15	19990122	86.39771	268.42346	120.04438	2.20758	0.2732000	2.7682640	37	4	1988–1999	0.68	M-v	2	Williams	34005	1988 VM ₅
1988 VS ₆	13.2	0.15	19990122	86.86055	211.79202	209.44940	4.90412	0.2389708	3.9539010	67	4	1988–1999	0.76	M-v	1	Williams	33741	1988 VS ₆
1988 XH ₁	12.4	0.15	19990122	198.04102	247.91117	78.59703	13.95501	0.1885533	2.6759536	33	4	1988–1999	0.90	M-v	2	Williams	25439	1988 XH ₁
1989 AB ₃	12.4	0.15	19990122	28.06708	300.09110	113.71859	11.13384	0.0998268	3.0132931	27	4	1955–1999	0.88	M-v	3	Williams	33542	1989 AB ₃
1989 AV ₆	13.7	0.15	19990122	199.69466	172.45599	116.44379	6.99673	0.1878807	2.2420887	60	3	1989–1999	0.70	M-v	3	Williams	34005	1989 AV ₆
1989 CH	12.5	0.15	19990122	13.69884	18.91401	136.86333	16.12638	0.2053989	2.8467381	69	3	1989–1999	0.77	M-v	3	Williams	28613	1989 CH
1989 CD ₆	13.6	0.15	19990122	49.28707	330.39462	130.48013	2.95406	0.0348119	2.8837245	48	4	1989–1999	0.79	M-v	3	Williams	34005	1989 CD ₆
1989 EE ₁	14.2	0.15	19990122	294.95131	195.22019	10.04486	6.64631	0.1390339	2.2672561	34	3	1989–1999	0.61	M-v	4	Williams	34005	1989 EE ₁
1989 GV ₁	14.7	0.15	19990122	243.08478	307.62611	343.98072	4.94401	0.1555410	2.2667839	41	4	1976–1999	0.77	M-v	3	Williams	33927	1989 GV ₁
1989 GZ ₁	15.2	0.15	19990122	207.70992	46.88418	253.99073	2.04739	0.0577971	2.2884562	35	4	1989–1999	0.91	M-v	2	Williams	34005	1989 GZ ₁
1989 GQ ₄	14.5	0.15	19990122	320.83900	40.73388	187.62362	4.88963	0.0932235	2.2223088	26	5	1979–1999	0.86	M-v	2	Williams	31273	1989 GQ ₄
1989 GQ ₆	13.2	0.15	19990122	94.09362	207.20168	118.72494	13.12544	0.2165267	2.4831738	22	3	1989–1999	0.57	M-v	4	Williams	33676	1989 GQ ₆
1989 HC	12.3	0.15	19990122	117.39856	263.09759	82.68594	22.60573	0.0154306	3.2034621	25	3	1989–1999	0.73	M-v	3	Williams	33741	1989 HC
1989 JB	14.9	0.15	19990122	303.45369	138.23875	82.92990	25.82421	0.2336390	2.2723501	26	2	1989–1999	0.71	M-v	3	Williams	34005	1989 JB
1989 RX	12.9	0.15	19990122	23.89769	131.57209	237.14692	7.16900	0.2005694	2.6898107	48	2	1989–1999	0.67	M-v	3	Williams	34005	1989 RX
1989 SA ₂	15.5	0.15	19990122	55.85239	285.49491	57.66074	6.40417	0.1733031	2.7020767	29	2	1989–1998	0.85	M-v	5	Williams	33334	1989 SA ₂
1989 SH ₃	14.6	0.15	19990122	155.26150	272.55934	97.83412	1.90546	0.2286431	2.4542524	35	4	1989–1999	0.67	M-v	4	Williams	31416	1989 SH ₃
1989 SK ₃	13.4	0.15	19990122	283.72342	293.36614	179.28255	7.60430	0.1809589	2.8018713	37	3	1975–1998	0.73	M-v	4	Williams	33067	1989 SK ₃
1989 SV ₅	14.6	0.15	19990122	9.84479	47.47786	71.95130	6.28145	0.1834164	2.5687059	36	4	1981–1999	0.85	M-v	3	Williams	34005	1989 SV ₅
1989 SX ₅	14.3	0.15	19990122	13.52984	11.24703	94.62257	2.88796	0.1088994	2.5760773	45	2	1989–1999	0.72	M-v	4	Marsden	34005	1989 SX ₅
1989 TH ₁	13.0	0.15	19990122	24.00004	45.62468	344.09992	8.20869	0.2918511	2.7163658	69	4	1962–1999	0.77	M-v	2	Williams	34005	1989 TH ₁
1989 TU ₁	13.4	0.15	19990122	30.24055	160.14807	260.62388	6.66178	0.2841290	2.6699488	77	3	1989–1999	0.68	M-v	2	Williams	33742	1989 TU ₁
1989 TY ₂	14.5	0.15	19990122	170.63501	238.61363	71.55775	4.56780	0.0270697	2.5410127	48	4	1989–1999	0.85	M-v	2	Williams	34005	1989 TY ₂
1989 TU ₃	14.0	0.15	19990122	316.58589	279.17996	172.26115	4.87350	0.0411561	2.7255905	41	3	1989–1998	0.65	M-v	3	Williams	34005	1989 TU ₃
1989 TP ₁₁	13.9	0.15	19990122	195.30195	145.21381	190.85890	3.61069	0.1572721	2.4201800	44	5	1978–1999	0.72	M-v	2	Williams	31273	1989 TP ₁₁
1989 TJ ₁₄	11.2	0.15	19990122	221.27515	184.77548	172.77312	24.24485	0.0615832	3.2241502	26	4	1989–1999	0.63	M-v	1	Williams	33477	1989 TJ ₁₄
1989 TL ₁₅	14.1	0.15	19990122	85.13922	87.63593	322.61524	1.42387	0.1504656	2.5258900	48	8	1969–1999	0.84	M-v	3	Williams	34005	1989 TL ₁₅
1989 TD ₁₆	13.5	0.15	19990122	44.12236	4.94235	348.66298	2.96087	0.0986761	2.7097354	77	4	1989–1999	0.66	M-v	2	Williams	33742	1989 TD ₁₆
1989 TK ₁₆	14.7	0.15	19990122	239.77476	121.09259	175.30003	2.12704	0.1873976	2.3916152	28	3	1989–1999	0.56	M-v	5	Williams	25329	1989 TK ₁₆
1989 UA	13.1	0.15	19990122	87.34346	7.27218	45.59269	10.77189	0.0980847	2.5463259	68	6	1954–1999	0.72	M-v	2	Williams	34005	1989 UA
1989 UR	18.5	0.15	19990122	348.74442	289.26003	234.58951	10.30853	0.3559467	1.0802414	158	3	1989–1998	0.67	M-v	3	Williams	33543	1989 UR
1989 UK ₁	14.2	0.15	19990122	68.39721	225.10721	217.76367	11.60847	0.2742067	2.5582475	40	4	1989–1999	0.79	M-v	3	Williams	30894	1989 UK ₁
1989 UN ₁	14.6	0.15	19990122	98.24534	184.81568	213.77036	4.80453	0.2850763	2.5504979	30	5	1985–1999	0.86	M-v	3	Williams	31136	1989 UN ₁
1989 UB ₃	14.2	0.15	19990122	64.24872	19.65756	61.46063	5.42421	0.2587627	2.5714236	70	5	1989–1999	0.86	M-v	2	Williams	31136	1989 UB ₃
1989 UP ₃	14.0	0.15	19990122	52.44751	220.46986	199.58795	12.58338	0.1449622	2.6169156	24	2	1989–1999	0.98	M-v	4	Williams	33927	1989 UP ₃
1989 UW ₃	13.6	0.15	19990122	119.38131	119.05749	235.02048	12.34269	0.1944643	2.5790436	24	3	1989–1999	0.72	M-v	3	Williams	33928	1989 UW ₃
1989 US ₄	13.3	0.15	19990122	4.02174	184.32417	223.22371	1.23180	0.0991451	2.7367613	64	2	1989–1999	0.70	M-v	4	Williams	34005	1989 US ₄
1989 UW ₅	14.3	0.15	19990122	81.63441	349.90129	58.23053	4.64511	0.2242489	2.5609325	28	4	1989–1999	0.75	M-v	2	Williams	30895	1989 UW ₅

1989 VQ	13.8	0.15	19990122	187.15847	291.47916	65.02000	2.66683	0.2209329	2.4197651	33	6	1974–1999	0.74	M-v	2	Williams	31136	1989 VQ
1989 VP ₁	14.1	0.15	19990122	32.50624	280.01486	192.10521	13.32461	0.1268535	2.5656799	36	3	1989–1999	0.70	M-v	2	Williams	33928	1989 VP ₁
1989 VS ₁	13.9	0.15	19990122	52.58785	296.60295	117.79261	3.63782	0.2011114	2.6294950	50	3	1989–1999	0.74	M-v	2	Williams	34005	1989 VS ₁
1989 WH	14.3	0.15	19990122	1.95819	196.79159	223.83138	8.62579	0.1443192	2.7590657	53	2	1989–1998	0.81	M-v	4	Williams	33543	1989 WH
1989 WH ₃	13.8	0.15	19990122	113.34924	347.67833	36.98572	1.20594	0.2059767	2.5659478	31	5	1989–1999	0.92	M-v	3	Williams	34005	1989 WH ₃
1990 BB	13.3	0.15	19990122	321.34035	226.11281	284.30523	10.82999	0.1557986	2.7657011	31	2	1990–1999	0.74	M-v	4	Williams	33742	1990 BB
1990 BT	14.1	0.15	19990122	256.27643	98.98303	328.89998	7.24342	0.1616703	2.2919609	14	5	1978–1997	0.74	M-v	2	Williams	33928	1990 BT
1990 BH ₁	13.4	0.15	19990122	13.49861	87.11583	71.13721	5.62917	0.1537834	2.6386731	51	6	1950–1999	0.77	M-v	1	Williams	31273	1990 BH ₁
1990 CD	13.2	0.15	19990122	113.84523	320.10031	287.35054	5.56405	0.1070308	2.2836443	20	3	1990–1998	0.65	M-v	4	Williams	32741	1990 CD
1990 DV	13.8	0.15	19990122	353.61035	270.47762	248.19864	7.05072	0.2184981	2.7295894	35	2	1990–1999	0.62	M-v	2	Williams	34005	1990 DV
1990 MC	12.9	0.15	19990122	250.57234	113.65657	194.20161	13.60208	0.3192367	2.8826523	29	5	1989–1999	0.63	M-v	1	Williams	29942	1990 MC
1990 OM ₂	14.5	0.15	19990122	189.33465	336.69898	350.23769	6.60374	0.2066299	2.2280090	27	2	1990–1999	0.80	M-v	4	Williams	33928	1990 OM ₂
1990 QA	11.8	0.15	19990122	163.75118	334.92447	26.43629	19.94091	0.2069272	3.1037008	18	4	1990–1999	0.77	M-v	2	Williams	31273	1990 QA
1990 QT	14.5	0.15	19990122	146.58597	353.11711	351.81632	6.18520	0.1663534	2.2851395	29	4	1952–1999	0.68	M-v	2	Williams	33928	1990 QT
1990 QK ₃	14.4	0.15	19990122	106.16356	239.46374	151.24859	6.25186	0.1239700	2.3074681	52	4	1990–1999	0.65	M-v	3	Williams	34006	1990 QK ₃
1990 QU ₃	14.3	0.15	19990122	198.67816	197.24247	88.62711	2.23877	0.1235663	2.2802847	37	4	1990–1999	0.85	M-v	2	Williams	34006	1990 QU ₃
1990 QF ₄	13.5	0.15	19990122	352.44377	319.11141	150.84255	7.25406	0.0646778	2.3535490	39	2	1990–1999	0.79	M-v	4	Williams	34006	1990 QF ₄
1990 QO ₄	13.1	0.15	19990122	260.48124	303.07282	354.27489	9.63281	0.0762049	2.9999251	30	3	1990–1999	0.64	M-v	4	Williams	31582	1990 QO ₄
1990 QV ₅	14.7	0.15	19990122	231.70021	165.80165	178.77643	1.89589	0.0933218	2.1521007	17	4	1987–1998	0.61	M-v	2	Williams	31228	1990 QV ₅
1990 QE ₇	14.2	0.15	19990122	284.82520	319.19076	142.96323	2.13644	0.1215162	2.5360527	71	4	1990–1998	0.74	M-v	3	Williams	33335	1990 QE ₇
1990 QX ₇	14.0	0.15	19990122	144.53557	40.97936	327.40077	1.82987	0.1692218	3.2091490	30	5	1979–1999	0.53	M-v	1	Williams	34006	1990 QX ₇
1990 QK ₈	13.6	0.15	19990122	289.70301	139.57912	122.99427	2.21957	0.0765079	2.9991604	25	3	1990–1999	0.63	M-v	5	Williams	31274	1990 QK ₈
1990 QN ₉	14.1	0.15	19990122	64.52876	324.29501	129.25850	4.33372	0.1106560	2.2649870	31	4	1990–1999	0.69	M-v	2	Williams	34006	1990 QN ₉
1990 QU ₉	12.7	0.15	19990122	235.34016	293.68643	352.50590	15.73964	0.0918747	3.1207046	34	2	1990–1999	0.72	M-v	4	Williams	33929	1990 QU ₉
1990 RS	14.7	0.15	19990122	121.69130	24.35356	349.88172	8.64232	0.1546448	2.2997866	22	4	1988–1999	0.82	M-v	3	Williams	33929	1990 RS
1990 RD ₁	12.6	0.15	19990122	116.60176	245.44092	169.68913	9.57595	0.0719346	3.1694682	48	5	1985–1999	0.65	M-v	1	Williams	32046	1990 RD ₁
1990 RO ₂	15.0	0.15	19990122	258.81615	328.57623	309.45514	3.76620	0.1264749	2.2073652	39	5	1990–1999	0.63	M-v	2	Williams	31137	1990 RO ₂
1990 RS ₂	13.9	0.15	19990122	151.88967	95.00804	293.67820	2.00740	0.1450830	2.2449292	31	5	1990–1999	0.87	M-v	2	Williams	30975	1990 RS ₂
1990 RY ₂	13.1	0.15	19990122	34.55717	69.74947	278.32474	2.35503	0.2702636	3.9278866	66	3	1990–1998	0.55	M-v	3	Williams	33335	1990 RY ₂
1990 RJ ₃	15.2	0.15	19990122	216.46758	318.62966	352.27547	6.28832	0.0788032	2.2384468	39	2	1990–1999	0.61	M-v	5	Williams	34006	1990 RJ ₃
1990 RF ₅	14.2	0.15	19990122	162.91544	124.08142	217.15804	4.47109	0.1961030	2.2798526	28	4	1983–1999	0.80	M-v	4	Williams	34006	1990 RF ₅
1990 RW ₇	13.5	0.15	19990122	138.72228	227.27026	164.61746	3.59412	0.1753841	3.1725719	35	4	1990–1999	0.77	M-v	2	Williams	31583	1990 RW ₇
1990 RO ₈	14.8	0.15	19990122	337.55672	324.18709	159.47919	3.19082	0.1336242	2.3756038	28	2	1990–1999	0.58	M-v	4	Williams	33677	1990 RO ₈
1990 RF ₁₇	13.3	0.15	19990122	325.19823	225.88828	193.21216	13.44642	0.1612235	2.5760199	30	3	1986–1999	0.68	M-v	3	Williams	33742	1990 RF ₁₇
1990 RN ₁₇	12.2	0.15	19990122	194.16747	29.40884	295.16763	6.77937	0.1798159	3.2244772	26	3	1990–1999	0.80	M-v	3	Williams	34006	1990 RN ₁₇
1990 SX	12.6	0.15	19990122	191.77144	14.47919	336.48479	11.22438	0.1769167	3.1362071	26	4	1990–1999	0.71	M-v	2	Williams	31274	1990 SX
1990 SA ₂	14.3	0.15	19990122	161.64175	7.57286	359.37104	1.43157	0.1322503	2.2746457	43	7	1983–1999	0.95	M-v	2	Williams	31137	1990 SA ₂
1990 SB ₂	14.1	0.15	19990122	54.29337	268.06980	154.27785	20.09271	0.3500938	2.4050054	21	2	1990–1999	0.68	M-v	4	Williams	33678	1990 SB ₂
1990 ST ₂	14.7	0.15	19990122	168.19982	309.32174	40.09067	2.07673	0.2350797	2.2691582	28	4	1973–1999	0.63	M-v	2	Williams	31099	1990 ST ₂
1990 SF ₃	13.8	0.15	19990122	114.55613	285.20779	119.04155	3.78391	0.0648318	2.2909645	35	4	1990–1999	0.59	M-v	1	Williams	31274	1990 SF ₃
1990 SN ₃	14.1	0.15	19990122	234.34943	281.43936	34.85639	5.19608	0.2130067	2.2001056	30	7	1951–1999	0.87	M-v	2	Williams	27325	1990 SN ₃
1990 SX ₅	15.6	0.15	19990122	112.40847	342.67694	51.09954	2.38510	0.1601532	2.3104502	31	4	1990–1999	0.58	M-v	2	Williams	31005	1990 SX ₅
1990 SB ₆	13.8	0.15	19990122	211.86842	266.01599	125.20019	3.26974	0.1075299	2.9421042	45	5	1990–1998	0.84	M-v	1	Williams	32046	1990 SB ₆
1990 SE ₆	15.4	0.15	19990122	108.83089	220.07659	161.02886	7.22585	0.1148987	2.3317020	36	3	1990–1999	0.90	M-v	4	Williams	34006	1990 SE ₆
1990 SM ₆	13.7	0.15	19990122	61.01359	72.78374	31.10776	4.39412	0.0647804	2.2772625	64	8	1983–1999	0.77	M-v	1	Williams	30895	1990 SM ₆
1990 SN ₇	14.8	0.15	19990122	228.56563	276.68055	48.84757	4.23823	0.2051042	2.1885057	23	4	1977–1999	0.62	M-v	2	Williams	27325	1990 SN ₇
1990 SZ ₇	13.8	0.15	19990122	40.62594	99.69723	40.62232	6.54473	0.1065551	2.2420795	37	4	1990–1999	0.78	M-v	2	Williams	31274	1990 SZ ₇
1990 SU ₈	14.7	0.15	19990122	239.54312	141.87634	154.23573	6.40335	0.2080542	2.2071255	25	4	1980–1999	0.66	M-v	2	Williams	31137	1990 SU ₈
1990 SU ₉	14.7	0.15	19990122	46.54090	60.63873	52.83330	4.51750	0.1074584	2.2829959	41	3	1990–1999	0.44	M-v	2	Williams	31005	1990 SU ₉
1990 SL ₁₀	14.7	0.15	19990122	142.03718	317.67760	20.42545	14.03239	0.1046947	2.3209921	34	3	1990–1999	0.84	M-v	3	Williams	33742	1990 SL ₁₀
1990 SX ₁₀	13.7	0.15	19990122	146.57780	33.71732	311.01357	5.81155	0.0796293	2.3159772	53	4	1978–1999	0.63	M-v	3	Williams	34006	1990 SX ₁₀
1990 SN ₂₈	14.8	0.15	19990122	179.54805	321.50474	0.26253	2.19428	0.1637444	2.3008904	42	5	1983–1999	0.76	M-v	3	Williams	34006	1990 SN ₂₈
1990 TD	14.6	0.15	19990122	168.19102	74.36658	254.43502	5.00613	0.1802101	2.2771726	17	3	1990–1999	0.56	M-v	3	Williams	33929	1990 TD

1990 TO	14.0	0.15	19990122	164.23057	287.59176	69.93336	5.63270	0.1900930	2.2769722	36	4	1990–1999	0.68	M-v	2	Williams	31137	1990 TO
1990 TK ₄	15.1	0.15	19990122	57.09295	237.96763	228.76464	2.95265	0.1250847	2.3235015	28	4	1990–1999	0.69	M-v	1	Williams	31005	1990 TK ₄
1990 TT ₄	13.1	0.15	19990122	167.94202	235.02440	163.46549	10.82514	0.2259585	3.1519785	38	3	1990–1999	0.82	M-v	4	Williams	32046	1990 TT ₄
1990 TG ₅	14.4	0.15	19990122	150.03758	83.90143	295.78125	3.75820	0.1850146	2.2510870	23	3	1990–1999	0.81	M-v	4	Williams	31005	1990 TG ₅
1990 TB ₆	15.3	0.15	19990122	126.91087	33.06855	332.60923	6.95383	0.1182703	2.3037205	26	2	1990–1999	0.75	M-v	5	Williams	33929	1990 TB ₆
1990 TH ₇	13.8	0.15	19990122	190.76832	314.81336	6.18872	1.00519	0.2327510	3.2850767	27	6	1954–1999	0.45	M-v	1	Williams	29134	1990 TH ₇
1990 TY ₇	14.6	0.15	19990122	342.28177	116.67097	26.62167	2.97674	0.1115391	2.4055022	36	3	1990–1999	0.52	M-v	2	Williams	34006	1990 TY ₇
1990 TE ₉	14.0	0.15	19990122	188.09832	344.44798	326.05784	4.36342	0.1476186	2.3031523	64	3	1990–1999	0.76	M-v	3	Williams	34006	1990 TE ₉
1990 TG ₁₃	14.7	0.15	19990122	18.55927	23.34581	65.09080	11.49942	0.2004642	2.4263860	55	4	1990–1999	0.76	M-v	3	Williams	34006	1990 TG ₁₃
1990 UZ	11.5	0.15	19990122	246.51531	262.71351	85.96304	11.35780	0.1144923	3.0180966	49	4	1978–1999	0.72	M-v	1	Williams	31583	1990 UZ
1990 UH ₁	13.8	0.15	19990122	98.16671	306.50259	91.27186	9.54319	0.2444725	2.3639540	26	4	1990–1999	0.62	M-v	2	Williams	27120	1990 UH ₁
1990 UK ₁	14.9	0.15	19990122	173.55918	114.22940	254.74895	4.22540	0.1709009	2.2552385	33	7	1951–1999	0.78	M-v	2	Williams	27454	1990 UK ₁
1990 UQ ₂	13.4	0.15	19990122	105.25390	325.61839	43.77933	8.47453	0.2254216	2.3911177	61	3	1990–1999	0.69	M-v	3	Williams	34006	1990 UQ ₂
1990 UB ₃	14.8	0.15	19990122	107.53608	99.68258	353.79318	2.39790	0.1654136	2.2713733	33	3	1990–1997	0.68	M-v	4	Williams	31137	1990 UB ₃
1990 UW ₃	15.1	0.15	19990122	58.83428	301.13957	131.89598	3.20257	0.1477160	2.3895727	30	4	1990–1999	0.90	M-v	2	Williams	34006	1990 UW ₃
1990 UE ₄	13.1	0.15	19990122	145.66597	303.21726	132.04187	6.18495	0.1491976	3.1510673	21	5	1979–1998	0.77	M-v	1	Williams	33225	1990 UE ₄
1990 UR ₄	15.2	0.15	19990122	7.26316	77.35024	80.76883	6.32353	0.0735331	2.3177727	20	3	1982–1999	0.81	M-v	3	Williams	22273	1990 UR ₄
1990 UK ₅	15.1	0.15	19990122	338.69614	301.41346	112.74505	6.01900	0.2293757	2.5995258	19	2	1990–1998	0.77	M-v	5	Williams	34006	1990 UK ₅
1990 VL ₁	14.0	0.15	19990122	42.36616	111.61062	239.13601	8.45021	0.2169280	2.5567679	69	4	1990–1999	0.71	M-v	2	Williams	33743	1990 VL ₁
1990 VV ₁	13.7	0.15	19990122	51.92960	174.80311	215.06363	9.67636	0.2005548	2.4833946	24	4	1982–1999	0.96	M-v	4	Williams	33743	1990 VV ₁
1990 VX ₃	13.7	0.15	19990122	29.56812	110.37205	38.72408	3.18402	0.1806826	2.3345284	30	9	1982–1999	1.07	M-v	2	Williams	31137	1990 VX ₃
1990 VX ₄	13.8	0.15	19990122	80.61837	323.88075	81.23410	12.85077	0.2295510	2.3989298	37	3	1979–1999	0.65	M-v	4	Williams	33930	1990 VX ₄
1990 VS ₅	13.0	0.15	19990122	287.67890	313.68448	97.98790	10.44467	0.1546855	2.7625431	28	4	1973–1998	0.66	M-v	1	Williams	32046	1990 VS ₅
1990 VB ₆	14.4	0.15	19990122	89.41999	298.06979	133.01809	7.54794	0.0823906	2.3488364	29	4	1990–1999	0.58	M-v	2	Williams	31274	1990 VB ₆
1990 VP ₆	12.9	0.15	19990122	77.75781	122.68835	203.19793	12.74078	0.0610405	2.5899140	97	3	1990–1999	0.58	M-v	3	Williams	33743	1990 VP ₆
1990 VW ₈	13.8	0.15	19990122	306.48110	238.51504	222.89636	12.95857	0.1637613	2.5896046	46	2	1990–1998	0.64	M-v	4	Williams	33544	1990 VW ₈
1990 WD	14.4	0.15	19990122	184.12443	227.79154	92.42718	7.18235	0.2177782	2.2789870	15	3	1990–1999	0.73	M-v	4	Williams	34006	1990 WD
1990 WV ₁	15.0	0.15	19990122	24.30820	4.10165	131.80339	5.27855	0.0439213	2.3466050	27	4	1990–1999	0.66	M-v	2	Williams	31005	1990 WV ₁
1990 WD ₂	14.4	0.15	19990122	347.11009	8.80978	103.28558	7.31971	0.0790181	2.4763571	55	5	1990–1999	0.76	M-v	3	Williams	33743	1990 WD ₂
1990 WR ₂	14.0	0.15	19990122	4.84116	335.37945	94.07367	8.99755	0.2499634	2.5417073	49	4	1979–1999	0.79	M-v	3	Williams	34006	1990 WR ₂
1990 WJ ₄	14.6	0.15	19990122	304.90657	67.71391	125.23455	6.56603	0.0581590	2.4064319	31	4	1984–1999	0.67	M-v	2	Williams	34007	1990 WJ ₄
1990 WQ ₄	14.2	0.15	19990122	245.84384	177.59938	130.83455	3.69186	0.2028496	2.2512869	32	5	1990–1999	0.74	M-v	2	Williams	32742	1990 WQ ₄
1990 XN	13.7	0.15	19990122	11.57545	17.41623	86.47607	6.33788	0.1584247	2.4656979	72	3	1990–1999	0.69	M-v	2	Williams	34007	1990 XN
1991 AL	13.8	0.15	19990122	61.89065	339.17284	106.04274	5.51908	0.1877218	2.4369856	28	5	1982–1999	0.76	M-v	1	Williams	31005	1991 AL
1991 AQ ₂	15.3	0.15	19990122	39.90905	179.54486	286.90923	0.06765	0.1749597	2.4597712	35	4	1991–1999	0.68	M-v	2	Williams	30870	1991 AQ ₂
1991 AS ₂	14.6	0.15	19990122	143.86922	85.37276	294.81221	4.82604	0.1647590	2.3991865	32	4	1989–1999	0.65	M-v	1	Williams	32743	1991 AS ₂
1991 BJ ₂	14.0	0.15	19990122	340.78603	89.47026	28.80911	3.57307	0.1681991	2.5891871	20	3	1991–1999	0.75	M-v	3	Williams	33478	1991 BJ ₂
1991 CW ₂	14.0	0.15	19990122	72.03805	79.80764	13.77780	8.04193	0.1273545	2.4850213	45	4	1981–1999	0.80	M-v	3	Williams	30448	1991 CW ₂
1991 DW	13.0	0.15	19990122	239.07501	162.00488	91.40466	16.60661	0.1027002	2.5983744	44	2	1991–1999	0.52	M-v	4	Williams	34007	1991 DW
1991 DH ₁	13.9	0.15	19990122	295.87873	39.08341	155.88548	12.83213	0.1563862	2.5874287	22	2	1991–1999	0.82	M-v	4	Williams	34007	1991 DH ₁
1991 EA	13.4	0.15	19990122	34.88671	152.33547	350.46034	6.28507	0.0766877	2.4624133	53	6	1955–1999	0.73	M-v	1	Williams	31137	1991 EA
1991 EG ₁	13.2	0.15	19990122	6.30321	313.64559	177.19599	14.89828	0.1286072	2.5800511	23	3	1991–1999	0.82	M-v	4	Williams	33930	1991 EG ₁
1991 FK	14.3	0.15	19990122	334.42262	174.70592	358.95880	19.70288	0.0538221	1.9387006	36	2	1991–1999	0.87	M-v	4	Williams	33930	1991 FK
1991 FZ	12.8	0.15	19990122	149.50218	346.36542	4.93129	13.64530	0.0510709	2.5496799	34	3	1952–1999	0.70	M-v	3	Williams	34007	1991 FZ
1991 FX ₂	13.1	0.15	19990122	126.39817	1.94016	18.28243	13.26313	0.1704118	2.5885833	35	4	1991–1999	0.73	M-v	4	Williams	31137	1991 FX ₂
1991 FY ₃	12.4	0.15	19990122	45.31347	301.99716	15.23010	17.23248	0.2310481	3.1567062	39	5	1953–1999	0.78	M-v	2	Williams	33930	1991 FY ₃
1991 GV	12.7	0.15	19990122	258.15787	232.55620	64.10290	9.18075	0.2080663	2.5331343	22	5	1979–1999	0.78	M-v	2	Williams	32923	1991 GV
1991 GC ₂	13.5	0.15	19990122	300.19602	75.91750	120.77415	12.26532	0.1995239	2.6572743	27	2	1991–1999	0.71	M-v	4	Williams	34007	1991 GC ₂
1991 GQ ₃	13.8	0.15	19990122	55.85628	236.83790	200.11482	12.07876	0.1485097	2.5996611	33	3	1991–1999	0.90	M-v	3	Williams	34007	1991 GQ ₃
1991 GF ₈	14.3	0.15	19990122	324.71200	106.63233	8.02579	9.09891	0.1173646	2.7727870	18	2	1991–1999	0.77	M-v	4	Williams	33931	1991 GF ₈
1991 LM	13.1	0.15	19990122	276.88672	191.10034	103.50785	16.54531	0.0870391	2.5692741	27	3	1991–1999	0.49	M-v	3	Williams	31583	1991 LM
1991 LY	13.2	0.15	19990122	250.59861	182.75751	117.64354	15.74696	0.1812101	2.6306061	20	5	1986–1999	0.75	M-v	2	Williams	29659	1991 LY
1991 LB ₄	13.6	0.15	19990122	258.57821	16.93272	239.32980	14.21988	0.0329828	2.6888671	25	4	1988–1999	0.93	M-v	2	Williams	31100	1991 LB ₄

1991 NA ₂	13.6	0.15	19990122	323.57993	112.75931	128.61430	8.99918	0.1584535	2.6456275	22	5	1977–1999	0.84	M-v	1	Williams	29659	1991 NA ₂
1991 NM ₆	13.2	0.15	19990122	183.15178	208.48022	148.56647	5.79289	0.0670828	2.7401373	21	3	1987–1999	0.65	M-v	4	Williams	28614	1991 NM ₆
1991 PU	13.8	0.15	19990122	198.67082	80.93874	290.00121	4.16234	0.1295921	2.7102966	35	4	1991–1999	0.79	M-v	3	Williams	31785	1991 PU
1991 PU ₂	13.3	0.15	19990122	67.62353	74.59774	322.36945	15.17322	0.2401754	3.1266399	36	2	1991–1999	0.68	M-v	4	Williams	34007	1991 PU ₂
1991 PO ₄	13.1	0.15	19990122	66.87401	228.39540	155.26847	2.07067	0.1960849	3.1754827	42	6	1969–1999	0.78	M-v	1	Williams	34007	1991 PO ₄
1991 PC ₇	13.4	0.15	19990122	186.46439	227.49687	100.39873	3.22301	0.0705179	2.8744221	34	3	1972–1999	0.67	M-v	4	Williams	33931	1991 PC ₇
1991 PQ ₈	14.2	0.15	19990122	150.37937	206.01454	118.51143	1.94331	0.1008362	3.0043274	29	4	1976–1999	0.85	M-v	3	Williams	33931	1991 PQ ₈
1991 PD ₁₁	14.7	0.15	19990122	133.38688	135.17838	141.62497	6.34494	0.1990754	2.2074451	32	2	1991–1998	0.85	M-v	5	Williams	33227	1991 PD ₁₁
1991 PF ₁₁	13.2	0.15	19990122	278.03399	346.24720	288.44512	8.39922	0.1335521	2.7530398	30	3	1991–1999	0.49	M-v	4	Williams	31230	1991 PF ₁₁
1991 PG ₁₁	14.8	0.15	19990122	59.61183	137.52236	179.36092	6.61408	0.2373753	2.3049297	90	4	1977–1998	0.71	M-v	2	Williams	33743	1991 PG ₁₁
1991 PT ₁₂	13.6	0.15	19990122	191.80115	298.13453	58.23892	0.88040	0.0828892	2.7909946	50	6	1982–1999	0.63	M-v	1	Williams	31274	1991 PT ₁₂
1991 PP ₁₃	13.0	0.15	19990122	113.69348	41.02434	328.93813	10.81927	0.1113991	3.0531483	33	2	1991–1999	0.65	M-v	4	Williams	34007	1991 PP ₁₃
1991 PT ₁₆	12.8	0.15	19990122	203.63261	165.48880	152.59733	2.39565	0.0636343	2.9116760	28	3	1991–1999	0.62	M-v	3	Williams	34007	1991 PT ₁₆
1991 PV ₁₆	13.2	0.15	19990122	141.35924	289.38559	96.62119	3.05165	0.1216805	2.9296229	43	4	1986–1999	0.64	M-v	2	Williams	31274	1991 PV ₁₆
1991 PO ₁₈	14.1	0.15	19990122	110.59057	290.76345	345.35015	5.66264	0.2133870	2.2492910	33	2	1991–1999	0.57	M-v	4	Williams	33743	1991 PO ₁₈
1991 RB ₁	13.4	0.15	19990122	205.06608	97.66982	253.40191	6.19486	0.1685130	2.8157140	29	4	1987–1999	0.64	M-v	2	Williams	31380	1991 RB ₁
1991 RL ₁	14.3	0.15	19990122	86.70799	101.66065	193.17297	11.65989	0.1697490	2.2769337	71	2	1991–1998	0.59	M-v	4	Williams	33545	1991 RL ₁
1991 RE ₂	14.7	0.15	19990122	4.33059	149.60237	265.58388	4.61943	0.1449852	2.2749062	44	3	1991–1999	0.80	M-v	2	Williams	33743	1991 RE ₂
1991 RF ₂	12.4	0.15	19990122	57.40664	102.24003	329.22342	10.03500	0.0608316	3.0973736	37	4	1986–1999	0.64	M-v	2	Williams	34007	1991 RF ₂
1991 RT ₃	14.5	0.15	19990122	17.18097	177.06115	224.28359	5.01314	0.1476038	2.2875093	108	5	1977–1999	0.73	M-v	2	Williams	33743	1991 RT ₃
1991 RH ₄	15.3	0.15	19990122	17.84679	129.02767	317.10880	4.03856	0.1500465	2.2172847	25	2	1991–1999	0.51	M-v	4	Williams	33931	1991 RH ₄
1991 RJ ₄	14.2	0.15	19990122	90.76962	72.69826	353.75887	8.68261	0.0892031	3.0323867	29	2	1991–1999	0.70	M-v	4	Williams	33931	1991 RJ ₄
1991 RX ₄	13.2	0.15	19990122	172.16234	140.62163	203.95865	8.45900	0.0734653	2.9969424	28	3	1981–1999	0.61	M-v	3	Williams	34007	1991 RX ₄
1991 RC ₅	13.1	0.15	19990122	93.68279	72.16681	0.68855	10.88019	0.0914664	3.0084095	41	3	1991–1999	0.73	M-v	2	Williams	33545	1991 RC ₅
1991 RL ₇	14.6	0.15	19990122	35.50204	117.86385	214.10548	11.52883	0.0463741	2.4056522	28	3	1983–1998	0.69	M-v	3	Williams	34007	1991 RL ₇
1991 RL ₈	15.3	0.15	19990122	44.49446	337.65550	21.64384	7.37604	0.1908588	2.2961265	55	2	1991–1998	0.66	M-v	4	Williams	33337	1991 RL ₈
1991 RZ ₈	12.6	0.15	19990122	280.80209	279.95879	350.10700	1.38856	0.0269122	2.8585304	48	5	1991–1999	0.47	M-v	1	Williams	33744	1991 RZ ₈
1991 RC ₁₀	13.3	0.15	19990122	120.05996	32.04766	350.26625	10.22445	0.0902981	3.0544797	34	3	1991–1999	0.76	M-v	4	Williams	33931	1991 RC ₁₀
1991 RD ₁₂	13.5	0.15	19990122	121.35316	284.46092	127.14810	3.34746	0.1167135	2.8353740	41	6	1953–1999	0.78	M-v	1	Williams	31274	1991 RD ₁₂
1991 RZ ₁₄	13.2	0.15	19990122	119.58190	218.03395	196.13079	1.48904	0.0623196	2.9088977	26	2	1991–1999	0.76	M-v	5	Williams	33932	1991 RZ ₁₄
1991 RY ₁₆	12.9	0.15	19990122	319.89087	161.57965	62.87242	7.25590	0.0697510	2.8496142	39	7	1955–1999	0.80	M-v	1	Williams	28886	1991 RY ₁₆
1991 RC ₂₈	13.8	0.15	19990122	281.88968	55.14461	155.58114	12.79520	0.0846687	2.9904372	45	4	1985–1999	0.54	M-v	1	Williams	33932	1991 RC ₂₈
1991 RJ ₄₁	14.9	0.15	19990122	30.18560	8.71222	12.90202	7.68079	0.1274767	2.2830503	65	2	1991–1998	0.60	M-v	3	Williams	33744	1991 RJ ₄₁
1991 SN	12.7	0.15	19990122	177.56668	198.20231	107.49301	11.00525	0.0851811	3.0219477	56	4	1990–1999	0.60	M-v	2	Williams	34007	1991 SN
1991 SA ₁	13.6	0.15	19990122	145.55892	197.86572	143.48838	15.42826	0.1602266	3.0389041	25	3	1991–1999	0.69	M-v	3	Williams	33932	1991 SA ₁
1991 SK ₂	13.8	0.15	19990122	157.69655	351.93606	328.86689	9.47172	0.1207227	3.0499661	32	4	1991–1999	0.83	M-v	2	Williams	34007	1991 SK ₂
1991 SR ₃	12.4	0.15	19990122	45.08446	62.66842	19.81549	21.76896	0.1160472	3.1494276	34	5	1983–1999	0.77	M-v	1	Williams	31006	1991 SR ₃
1991 TL ₃	14.0	0.15	19990122	101.65361	101.76026	288.16171	5.01999	0.1197354	3.1099291	41	4	1991–1999	0.64	M-v	1	Williams	34007	1991 TL ₃
1991 UO ₂	13.9	0.15	19990122	14.32560	290.00335	113.13516	4.74130	0.1971889	2.3239631	101	4	1984–1999	0.77	M-v	2	Williams	34007	1991 UO ₂
1991 VT ₁	14.1	0.15	19990122	91.70647	143.84773	262.48547	2.94794	0.1160030	2.1856483	50	3	1991–1999	0.69	M-v	3	Williams	34008	1991 VT ₁
1991 VD ₂	12.6	0.15	19990122	118.75073	301.23117	103.66710	3.01754	0.1812576	3.1092285	74	4	1985–1999	0.65	M-v	3	Williams	31786	1991 VD ₂
1991 VP ₂	15.9	0.15	19990122	92.59164	348.16585	71.17346	0.29425	0.1515592	2.1554281	42	6	1989–1999	0.56	M-v	2	Williams	30782	1991 VP ₂
1991 VX ₂	12.6	0.15	19990122	134.70421	66.24775	303.19762	4.41200	0.1504927	3.1785096	39	4	1991–1999	0.80	M-v	2	Williams	34008	1991 VX ₂
1991 VH ₄	12.8	0.15	19990122	185.09465	260.23184	100.67849	5.97744	0.1246619	2.9924190	21	4	1991–1999	0.80	M-v	2	Williams	31275	1991 VH ₄
1991 VN ₄	11.9	0.15	19990122	165.79047	279.02016	93.36419	11.64627	0.1040011	3.0084619	20	3	1991–1999	0.59	M-v	3	Williams	31786	1991 VN ₄
1991 VP ₄	13.2	0.15	19990122	110.80029	309.76186	110.98912	6.73648	0.1599595	3.1111871	45	4	1980–1999	0.59	M-v	1	Williams	32048	1991 VP ₄
1991 VD ₅	14.1	0.15	19990122	121.26709	239.66660	118.09203	3.59148	0.1833294	2.1581712	35	4	1953–1999	0.73	M-v	2	Williams	34008	1991 VD ₅
1991 VM ₅	14.0	0.15	19990122	57.16461	267.31653	70.07004	6.34612	0.2115416	2.3240232	60	3	1977–1999	0.64	M-v	3	Williams	33744	1991 VM ₅
1991 VP ₇	13.3	0.15	19990122	230.61094	109.72550	212.91719	14.19555	0.0464950	2.9347471	25	4	1989–1999	0.67	M-v	2	Williams	30470	1991 VP ₇
1991 VM ₁₂	13.0	0.15	19990122	153.17825	272.19356	66.66418	1.60884	0.1956865	3.1672072	20	2	1991–1999	0.66	M-v	4	Williams	33932	1991 VM ₁₂
1991 YX	14.4	0.15	19990122	69.43213	265.60903	134.82352	5.79032	0.1595933	2.2744694	43	4	1987–1999	0.64	M-v	2	Williams	34008	1991 YX
1992 AM	15.1	0.15	19990122	23.78434	299.87858	100.11675	23.79813	0.2813864	2.3474419	38	3	1991–1999	0.77	M-v	2	Williams	34008	1992 AM
1992 AQ	15.9	0.15	19990122	357.24273	18.80734	105.77442	25.10521	0.2195558	2.2986621	31	2	1991–1999	0.67	M-v	3	Williams	34008	1992 AQ

1992 AU ₁	13.8	0.15	19990122	6.59315	45.97924	87.74849	24.66873	0.2535641	2.2713066	34	3	1991–1999	0.73	M-v	2	Williams	34008	1992 AU ₁
1992 BJ	14.9	0.15	19990122	350.42100	333.40361	124.63677	2.91284	0.1334464	2.3644657	29	3	1992–1999	0.83	M-v	3	Williams	34008	1992 BJ
1992 BM	14.5	0.15	19990122	74.11087	77.16981	349.39783	5.66151	0.1618942	2.2494445	35	5	1982–1999	0.81	M-v	2	Williams	34008	1992 BM
1992 CF	13.4	0.15	19990122	236.95829	308.44438	284.12384	9.69716	0.0555608	2.3791581	38	4	1992–1999	0.81	M-v	2	Williams	33744	1992 CF
1992 CK	14.7	0.15	19990122	45.07728	303.10319	138.93873	6.31596	0.1514240	2.2948858	50	3	1992–1999	0.78	M-v	2	Williams	34008	1992 CK
1992 CR ₂	14.5	0.15	19990122	290.10866	54.98503	201.94281	4.07990	0.1066439	2.1912574	50	3	1992–1999	0.69	M-v	3	Williams	31275	1992 CR ₂
1992 CA ₃	14.0	0.15	19990122	332.05061	214.81583	276.37689	6.51023	0.0588059	2.3475888	27	2	1992–1999	0.75	M-v	5	Williams	34008	1992 CA ₃
1992 CG ₃	13.8	0.15	19990122	352.81273	257.11456	176.30047	6.24280	0.0984855	2.4142199	63	3	1992–1999	0.76	M-v	2	Williams	34008	1992 CG ₃
1992 CJ ₃	15.1	0.15	19990122	66.53270	261.12132	173.89550	4.15086	0.1559921	2.2417578	44	3	1992–1999	0.65	M-v	4	Williams	34008	1992 CJ ₃
1992 CN ₃	14.4	0.15	19990122	349.13828	332.20127	213.96985	3.29480	0.0855059	2.2199050	39	6	1969–1999	0.80	M-v	2	Williams	31006	1992 CN ₃
1992 DF ₁	15.1	0.15	19990122	71.28818	268.54839	149.89386	21.18830	0.3106035	2.2818789	19	4	1985–1999	0.77	M-v	2	Williams	30471	1992 DF ₁
1992 DL ₄	14.3	0.15	19990122	120.12521	6.61361	9.12532	6.65781	0.1756005	2.2689778	43	5	1980–1999	0.76	M-v	2	Williams	34008	1992 DL ₄
1992 DX ₈	14.7	0.15	19990122	355.44505	11.61703	73.43626	3.30944	0.0903754	2.4501769	37	2	1992–1999	0.61	M-v	4	Williams	34008	1992 DX ₈
1992 DF ₁₀	14.4	0.15	19990122	112.91103	178.55111	214.54846	4.96141	0.1585464	2.2730489	27	5	1980–1999	0.80	M-v	3	Williams	34008	1992 DF ₁₀
1992 DL ₁₁	14.7	0.15	19990122	124.39502	233.78645	136.21379	7.58867	0.1341169	2.3264604	21	2	1992–1999	0.71	M-v	5	Williams	33933	1992 DL ₁₁
1992 EE	14.6	0.15	19990122	301.15581	216.47021	352.48584	6.48903	0.1668339	2.3443159	56	4	1992–1999	0.71	M-v	2	Williams	34008	1992 EE
1992 EU ₆	15.0	0.15	19990122	271.67644	110.81315	126.36409	7.18739	0.0737401	2.3277395	32	3	1992–1999	0.72	M-v	4	Williams	33933	1992 EU ₆
1992 EO ₇	15.5	0.15	19990122	350.67598	88.22963	59.68677	5.95477	0.0999152	2.3262072	15	2	1992–1999	0.60	M-v	6	Williams	33933	1992 EO ₇
1992 EL ₈	13.9	0.15	19990122	150.67755	226.87778	126.06718	7.24115	0.1444556	2.3035808	32	2	1992–1999	0.64	M-v	4	Williams	34008	1992 EL ₈
1992 EC ₉	15.3	0.15	19990122	76.53208	284.65279	120.19030	7.54878	0.1110949	2.3390524	19	2	1992–1999	0.54	M-v	6	Williams	33933	1992 EC ₉
1992 EQ ₉	14.3	0.15	19990122	88.87359	243.51768	194.06993	2.57740	0.1198482	2.2361481	30	4	1977–1999	0.64	M-v	1	Williams	30896	1992 EQ ₉
1992 ET ₉	14.0	0.15	19990122	199.95783	158.74105	154.23635	6.41737	0.1436067	2.3063449	43	2	1992–1999	0.78	M-v	5	Williams	33934	1992 ET ₉
1992 EB ₁₃	14.1	0.15	19990122	169.98832	6.72736	306.81101	4.10135	0.1234793	2.3806322	32	4	1986–1999	0.71	M-v	2	Williams	34008	1992 EB ₁₃
1992 EG ₁₄	14.6	0.15	19990122	18.92556	144.31047	320.43362	3.89244	0.1024459	2.3454577	45	3	1992–1999	0.58	M-v	3	Williams	34008	1992 EG ₁₄
1992 EK ₁₄	13.7	0.15	19990122	48.58980	19.00361	336.30821	3.59955	0.2562889	2.5500020	61	4	1980–1999	0.68	M-v	2	Williams	33745	1992 EK ₁₄
1992 EC ₁₅	14.4	0.15	19990122	6.18038	296.45536	164.83355	23.30484	0.2557559	2.3524102	18	2	1992–1999	0.90	M-v	3	Williams	33681	1992 EC ₁₅
1992 EB ₁₆	12.4	0.15	19990122	353.72273	105.99916	208.01755	1.29117	0.0638856	2.9153162	18	3	1989–1998	0.69	M-v	5	Williams	33681	1992 EB ₁₆
1992 EW ₁₆	13.4	0.15	19990122	113.67890	333.29426	327.24388	4.06545	0.1218289	2.5819966	15	3	1992–1998	0.71	M-v	4	Williams	34008	1992 EW ₁₆
1992 EM ₁₇	14.2	0.15	19990122	294.63142	85.27279	128.43179	5.05777	0.1157569	2.3254367	43	2	1992–1999	0.69	M-v	4	Williams	34008	1992 EM ₁₇
1992 ER ₁₈	14.2	0.15	19990122	241.27816	201.61579	357.58637	9.46371	0.1268047	2.4750312	9	2	1992–1999	0.55	M-v	5	Williams	33934	1992 ER ₁₈
1992 ED ₂₂	14.9	0.15	19990122	276.53181	126.44993	120.93122	5.43704	0.1142787	2.3041817	15	2	1992–1999	0.86	M-v	6	Williams	33934	1992 ED ₂₂
1992 EB ₂₆	15.2	0.15	19990122	318.02763	120.59841	348.76038	9.05815	0.1825144	2.4667960	21	3	1992–1998	0.73	M-v	2	Williams	33338	1992 EB ₂₆
1992 FT ₁	14.1	0.15	19990122	308.76874	194.21374	353.42004	4.94648	0.1687242	2.3794120	52	3	1987–1999	0.76	M-v	3	Williams	34008	1992 FT ₁
1992 GN ₃	15.3	0.15	19990122	254.36259	288.07414	6.69331	2.23125	0.2359694	2.3628372	18	3	1992–1999	0.64	M-v	5	Williams	27913	1992 GN ₃
1992 GV ₃	14.0	0.15	19990122	263.89404	146.33866	33.40060	9.98124	0.0350100	2.5623254	39	3	1992–1999	0.66	M-v	3	Williams	34008	1992 GV ₃
1992 GM ₄	14.0	0.15	19990122	186.96108	127.27585	213.02979	5.70684	0.1352044	2.3876528	39	4	1992–1999	0.73	M-v	2	Williams	31584	1992 GM ₄
1992 GW ₄	15.0	0.15	19990122	332.21938	171.13494	38.89976	7.23520	0.1030901	2.3187617	29	3	1992–1999	0.76	M-v	3	Williams	33745	1992 GW ₄
1992 JF	14.0	0.15	19990122	290.95327	235.21559	56.35552	4.69011	0.2157286	2.2946457	43	8	1957–1999	0.85	M-v	1	Williams	31275	1992 JF
1992 JQ	13.4	0.15	19990122	203.27040	54.17895	184.69568	12.34658	0.1831023	2.6169944	41	4	1992–1998	0.73	M-v	2	Williams	33547	1992 JQ
1992 JL ₁	13.9	0.15	19990122	116.42608	269.64558	26.67638	2.82092	0.1601392	2.7593341	25	4	1992–1998	0.67	M-v	1	Williams	34008	1992 JL ₁
1992 JF ₃	12.9	0.15	19990122	290.28803	265.56217	352.08543	2.09346	0.1962841	2.3542515	27	3	1992–1999	0.57	M-v	4	Williams	31231	1992 JF ₃
1992 MD	13.9	0.15	19990122	238.08998	146.53345	131.61756	17.29081	0.2274843	2.5414936	29	2	1992–1999	0.63	M-v	4	Williams	33934	1992 MD
1992 PN ₁	13.7	0.15	19990122	128.58565	69.36305	312.73787	11.45403	0.1834782	2.6680481	35	4	1992–1999	0.69	M-v	1	Williams	34009	1992 PN ₁
1992 PJ ₂	14.6	0.15	19990122	271.84600	82.86349	212.02160	5.60877	0.3175517	2.4151491	39	5	1988–1999	0.58	M-v	1	Williams	31275	1992 PJ ₂
1992 QR	14.6	0.15	19990122	109.62038	239.80283	150.49974	22.99571	0.1044668	1.9236229	25	4	1991–1999	0.75	M-v	2	Williams	34009	1992 QR
1992 RM ₂	14.1	0.15	19990122	210.75677	347.63547	340.75462	13.66774	0.1683001	2.5606905	21	4	1988–1999	0.81	M-v	2	Williams	31275	1992 RM ₂
1992 RC ₄	14.0	0.15	19990122	142.85437	136.57619	231.08043	1.64319	0.0844312	2.6836717	24	4	1988–1999	0.93	M-v	2	Williams	31103	1992 RC ₄
1992 RK ₇	14.2	0.15	19990122	304.18064	110.27841	112.33573	4.62874	0.0342060	2.6291273	37	5	1989–1999	0.81	M-v	1	Williams	31139	1992 RK ₇
1992 SH	13.2	0.15	19990122	207.47080	106.79986	188.72896	12.29943	0.1745583	2.6938674	24	3	1987–1999	0.82	M-v	3	Williams	34009	1992 SH
1992 SJ	13.3	0.15	19990122	170.13721	317.82815	3.00696	8.81717	0.2823531	2.7302797	29	4	1992–1999	0.74	M-v	3	Williams	34009	1992 SJ
1992 SC ₂	14.4	0.15	19990122	84.85717	258.22296	134.64059	2.71624	0.0970492	2.8649178	19	2	1992–1999	0.53	M-v	5	Williams	33935	1992 SC ₂
1992 SB ₁₀	15.7	0.15	19990122	99.63372	232.28756	180.39799	5.59976	0.0546176	2.7352246	23	4	1981–1999	0.36	M-v	1	Williams	33232	1992 SB ₁₀
1992 SW ₁₆	14.9	0.15	19990122	246.42624	51.94547	225.55260	1.14991	0.1713729	2.6062504	23	4	1991–1999	0.60	M-v	1	Williams	34009	1992 SW ₁₆

1992 SA ₂₂	13.9	0.15	19990122	221.94380	240.59678	29.67303	4.41003	0.0484401	2.7357548	34	4	1978–1999	0.77	M-v	1	Williams	34009	1992 SA ₂₂
1992 TV	13.3	0.15	19990122	106.95382	170.52236	197.83672	1.78590	0.0762288	2.8753759	59	4	1982–1999	0.67	M-v	3	Williams	34009	1992 TV
1992 UH ₄	12.6	0.15	19990122	190.21303	269.90565	73.90705	13.68590	0.1904696	2.6743654	20	4	1991–1999	0.72	M-v	2	Williams	31275	1992 UH ₄
1992 UX ₄	12.9	0.15	19990122	99.28185	173.22123	239.62360	16.13709	0.3284627	2.8691331	31	4	1929–1999	0.97	M-v	2	Williams	31418	1992 UX ₄
1992 UP ₆	12.5	0.15	19990122	100.52013	154.32737	218.65892	12.80646	0.1608832	2.9734415	43	3	1992–1999	0.81	M-v	3	Williams	34009	1992 UP ₆
1992 VL	13.3	0.15	19990122	84.59860	261.90884	111.05878	9.15895	0.3031592	3.0132574	20	3	1992–1999	0.75	M-v	3	Williams	33935	1992 VL
1992 VQ	13.1	0.15	19990122	47.64283	285.71203	123.87016	1.65284	0.1794857	3.0994316	51	3	1981–1999	0.73	M-v	3	Williams	34009	1992 VQ
1992 WF ₁	12.2	0.15	19990122	101.72924	262.49073	101.77753	11.06706	0.1010771	3.0287184	52	3	1992–1999	0.58	M-v	3	Williams	34009	1992 WF ₁
1992 WN ₁	14.1	0.15	19990122	73.14324	306.84819	132.09791	5.52304	0.1646099	2.9142884	25	5	1991–1999	0.83	M-v	1	Williams	31275	1992 WN ₁
1992 WT ₁	12.9	0.15	19990122	152.14740	291.48470	84.18640	7.52850	0.2591564	2.7621686	37	3	1992–1999	0.77	M-v	3	Williams	31103	1992 WT ₁
1992 WZ ₁	13.1	0.15	19990122	95.60259	335.40785	36.77189	10.60963	0.1009945	3.0355246	31	3	1992–1999	0.79	M-v	3	Williams	33935	1992 WZ ₁
1992 WN ₃	13.5	0.15	19990122	136.79645	339.62075	71.46823	9.61043	0.2196086	2.7635226	34	3	1992–1999	0.58	M-v	3	Williams	31418	1992 WN ₃
1992 WR ₅	12.8	0.15	19990122	96.72534	107.51875	262.11075	9.52451	0.1413946	3.0587122	26	4	1976–1999	0.49	M-v	2	Williams	33935	1992 WR ₅
1992 YL ₂	12.8	0.15	19990122	52.17560	13.65459	93.29128	11.38421	0.0602464	2.9943908	21	5	1931–1999	0.67	M-v	2	Williams	31275	1992 YL ₂
1993 BE ₂	12.2	0.15	19990122	155.00545	270.31940	97.67733	11.99875	0.1140887	3.0119762	30	6	1965–1999	0.61	M-v	2	Williams	31275	1993 BE ₂
1993 BD ₁₃	12.4	0.15	19990122	156.40485	54.14425	299.20762	5.14566	0.0476801	3.1637853	23	4	1982–1999	0.64	M-v	2	Williams	34009	1993 BD ₁₃
1993 BH ₁₃	13.9	0.15	19990122	38.30222	352.16050	125.29833	2.24215	0.1981954	3.1245260	32	4	1993–1999	0.72	M-v	1	Williams	32745	1993 BH ₁₃
1993 DQ ₁	16.5	0.15	19990122	258.92501	344.63556	313.78899	10.01249	0.4914758	2.0377002	73	4	1993–1999	0.61	M-v	3	Williams	33746	1993 DQ ₁
1993 DR ₂	13.2	0.15	19990122	174.89536	34.12941	326.95699	8.90670	0.0964412	3.0226566	19	3	1993–1999	0.55	M-v	4	Williams	31103	1993 DR ₂
1993 FZ ₄	14.0	0.15	19990122	242.19234	195.29381	122.78661	2.59079	0.1401896	3.2171482	40	4	1993–1999	0.65	M-v	1	Williams	31418	1993 FZ ₄
1993 FS ₆	14.2	0.15	19990122	55.10268	301.38736	61.52704	3.36691	0.0859840	2.3145024	57	3	1993–1999	0.65	M-v	3	Williams	34009	1993 FS ₆
1993 FL ₈	14.0	0.15	19990122	143.21107	229.64243	36.32288	7.33560	0.1007487	2.3711022	42	3	1976–1998	0.60	M-v	3	Williams	33338	1993 FL ₈
1993 FW ₉	14.3	0.15	19990122	99.66016	222.39227	67.95417	3.08256	0.1646190	2.4525464	45	2	1993–1998	0.75	M-v	5	Williams	33339	1993 FW ₉
1993 FG ₁₂	13.3	0.15	19990122	77.93474	296.01455	174.46064	14.53267	0.1493035	3.1466131	16	4	1993–1999	0.31	M-v	1	Williams	30291	1993 FG ₁₂
1993 FR ₂₃	14.1	0.15	19990122	50.49315	23.27484	359.87095	6.37745	0.2056768	2.2928006	58	5	1984–1999	0.83	M-v	2	Williams	33746	1993 FR ₂₃
1993 FD ₂₈	13.7	0.15	19990122	89.48690	144.41607	346.45722	7.63764	0.0230349	3.0461094	25	3	1993–1998	0.69	M-v	4	Williams	33684	1993 FD ₂₈
1993 FJ ₂₉	14.6	0.15	19990122	120.86911	50.18566	308.58387	4.54867	0.1678371	2.1820848	24	3	1981–1999	0.85	M-v	5	Williams	34009	1993 FJ ₂₉
1993 FE ₃₁	11.9	0.15	19990122	288.07299	93.00051	181.65737	21.63780	0.0557505	3.2112713	20	4	1993–1999	0.58	M-v	1	Williams	32050	1993 FE ₃₁
1993 FL ₃₄	12.4	0.15	19990122	273.10872	197.81600	44.31592	6.80388	0.0331493	3.4584475	35	3	1989–1999	0.57	M-v	3	Williams	33935	1993 FL ₃₄
1993 FO ₃₄	13.4	0.15	19990122	309.20521	93.88502	173.52003	7.36838	0.1655306	3.1922866	21	4	1993–1999	0.54	M-v	1	Williams	31275	1993 FO ₃₄
1993 FA ₄₀	13.2	0.15	19990122	313.05398	29.49932	19.47105	4.69419	0.1044217	2.4630708	20	4	1987–1998	0.66	M-v	3	Williams	34009	1993 FA ₄₀
1993 FE ₇₆	14.9	0.15	19990122	60.16279	114.56697	206.54358	3.73481	0.3145192	2.5462654	60	2	1993–1998	0.58	M-v	4	Williams	33746	1993 FE ₇₆
1993 HH	12.2	0.15	19990122	14.10661	150.05918	37.79176	16.79430	0.0737970	3.2071617	24	4	1990–1999	0.71	M-v	1	Williams	31788	1993 HH
1993 HG ₁	14.5	0.15	19990122	274.30518	73.68101	164.45098	3.13471	0.0840399	2.1487864	40	3	1993–1999	0.64	M-v	4	Williams	34009	1993 HG ₁
1993 JK	14.3	0.15	19990122	245.37366	49.15440	201.04276	4.49028	0.1396490	2.2199632	31	4	1964–1999	0.50	M-v	1	Williams	33935	1993 JK
1993 NB	12.9	0.15	19990122	134.93822	204.79771	130.17488	14.19313	0.2261595	2.4409224	39	4	1955–1999	0.73	M-v	3	Williams	34009	1993 NB
1993 NU ₁	14.6	0.15	19990122	118.13343	225.89770	152.02118	2.87641	0.2107684	2.3874622	26	4	1993–1999	0.78	M-v	2	Williams	34009	1993 NU ₁
1993 OB	13.5	0.15	19990122	130.21767	84.12874	281.26756	21.43204	0.2972304	2.4112467	35	3	1993–1999	0.72	M-v	2	Williams	34009	1993 OB
1993 OL ₅	16.5	0.15	19990122	268.80542	154.51664	92.73639	0.48711	0.1452689	2.2441940	30	4	1993–1999	0.74	M-v	3	Williams	34009	1993 OL ₅
1993 OQ ₅	14.5	0.15	19990122	11.20839	77.98094	294.54126	5.81681	0.2337664	2.8117826	53	4	1981–1998	0.67	M-v	1	Williams	32746	1993 OQ ₅
1993 OV ₅	15.4	0.15	19990122	294.16249	96.54410	123.19800	3.73089	0.0863704	2.2569682	30	3	1993–1999	0.74	M-v	5	Williams	34009	1993 OV ₅
1993 OY ₆	14.2	0.15	19990122	228.03864	148.57112	121.42960	6.15728	0.2206897	2.2966995	38	4	1937–1999	0.71	M-v	3	Williams	34009	1993 OY ₆
1993 OA ₇	14.5	0.15	19990122	33.29843	332.42331	111.88032	3.39318	0.1289261	2.4137066	39	5	1979–1999	0.74	M-v	2	Williams	34009	1993 OA ₇
1993 OJ ₇	14.4	0.15	19990122	101.69888	117.76487	297.84024	5.85128	0.0952505	2.3029707	22	5	1979–1999	0.65	M-v	1	Williams	31276	1993 OJ ₇
1993 PC ₇	13.4	0.15	19990122	332.96247	240.92159	157.68501	6.97337	0.1138248	2.9632842	47	3	1993–1998	0.67	M-v	3	Williams	34010	1993 PC ₇
1993 QS	13.9	0.15	19990122	143.60808	176.16817	164.10585	13.26994	0.2529994	2.4477144	27	4	1993–1999	0.69	M-v	2	Williams	34010	1993 QS
1993 QY	13.7	0.15	19990122	77.59531	235.74570	156.32065	28.35423	0.3242719	2.5979394	45	2	1993–1999	0.72	M-v	4	Williams	33936	1993 QY
1993 QZ	14.1	0.15	19990122	163.40813	182.78298	164.11471	21.84805	0.1579022	2.3696374	31	3	1993–1999	0.62	M-v	3	Williams	34010	1993 QZ
1993 QP ₂	14.5	0.15	19990122	247.39924	94.45936	171.22455	4.49285	0.1139695	2.3376997	20	3	1992–1999	0.97	M-v	3	Williams	34010	1993 QP ₂
1993 QN ₃	13.9	0.15	19990122	123.07255	134.11578	159.88721	4.82740	0.0573983	2.6993042	30	2	1993–1998	0.87	M-v	5	Williams	33549	1993 QN ₃
1993 QS ₄	14.7	0.15	19990122	88.00650	27.90900	347.11339	13.15531	0.1969105	2.5819766	29	3	1993–1999	0.85	M-v	3	Williams	33937	1993 QS ₄
1993 QX ₄	13.2	0.15	19990122	334.34385	322.87497	160.37899	15.33122	0.0501789	2.5618641	43	5	1975–1999	0.79	M-v	2	Williams	34010	1993 QX ₄
1993 QU ₉	16.1	0.15	19990122	214.23435	151.84327	147.17014	7.27494	0.1485176	2.3485938	23	3	1993–1999	0.73	M-v	4	Williams	33746	1993 QU ₉

1993 RC ₂	14.6	0.15	19990122	89.17829	37.41696	4.02108	13.31064	0.2830462	2.5505466	26	4	1989–1999	0.78	M-v	3	Williams	31007	1993 RC ₂
1993 RF ₂	14.3	0.15	19990122	235.40675	325.77121	353.88814	4.80829	0.1827075	2.2590092	34	3	1976–1999	0.77	M-v	4	Williams	30897	1993 RF ₂
1993 RZ ₃	14.9	0.15	19990122	295.26191	258.85648	343.58508	3.70708	0.1432017	2.3002381	27	3	1992–1999	0.70	M-v	4	Williams	33236	1993 RZ ₃
1993 RK ₄	15.0	0.15	19990122	326.64156	235.40613	306.41618	1.79748	0.1202929	2.4357437	49	4	1993–1999	0.71	M-v	2	Williams	34010	1993 RK ₄
1993 RL ₅	14.4	0.15	19990122	161.37796	70.91732	307.53319	2.59150	0.0609720	2.3462811	36	5	1984–1999	0.75	M-v	1	Williams	31419	1993 RL ₅
1993 RB ₇	14.4	0.15	19990122	213.90443	123.82251	190.69560	5.64057	0.1289019	2.3446009	44	5	1992–1999	0.71	M-v	1	Williams	34010	1993 RB ₇
1993 RM ₁₄	13.4	0.15	19990122	5.20398	192.71862	192.56249	1.59932	0.1054120	2.9362375	64	4	1991–1998	0.78	M-v	3	Williams	34010	1993 RM ₁₄
1993 SO	14.7	0.15	19990122	164.12942	176.05356	168.19186	8.27495	0.0947329	2.3729241	28	3	1993–1999	0.66	M-v	4	Williams	34010	1993 SO
1993 SH ₁	13.9	0.15	19990122	208.89662	163.19747	174.93869	6.74465	0.1477408	2.3053396	40	3	1993–1999	0.67	M-v	2	Williams	31234	1993 SH ₁
1993 SJ ₁	14.5	0.15	19990122	241.01985	141.31540	172.07022	5.64896	0.2069304	2.2595457	35	5	1986–1999	0.79	M-v	2	Williams	27567	1993 SJ ₁
1993 SA ₂	14.4	0.15	19990122	152.47181	14.03155	333.04160	9.60924	0.2160857	2.4372280	30	2	1993–1999	0.76	M-v	4	Williams	34010	1993 SA ₂
1993 SF ₄	14.5	0.15	19990122	199.02547	256.11243	105.77483	6.76539	0.1320346	2.2724795	33	3	1993–1999	0.53	M-v	3	Williams	31235	1993 SF ₄
1993 SS ₄	15.9	0.15	19990122	80.56503	42.49651	357.44692	1.75856	0.2246414	2.5506572	36	4	1989–1999	0.71	M-v	3	Williams	34010	1993 SS ₄
1993 SK ₁₆	12.6	0.15	19990122	258.64046	32.41714	260.80763	7.65198	0.1484020	2.2749980	19	5	1981–1999	0.84	M-v	2	Williams	33486	1993 SK ₁₆
1993 TC	13.5	0.15	19990122	200.05208	293.31669	23.81970	22.87380	0.3157744	2.3609631	31	2	1993–1999	0.64	M-v	4	Williams	33686	1993 TC
1993 TD	14.8	0.15	19990122	113.44206	32.59494	4.45854	10.95575	0.1839447	2.4824378	46	5	1989–1999	0.80	M-v	3	Williams	31139	1993 TD
1993 TM	14.7	0.15	19990122	163.43782	354.60581	26.05997	7.14700	0.1208668	2.3562292	25	2	1993–1999	0.71	M-v	4	Williams	33937	1993 TM
1993 TN	13.5	0.15	19990122	194.89106	253.23535	88.74897	3.58602	0.1268496	2.3541506	44	7	1975–1999	0.77	M-v	1	Williams	31139	1993 TN
1993 TW ₁	13.3	0.15	19990122	73.51740	12.59469	47.90995	10.97371	0.0723904	2.5740722	40	3	1993–1999	0.69	M-v	2	Williams	33937	1993 TW ₁
1993 TN ₂	13.4	0.15	19990122	201.74729	229.67058	38.70248	14.11303	0.1412532	2.5880049	35	5	1979–1999	0.67	M-v	1	Williams	33938	1993 TN ₂
1993 TT ₁₂	14.6	0.15	19990122	222.94677	239.79509	67.87544	4.20062	0.1755335	2.3462924	28	4	1986–1999	0.85	M-v	2	Williams	32231	1993 TT ₁₂
1993 TJ ₁₅	15.6	0.15	19990122	280.54703	256.02954	22.43349	6.64244	0.1916448	2.2507472	17	3	1992–1999	0.89	M-v	3	Williams	25642	1993 TJ ₁₅
1993 TL ₁₇	14.4	0.15	19990122	269.21279	357.65930	183.70728	9.66906	0.1698281	2.7096984	21	4	1991–1998	0.71	M-v	2	Williams	33339	1993 TL ₁₇
1993 TG ₁₉	14.8	0.15	19990122	236.59758	219.65731	49.72017	4.26695	0.1885859	2.4097991	27	5	1981–1999	0.83	M-v	1	Williams	34010	1993 TG ₁₉
1993 TM ₂₅	15.0	0.15	19990122	22.69005	309.57509	143.28002	3.86458	0.2698971	2.7031064	39	3	1993–1999	0.45	M-v	3	Williams	33938	1993 TM ₂₅
1993 TQ ₃₆	13.9	0.15	19990122	27.87811	328.20032	66.33466	10.50623	0.1378485	2.7979993	39	3	1993–1999	0.69	M-v	3	Williams	34010	1993 TQ ₃₆
1993 TS ₃₆	13.4	0.15	19990122	62.65812	357.80033	65.56510	14.21349	0.2296924	2.5878141	40	3	1989–1999	0.68	M-v	2	Williams	34010	1993 TS ₃₆
1993 TZ ₃₈	14.3	0.15	19990122	218.40792	149.28570	144.95235	6.85994	0.1258498	2.4371990	37	3	1993–1999	0.63	M-v	3	Williams	34010	1993 TZ ₃₈
1993 TT ₄₁	15.1	0.15	19990122	341.49756	306.66247	174.84938	6.81005	0.2515758	2.7681020	26	3	1993–1999	0.70	M-v	3	Williams	33938	1993 TT ₄₁
1993 UD ₁	15.1	0.15	19990122	231.97716	238.42224	70.47868	6.10286	0.1720826	2.3349840	24	3	1993–1999	0.72	M-v	3	Williams	31419	1993 UD ₁
1993 UH ₁	14.5	0.15	19990122	233.39513	105.12525	195.39763	22.91238	0.2341623	2.3267230	37	4	1993–1999	0.79	M-v	2	Williams	31007	1993 UH ₁
1993 UC ₃	14.2	0.15	19990122	70.21854	90.97395	318.40938	1.20830	0.2154480	2.6644619	57	3	1980–1999	0.69	M-v	4	Williams	34010	1993 UC ₃
1993 UD ₃	13.2	0.15	19990122	183.86623	98.77071	256.34032	5.32268	0.1500683	2.4001168	34	3	1993–1999	0.61	M-v	3	Williams	31419	1993 UD ₃
1993 UT ₆	13.8	0.15	19990122	2.56149	307.18782	178.91296	11.13226	0.1772213	2.6602397	40	4	1982–1999	0.79	M-v	2	Williams	34010	1993 UT ₆
1993 UC ₈	16.0	0.15	19990122	122.42244	220.69319	143.41561	4.49968	0.2217516	2.5517500	26	3	1993–1999	0.68	M-v	5	Williams	30759	1993 UC ₈
1993 UM ₈	14.2	0.15	19990122	50.74423	259.36418	185.55161	14.80181	0.1033951	2.5925113	40	5	1972–1999	0.69	M-v	1	Williams	34010	1993 UM ₈
1993 VS	15.0	0.15	19990122	115.49334	271.56110	126.08334	1.51828	0.1740623	2.5367888	47	3	1993–1999	0.59	M-v	2	Williams	31419	1993 VS
1993 VU ₁	13.2	0.15	19990122	45.95764	113.93183	243.33526	10.28303	0.1626646	2.9609916	21	3	1976–1999	0.49	M-v	3	Williams	33747	1993 VU ₁
1993 VA ₃	12.1	0.15	19990122	57.78554	283.46305	54.11740	10.39257	0.1261241	3.0182401	53	3	1993–1999	0.68	M-v	3	Williams	34010	1993 VA ₃
1993 VS ₄	13.3	0.15	19990122	163.03181	294.08097	74.56280	11.03599	0.1476680	2.4666189	24	4	1989–1999	0.87	M-v	3	Williams	31236	1993 VS ₄
1993 VZ ₄	14.4	0.15	19990122	164.69795	347.59600	29.77039	1.74733	0.1978233	2.4238792	23	3	1989–1999	0.40	M-v	4	Williams	22962	1993 VZ ₄
1993 VA ₅	14.6	0.15	19990122	63.40059	20.37302	58.53827	7.03039	0.2474878	2.6281233	24	3	1993–1999	0.54	M-v	3	Williams	30873	1993 VA ₅
1993 VV ₇	13.7	0.15	19990122	49.60213	301.06591	110.48975	33.51903	0.3340078	2.7381704	56	3	1993–1999	0.61	M-v	2	Williams	34010	1993 VV ₇
1993 WQ	13.6	0.15	19990122	108.59126	359.70699	47.57816	5.06073	0.2323935	2.5541419	62	5	1985–1999	0.71	M-v	2	Williams	31140	1993 WQ
1993 XG	12.7	0.15	19990122	49.26043	295.04986	98.38089	13.82474	0.1235896	2.8675471	42	3	1993–1999	0.58	M-v	3	Williams	34010	1993 XG
1993 XN	12.7	0.15	19990122	347.94056	280.43689	268.49976	12.16501	0.1251018	2.6480441	41	3	1993–1999	0.56	M-v	2	Williams	33550	1993 XN
1993 XN ₁	12.5	0.15	19990122	267.20397	181.79882	95.03022	16.46312	0.1500967	2.5859006	55	5	1991–1999	0.70	M-v	2	Williams	34011	1993 XN ₁
1993 XQ ₂	12.9	0.15	19990122	74.89893	314.28900	128.38564	13.6513	0.1455686	2.6579800	29	4	1993–1999	0.58	M-v	1	Williams	33939	1993 XQ ₂
1993 XW ₂	12.8	0.15	19990122	139.45429	225.63577	129.38419	13.69633	0.1886584	2.6894732	37	4	1982–1999	0.63	M-v	2	Williams	33939	1993 XW ₂
1993 YR	15.0	0.15	19990122	89.62835	196.30111	216.03860	11.66920	0.3175421	2.6207363	41	3	1993–1999	0.62	M-v	2	Williams	31140	1993 YR
1994 AW	14.2	0.15	19990122	116.12820	244.56448	170.26397	1.25090	0.1372968	2.6091716	43	3	1994–1999	0.75	M-v	5	Williams	31140	1994 AW
1994 AT ₁	12.3	0.15	19990122	135.33377	328.70213	55.84045	13.72942	0.2243084	2.6540438	38	4	1991–1999	0.61	M-v	2	Williams	34011	1994 AT ₁
1994 AT ₂	13.8	0.15	19990122	155.01129	107.01960	253.28412	4.76431	0.0733663	2.7349585	35	4	1990–1999	0.80	M-v	2	Williams	34011	1994 AT ₂

1994 AY ₂	13.4	0.15	19990122	47.96931	180.10898	293.94771	6.10228	0.1150119	2.7091495	28	4	1988–1999	0.65	M-v	1	Williams	31140	1994 AY ₂
1994 AZ ₂	13.1	0.15	19990122	37.88309	211.21865	290.26077	11.04260	0.2078066	2.6905831	41	4	1991–1999	0.74	M-v	1	Williams	31276	1994 AZ ₂
1994 AF ₃	13.0	0.15	19990122	9.55145	155.72837	284.77075	11.48273	0.1846831	3.0520114	32	3	1989–1999	0.71	M-v	3	Williams	34011	1994 AF ₃
1994 AD ₁₁	12.8	0.15	19990122	99.37110	57.40828	324.62229	12.39732	0.2062968	2.8415384	45	3	1987–1999	0.69	M-v	3	Williams	33939	1994 AD ₁₁
1994 BM ₄	13.6	0.15	19990122	35.83453	212.64786	257.01834	6.86815	0.1855760	2.8024220	26	5	1975–1999	0.84	M-v	3	Williams	34011	1994 BM ₄
1994 BP ₄	12.9	0.15	19990122	302.26925	63.40020	139.21217	10.21323	0.1654707	2.9919088	38	3	1994–1999	0.57	M-v	3	Williams	33939	1994 BP ₄
1994 CV	14.6	0.15	19990122	98.65913	224.51797	183.84777	3.75182	0.1894170	2.5909184	37	4	1976–1999	0.66	M-v	2	Williams	31140	1994 CV
1994 CW	13.5	0.15	19990122	152.85933	218.50697	158.64837	14.39661	0.1844455	2.5903514	19	3	1992–1999	0.53	M-v	4	Williams	33239	1994 CW
1994 CF ₁	13.1	0.15	19990122	104.85674	116.90224	298.81354	11.57855	0.1815229	2.6935228	25	4	1992–1999	0.73	M-v	1	Williams	31789	1994 CF ₁
1994 CM ₁	15.2	0.15	19990122	336.83737	329.03752	190.44981	3.10526	0.1558082	2.9614230	25	2	1994–1999	0.63	M-v	5	Williams	34011	1994 CM ₁
1994 CV ₁₆	13.4	0.15	19990122	303.75490	106.05106	107.86412	3.11376	0.0158301	2.9160407	44	7	1989–1999	0.69	M-v	1	Williams	34011	1994 CV ₁₆
1994 EJ ₁	12.4	0.15	19990122	135.68361	263.42963	179.82568	21.82322	0.0692268	2.6636166	40	5	1990–1999	0.77	M-v	1	Williams	31586	1994 EJ ₁
1994 ET ₃	15.0	0.15	19990122	91.34673	213.12661	161.86439	23.92424	0.1004679	1.9423617	18	2	1994–1999	0.84	M-v	5	Williams	33688	1994 ET ₃
1994 GQ	12.7	0.15	19990122	27.20796	111.29802	41.20019	13.54762	0.0972696	2.9121731	28	6	1951–1999	0.63	M-v	1	Williams	31586	1994 GQ
1994 GT	13.0	0.15	19990122	342.19979	111.01798	71.56161	3.42438	0.1771829	3.0333737	39	4	1983–1999	0.74	M-v	1	Williams	34011	1994 GT
1994 GD ₁	13.1	0.15	19990122	343.95538	139.54352	68.07782	10.86865	0.2308055	2.9313531	14	3	1979–1999	0.85	M-v	4	Williams	23791	1994 GD ₁
1994 JM	15.5	0.15	19940508	5.39085	64.55483	155.59467	3.53574	0.2348294	2.2841881	7	1	7 days	0.72			Williams		1994 JM
1994 LA ₁	14.1	0.15	19990122	299.65743	109.02018	141.07951	26.00305	0.2563678	3.1521950	29	5	1988–1999	0.83	M-v	1	Williams	30900	1994 LA ₁
1994 NS ₁	14.6	0.15	19990122	41.64454	115.59341	240.24727	1.64588	0.0989106	2.3553093	77	4	1987–1998	0.84	M-v	1	Williams	33550	1994 NS ₁
1994 PU	14.9	0.15	19990122	81.91754	66.59312	330.97995	3.56661	0.1328382	2.2024061	52	4	1955–1999	0.68	M-v	2	Williams	34011	1994 PU
1994 PB ₁	15.1	0.15	19990122	63.46211	238.18809	155.85582	3.71769	0.1339793	2.2442289	37	2	1994–1999	0.74	M-v	5	Williams	34011	1994 PB ₁
1994 PF ₁	15.6	0.15	19990122	225.61228	146.88087	119.72282	24.70966	0.0686836	1.9639290	21	2	1994–1999	0.59	M-v	3	Williams	33940	1994 PF ₁
1994 PM ₁	15.2	0.15	19990122	282.14904	83.10315	124.05663	24.75799	0.0607450	1.9461436	49	3	1994–1999	0.59	M-v	2	Williams	34011	1994 PM ₁
1994 PU ₁	13.8	0.15	19990122	71.91898	204.66004	159.69098	6.43376	0.2178023	2.2932958	24	3	1993–1999	0.78	M-v	5	Williams	33940	1994 PU ₁
1994 PF ₂	15.4	0.15	19990122	66.35241	171.29025	155.77651	1.53210	0.2462613	2.4192982	30	2	1994–1998	0.81	M-v	4	Williams	33241	1994 PF ₂
1994 PM ₁₄	15.6	0.15	19990122	65.62751	165.13275	164.69391	1.95895	0.2250734	2.4193743	31	2	1994–1998	0.69	M-v	4	Williams	33242	1994 PM ₁₄
1994 PQ ₁₅	15.0	0.15	19990122	79.00633	5.87279	312.21573	3.03040	0.2273893	2.3975034	32	3	1992–1998	0.63	M-v	4	Williams	33242	1994 PQ ₁₅
1994 PX ₁₅	15.5	0.15	19990122	11.73293	302.61190	159.53015	2.21170	0.1287619	2.2076495	39	3	1994–1999	0.56	M-v	3	Williams	34011	1994 PX ₁₅
1994 PD ₁₈	14.3	0.15	19990122	118.80736	120.73965	158.89052	6.68858	0.1176961	2.3829331	74	3	1971–1998	0.77	M-v	4	Williams	33340	1994 PD ₁₈
1994 PL ₂₆	14.8	0.15	19990122	149.70829	162.29957	107.11957	1.91153	0.0513469	2.3103859	40	2	1994–1998	0.75	M-v	5	Williams	33243	1994 PL ₂₆
1994 PE ₃₅	15.4	0.15	19990122	14.61093	234.74476	172.93907	3.12159	0.1600274	2.3708889	33	2	1994–1998	0.68	M-v	4	Williams	33340	1994 PE ₃₅
1994 PR ₃₉	15.9	0.15	19990122	111.37123	202.31175	155.38788	3.49706	0.2082485	2.1955643	24	3	1994–1999	0.45	M-v	3	Williams	27107	1994 PR ₃₉
1994 QA	13.4	0.15	19990122	256.93689	121.66306	69.42782	25.12460	0.2242885	2.3309328	40	4	1950–1999	0.74	M-v	3	Williams	34011	1994 QA
1994 RL ₁	14.4	0.15	19990122	39.67035	153.83937	188.39351	12.94279	0.2088727	2.5447165	75	4	1986–1998	0.71	M-v	3	Williams	33551	1994 RL ₁
1994 SV ₉	14.6	0.15	19990122	333.28052	118.23062	17.68163	5.07598	0.1154990	2.2855678	27	3	1994–1999	0.57	M-v	4	Williams	34011	1994 SV ₉
1994 TG ₁	14.1	0.15	19990122	56.24086	11.67777	47.67268	5.52369	0.1263284	2.2863060	27	3	1993–1999	0.80	M-v	4	Williams	33941	1994 TG ₁
1994 TJ ₁	14.7	0.15	19990122	18.83210	194.23894	182.12991	6.34424	0.2463896	2.5642005	57	4	1986–1998	0.65	M-v	2	Williams	33551	1994 TJ ₁
1994 TM ₂	14.3	0.15	19990122	79.60009	312.50874	120.43556	3.28645	0.0380623	2.1421774	37	5	1981–1999	0.69	M-v	2	Williams	29921	1994 TM ₂
1994 TY ₂	14.0	0.15	19990122	7.76160	64.12817	17.90793	10.83664	0.2712500	2.4461715	49	4	1988–1999	0.67	M-v	2	Williams	33551	1994 TY ₂
1994 TK ₁₁	14.3	0.15	19990122	72.64577	95.25184	235.80703	2.15245	0.0712559	2.4712762	85	3	1977–1999	0.61	M-v	3	Williams	33748	1994 TK ₁₁
1994 TW ₁₅	15.3	0.15	19990122	19.82355	150.53796	221.10040	3.57859	0.2267435	2.5556757	77	3	1992–1998	0.65	M-v	2	Williams	33551	1994 TW ₁₅
1994 TN ₁₆	15.6	0.15	19990122	28.49051	67.67952	27.48086	4.41055	0.1152256	2.2806700	27	2	1994–1999	0.54	M-v	4	Williams	33941	1994 TN ₁₆
1994 UO ₁	14.9	0.15	19990122	130.40030	172.71347	204.61502	1.59049	0.1566895	2.1727144	34	5	1978–1999	0.63	M-v	2	Williams	34011	1994 UO ₁
1994 UP ₁	13.9	0.15	19990122	338.28435	50.25320	34.21447	13.78748	0.1360308	2.5527360	56	4	1976–1999	0.76	M-v	3	Williams	33748	1994 UP ₁
1994 UX ₁	14.4	0.15	19990122	77.07571	325.84806	67.71923	3.46183	0.2192619	2.3107532	57	2	1994–1999	0.68	M-v	3	Williams	34011	1994 UX ₁
1994 UY ₁	15.5	0.15	19990122	76.86615	234.20137	206.53721	3.47713	0.1459114	2.1971786	27	4	1994–1999	0.80	M-v	2	Williams	31008	1994 UY ₁
1994 UD ₂	14.6	0.15	19990122	87.36567	332.06145	37.58939	5.91127	0.2420870	2.3358475	28	2	1994–1999	0.84	M-v	4	Williams	34011	1994 UD ₂
1994 US ₂	14.0	0.15	19990122	10.79633	18.55780	56.03417	3.10995	0.1517095	2.4687435	28	3	1994–1999	0.66	M-v	3	Williams	34011	1994 US ₂
1994 UY ₁₁	14.5	0.15	19990122	25.59516	73.79701	17.11029	21.87458	0.3017002	2.3854180	20	2	1994–1999	0.64	M-v	3	Williams	33941	1994 UY ₁₁
1994 VC	15.2	0.15	19990122	124.96051	51.29226	345.13317	1.37921	0.1422023	2.1540887	32	3	1994–1999	0.65	M-v	3	Williams	31140	1994 VC
1994 VE	13.9	0.15	19990122	319.58943	110.74452	33.91135	11.18082	0.0389585	2.3688319	40	2	1994–1999	0.71	M-v	4	Williams	33748	1994 VE
1994 VL	15.2	0.15	19990122	355.04478	50.11197	23.15980	5.56865	0.2194573	2.5441556	73	2	1994–1998	0.62	M-v	4	Williams	33551	1994 VL
1994 VH ₁	13.4	0.15	19990122	271.88296	53.88465	87.13036	4.10921	0.0595656	2.6352761	81	2	1994–1999	0.56	M-v	4	Williams	33748	1994 VH ₁

1994 VO ₁	15.3	0.15	19990122	107.80310	170.05002	240.14169	1.34538	0.1502012	2.2025605	21	4	1994–1999	0.80	M-v	2	Williams	31008	1994 VO ₁
1994 VB ₂	13.9	0.15	19990122	54.89145	204.13218	198.17703	4.62199	0.2761395	2.3796399	39	3	1994–1999	0.55	M-v	3	Williams	34011	1994 VB ₂
1994 VE ₂	15.5	0.15	19990122	51.72467	18.99660	31.31099	5.33043	0.1763704	2.3676942	30	3	1992–1999	0.79	M-v	4	Williams	34011	1994 VE ₂
1994 VF ₂	13.4	0.15	19990122	300.19438	68.32115	55.58792	13.09877	0.2244005	2.6297362	45	5	1970–1998	0.81	M-v	1	Williams	33552	1994 VF ₂
1994 VO ₆	14.4	0.15	19990122	37.69107	25.90572	33.52384	10.04024	0.2206495	2.4176934	20	3	1979–1999	0.54	M-v	4	Williams	33941	1994 VO ₆
1994 VO ₇	14.9	0.15	19990122	75.44799	221.31583	224.85410	2.15613	0.0680585	2.1775724	53	5	1978–1999	0.72	M-v	1	Williams	30900	1994 VO ₇
1994 WF ₂	12.5	0.15	19990122	32.78623	290.51531	87.44754	13.99516	0.1976070	2.5883175	30	2	1994–1999	0.68	M-v	4	Williams	34011	1994 WF ₂
1994 WW ₂	13.8	0.15	19990122	87.55525	305.65302	14.56095	3.16145	0.0611562	2.6964075	45	2	1994–1998	0.56	M-v	4	Williams	33341	1994 WW ₂
1994 WY ₂	14.4	0.15	19990122	157.85115	105.18711	274.60351	4.49987	0.1065872	2.1567572	30	4	1992–1999	0.62	M-v	3	Williams	31008	1994 WY ₂
1994 WL ₃	14.8	0.15	19990122	3.82197	299.49513	139.54394	4.30311	0.1498144	2.5162070	24	3	1994–1999	0.56	M-v	3	Williams	34012	1994 WL ₃
1994 WN ₃	13.3	0.15	19990122	34.89428	258.74382	133.21486	6.79478	0.2315673	2.5245921	45	2	1994–1999	0.61	M-v	4	Williams	33748	1994 WN ₃
1994 WR ₃	12.5	0.15	19990122	12.23228	338.82290	78.69959	14.86158	0.1584782	2.5834688	56	2	1994–1999	0.77	M-v	3	Williams	34012	1994 WR ₃
1994 WJ ₁₂	13.4	0.15	19990122	35.89619	121.54665	271.55972	9.03902	0.2276507	2.5353554	50	2	1994–1999	0.80	M-v	4	Williams	34012	1994 WJ ₁₂
1994 XJ	14.0	0.15	19990122	346.38953	100.94123	64.89760	6.97445	0.0589941	2.3305177	32	4	1988–1999	0.70	M-v	2	Williams	34012	1994 XJ
1994 XL	14.8	0.15	19990122	347.32896	161.03101	356.07813	3.75999	0.1888435	2.4108535	39	3	1984–1999	0.71	M-v	3	Williams	33942	1994 XL
1994 XP	13.7	0.15	19990122	37.78705	156.41132	225.62363	7.28628	0.2088826	2.5575420	85	2	1994–1999	0.71	M-v	3	Williams	34012	1994 XP
1994 XW	14.3	0.15	19990122	95.63834	304.42509	90.18174	7.07123	0.1782535	2.2751220	24	3	1992–1999	0.59	M-v	4	Williams	33942	1994 XW
1994 XA ₁	15.0	0.15	19990122	83.25855	67.53772	333.49227	1.78652	0.2099722	2.3581283	22	3	1990–1999	0.73	M-v	4	Williams	33942	1994 XA ₁
1994 YO	15.4	0.15	19990122	138.88010	272.55690	107.49734	3.88439	0.1650556	2.2497195	31	5	1992–1999	0.60	M-v	2	Williams	31008	1994 YO
1994 YH ₁	14.8	0.15	19990122	80.91967	181.15165	268.19496	3.04272	0.0253616	2.2008671	47	3	1994–1999	0.67	M-v	2	Williams	31277	1994 YH ₁
1994 YP ₁	15.4	0.15	19990122	52.30244	69.71085	0.20001	2.56159	0.1938648	2.4181386	34	2	1994–1999	0.61	M-v	5	Williams	33942	1994 YP ₁
1994 YR ₁	14.8	0.15	19990122	63.58169	355.13900	80.30905	8.06421	0.0929415	2.3780709	19	2	1994–1999	0.64	M-v	5	Williams	33942	1994 YR ₁
1994 YT ₁	15.1	0.15	19990122	62.14736	8.94780	52.69284	2.71742	0.1107407	2.4288564	31	4	1993–1999	0.67	M-v	1	Williams	34012	1994 YT ₁
1994 YV ₁	14.0	0.15	19990122	41.61109	50.01354	74.90366	7.36077	0.0459973	2.3000420	28	5	1992–1999	0.59	M-v	1	Williams	31277	1994 YV ₁
1994 YF ₂	13.9	0.15	19990122	24.60772	96.84137	61.15946	4.04957	0.1270425	2.2830454	28	4	1978–1999	0.78	M-v	2	Williams	30874	1994 YF ₂
1994 YV ₃	15.0	0.15	19990122	105.75900	119.05457	291.60049	3.20291	0.1717463	2.2806225	36	4	1973–1999	0.66	M-v	1	Williams	30761	1994 YV ₃
1995 AJ	13.7	0.15	19990122	210.70249	39.07240	286.29007	6.42154	0.2066623	2.2379635	33	5	1989–1999	0.78	M-v	2	Williams	31277	1995 AJ
1995 AZ	14.4	0.15	19990122	289.97906	327.86830	262.58956	0.71948	0.1233726	2.4403268	38	4	1988–1999	0.55	M-v	1	Williams	34012	1995 AZ
1995 AV ₂	14.7	0.15	19990122	357.63394	79.35074	54.67481	4.19916	0.1548163	2.4737259	52	4	1968–1999	0.76	M-v	2	Williams	34012	1995 AV ₂
1995 BA	14.8	0.15	19990122	11.36370	57.41593	68.82636	1.74799	0.1664261	2.4256393	53	3	1995–1999	0.57	M-v	2	Williams	34012	1995 BA
1995 BJ	13.4	0.15	19990122	326.10854	119.71656	304.46334	9.85924	0.0938108	3.0690886	33	3	1995–1998	0.76	M-v	4	Williams	32749	1995 BJ
1995 BY	13.4	0.15	19990122	11.94470	0.60375	35.96747	2.61201	0.0820784	2.9265895	90	3	1995–1998	0.66	M-v	4	Williams	34012	1995 BY
1995 BP ₁	13.8	0.15	19990122	61.42062	306.49966	89.49435	13.50061	0.2565067	2.6304708	40	3	1989–1999	0.68	M-v	3	Williams	34012	1995 BP ₁
1995 BZ ₁	15.0	0.15	19990122	80.63349	320.73344	88.31015	4.99258	0.1806254	2.4072054	65	6	1982–1999	0.76	M-v	2	Williams	34012	1995 BZ ₁
1995 BP ₂	15.4	0.15	19990122	40.38792	293.45136	187.53746	21.15344	0.2791413	2.3165139	26	3	1995–1999	0.53	M-v	2	Williams	30982	1995 BP ₂
1995 BY ₂	13.1	0.15	19990122	25.85872	295.28430	115.39286	13.72380	0.1636735	2.6855085	24	2	1995–1999	0.62	M-v	4	Williams	33943	1995 BY ₂
1995 BL ₄	13.8	0.15	19990122	34.09984	121.24327	313.93196	12.23167	0.1700128	2.5769248	51	4	1991–1999	0.59	M-v	2	Williams	34012	1995 BL ₄
1995 BB ₁₄	14.1	0.15	19990122	107.87659	55.06378	302.97981	7.43836	0.1629909	2.5826953	33	3	1993–1999	0.62	M-v	4	Williams	33943	1995 BB ₁₄
1995 CX	12.9	0.15	19990122	205.38761	208.59860	124.86954	13.01421	0.2165451	2.3741232	26	5	1975–1999	0.72	M-v	2	Williams	29106	1995 CX
1995 CB ₁	14.6	0.15	19990122	113.30381	279.56427	103.50859	7.14974	0.1599831	2.4189959	41	5	1991–1999	0.66	M-v	2	Williams	34012	1995 CB ₁
1995 DE	13.4	0.15	19990122	181.35029	174.06601	151.36982	15.68420	0.1308918	2.5847521	40	4	1988–1999	0.63	M-v	2	Williams	34012	1995 DE
1995 DR	14.7	0.15	19990122	305.29811	84.74993	156.16426	6.94671	0.1425016	2.4387522	28	4	1991–1999	0.66	M-v	3	Williams	31277	1995 DR
1995 DY	13.5	0.15	19990122	246.32023	82.34392	194.21798	2.29579	0.1407272	2.5536062	33	3	1995–1999	0.91	M-v	4	Williams	34012	1995 DY
1995 DN ₁	13.3	0.15	19990122	130.48311	262.58989	24.51093	7.10212	0.1061650	3.1415847	18	3	1995–1998	0.52	M-v	3	Williams	34012	1995 DN ₁
1995 DS ₁	14.0	0.15	19990122	320.46239	20.00851	162.17977	5.83907	0.1197018	2.6575622	30	2	1995–1999	0.59	M-v	4	Williams	34012	1995 DS ₁
1995 DC ₂	7.1	0.15	19990122	244.78069	124.95765	154.18248	2.34872	0.0633463	43.8680598	54	5	1995–1999	0.57	M-v	4	Williams	33749	1995 DC ₂
1995 DO ₂	13.8	0.15	19990122	332.30641	15.93226	118.65011	3.65383	0.1343121	2.7540695	65	3	1995–1999	0.67	M-v	3	Williams	33749	1995 DO ₂
1995 DP ₂	15.3	0.15	19990122	338.00919	143.12833	20.68599	4.70578	0.1707260	2.5961741	34	3	1991–1999	0.63	M-v	4	Williams	34012	1995 DP ₂
1995 EM	14.5	0.15	19990122	77.24791	66.20221	21.46233	6.85144	0.0975777	2.4201190	45	3	1995–1999	0.73	M-v	3	Williams	31106	1995 EM
1995 EP ₁	12.7	0.15	19990122	266.32091	209.21644	350.07359	11.89548	0.1072495	2.8597454	38	3	1990–1999	0.66	M-v	3	Williams	33749	1995 EP ₁
1995 EL ₈	14.3	0.15	19990122	10.39330	0.06794	130.78228	5.11847	0.0399190	2.5826602	24	2	1995–1999	0.54	M-v	5	Williams	33944	1995 EL ₈
1995 EA ₉	13.2	0.15	19990122	229.42923	276.12132	349.43523	9.40996	0.1431601	2.7571879	13	2	1995–1999	0.67	M-v	5	Williams	34012	1995 EA ₉
1995 FD	14.8	0.15	19990122	334.01652	169.64121	8.65089	3.56065	0.1436356	2.6090079	62	3	1995–1999	0.67	M-v	3	Williams	34012	1995 FD

1995 FM	14.1	0.15	19990122	273.08231	62.09204	177.96819	14.48729	0.0957036	2.6470046	39	4	1995–1999	0.77	M-v	1	Williams	34012	1995 FM
1995 FN	14.0	0.15	19990122	295.74560	214.42816	13.30469	13.38398	0.1978760	2.6195013	35	3	1995–1999	0.69	M-v	3	Williams	34012	1995 FN
1995 FK ₄	13.7	0.15	19990122	19.39621	267.22619	159.32572	9.53842	0.1971683	2.7834026	30	2	1995–1999	0.59	M-v	3	Williams	33692	1995 FK ₄
1995 FQ ₄	13.7	0.15	19990122	194.77870	262.33503	61.76075	2.43220	0.0861614	2.5365122	50	3	1995–1999	0.65	M-v	4	Williams	34012	1995 FQ ₄
1995 FM ₈	14.5	0.15	19990122	304.82433	39.70999	141.05495	6.04782	0.0327958	2.7572358	29	3	1995–1999	0.57	M-v	4	Williams	34012	1995 FM ₈
1995 GF	13.4	0.15	19990122	60.16189	45.53897	67.14245	6.68025	0.0797482	2.5502247	68	5	1985–1999	0.78	M-v	2	Williams	31277	1995 GF
1995 GV ₂	14.4	0.15	19990122	84.63283	267.19182	140.18727	4.85978	0.0362350	2.7548921	40	5	1991–1999	0.72	M-v	2	Williams	34013	1995 GV ₂
1995 GS ₅	15.2	0.15	19990122	21.07650	333.53817	140.40991	3.16727	0.1556178	2.6366166	53	2	1995–1999	0.56	M-v	4	Williams	34013	1995 GS ₅
1995 GJ ₇	13.1	0.15	19990122	296.58497	200.78249	15.79892	9.20873	0.1564153	2.6594006	58	6	1982–1999	0.79	M-v	1	Williams	34013	1995 GJ ₇
1995 HY ₂	13.6	0.15	19990122	331.33902	328.62931	128.89099	3.24703	0.1726346	3.2132721	31	2	1995–1998	0.55	M-v	4	Williams	33342	1995 HY ₂
1995 JC	15.0	0.15	19990122	303.75388	209.09234	46.56403	4.46378	0.2330712	2.5780894	83	4	1995–1999	0.52	M-v	1	Williams	31141	1995 JC
1995 LH	14.1	0.15	19990122	279.70316	266.05484	49.63956	11.45025	0.4077617	2.6946794	96	4	1995–1999	0.54	M-v	1	Williams	31141	1995 LH
1995 MC	12.3	0.15	19990122	191.75363	13.43167	303.14458	20.18390	0.2848014	3.0946543	34	5	1990–1999	0.77	M-v	1	Williams	34013	1995 MC
1995 OE	13.0	0.15	19990122	63.17657	217.22149	255.78966	8.89663	0.0574505	3.0622852	60	4	1995–1999	0.49	M-v	1	Williams	31587	1995 OE
1995 OD ₁	14.4	0.15	19990122	51.75254	5.56382	154.64813	12.25367	0.0874883	3.0065188	61	4	1995–1999	0.53	M-v	1	Williams	31587	1995 OD ₁
1995 SE ₁₇	14.3	0.15	19990122	135.33852	57.51166	42.50013	0.33173	0.2148111	3.1454457	18	2	1995–1998	0.75	M-v	5	Williams	33250	1995 SE ₁₇
1995 SX ₄₈	14.6	0.15	19990122	240.98544	308.44575	299.44000	21.99151	0.0227547	1.8439754	45	2	1995–1999	0.75	M-v	4	Williams	34013	1995 SX ₄₈
1995 UQ ₅	12.8	0.15	19990122	271.91696	333.92210	318.61167	10.63088	0.1755707	3.0506261	25	5	1979–1999	0.75	M-v	1	Williams	31278	1995 UQ ₅
1995 WC ₄	11.8	0.15	19990122	272.33198	273.25327	62.33918	14.72040	0.2133160	3.1243904	36	6	1973–1999	0.74	M-v	1	Williams	31791	1995 WC ₄
1995 XH ₁	14.8	0.15	19990122	28.83562	92.14807	275.55841	4.12949	0.1607693	2.2555850	54	3	1988–1998	0.59	M-v	3	Williams	33553	1995 XH ₁
1995 YH ₁	14.4	0.15	19990122	32.90945	100.70296	277.12585	3.49409	0.1313389	2.2834676	78	3	1991–1999	0.69	M-v	3	Williams	33750	1995 YH ₁
1995 YL ₃	15.0	0.15	19990122	344.64089	296.38292	126.00623	5.02978	0.1389926	2.3339238	51	4	1993–1998	0.65	M-v	2	Williams	33075	1995 YL ₃
1995 YK ₂₀	14.8	0.15	19990122	92.47303	352.54892	283.28566	5.55886	0.0712266	2.7094102	22	2	1995–1998	0.52	M-v	5	Williams	34013	1995 YK ₂₀
1996 AA	14.8	0.15	19990122	277.29883	206.67892	294.23017	5.85977	0.0558852	2.3794956	28	3	1989–1999	0.54	M-v	3	Williams	33750	1996 AA
1996 AB ₄	14.9	0.15	19990122	325.54296	250.04538	218.71951	4.24577	0.1037543	2.2977665	47	3	1991–1999	0.59	M-v	3	Williams	33750	1996 AB ₄
1996 BM ₁	15.1	0.15	19960118	247.55859	284.97867	299.86457	5.41012	0.0989736	2.4018044	10	1	3 days	0.21		E	Williams		1996 BM ₁
1996 BR ₁	14.0	0.15	19990122	244.91218	126.29681	104.15805	5.62907	0.1099897	2.2107824	36	4	1993–1999	0.72	M-v	3	Williams	33750	1996 BR ₁
1996 BT ₁	15.4	0.15	19990122	355.09886	84.07957	9.62011	4.19420	0.1382902	2.2269739	22	3	1993–1998	0.62	M-v	4	Williams	33491	1996 BT ₁
1996 BS ₂	14.1	0.15	19990122	111.72097	217.71498	126.00428	7.48118	0.2016094	2.2408324	22	3	1984–1999	0.60	M-v	4	Williams	33944	1996 BS ₂
1996 CY	15.5	0.15	19990122	307.00857	6.82146	125.34278	6.23845	0.0914990	2.2874715	40	2	1996–1999	0.64	M-v	4	Williams	34013	1996 CY
1996 CZ ₂	14.6	0.15	19990122	254.56895	194.82209	20.52488	5.75464	0.0883680	2.3230486	31	4	1989–1999	0.77	M-v	2	Williams	34013	1996 CZ ₂
1996 CR ₈	15.0	0.15	19990122	263.25002	132.83204	35.31541	2.65938	0.1291091	2.4322774	28	3	1977–1998	0.60	M-v	4	Williams	33252	1996 CR ₈
1996 DH ₂	14.5	0.15	19990122	166.22190	255.69266	5.00732	10.32483	0.1620552	2.6396633	22	3	1993–1997	0.66	M-v	2	Williams	34013	1996 DH ₂
1996 DM ₂	13.7	0.15	19990122	177.71863	117.47176	106.42215	5.81460	0.0519812	2.7385854	35	2	1996–1998	0.63	M-v	4	Williams	33343	1996 DM ₂
1996 ED	14.3	0.15	19990122	20.84036	52.94441	19.95011	5.82473	0.1609164	2.2671968	38	3	1976–1999	0.80	M-v	3	Williams	33750	1996 ED
1996 EL	13.1	0.15	19990122	243.75432	262.60038	328.09306	7.86407	0.2072373	2.3698326	33	5	1952–1999	0.81	M-v	2	Williams	33750	1996 EL
1996 ED ₂	14.8	0.15	19990122	358.41192	275.52313	175.14202	9.98294	0.1765540	2.3190199	38	2	1996–1999	0.64	M-v	3	Williams	34013	1996 ED ₂
1996 EK ₂	14.8	0.15	19990122	201.28969	119.72646	193.14656	2.91397	0.1895696	2.1706780	39	3	1980–1999	0.72	M-v	5	Williams	34013	1996 EK ₂
1996 ES ₂	13.9	0.15	19990122	99.64632	11.86192	343.56724	5.69241	0.1952384	2.2706245	23	2	1996–1999	0.61	M-v	4	Williams	34013	1996 ES ₂
1996 EK ₆	13.9	0.15	19990122	116.34194	122.17133	173.63561	7.41803	0.1069782	2.7037298	26	3	1993–1998	0.73	M-v	4	Williams	33493	1996 EK ₆
1996 FT ₆	14.6	0.15	19990122	155.17861	156.96905	171.89318	5.26598	0.2249327	2.2712742	30	4	1990–1999	0.61	M-v	2	Williams	34013	1996 FT ₆
1996 FM ₁₆	13.5	0.15	19990122	99.42372	87.09050	211.23198	3.83479	0.0181131	3.0625644	41	3	1996–1998	0.73	M-v	3	Williams	34013	1996 FM ₁₆
1996 GF ₁	15.0	0.15	19990122	350.97513	30.57709	118.25710	2.92237	0.0521159	2.2336851	38	2	1996–1999	0.48	M-v	3	Williams	34013	1996 GF ₁
1996 GJ ₂	15.2	0.15	19990122	222.36000	86.43545	185.07521	4.28316	0.2106907	2.3895347	37	5	1992–1999	0.77	M-v	1	Williams	33751	1996 GJ ₂
1996 GP ₂	14.0	0.15	19990122	298.22322	75.88932	114.56069	4.99913	0.0615717	2.3662081	38	3	1992–1999	0.86	M-v	3	Williams	34013	1996 GP ₂
1996 GB ₇	15.3	0.15	19990122	23.24436	84.06595	35.10870	4.30847	0.0806562	2.1907400	38	2	1996–1999	0.69	M-v	4	Williams	33945	1996 GB ₇
1996 GR ₁₇	14.4	0.15	19990122	111.08883	347.43434	27.67620	6.39043	0.1496604	2.3994151	21	3	1986–1999	0.72	M-v	5	Williams	34014	1996 GR ₁₇
1996 GB ₁₈	14.8	0.15	19990122	121.00784	359.79937	38.29610	5.29897	0.0535337	2.1869750	37	4	1981–1999	0.83	M-v	2	Williams	31009	1996 GB ₁₈
1996 GG ₁₈	14.1	0.15	19990122	267.85763	306.85285	213.77100	4.59956	0.0123175	2.7605925	27	2	1996–1998	0.65	M-v	4	Williams	34014	1996 GG ₁₈
1996 GO ₁₈	15.0	0.15	19990122	180.93692	134.95836	201.36938	4.56856	0.1319581	2.2672499	23	4	1990–1999	0.79	M-v	2	Williams	34014	1996 GO ₁₈
1996 GV ₁₈	14.7	0.15	19990122	117.49946	332.33970	44.03221	7.52271	0.1204019	2.3460936	35	4	1990–1999	0.88	M-v	2	Williams	34014	1996 GV ₁₈
1996 GA ₁₉	14.6	0.15	19990122	279.22570	177.51595	48.63747	4.38387	0.0570573	2.2666824	46	4	1989–1999	0.64	M-v	1	Williams	34014	1996 GA ₁₉
1996 GD ₂₁	15.7	0.15	19990122	260.93815	87.35500	178.04986	3.31081	0.0886314	2.2143300	46	4	1990–1999	0.73	M-v	2	Williams	34014	1996 GD ₂₁

1996 HO	15.1	0.15	19990122	60.60165	298.25866	123.48010	7.88886	0.0941132	2.3761199	87	3	1996–1999	0.69	M-v	2	Marsden	34014	1996 HO
1996 HQ	15.7	0.15	19990122	294.80618	147.12831	60.95238	7.21121	0.1023259	2.2927608	47	3	1996–1999	0.75	M-v	3	Williams	34014	1996 HQ
1996 HU	14.6	0.15	19990122	131.76552	192.57788	175.11009	4.96440	0.2022198	2.4318623	54	3	1996–1999	0.67	M-v	3	Williams	34014	1996 HU
1996 HH ₁	15.4	0.15	19990122	75.43526	285.14314	130.66873	3.67540	0.1365028	2.2072647	40	4	1989–1999	0.74	M-v	1	Williams	34014	1996 HH ₁
1996 HJ ₁	15.8	0.15	19990122	207.57342	266.98969	42.26979	1.61662	0.2134818	2.3623309	37	3	1996–1999	0.69	M-v	4	Williams	31107	1996 HJ ₁
1996 HK ₁	15.3	0.15	19990122	138.94771	342.91283	40.21870	6.87604	0.0937476	2.2241585	57	3	1996–1999	0.77	M-v	3	Williams	31141	1996 HK ₁
1996 HL ₁	13.7	0.15	19990122	17.25589	259.36600	181.78405	7.53897	0.1287870	2.5305523	30	4	1971–1999	0.89	M-v	2	Williams	34014	1996 HL ₁
1996 HY ₁	14.3	0.15	19990122	103.93923	356.17950	1.00003	12.18810	0.1746415	2.6113244	27	2	1996–1999	0.54	M-v	4	Marsden	33945	1996 HY ₁
1996 HC ₂	15.1	0.15	19990122	260.27142	167.69144	110.16964	5.14258	0.2422353	2.2406720	33	2	1996–1999	0.62	M-v	4	Williams	33945	1996 HC ₂
1996 HH ₁₀	15.8	0.15	19990122	239.83531	100.91798	198.82578	3.27034	0.1130864	2.1677541	28	3	1996–1999	0.64	M-v	3	Williams	32751	1996 HH ₁₀
1996 HR ₁₀	13.5	0.15	19990122	22.12901	343.36375	38.85051	0.44938	0.2175137	3.1475552	49	3	1976–1999	0.69	M-v	3	Williams	33751	1996 HR ₁₀
1996 HY ₁₂	15.5	0.15	19990122	254.00933	100.91962	197.30829	1.63124	0.1254937	2.1201770	23	3	1996–1999	0.81	M-v	4	Williams	31241	1996 HY ₁₂
1996 HT ₁₅	13.8	0.15	19990122	356.65967	255.19492	161.51258	2.21202	0.0784098	2.9412406	25	2	1996–1998	0.80	M-v	4	Williams	33343	1996 HT ₁₅
1996 HX ₁₆	14.4	0.15	19990122	8.63712	345.11377	63.41625	2.79117	0.1001623	2.9250468	42	2	1996–1999	0.58	M-v	4	Williams	33751	1996 HX ₁₆
1996 HV ₂₁	15.2	0.15	19990122	292.61087	188.04875	37.99302	4.48024	0.0991118	2.1904738	38	3	1981–1999	0.78	M-v	4	Williams	33945	1996 HV ₂₁
1996 HM ₂₂	15.3	0.15	19990122	244.89554	228.82906	41.41657	2.75561	0.1658801	2.2773468	42	3	1996–1999	0.74	M-v	4	Williams	34014	1996 HM ₂₂
1996 HP ₂₃	14.2	0.15	19990122	46.38838	12.38326	58.31731	7.01765	0.0700073	2.4527567	43	4	1986–1999	0.70	M-v	1	Williams	34014	1996 HP ₂₃
1996 HW ₂₃	15.1	0.15	19990122	341.34688	65.27698	69.58756	6.31237	0.1585072	2.3644155	33	3	1992–1999	0.79	M-v	3	Williams	33751	1996 HW ₂₃
1996 HC ₂₄	14.5	0.15	19990122	142.29005	292.02195	66.91312	6.87907	0.1035235	2.3827419	23	3	1996–1999	0.67	M-v	4	Williams	34014	1996 HC ₂₄
1996 HH ₂₄	15.1	0.15	19990122	226.04289	257.40196	71.12900	4.27908	0.2079723	2.1770081	33	3	1990–1999	0.79	M-v	3	Williams	33695	1996 HH ₂₄
1996 HN ₂₄	14.5	0.15	19990122	322.33519	114.62948	73.38619	5.60559	0.1084457	2.2407396	40	2	1996–1999	0.58	M-v	3	Williams	34014	1996 HN ₂₄
1996 HL ₂₅	14.9	0.15	19990122	245.54615	151.69789	116.38360	1.51658	0.0636813	2.2934953	32	2	1996–1999	0.76	M-v	5	Williams	33946	1996 HL ₂₅
1996 JJ	14.7	0.15	19990122	285.43002	122.37880	108.60530	6.74948	0.2224210	2.2552996	29	4	1979–1999	0.44	M-v	1	Williams	33946	1996 JJ
1996 JN	14.5	0.15	19990122	323.32653	93.95703	90.55350	5.16183	0.0976032	2.2806082	53	2	1995–1999	0.59	M-v	3	Williams	34014	1996 JN
1996 JO	13.3	0.15	19990122	141.04303	57.93404	215.46021	7.33909	0.0432013	3.1213475	40	3	1996–1999	0.50	M-v	3	Williams	34014	1996 JO
1996 JU	14.6	0.15	19990122	317.70233	352.75819	159.69479	24.78585	0.1820820	2.3331042	25	3	1996–1999	0.75	M-v	3	Williams	33555	1996 JU
1996 JF ₁	14.4	0.15	19990122	294.52085	297.06767	212.95524	3.55289	0.1499135	2.5384055	32	2	1996–1999	0.71	M-v	4	Williams	34014	1996 JF ₁
1996 JJ ₁	13.8	0.15	19990122	128.81292	120.71126	176.98300	9.33836	0.0472533	2.9630755	34	5	1972–1998	0.63	M-v	1	Williams	33343	1996 JJ ₁
1996 JR ₁	14.7	0.15	19990122	217.38344	251.76909	67.70513	23.28968	0.2274722	2.2861685	20	3	1989–1999	0.61	M-v	4	Williams	27457	1996 JR ₁
1996 JF ₂	14.8	0.15	19990122	66.07959	260.07555	159.46829	13.17822	0.1511143	2.5784463	39	3	1995–1999	0.55	M-v	3	Williams	34014	1996 JF ₂
1996 JF ₃	14.4	0.15	19990122	130.65854	305.44881	69.33472	7.28935	0.1463563	2.3123606	19	3	1990–1999	0.64	M-v	4	Williams	27562	1996 JF ₃
1996 KO	14.5	0.15	19990122	186.14912	276.90767	21.39516	0.97171	0.0652915	2.5675308	49	2	1996–1999	0.76	M-v	4	Marsden	34014	1996 KO
1996 KN ₁	14.8	0.15	19990122	257.70727	186.90966	82.26920	7.56423	0.0907170	2.2804739	25	3	1996–1999	0.67	M-v	4	Williams	31241	1996 KN ₁
1996 KX ₂	13.5	0.15	19990122	137.03408	178.11916	171.81085	12.00899	0.1306420	2.6506934	47	3	1988–1999	0.62	M-v	3	Williams	34014	1996 KX ₂
1996 KY ₄	14.3	0.15	19990122	166.26524	279.56618	81.62093	3.79107	0.2599722	2.3415868	28	4	1975–1999	0.76	M-v	2	Williams	32953	1996 KY ₄
1996 LL	14.3	0.15	19990122	125.04848	177.10409	189.97351	14.38991	0.1027306	2.5907678	45	3	1996–1999	0.49	M-v	3	Williams	34014	1996 LL
1996 LV ₁	14.0	0.15	19990122	269.01364	311.16471	250.77397	12.59903	0.1096274	2.5562314	29	2	1996–1999	0.51	M-v	3	Williams	34014	1996 LV ₁
1996 MN	15.9	0.15	19990122	249.20572	49.06180	263.70922	5.93548	0.1459601	2.2701923	43	3	1996–1999	0.51	M-v	3	Marsden	31278	1996 MN
1996 NW	14.7	0.15	19990122	132.98644	112.16560	265.07740	2.73594	0.1029010	2.7355094	50	3	1996–1999	0.58	M-v	3	Williams	34014	1996 NW
1996 NF ₃	13.2	0.15	19990122	86.60543	299.06188	142.44603	10.08077	0.0749395	2.6946874	33	5	1975–1999	0.74	M-v	1	Williams	31421	1996 NF ₃
1996 NS ₃	14.8	0.15	19990122	233.11640	166.13962	136.67459	2.53846	0.0896036	2.5386577	28	3	1996–1999	0.62	M-v	4	Williams	31009	1996 NS ₃
1996 NF ₄	13.4	0.15	19990122	124.05531	74.01848	307.61872	7.93898	0.1099056	2.9637070	26	4	1982–1999	0.79	M-v	1	Williams	34014	1996 NF ₄
1996 NP ₄	15.2	0.15	19990122	253.81032	302.09584	315.69137	7.97480	0.1872545	2.6194734	21	2	1996–1999	0.61	M-v	4	Williams	33947	1996 NP ₄
1996 NU ₄	13.8	0.15	19990122	196.95156	30.88542	311.13612	7.93973	0.0760564	2.5729838	22	4	1988–1999	0.86	M-v	4	Williams	29947	1996 NU ₄
1996 NX ₄	14.2	0.15	19990122	81.77054	308.70902	139.01312	5.58965	0.0239708	2.6498121	34	4	1990–1999	0.78	M-v	1	Williams	31278	1996 NX ₄
1996 NR ₅	14.0	0.15	19990122	213.68790	20.28637	276.35275	12.50684	0.1580674	2.6753961	20	2	1996–1999	0.79	M-v	4	Williams	33948	1996 NR ₅
1996 OE	16.2	0.15	19990122	248.20638	242.53573	57.22762	2.62830	0.0490977	2.4087777	37	4	1995–1999	0.44	M-v	1	Marsden	31278	1996 OE
1996 OQ	14.7	0.15	19990122	237.75215	359.10190	297.73715	1.68609	0.1766203	2.4394982	33	4	1980–1999	0.64	M-v	2	Williams	34014	1996 OQ
1996 OB ₁	17.1	0.15	19990122	250.89253	145.63666	145.80134	2.74362	0.1956315	2.3794229	31	4	1992–1999	0.51	M-v	1	Marsden	27723	1996 OB ₁
1996 OO ₁	13.2	0.15	19990122	249.65092	268.89117	326.76299	8.11738	0.0939049	3.0416609	45	3	1996–1999	0.54	M-v	3	Williams	33948	1996 OO ₁
1996 OE ₂	14.0	0.15	19990122	270.14204	337.22894	295.18922	13.46620	0.1353391	2.6414183	42	3	1996–1999	0.43	M-v	3	Williams	31109	1996 OE ₂
1996 OM ₂	14.4	0.15	19990122	138.84250	126.76556	260.71594	7.93752	0.2241114	2.7372601	33	4	1994–1999	0.75	M-v	1	Williams	32310	1996 OM ₂
1996 OP ₂	14.3	0.15	19990122	230.16026	152.90577	175.73511	13.54514	0.2417042	2.4029780	55	4	1985–1999	0.73	M-v	2	Williams	31588	1996 OP ₂

1996 PA ₁	15.1	0.15	19990122	215.82450	213.46762	133.68674	7.40939	0.1343228	2.3780809	45	3	1996–1999	0.29	M-v	2	Marsden	31278	1996 PA ₁
1996 PB ₁	16.0	0.15	19990122	245.23737	336.84755	343.59414	2.07494	0.2141790	2.3793971	46	3	1996–1999	0.51	M-v	3	Williams	31109	1996 PB ₁
1996 PD ₃	14.1	0.15	19990122	148.53459	308.99351	83.85061	3.95288	0.0139768	2.6252313	55	4	1995–1999	0.76	M-v	1	Williams	31142	1996 PD ₃
1996 PY ₄	14.8	0.15	19990122	322.32175	68.79170	151.70240	23.90180	0.2649808	2.3596829	30	3	1988–1999	0.54	M-v	2	Williams	33555	1996 PY ₄
1996 PF ₅	14.8	0.15	19990122	305.32119	273.80430	292.38387	10.58045	0.1408770	2.6257804	37	3	1996–1999	0.65	M-v	4	Williams	34014	1996 PF ₅
1996 PN ₅	14.6	0.15	19990122	165.08749	272.86914	80.77350	2.60760	0.1019244	2.7481704	33	4	1992–1999	0.60	M-v	1	Williams	31791	1996 PN ₅
1996 PO ₉	13.4	0.15	19990122	229.62926	141.44208	135.85636	13.68795	0.1651188	2.6881567	33	2	1996–1999	0.59	M-v	4	Williams	33948	1996 PO ₉
1996 QD	14.1	0.15	19990122	227.01215	85.10440	209.23247	11.38814	0.1704433	2.6368307	46	3	1996–1999	0.43	M-v	3	Williams	34015	1996 QD
1996 QL	13.7	0.15	19990122	340.24357	230.98106	314.75663	4.82842	0.1671588	2.6334983	47	5	1969–1999	0.74	M-v	2	Williams	33555	1996 QL
1996 QQ ₁	13.4	0.15	19990122	137.40160	273.18662	108.84895	2.13745	0.2020065	3.1301163	106	4	1991–1999	0.65	M-v	1	Williams	31791	1996 QQ ₁
1996 RJ ₄	15.2	0.15	19990122	296.94854	101.42464	142.37259	2.46207	0.0911740	2.6384490	24	3	1995–1999	0.88	M-v	4	Williams	29115	1996 RJ ₄
1996 RO ₅	13.8	0.15	19990122	269.46820	101.17851	155.18620	11.61384	0.1498182	2.5834401	53	2	1996–1999	0.51	M-v	4	Williams	34015	1996 RO ₅
1996 SS ₆	13.2	0.15	19990122	236.99319	249.99171	67.53438	3.05736	0.0535551	2.9150529	82	5	1981–1999	0.57	M-v	1	Williams	32054	1996 SS ₆
1996 TE	14.4	0.15	19990122	175.91921	313.23463	55.56964	2.88730	0.0898298	2.8290279	49	3	1996–1999	0.40	M-v	3	Williams	31278	1996 TE
1996 TS	13.7	0.15	19990122	257.26545	75.68666	208.15912	1.53805	0.0193504	2.8491417	47	4	1982–1999	0.59	M-v	1	Williams	34015	1996 TS
1996 TZ ₇	14.4	0.15	19990122	210.87164	286.99917	24.49161	2.55578	0.0604204	3.1067962	25	4	1993–1999	0.54	M-v	1	Williams	32954	1996 TZ ₇
1996 TT ₉	14.2	0.15	19990122	172.14622	355.88424	6.93524	8.22307	0.0372125	3.0900348	40	3	1996–1999	0.56	M-v	3	Williams	31245	1996 TT ₉
1996 TR ₁₀	13.2	0.15	19990122	267.17658	144.16783	160.54980	10.61618	0.2539832	2.3972446	25	6	1981–1999	0.83	M-v	2	Williams	31792	1996 TR ₁₀
1996 TT ₁₁	14.4	0.15	19990122	214.80641	150.14692	199.29053	1.58464	0.1516474	2.6111670	37	4	1992–1999	0.48	M-v	1	Marsden	31421	1996 TT ₁₁
1996 TJ ₁₄	13.6	0.15	19990122	168.85886	32.81087	339.30990	9.29193	0.0958671	2.9865500	22	3	1996–1999	0.69	M-v	4	Williams	31246	1996 TJ ₁₄
1996 TF ₁₅	13.5	0.15	19990122	123.42313	3.76637	38.90762	1.32037	0.1655148	3.2285833	29	3	1996–1999	0.49	M-v	3	Williams	31421	1996 TF ₁₅
1996 TK ₁₅	13.9	0.15	19990122	231.51426	132.92902	195.89426	13.40770	0.1878846	2.6177555	41	4	1975–1999	0.65	M-v	2	Williams	29666	1996 TK ₁₅
1996 TL ₁₅	12.1	0.15	19990122	318.94176	2.97147	207.84693	21.19899	0.0255709	3.1999017	16	3	1976–1999	0.74	M-v	4	Williams	30460	1996 TL ₁₅
1996 TG ₂₈	14.2	0.15	19990122	1.79919	35.38619	167.53750	9.83957	0.2134301	2.7356423	23	4	1973–1999	0.72	M-v	2	Williams	31279	1996 TG ₂₈
1996 TM ₃₆	14.4	0.15	19990122	277.57074	292.94232	346.18483	12.49539	0.2133619	2.4449394	21	3	1995–1999	0.31	M-v	2	Williams	32311	1996 TM ₃₆
1996 TK ₄₈	13.9	0.15	19990122	231.32871	187.39513	145.04981	2.55473	0.2244339	2.5794086	22	5	1975–1999	0.73	M-v	2	Williams	31279	1996 TK ₄₈
1996 TW ₅₉	14.2	0.15	19990122	163.57603	43.63838	339.85481	11.58075	0.1067765	2.7752668	20	1	88 days	0.57	M-v	4 D	Marsden		1996 TW ₅₉
1996 UA	14.0	0.15	19990122	230.14083	313.01146	18.16185	12.25398	0.1091366	2.6256896	44	3	1996–1999	0.28	M-v	3	Marsden	31279	1996 UA
1996 UC	13.3	0.15	19990122	150.98781	273.41219	92.98087	2.99370	0.2477616	3.1503266	81	6	1974–1999	0.58	M-v	1	Williams	31421	1996 UC
1996 US	14.2	0.15	19990122	222.89836	321.10339	20.59101	5.21106	0.2595896	2.6034222	33	3	1996–1999	0.62	M-v	4	Williams	31247	1996 US
1996 UL ₁	13.7	0.15	19990122	192.41471	141.11015	206.03264	11.67194	0.0700877	3.0400104	64	3	1996–1999	0.74	M-v	3	Williams	31421	1996 UL ₁
1996 UP ₁	13.7	0.15	19990122	272.01506	67.32156	215.78875	15.52278	0.1807466	2.6101657	31	3	1991–1999	0.64	M-v	2	Williams	28891	1996 UP ₁
1996 UU ₁	13.8	0.15	19990122	76.11718	90.78117	10.60707	4.96041	0.1396596	3.1696022	44	3	1996–1999	0.29	M-v	2	Marsden	31279	1996 UU ₁
1996 UG ₃	12.9	0.15	19990122	243.34496	286.51757	27.84412	13.32907	0.1995027	2.6713201	40	4	1961–1999	0.68	M-v	1	Williams	31589	1996 UG ₃
1996 UF ₄	13.8	0.15	19990122	193.36435	315.35104	44.79062	4.67079	0.1078406	2.8158792	54	5	1982–1999	0.55	M-v	1	Williams	32055	1996 UF ₄
1996 VJ	12.6	0.15	19990122	133.46296	355.58463	51.33121	11.08536	0.1037208	3.1817704	32	5	1992–1999	0.66	M-v	1	Williams	31792	1996 VJ
1996 VS	13.8	0.15	19990122	263.58992	58.72335	193.90824	9.53206	0.0760140	3.2097811	51	3	1996–1999	0.75	M-v	4	Williams	34015	1996 VS
1996 VC ₁	13.7	0.15	19990122	187.83312	96.66723	271.25572	0.94420	0.1078226	2.9514883	40	5	1991–1999	0.51	M-v	1	Williams	31421	1996 VC ₁
1996 VD ₁	13.5	0.15	19990122	237.44380	258.12809	41.59783	17.62403	0.1081176	3.1440277	19	4	1988–1999	0.74	M-v	1	Williams	31279	1996 VD ₁
1996 VM ₂	14.4	0.15	19990122	229.35054	274.61652	69.11125	12.29356	0.2156868	2.6689505	37	3	1996–1999	0.28	M-v	3	Marsden	31589	1996 VM ₂
1996 VU ₂	14.2	0.15	19990122	135.18601	234.28555	169.08993	2.35712	0.2245889	3.1090486	51	3	1996–1999	0.78	M-v	2	Williams	31589	1996 VU ₂
1996 VN ₅	12.6	0.15	19990122	181.38897	216.02145	122.45245	3.23129	0.1860712	3.2082769	32	4	1990–1999	0.52	M-v	2	Williams	31248	1996 VN ₅
1996 VQ ₆	13.1	0.15	19990122	275.97806	229.64875	71.40249	13.85818	0.1852047	2.6505424	44	4	1990–1999	0.40	M-v	1	Williams	31589	1996 VQ ₆
1996 VV ₈	12.4	0.15	19990122	186.50397	294.03540	57.49080	18.04716	0.0991432	3.1828337	18	4	1990–1999	0.62	M-v	2	Williams	31279	1996 VV ₈
1996 VB ₉	11.8	0.15	19990122	94.99858	259.49909	160.31772	4.51124	0.2527433	4.0014554	30	6	1990–1999	0.75	M-v	1	Williams	31792	1996 VB ₉
1996 VE ₉	11.8	0.15	19990122	40.51655	94.72692	78.61793	11.00582	0.0446433	3.0083496	47	6	1951–1999	0.58	M-v	1	Williams	31793	1996 VE ₉
1996 VZ ₃₇	14.8	0.15	19990122	122.47651	328.29637	84.08275	1.04752	0.1806904	3.2236018	23	3	1996–1999	0.44	M-v	5	Williams	31391	1996 VZ ₃₇
1996 WV ₁	12.4	0.15	19990122	81.52035	209.72208	215.04313	8.44845	0.1490227	3.9646125	28	3	1996–1999	0.57	M-v	3	Williams	34015	1996 WV ₁
1996 WC ₃	15.2	0.15	19990122	215.47566	146.43241	199.68614	10.45118	0.1991246	2.6991453	41	5	1994–1999	0.33	M-v	1	Williams	31422	1996 WC ₃
1996 XR ₁	12.1	0.15	19990122	158.43456	285.90437	87.82079	4.62393	0.2162930	3.9697472	46	5	1987–1999	0.59	M-v	1	Williams	31589	1996 XR ₁
1996 XY ₂₅	14.3	0.15	19990122	198.12365	207.24220	144.79307	13.70778	0.1730285	2.6309030	34	3	1996–1999	0.76	M-v	3	Williams	31279	1996 XY ₂₅
1996 XA ₂₇	12.2	0.15	19990122	168.84228	65.20807	310.37615	15.25924	0.2336458	3.1227464	34	4	1981–1999	0.59	M-v	2	Williams	32056	1996 XA ₂₇
1996 XT ₃₀	12.4	0.15	19990122	348.84059	148.75548	80.72169	18.18521	0.0933229	3.1783858	26	4	1982–1999	0.62	M-v	1	Williams	31793	1996 XT ₃₀

1996 YZ ₂	13.5	0.15	19990122	132.42123	191.06818	210.75038	10.83070	0.1391216	3.0658952	27	3	1996–1999	0.54	M-v	3	Williams	31113	1996 YZ ₂
1997 AP ₁₀	17.0	0.15	19990122	265.83727	356.00728	293.25948	6.65057	0.6432179	1.4429927	88	2	1997–1999	0.74	M-v	5	Williams	33949	1997 AP ₁₀
1997 BB ₁	11.8	0.15	19990122	287.81192	357.21272	254.42022	11.45353	0.0878196	3.1899954	34	5	1973–1999	0.62	M-v	1	Williams	33555	1997 BB ₁
1997 CV ₂₉	7.2	0.15	19990122	351.59808	27.95378	121.23340	8.03374	0.0419558	42.0149306	31	3	1997–1999	0.33	M-v	5	Marsden	34015	1997 CV ₂₉
1997 DF	18.0	0.15	19990122	73.70270	268.40504	145.89712	18.67017	0.1466557	1.5417606	119	2	1997–1999	0.47	M-v	3	Williams	34015	1997 DF
1997 ES ₁₇	14.3	0.15	19990122	64.42482	6.02677	292.90361	3.74682	0.2352927	2.4352556	62	2	1997–1998	0.68	M-v	4	Williams	33555	1997 ES ₁₇
1997 FN ₃	15.1	0.15	19990122	89.17648	275.88171	29.31605	4.88875	0.2117158	2.3707859	58	2	1997–1998	0.66	M-v	4	Williams	33555	1997 FN ₃
1997 GU ₆	14.8	0.15	19990122	102.23849	269.38359	23.72145	8.08215	0.1099789	2.4403677	55	3	1993–1998	0.69	M-v	3	Williams	33344	1997 GU ₆
1997 GG ₇	15.7	0.15	19990122	63.79864	169.21511	181.50318	4.36936	0.2004483	2.3164796	34	2	1997–1999	0.61	M-v	4	Williams	34015	1997 GG ₇
1997 GJ ₁₃	15.6	0.15	19990122	65.57995	127.63592	206.54589	2.28493	0.2432457	2.3239895	49	2	1997–1998	0.51	M-v	4	Williams	33344	1997 GJ ₁₃
1997 GA ₁₄	15.0	0.15	19990122	28.02033	63.85272	287.09376	1.60446	0.2005656	2.4287321	47	3	1994–1998	0.59	M-v	3	Williams	33077	1997 GA ₁₄
1997 GZ ₁₆	15.0	0.15	19990122	58.71532	144.93561	205.68216	7.36181	0.1723687	2.1683733	54	2	1997–1998	0.81	M-v	4	Williams	34015	1997 GZ ₁₆
1997 GR ₂₄	13.9	0.15	19990122	67.02529	126.37796	195.27049	12.18622	0.1923341	2.6912583	92	2	1997–1998	0.50	M-v	3	Williams	33556	1997 GR ₂₄
1997 GR ₂₅	14.5	0.15	19990122	106.92667	216.67480	70.12592	3.62777	0.1761925	2.4230810	21	2	1997–1998	0.74	M-v	5	Williams	33497	1997 GR ₂₅
1997 GA ₃₈	14.3	0.15	19990122	75.04633	138.12835	175.89120	4.50053	0.2045375	2.4578878	59	3	1993–1998	0.76	M-v	3	Williams	33344	1997 GA ₃₈
1997 HP ₈	15.1	0.15	19990122	316.58263	217.52619	187.80367	3.71750	0.0968186	2.6622387	29	3	1992–1998	0.59	M-v	4	Williams	33344	1997 HP ₈
1997 JH ₆	13.9	0.15	19990122	63.18410	208.19202	103.52612	5.39838	0.1567439	2.8778356	55	2	1997–1998	0.73	M-v	3	Williams	33077	1997 JH ₆
1997 JD ₁₂	15.2	0.15	19990122	43.46587	148.95624	220.55887	6.38180	0.1172417	2.2817790	52	3	1991–1998	0.86	M-v	4	Williams	33344	1997 JD ₁₂
1997 JC ₁₄	14.1	0.15	19990122	59.69212	152.94023	195.87978	10.10072	0.2060223	2.5502494	51	3	1996–1998	0.56	M-v	2	Williams	33556	1997 JC ₁₄
1997 MR ₁	15.0	0.15	19990122	173.21914	349.51243	252.61569	5.55401	0.0942070	2.2992520	41	2	1997–1998	0.51	M-v	3	Williams	33345	1997 MR ₁
1997 MS ₃	15.1	0.15	19990122	77.56810	197.74642	137.30769	23.46233	0.1082300	2.7594931	26	3	1979–1998	0.60	M-v	3	Williams	33499	1997 MS ₃
1997 MC ₈	15.1	0.15	19990122	166.71659	39.46870	223.68531	1.30783	0.0367314	2.7028544	26	2	1997–1999	0.43	M-v	4	Williams	34015	1997 MC ₈
1997 MB ₉	12.7	0.15	19990122	28.73690	87.68623	302.01885	21.58218	0.1089997	3.1981637	40	4	1986–1999	0.70	M-v	1	Williams	34015	1997 MB ₉
1997 NK ₁	14.0	0.15	19990122	45.22062	127.98901	245.81428	2.12437	0.0940680	3.1375556	35	3	1996–1999	0.59	M-v	3	Williams	34015	1997 NK ₁
1997 NN ₁	15.7	0.15	19990122	37.88097	299.10023	140.76565	6.18262	0.1781622	2.3768623	38	4	1990–1999	0.50	M-v	1	Williams	34015	1997 NN ₁
1997 NZ ₃	14.9	0.15	19990122	47.50682	103.40729	306.64723	14.00993	0.2468448	2.7933086	18	2	1997–1999	0.32	M-v	3	Williams	33950	1997 NZ ₃
1997 NK ₁₀	13.8	0.15	19990122	28.00806	249.37268	172.95986	15.06195	0.0949442	2.6016860	42	3	1993–1999	0.70	M-v	3	Williams	33556	1997 NK ₁₀
1997 NE ₁₁	13.0	0.15	19990122	96.24916	58.31137	273.66583	13.92169	0.1827624	2.8069600	38	3	1984–1999	0.87	M-v	3	Williams	34015	1997 NE ₁₁
1997 OJ	13.6	0.15	19990122	104.37680	229.55736	58.65683	1.26708	0.1668876	3.1723959	62	2	1997–1998	0.62	M-v	3	Williams	33345	1997 OJ
1997 OY ₁	13.9	0.15	19990122	57.44810	231.32217	178.15567	9.38999	0.1979060	2.5284544	27	2	1997–1999	0.68	M-v	4	Williams	33950	1997 OY ₁
1997 OW ₂	14.3	0.15	19990122	96.72594	129.52994	268.57610	5.52171	0.1346323	2.2070373	28	4	1981–1999	0.87	M-v	3	Williams	34016	1997 OW ₂
1997 PX	15.6	0.15	19990122	53.92296	263.52448	169.42037	3.40282	0.1536478	2.3137490	32	4	1992–1999	0.63	M-v	1	Williams	34016	1997 PX
1997 PJ ₄	12.6	0.15	19990122	21.68036	145.88638	282.31292	12.71421	0.1365691	2.6681079	59	2	1997–1999	0.71	M-v	3	Williams	33753	1997 PJ ₄
1997 PL ₄	15.5	0.15	19990122	252.59909	240.98428	344.75722	6.90061	0.0745975	2.3032351	66	3	1996–1999	0.50	M-v	3	Williams	34016	1997 PL ₄
1997 PQ ₄	15.4	0.15	19990122	136.79256	200.18005	153.79170	7.71637	0.1861881	2.2710579	61	3	1996–1999	0.57	M-v	2	Williams	34016	1997 PQ ₄
1997 PD ₅	15.4	0.15	19990122	206.98516	339.53484	306.60433	3.02804	0.0327010	2.1826148	27	2	1997–1999	0.47	M-v	4	Williams	33951	1997 PD ₅
1997 PN ₅	13.7	0.15	19990122	70.55022	93.06334	293.48536	12.15321	0.1924785	2.6207864	56	2	1997–1999	0.70	M-v	4	Williams	34016	1997 PN ₅
1997 PV ₅	15.5	0.15	19990122	56.22027	93.55353	354.11368	3.71954	0.0311997	2.1854219	24	2	1997–1999	0.68	M-v	4	Williams	33951	1997 PV ₅
1997 QJ	16.0	0.15	19990122	98.13195	258.54669	136.86492	1.42592	0.2968959	2.3948536	35	2	1997–1999	0.47	M-v	4	Williams	33951	1997 QJ
1997 QB ₁	15.8	0.15	19990122	346.77379	77.64979	65.12969	4.59432	0.1173998	2.2800986	58	3	1996–1999	0.60	M-v	3	Marsden	34016	1997 QB ₁
1997 QH ₁	14.1	0.15	19990122	215.56534	349.69905	277.29206	5.11890	0.1412744	2.2050814	49	3	1974–1999	0.65	M-v	3	Williams	34016	1997 QH ₁
1997 QY ₂	16.0	0.15	19990122	130.43490	29.69020	327.83761	5.22400	0.2417129	2.3547904	28	2	1997–1999	0.53	M-v	4	Williams	34016	1997 QY ₂
1997 QZ ₂	14.2	0.15	19990122	316.60099	208.76424	321.08263	4.02352	0.0670050	2.3212833	55	4	1985–1999	0.78	M-v	3	Williams	34016	1997 QZ ₂
1997 QP ₄	16.1	0.15	19990122	88.98155	87.50020	311.33915	6.44010	0.0346704	2.2312211	47	2	1997–1999	0.68	M-v	4	Williams	34016	1997 QP ₄
1997 RC	13.9	0.15	19990122	30.26482	51.68674	63.33487	3.01337	0.0277295	2.8556813	84	2	1997–1999	0.48	M-v	3	Williams	34016	1997 RC
1997 RV ₂	14.5	0.15	19990122	58.83358	268.60785	172.16749	12.32512	0.1333963	2.3919689	40	2	1997–1999	0.57	M-v	4	Williams	33952	1997 RV ₂
1997 RK ₃	13.8	0.15	19990122	145.09441	262.76594	85.13379	7.35412	0.1319241	2.3807772	33	3	1986–1999	0.67	M-v	4	Williams	33952	1997 RK ₃
1997 RO ₃	14.6	0.15	19990122	121.62448	208.21460	166.55966	5.14904	0.1122117	2.4036280	42	4	1986–1999	0.61	M-v	1	Williams	34016	1997 RO ₃
1997 RS ₅	16.2	0.15	19990122	304.88328	25.85708	189.20446	1.36451	0.0253097	2.2038274	32	3	1996–1999	0.65	M-v	4	Williams	34016	1997 RS ₅
1997 RZ ₇	13.1	0.15	19990122	97.89762	42.31533	339.70697	14.81831	0.1767472	2.5973136	49	3	1982–1999	0.58	M-v	2	Williams	34016	1997 RZ ₇
1997 RA ₉	14.9	0.15	19990122	143.19749	194.85392	179.33321	5.66913	0.0949959	2.2622246	54	3	1990–1999	0.51	M-v	3	Williams	34016	1997 RA ₉
1997 RP ₉	14.8	0.15	19990122	109.81030	216.87017	163.54941	2.60649	0.2093872	2.4334820	48	4	1986–1999	0.61	M-v	3	Williams	34016	1997 RP ₉
1997 SE	14.2	0.15	19990122	62.44524	236.06465	167.41916	15.88103	0.1266753	2.5332422	68	2	1997–1999	0.48	M-v	3	Williams	34016	1997 SE

1997 SU	13.9	0.15	19990122	130.20898	178.74037	211.66129	5.48058	0.1273586	2.4031005	44	3	1993–1999	0.63	M-v	3	Williams	31145	1997 SU
1997 SX	12.8	0.15	19990122	129.42057	312.95309	46.62171	10.56129	0.1019908	3.0616191	34	2	1997–1999	0.67	M-v	3	Williams	33952	1997 SX
1997 SM ₁	12.5	0.15	19990122	252.09657	5.50713	199.20200	13.38870	0.1063388	2.6811405	48	2	1997–1999	0.52	M-v	3	Williams	33753	1997 SM ₁
1997 SX ₁	14.1	0.15	19990122	54.38938	248.51912	209.36101	4.41537	0.1465710	2.6375094	56	2	1997–1999	0.38	M-v	3	Williams	33504	1997 SX ₁
1997 SC ₂	15.2	0.15	19990122	111.83553	194.97005	205.29870	3.17676	0.1058971	2.4336562	44	3	1993–1999	0.69	M-v	4	Williams	34017	1997 SC ₂
1997 SE ₂	15.2	0.15	19990122	84.88310	139.10684	262.41210	0.95985	0.0675351	2.8674492	33	2	1997–1999	0.53	M-v	5	Williams	33953	1997 SE ₂
1997 SG ₂	14.2	0.15	19990122	155.82561	13.38292	338.29970	7.56953	0.0745863	2.2219934	49	2	1997–1999	0.53	M-v	3	Williams	33953	1997 SG ₂
1997 SN ₂	15.4	0.15	19990122	73.21728	186.49794	230.34438	1.58795	0.1576777	2.3862754	38	4	1990–1999	0.65	M-v	1	Williams	34017	1997 SN ₂
1997 SX ₂	14.7	0.15	19990122	18.64927	161.33819	341.44351	3.48479	0.1495973	2.2587421	33	5	1975–1999	0.60	M-v	2	Williams	31251	1997 SX ₂
1997 SA ₃	14.4	0.15	19990122	159.75773	107.21353	202.14615	3.52577	0.0652220	2.7317977	30	3	1991–1999	0.53	M-v	4	Williams	33754	1997 SA ₃
1997 SB ₃	15.3	0.15	19990122	111.21299	205.20474	199.43777	4.80879	0.1399309	2.2708709	27	3	1996–1999	0.63	M-v	3	Williams	31011	1997 SB ₃
1997 SE ₃	14.6	0.15	19990122	44.41295	252.16523	175.56927	13.80404	0.1706970	2.6118278	43	2	1997–1999	0.54	M-v	3	Williams	34017	1997 SE ₃
1997 SF ₃	15.3	0.15	19990122	123.85228	22.64597	347.24747	6.87592	0.1285625	2.2814051	51	2	1997–1999	0.45	M-v	3	Williams	33953	1997 SF ₃
1997 SL ₃	16.7	0.15	19990122	154.91577	12.59982	351.56657	5.48784	0.1243132	2.2217661	14	3	1977–1999	0.59	M-v	5	Williams	30987	1997 SL ₃
1997 SC ₄	14.8	0.15	19990122	72.89444	203.18889	212.69390	1.40878	0.0739626	2.9376911	46	2	1997–1999	0.74	M-v	4	Williams	33953	1997 SC ₄
1997 SZ ₉	14.7	0.15	19990122	136.48875	80.35103	287.09926	6.19234	0.1448105	2.2943707	29	3	1992–1999	0.62	M-v	3	Williams	34017	1997 SZ ₉
1997 SD ₁₁	14.3	0.15	19990122	354.82016	269.61910	242.34140	3.04417	0.0260856	2.1630081	68	4	1980–1999	0.67	M-v	3	Williams	34017	1997 SD ₁₁
1997 SJ ₁₁	15.8	0.15	19990122	133.91680	337.09123	30.11732	2.73637	0.2198540	2.4169559	36	2	1997–1999	0.42	M-v	4	Marsden	33954	1997 SJ ₁₁
1997 SD ₁₃	14.7	0.15	19990122	40.73682	285.18467	173.21148	6.78696	0.0672819	2.2962837	33	2	1997–1999	0.66	M-v	4	Williams	33954	1997 SD ₁₃
1997 SX ₁₅	13.5	0.15	19990122	315.94980	181.12550	23.98255	10.42954	0.1805971	2.4266061	51	3	1993–1999	0.68	M-v	3	Williams	34017	1997 SX ₁₅
1997 SE ₁₆	14.7	0.15	19990122	272.67314	216.72023	14.34589	4.12748	0.0849506	2.3331442	25	3	1992–1999	0.57	M-v	4	Williams	34017	1997 SE ₁₆
1997 SG ₂₁	13.0	0.15	19990122	86.28483	176.56819	210.66483	9.49612	0.0917827	3.0559441	27	3	1986–1999	0.76	M-v	4	Williams	34017	1997 SG ₂₁
1997 SX ₂₁	15.3	0.15	19990122	136.10497	191.92248	188.95643	1.87446	0.1209110	2.2459244	27	3	1996–1999	0.92	M-v	4	Williams	30988	1997 SX ₂₁
1997 SD ₂₅	13.2	0.15	19990122	31.37095	252.89071	195.28980	10.39460	0.0691531	3.0378033	31	2	1997–1999	0.56	M-v	3	Williams	33954	1997 SD ₂₅
1997 SF ₂₅	14.6	0.15	19990122	109.98789	11.03989	19.86575	6.67363	0.1316281	2.3992434	28	2	1997–1999	0.62	M-v	4	Williams	33954	1997 SF ₂₅
1997 SE ₃₀	13.4	0.15	19990122	12.16586	246.82417	240.78824	1.95954	0.2158895	3.0719672	51	4	1972–1999	0.71	M-v	2	Williams	34017	1997 SE ₃₀
1997 SK ₃₁	16.6	0.15	19990122	30.99175	105.46703	351.94327	2.91292	0.1787203	2.5814908	28	2	1997–1999	0.50	M-v	4	Williams	33955	1997 SK ₃₁
1997 SQ ₃₂	14.6	0.15	19990122	122.25576	19.00224	356.67884	2.21300	0.2361269	2.3813441	30	4	1975–1999	0.42	M-v	2	Williams	31012	1997 SQ ₃₂
1997 TM ₁	16.2	0.15	19970909	29.58084	109.59476	183.02936	0.86632	0.1525798	2.4216734	12	1	33 days	0.25			Williams		1997 TM ₁
1997 TT ₃	14.3	0.15	19990122	27.28844	270.69257	204.50206	12.70396	0.1796459	2.7624647	30	2	1997–1999	0.60	M-v	4	Williams	33955	1997 TT ₃
1997 TB ₁₀	14.6	0.15	19990122	67.56077	213.40052	219.74308	0.87457	0.2818755	3.0283218	36	3	1994–1999	0.50	M-v	2	Williams	31423	1997 TB ₁₀
1997 TG ₁₀	15.5	0.15	19990122	218.26210	90.65771	205.68582	5.33403	0.1303051	2.2957854	41	3	1996–1999	0.66	M-v	3	Williams	34017	1997 TG ₁₀
1997 TJ ₁₀	15.0	0.15	19990122	167.63012	173.71906	159.85529	0.49914	0.0756826	2.5746662	46	2	1997–1999	0.58	M-v	5	Williams	33955	1997 TJ ₁₀
1997 TK ₁₁	14.6	0.15	19990122	339.52706	157.05790	1.89490	14.01315	0.0996095	2.6112513	22	2	1997–1999	0.68	M-v	5	Williams	33956	1997 TK ₁₁
1997 TY ₁₁	14.8	0.15	19990122	147.94685	228.04843	138.25988	2.55527	0.2018921	2.1934757	23	2	1997–1999	0.42	M-v	4	Williams	33956	1997 TY ₁₁
1997 TL ₁₇	14.8	0.15	19990122	95.11403	183.33574	234.13569	11.59495	0.1563144	2.5295795	20	4	1981–1999	0.73	M-v	3	Williams	30988	1997 TL ₁₇
1997 TM ₁₇	14.3	0.15	19990122	226.35932	24.72076	257.78867	6.78390	0.1444673	2.2866655	36	4	1993–1999	0.64	M-v	1	Williams	34017	1997 TM ₁₇
1997 TU ₁₇	14.6	0.15	19990122	238.75417	63.70207	207.15820	5.51137	0.1004041	2.2674382	33	3	1996–1999	0.63	M-v	4	Williams	33956	1997 TU ₁₇
1997 TY ₁₇	13.2	0.15	19990122	79.89172	329.12579	72.53947	2.82738	0.0653802	2.8808128	49	5	1980–1999	0.75	M-v	3	Williams	34017	1997 TY ₁₇
1997 TR ₁₈	12.6	0.15	19990122	320.36660	293.82965	200.33409	9.46207	0.0425571	2.9857043	27	2	1997–1999	0.49	M-v	4	Williams	33701	1997 TR ₁₈
1997 TU ₁₈	15.0	0.15	19990122	67.83740	262.75998	177.21423	5.69015	0.1923268	2.2344127	32	3	1992–1999	0.38	M-v	2	Williams	30883	1997 TU ₁₈
1997 TW ₁₈	15.1	0.15	19990122	355.27623	70.01800	81.96441	3.13689	0.1024963	2.3969456	26	2	1997–1999	0.51	M-v	4	Williams	33956	1997 TW ₁₈
1997 TJ ₁₉	13.4	0.15	19990122	88.86936	357.77458	46.34558	5.95676	0.0876469	2.7650523	51	2	1997–1999	0.55	M-v	3	Williams	34017	1997 TJ ₁₉
1997 TO ₁₉	15.0	0.15	19990122	179.26759	116.96884	210.70080	4.99845	0.1639498	2.2734058	42	4	1990–1999	0.67	M-v	2	Williams	34017	1997 TO ₁₉
1997 TS ₁₉	16.3	0.15	19990122	328.83842	300.54262	245.67711	2.61395	0.1680874	2.4713752	21	2	1997–1999	0.63	M-v	5	Williams	33956	1997 TS ₁₉
1997 TK ₂₄	14.6	0.15	19990122	78.26282	87.85286	322.18108	3.75949	0.0519019	2.7349599	37	2	1997–1999	0.56	M-v	4	Williams	33956	1997 TK ₂₄
1997 TR ₂₄	13.3	0.15	19990122	17.78468	265.89683	193.05269	2.03064	0.2136820	3.0673467	32	3	1988–1999	0.53	M-v	4	Marsden	33957	1997 TR ₂₄
1997 TW ₂₅	15.3	0.15	19990122	53.90590	339.44626	128.61026	4.31020	0.1048273	2.2794055	35	3	1990–1999	0.68	M-v	2	Williams	31013	1997 TW ₂₅
1997 TF ₂₆	13.8	0.15	19990122	114.01035	28.94729	341.18474	4.60517	0.0712853	2.7323817	39	2	1997–1999	0.53	M-v	4	Williams	34017	1997 TF ₂₆
1997 TR ₂₆	14.7	0.15	19990122	159.15470	298.86884	46.05452	3.64702	0.1900131	2.4316939	38	4	1978–1999	0.70	M-v	2	Williams	31146	1997 TR ₂₆
1997 TV ₂₆	14.8	0.15	19990122	6.15186	80.12951	73.03441	1.94389	0.1483497	2.4582123	35	4	1989–1999	0.58	M-v	2	Williams	33264	1997 TV ₂₆
1997 UE	16.0	0.15	19990122	73.28928	256.58288	185.43707	0.51054	0.0905241	2.3787958	36	2	1997–1999	0.51	M-v	4	Williams	33957	1997 UE
1997 UT	15.4	0.15	19990122	111.93433	199.99179	216.97936	6.26030	0.0767922	2.2490754	31	2	1997–1999	0.47	M-v	4	Williams	31115	1997 UT

1997 UG ₁	13.3	0.15	19990122	90.81687	357.37458	33.56403	10.08141	0.0785997	2.9969707	59	2	1997–1999	0.59	M-v	3	Williams	34017	1997 UG ₁
1997 UH ₁	14.0	0.15	19990122	98.50221	24.42215	41.90175	7.43486	0.0835052	2.3599183	62	4	1986–1999	0.71	M-v	2	Williams	31280	1997 UH ₁
1997 UK ₁	15.2	0.15	19990122	70.81813	47.56524	29.84923	6.04037	0.1159528	2.6142165	41	2	1997–1999	0.62	M-v	4	Marsden	33957	1997 UK ₁
1997 UU ₂	13.7	0.15	19990122	79.71450	93.00581	313.81369	1.59144	0.0205316	2.8955661	54	3	1996–1999	0.58	M-v	3	Williams	34017	1997 UU ₂
1997 UV ₂	14.4	0.15	19990122	8.28835	238.20487	264.92406	1.22915	0.1381170	2.6995776	42	4	1948–1999	0.53	M-v	2	Williams	34017	1997 UV ₂
1997 UJ ₃	13.3	0.15	19990122	190.88267	359.49170	304.89510	2.84139	0.0834899	2.7299526	58	3	1990–1999	0.53	M-v	4	Williams	33957	1997 UJ ₃
1997 UK ₃	14.8	0.15	19990122	117.63242	179.97549	228.86857	4.19700	0.2539403	2.3818630	59	5	1964–1999	0.61	M-v	1	Williams	31280	1997 UK ₃
1997 UP ₃	13.8	0.15	19990122	60.78325	187.60741	281.32949	2.51606	0.0379079	2.3991744	34	3	1991–1999	0.56	M-v	3	Williams	31146	1997 UP ₃
1997 UR ₃	14.3	0.15	19990122	174.28298	291.88969	37.43009	3.33497	0.0503351	2.6672371	42	2	1997–1999	0.72	M-v	4	Williams	33958	1997 UR ₃
1997 UV ₃	14.4	0.15	19990122	127.73173	0.42554	27.45686	2.55444	0.1896038	2.4494619	41	4	1974–1999	0.67	M-v	3	Williams	31146	1997 UV ₃
1997 UY ₃	14.0	0.15	19990122	85.55013	200.23576	235.89957	2.72879	0.1522858	2.5847025	54	3	1989–1999	0.64	M-v	2	Williams	31423	1997 UY ₃
1997 UA ₄	14.6	0.15	19990122	320.14143	315.84066	254.06805	3.59241	0.0578122	2.3111539	88	2	1997–1999	0.78	M-v	4	Williams	33703	1997 UA ₄
1997 UG ₅	14.0	0.15	19990122	63.41076	19.82480	30.55896	18.60755	0.1858581	3.2337539	46	2	1997–1999	0.52	M-v	3	Williams	34017	1997 UG ₅
1997 UK ₅	14.2	0.15	19990122	137.38956	30.07069	320.51732	13.50145	0.2199727	2.5521791	44	2	1997–1999	0.51	M-v	3	Williams	33958	1997 UK ₅
1997 UM ₅	15.4	0.15	19990122	265.30252	220.21989	29.93786	4.53998	0.1743845	2.2142470	41	4	1986–1999	0.45	M-v	1	Williams	33958	1997 UM ₅
1997 UT ₆	14.0	0.15	19990122	351.41415	341.05860	208.64866	3.07020	0.1339861	2.1831993	15	4	1981–1999	0.79	M-v	3	Williams	32682	1997 UT ₆
1997 UK ₇	14.2	0.15	19990122	90.01979	67.64337	325.77138	2.76671	0.0504172	2.6323125	49	2	1997–1999	0.67	M-v	4	Williams	34017	1997 UK ₇
1997 UL ₇	14.0	0.15	19990122	327.03443	84.58606	103.92853	3.76242	0.0521619	2.4005242	18	3	1988–1999	0.80	M-v	4	Williams	30990	1997 UL ₇
1997 UO ₇	15.6	0.15	19990122	115.60547	222.44772	171.14206	4.18190	0.1475154	2.4573071	30	3	1993–1999	0.63	M-v	5	Williams	31015	1997 UO ₇
1997 UX ₇	13.7	0.15	19990122	59.45489	222.45065	226.25434	7.09241	0.1959680	2.7930071	68	3	1971–1999	0.57	M-v	2	Williams	34017	1997 UX ₇
1997 UA ₉	12.7	0.15	19990122	333.08249	131.33774	59.01100	11.06984	0.0226733	2.5593459	51	4	1970–1999	0.67	M-v	3	Williams	31147	1997 UA ₉
1997 UN ₉	14.7	0.15	19990122	163.64698	349.09285	333.76529	1.46055	0.1386525	2.6289440	42	2	1997–1999	0.60	M-v	4	Williams	33959	1997 UN ₉
1997 US ₁₀	13.7	0.15	19990122	24.34381	197.75524	227.67662	10.65706	0.0553828	2.8523802	26	2	1997–1999	0.55	M-v	3	Williams	33704	1997 US ₁₀
1997 UY ₁₀	14.0	0.15	19990122	54.79902	255.21745	189.34479	1.51969	0.0723523	2.9774372	66	5	1992–1999	0.53	M-v	1	Williams	34018	1997 UY ₁₀
1997 UX ₁₄	14.2	0.15	19990122	96.93692	347.77167	43.19707	10.19593	0.1047202	2.7365102	37	2	1997–1999	0.63	M-v	4	Williams	33960	1997 UX ₁₄
1997 UC ₁₅	13.8	0.15	19990122	100.43498	249.90640	124.17454	1.08102	0.2049781	3.1108295	60	5	1975–1999	0.75	M-v	2	Williams	34018	1997 UC ₁₅
1997 UW ₁₇	14.4	0.15	19990122	269.28907	187.89082	55.37296	8.61233	0.0243689	2.5556911	34	2	1997–1999	0.76	M-v	4	Williams	33960	1997 UW ₁₇
1997 UE ₂₁	14.2	0.15	19990122	359.85226	111.20955	9.95780	12.51518	0.1500855	3.1434353	24	2	1997–1999	0.87	M-v	4	Williams	33960	1997 UE ₂₁
1997 UK ₂₁	14.0	0.15	19990122	72.71827	71.70683	23.80894	4.05788	0.1676440	2.5881170	29	3	1976–1999	0.56	M-v	3	Williams	31148	1997 UK ₂₁
1997 UK ₂₄	13.5	0.15	19990122	167.36262	67.08165	301.13927	4.54373	0.0890599	2.2032867	31	6	1954–1999	0.48	M-v	2	Williams	31393	1997 UK ₂₄
1997 UB ₂₅	13.8	0.15	19990122	179.49876	74.71702	262.60693	4.05463	0.2167968	2.2031801	31	3	1984–1999	0.82	M-v	4	Williams	34018	1997 UB ₂₅
1997 UD ₂₅	13.2	0.15	19990122	86.50602	305.78933	93.63453	3.50519	0.0575360	2.8889931	45	4	1987–1999	0.72	M-v	1	Williams	34018	1997 UD ₂₅
1997 VA	15.1	0.15	19990122	88.34025	167.89031	240.69718	3.52397	0.2889338	2.5820279	30	3	1993–1999	0.61	M-v	3	Williams	30993	1997 VA
1997 VP	16.1	0.15	19990122	216.30303	63.33403	231.53691	6.39794	0.1187183	2.3153709	37	3	1996–1999	0.54	M-v	3	Williams	33960	1997 VP
1997 VQ	13.1	0.15	19990122	115.92658	159.94274	207.78129	9.19889	0.0979936	3.0697918	37	4	1991–1999	0.70	M-v	2	Williams	34018	1997 VQ
1997 VR	15.4	0.15	19990122	156.27079	194.18085	172.95214	2.98427	0.1887244	2.2615804	34	4	1990–1999	0.69	M-v	2	Williams	31281	1997 VR
1997 VS	14.9	0.15	19990122	142.32551	291.00154	81.49810	3.40963	0.2227030	2.3765649	24	3	1986–1999	0.61	M-v	4	Williams	31148	1997 VS
1997 VJ ₁	13.9	0.15	19990122	299.76260	250.77050	312.27062	14.37967	0.0655774	2.6219193	53	3	1996–1999	0.44	M-v	3	Williams	34018	1997 VJ ₁
1997 VV ₂	14.4	0.15	19990122	94.08454	198.70946	199.66602	9.35074	0.1700252	2.5771847	24	2	1997–1999	0.59	M-v	4	Williams	33961	1997 VV ₂
1997 VA ₃	14.4	0.15	19990122	240.94741	16.44973	271.06550	2.85957	0.0882479	2.2683793	57	3	1993–1999	0.54	M-v	3	Williams	34018	1997 VA ₃
1997 VN ₃	13.6	0.15	19990122	242.06490	36.16574	237.18679	18.14171	0.1923214	2.5838477	43	4	1991–1999	0.78	M-v	3	Williams	34018	1997 VN ₃
1997 VU ₃	14.8	0.15	19990122	131.94317	207.76781	191.57493	2.74206	0.1899443	2.3465903	55	4	1986–1999	0.58	M-v	2	Williams	31281	1997 VU ₃
1997 VW ₃	13.2	0.15	19990122	128.42154	219.88790	154.72150	2.51718	0.0857587	2.8438397	60	4	1978–1999	0.69	M-v	1	Williams	33961	1997 VW ₃
1997 VA ₄	14.4	0.15	19990122	77.31249	282.98479	176.01937	7.48077	0.2094384	3.0497233	37	3	1996–1999	0.47	M-v	3	Marsden	31116	1997 VA ₄
1997 VD ₄	12.8	0.15	19990122	220.87098	60.70325	208.90037	1.36518	0.0297461	2.8355085	52	4	1971–1999	0.73	M-v	3	Marsden	34018	1997 VD ₄
1997 VG ₄	13.4	0.15	19990122	11.28953	11.34890	136.20610	2.03219	0.1734047	3.1906117	58	3	1991–1999	0.78	M-v	3	Williams	34018	1997 VG ₄
1997 VW ₄	13.8	0.15	19990122	340.52825	129.83286	49.70906	14.14065	0.1139430	2.5721152	57	2	1997–1999	0.61	M-v	4	Williams	34018	1997 VW ₄
1997 VC ₅	13.2	0.15	19990122	167.00401	265.55657	63.57804	10.63411	0.0869147	3.0792971	34	2	1997–1999	0.56	M-v	3	Williams	34018	1997 VC ₅
1997 VD ₅	15.4	0.15	19990122	124.86681	192.71297	181.00882	4.20370	0.2470937	2.4257334	32	4	1993–1999	0.38	M-v	2	Williams	31149	1997 VD ₅
1997 VE ₅	14.1	0.15	19990122	131.13383	292.15848	75.23057	3.06021	0.2015464	2.4036265	45	3	1996–1999	0.68	M-v	3	Williams	34018	1997 VE ₅
1997 VD ₆	12.8	0.15	19990122	346.82617	91.20836	80.47244	10.62533	0.0481823	3.0471206	20	2	1997–1999	0.39	M-v	3	Williams	33961	1997 VD ₆
1997 VE ₆	15.3	0.15	19990122	177.42152	102.00234	254.37502	1.12037	0.1304632	2.3538457	30	3	1993–1999	0.86	M-v	4	Williams	31394	1997 VE ₆
1997 VH ₆	14.6	0.15	19990122	183.18624	267.49941	49.51776	4.77229	0.0426640	2.6394834	49	3	1987–1999	0.73	M-v	3	Williams	33962	1997 VH ₆

1997 VP ₆	14.0	0.15	19990122	138.77082	138.44805	225.92853	1.04329	0.1705461	2.5161527	42	5	1977–1999	0.78	M-v	4	Williams	34018	1997 VP ₆
1997 VW ₆	14.4	0.15	19990122	104.97333	118.05346	268.70606	0.82047	0.1142599	2.9346054	34	2	1997–1999	0.61	M-v	5	Williams	33962	1997 VW ₆
1997 VY ₆	15.3	0.15	19990122	96.74320	152.15255	253.35133	1.02410	0.2331061	2.7701860	32	3	1992–1999	0.66	M-v	4	Williams	31281	1997 VY ₆
1997 VE ₇	14.3	0.15	19990122	5.14348	259.11015	255.84314	4.93577	0.1499677	2.4284576	18	3	1978–1999	0.45	M-v	3	Williams	33558	1997 VE ₇
1997 VM ₇	14.5	0.15	19990122	245.22500	232.47004	51.23614	4.99452	0.1258432	2.3149752	31	3	1971–1999	0.66	M-v	3	Williams	31150	1997 VM ₇
1997 VR ₇	12.4	0.15	19990122	191.14591	257.16650	46.31583	10.21915	0.0845699	3.0546727	35	2	1997–1999	0.60	M-v	4	Williams	34018	1997 VR ₇
1997 VX ₇	15.1	0.15	19990122	268.68272	227.85897	8.25885	7.84722	0.0846988	2.4356081	29	3	1993–1999	0.68	M-v	4	Williams	34018	1997 VX ₇
1997 WK	13.3	0.15	19990122	258.80643	8.99182	256.40961	1.82431	0.0086247	2.6295523	24	3	1989–1999	0.68	M-v	4	Williams	31251	1997 WK
1997 WL	13.8	0.15	19990122	286.18949	168.47543	62.34017	7.70101	0.0341864	2.8046134	31	2	1997–1999	0.55	M-v	4	Williams	33962	1997 WL
1997 WX	14.3	0.15	19990122	104.08950	29.87047	9.27478	8.00091	0.0697113	2.3419210	51	2	1997–1999	0.66	M-v	3	Williams	34018	1997 WX
1997 WB ₁	14.6	0.15	19990122	82.76575	61.45672	358.19976	2.36370	0.0800821	2.6333271	35	3	1995–1999	0.67	M-v	4	Williams	34018	1997 WB ₁
1997 WG ₁	13.1	0.15	19990122	77.60748	124.09790	242.04549	9.87856	0.1137683	2.9902649	33	4	1982–1999	0.65	M-v	1	Williams	34018	1997 WG ₁
1997 WP ₁	14.3	0.15	19990122	118.39463	111.27153	262.77731	0.92943	0.0834535	2.8687077	41	2	1997–1999	0.88	M-v	5	Williams	33962	1997 WP ₁
1997 WD ₂	14.0	0.15	19990122	167.37993	259.84054	87.06206	6.23959	0.2745038	2.3400492	39	5	1993–1999	0.60	M-v	2	Williams	31151	1997 WD ₂
1997 WQ ₂	14.8	0.15	19990122	143.29633	309.65977	85.66696	6.69778	0.0880557	2.3626731	32	2	1997–1999	0.71	M-v	4	Williams	31151	1997 WQ ₂
1997 WD ₃	13.1	0.15	19990122	280.56373	161.21917	82.51205	3.19633	0.0160772	2.8363159	42	3	1991–1999	0.63	M-v	4	Williams	33755	1997 WD ₃
1997 WA ₇	12.3	0.15	19990122	282.11620	190.32375	96.17351	15.22297	0.1959427	2.5887823	24	4	1991–1999	0.69	M-v	4	Williams	31118	1997 WA ₇
1997 WK ₇	13.8	0.15	19990122	38.88602	108.56094	43.08403	4.38135	0.0903545	2.2691563	31	3	1985–1999	0.74	M-v	3	Williams	33963	1997 WK ₇
1997 WL ₇	13.7	0.15	19990122	57.91354	213.65400	250.59776	3.48439	0.0905388	2.6459227	39	3	1991–1999	0.78	M-v	2	Williams	31796	1997 WL ₇
1997 WO ₇	12.8	0.15	19990122	46.90519	34.23875	59.08593	10.66611	0.0720679	3.0680614	62	2	1997–1999	0.66	M-v	3	Williams	34018	1997 WO ₇
1997 WU ₇	12.9	0.15	19990122	97.79426	34.39480	32.88192	13.47789	0.2441256	2.5433190	34	3	1989–1999	0.34	M-v	3	Williams	31118	1997 WU ₇
1997 WZ ₇	13.0	0.15	19990122	174.40691	252.76378	70.03177	11.26618	0.1207342	2.9772553	26	2	1997–1999	0.65	M-v	4	Williams	33963	1997 WZ ₇
1997 WE ₈	13.7	0.15	19990122	302.94306	324.83513	248.49589	4.96567	0.0916093	2.6935007	33	3	1995–1999	0.58	M-v	3	Williams	34018	1997 WE ₈
1997 WU ₈	14.6	0.15	19990122	132.93967	212.92295	152.73438	2.60532	0.1254322	2.7262647	34	2	1997–1999	0.70	M-v	4	Williams	33963	1997 WU ₈
1997 WR ₁₁	14.9	0.15	19990122	344.99004	309.80996	224.26175	4.55717	0.1204978	2.5819317	30	2	1997–1999	0.68	M-v	4	Williams	33963	1997 WR ₁₁
1997 WB ₁₃	14.6	0.15	19990122	329.25207	147.79166	39.43679	1.86027	0.1366600	2.6069247	49	3	1995–1999	0.62	M-v	4	Williams	34018	1997 WB ₁₃
1997 WO ₁₃	14.4	0.15	19990122	348.08747	113.34588	86.07181	7.86391	0.0623070	2.3592037	41	4	1977–1999	0.74	M-v	2	Williams	34018	1997 WO ₁₃
1997 WD ₁₅	13.4	0.15	19990122	323.44013	141.90614	42.05007	5.98134	0.1179796	2.7533567	34	3	1990–1999	0.67	M-v	4	Williams	34019	1997 WD ₁₅
1997 WM ₁₆	14.2	0.15	19990122	154.02783	223.01769	116.76545	6.72458	0.1883041	2.2688645	66	3	1992–1999	0.46	M-v	2	Williams	34019	1997 WM ₁₆
1997 WK ₂₁	13.5	0.15	19990122	206.52231	118.31236	195.82566	4.75928	0.0468947	2.7643194	30	3	1996–1999	0.68	M-v	4	Williams	33964	1997 WK ₂₁
1997 WT ₂₁	13.9	0.15	19990122	182.72225	286.92334	60.54120	3.12605	0.0729172	2.8504682	21	4	1994–1999	0.74	M-v	1	Williams	31282	1997 WT ₂₁
1997 WU ₂₁	12.6	0.15	19990122	210.53594	232.99759	82.30954	9.62084	0.0729272	3.0457127	14	3	1986–1999	0.49	M-v	3	Williams	31120	1997 WU ₂₁
1997 WX ₂₁	12.8	0.15	19990122	315.17126	241.24913	354.16076	12.79745	0.1314724	2.7017232	36	3	1990–1999	0.55	M-v	4	Williams	31120	1997 WX ₂₁
1997 WP ₂₂	13.1	0.15	19990122	201.09429	228.66313	114.74309	2.33653	0.1693931	3.1736427	35	3	1984–1999	0.61	M-v	3	Williams	33558	1997 WP ₂₂
1997 WD ₃₀	13.0	0.15	19990122	101.28471	337.29397	48.92153	11.45532	0.1276757	2.9784065	33	2	1997–1999	0.48	M-v	3	Williams	33964	1997 WD ₃₀
1997 WZ ₃₀	13.9	0.15	19990122	128.50155	288.11189	81.41881	3.01567	0.0846330	2.8048991	38	2	1997–1999	0.77	M-v	4	Williams	33964	1997 WZ ₃₀
1997 WQ ₃₁	13.6	0.15	19990122	118.84990	291.07515	80.10471	3.13626	0.1170095	2.9472294	28	2	1997–1999	0.66	M-v	4	Williams	33964	1997 WQ ₃₁
1997 WQ ₃₄	14.1	0.15	19990122	195.01452	235.83372	88.20967	6.19409	0.1060301	2.4006601	37	4	1981–1999	0.86	M-v	1	Williams	34019	1997 WQ ₃₄
1997 WT ₃₄	14.3	0.15	19990122	182.82271	182.82375	142.19677	3.49858	0.2365162	2.3525436	64	3	1986–1999	0.65	M-v	3	Williams	34019	1997 WT ₃₄
1997 WC ₃₅	13.3	0.15	19990122	352.18099	48.26315	107.02683	3.43586	0.0212327	2.9265358	50	2	1997–1999	0.69	M-v	3	Williams	33964	1997 WC ₃₅
1997 WK ₃₅	13.7	0.15	19990122	19.79018	308.41780	186.47696	1.87545	0.1826108	3.1864077	21	3	1993–1999	0.91	M-v	3	Williams	31989	1997 WK ₃₅
1997 WD ₃₆	13.8	0.15	19990122	23.46591	144.74734	345.16987	1.27291	0.0310395	2.8906333	33	2	1997–1999	0.75	M-v	4	Williams	33965	1997 WD ₃₆
1997 WB ₃₇	11.9	0.15	19990122	264.12929	144.56655	86.68383	11.86909	0.0981287	3.2159415	72	2	1997–1999	0.51	M-v	3	Williams	34019	1997 WB ₃₇
1997 WK ₃₇	15.5	0.15	19971128	50.02200	195.56533	156.02557	2.59751	0.2198639	3.2455362	10	1	8 days	0.51			Williams	31121	1997 WK ₃₇
1997 WT ₃₇	13.9	0.15	19990122	194.96116	337.90285	351.09686	2.47023	0.1118629	2.3969047	36	3	1993–1999	0.76	M-v	3	Williams	31424	1997 WT ₃₇
1997 WB ₃₈	14.3	0.15	19990122	276.42503	170.15035	100.74206	2.43604	0.1276594	2.1733517	32	4	1980–1999	0.69	M-v	2	Williams	31395	1997 WB ₃₈
1997 WR ₃₈	14.8	0.15	19990122	210.57873	22.03418	295.59113	3.87771	0.1795524	2.2589457	22	3	1993–1999	0.73	M-v	3	Williams	33266	1997 WR ₃₈
1997 WD ₄₁	13.3	0.15	19990122	3.15952	251.43541	257.70407	7.79284	0.0513443	3.0762346	37	2	1997–1999	0.73	M-v	4	Williams	33965	1997 WD ₄₁
1997 WR ₄₁	15.1	0.15	19990122	158.60195	143.85328	215.66121	1.64934	0.1916387	2.4331994	25	4	1978–1999	0.99	M-v	2	Williams	31122	1997 WR ₄₁
1997 WM ₄₉	14.8	0.15	19971108	45.63703	189.75572	173.42040	4.18111	0.1325531	2.6132148	10	1	11 days	0.42			Williams		1997 WM ₄₉
1997 WO ₅₁	13.5	0.15	19990122	1.75340	53.42878	95.89110	6.57479	0.1296307	3.1168953	40	2	1997–1999	0.56	M-v	4	Williams	33965	1997 WO ₅₁
1997 XA	14.1	0.15	19990122	68.87334	202.35934	246.44963	8.97309	0.1947720	2.7826313	31	2	1997–1999	0.67	M-v	5	Williams	33965	1997 XA
1997 XN	13.3	0.15	19990122	155.11546	90.79204	294.54916	7.08146	0.0211429	2.7811320	26	5	1989–1999	0.84	M-v	1	Williams	31123	1997 XN

1997 XV	13.7	0.15	19990122	341.54056	193.38126	351.79573	4.76885	0.0271069	2.8677639	41	3	1996–1999	0.79	M-v	4	Williams	34019	1997 XV
1997 XF ₂	13.5	0.15	19990122	216.29601	22.43329	270.64145	8.31153	0.0911871	3.0693152	24	2	1997–1999	0.68	M-v	4	Williams	33966	1997 XF ₂
1997 XL ₅	13.9	0.15	19990122	108.52341	291.32812	132.29761	5.44498	0.0923124	2.6064740	32	2	1997–1999	0.57	M-v	4	Williams	33705	1997 XL ₅
1997 XY ₆	14.4	0.15	19990122	175.80693	186.23946	133.18584	0.80286	0.1493383	2.6009327	41	2	1997–1999	0.59	M-v	5	Williams	33966	1997 XY ₆
1997 XY ₉	13.7	0.15	19990122	242.08981	11.59944	277.31554	1.60001	0.2020033	2.4042533	47	4	1974–1999	0.60	M-v	1	Williams	34019	1997 XY ₉
1997 XA ₁₀	14.1	0.15	19990122	334.68932	139.58075	69.39579	3.10753	0.1387719	2.6849096	30	3	1996–1999	0.87	M-v	4	Williams	31125	1997 XA ₁₀
1997 XC ₁₀	12.6	0.15	19990122	185.21786	86.56086	233.81601	9.22768	0.1094005	2.9864489	29	3	1986–1999	0.77	M-v	3	Williams	33966	1997 XC ₁₀
1997 XR ₁₁	12.9	0.15	19990122	194.04661	6.31334	305.20330	13.61628	0.1822542	2.6910479	21	3	1983–1999	0.67	M-v	3	Williams	34019	1997 XR ₁₁
1997 XS ₁₁	13.6	0.15	19990122	61.30842	182.09997	264.26264	8.20340	0.0478643	3.0494433	26	2	1997–1999	0.71	M-v	4	Williams	33966	1997 XS ₁₁
1997 XA ₁₂	14.8	0.15	19990122	173.03638	331.52804	27.09337	4.27279	0.1799875	2.2318520	35	4	1990–1999	0.79	M-v	2	Williams	31253	1997 XA ₁₂
1997 YA	13.2	0.15	19990122	77.21153	330.03777	69.68045	12.35785	0.1099401	3.0344269	58	3	1992–1999	0.66	M-v	3	Williams	34019	1997 YA
1997 YQ	14.9	0.15	19990122	172.57213	171.71256	198.73346	2.35905	0.2085464	2.3964918	34	4	1989–1999	0.78	M-v	3	Williams	31283	1997 YQ
1997 YT	14.1	0.15	19990122	240.72041	35.91021	273.07996	3.86300	0.0752858	2.6458665	23	3	1996–1999	0.60	M-v	5	Williams	32683	1997 YT
1997 YC ₁	14.3	0.15	19990122	194.99874	282.54242	72.22570	3.64664	0.2144993	2.3672845	32	4	1971–1999	0.41	M-v	2	Williams	31283	1997 YC ₁
1997 YG ₁	14.9	0.15	19990122	48.68660	53.31729	62.21503	2.94839	0.1443832	2.4490645	45	3	1978–1999	0.51	M-v	1	Williams	33558	1997 YG ₁
1997 YY ₁	13.5	0.15	19990122	114.42460	325.52843	91.69761	3.74118	0.1427253	2.8367146	23	4	1987–1999	0.58	M-v	1	Williams	31127	1997 YY ₁
1997 YR ₂	13.8	0.15	19990122	187.31907	247.69295	81.43805	3.45868	0.1890561	2.4446352	53	4	1989–1999	0.78	M-v	1	Williams	33967	1997 YR ₂
1997 YH ₃	14.6	0.15	19990122	130.46711	31.65335	324.35198	2.10720	0.1706187	2.5964026	41	2	1997–1999	0.60	M-v	4	Williams	33967	1997 YH ₃
1997 YR ₃	12.9	0.15	19990122	46.94359	213.98978	250.08896	17.32688	0.2243766	2.9942752	27	3	1992–1999	0.49	M-v	2	Williams	33558	1997 YR ₃
1997 YW ₃	13.2	0.15	19990122	103.87693	73.84298	340.96328	7.90669	0.2347022	2.7603342	20	3	1992–1999	0.38	M-v	3	Williams	31128	1997 YW ₃
1997 YH ₄	14.0	0.15	19990122	144.90684	336.39163	59.52902	2.93027	0.0756397	2.8454760	33	3	1996–1999	0.52	M-v	2	Williams	31591	1997 YH ₄
1997 YY ₅	11.4	0.15	19990122	217.96068	9.13323	311.87194	9.37804	0.0822028	3.0110479	28	4	1978–1999	0.53	M-v	2	Williams	34019	1997 YY ₅
1997 YL ₇	12.6	0.15	19990122	88.20681	17.27482	88.03279	15.10822	0.2327513	2.6573034	19	3	1975–1999	0.45	M-v	3	Williams	31256	1997 YL ₇
1997 YP ₇	12.6	0.15	19990122	235.58785	278.38951	44.99336	5.75383	0.1458312	3.1521217	35	5	1979–1999	0.66	M-v	1	Williams	31591	1997 YP ₇
1997 YN ₈	14.2	0.15	19990122	269.72576	262.62655	14.22681	2.77489	0.1580931	2.2492575	62	2	1997–1999	0.61	M-v	4	Williams	33706	1997 YN ₈
1997 YY ₈	12.7	0.15	19990122	99.16986	332.07609	90.05333	15.45696	0.1656379	2.6508544	26	3	1994–1999	0.86	M-v	4	Williams	31396	1997 YY ₈
1997 YT ₁₀	13.3	0.15	19990122	337.68350	136.27123	105.85621	8.56156	0.0488584	2.7790800	44	4	1976–1999	0.47	M-v	2	Williams	31591	1997 YT ₁₀
1997 YR ₁₃	13.0	0.15	19990122	156.77623	162.40376	217.81042	0.10104	0.1293545	3.2112216	40	5	1990–1999	0.45	M-v	1	Williams	32753	1997 YR ₁₃
1997 YX ₁₅	12.6	0.15	19990122	259.97829	350.12605	294.85221	14.42654	0.1146595	3.0390834	32	4	1979–1999	0.63	M-v	1	Williams	31286	1997 YX ₁₅
1998 AJ	12.8	0.15	19990122	102.44226	305.86514	118.67023	4.10835	0.1720122	3.1136795	72	4	1969–1999	0.69	M-v	3	Williams	31797	1998 AJ
1998 AU ₃	13.0	0.15	19990122	126.68926	288.58711	100.38272	2.88252	0.1878133	3.1812386	33	4	1979–1999	0.52	M-v	1	Williams	31260	1998 AU ₃
1998 AL ₇	14.6	0.15	19980127	341.66473	270.59681	242.89610	1.26654	0.1420811	2.4156832	14	1	29 days	0.55			Nakano		1998 AL ₇
1998 AP ₇	14.5	0.15	19990122	207.05326	242.58547	98.90597	4.30188	0.0929702	2.6884963	33	3	1996–1999	0.54	M-v	4	Marsden	31426	1998 AP ₇
1998 AC ₈	12.9	0.15	19990122	88.21081	230.51559	199.48627	0.49029	0.1521677	3.1932395	42	5	1979–1999	0.63	M-v	1	Williams	31397	1998 AC ₈
1998 AN ₈	13.8	0.15	19990122	118.11703	324.47307	44.61207	15.55816	0.0962580	2.6786297	46	2	1997–1999	0.63	M-v	3	Williams	33755	1998 AN ₈
1998 AP ₈	14.7	0.15	19990122	47.10782	327.22934	164.50077	2.27684	0.2453761	2.5641226	34	4	1982–1999	0.69	M-v	2	Williams	31555	1998 AP ₈
1998 AM ₁₀	14.0	0.15	19990122	257.21863	174.33615	145.94387	7.88929	0.0898306	2.4535445	31	2	1997–1999	0.63	M-v	4	Williams	33967	1998 AM ₁₀
1998 AQ ₁₀	15.0	0.15	19990122	35.47848	57.10802	112.28392	5.24952	0.0581759	2.6263183	25	3	1977–1999	0.54	M-v	3	Williams	31555	1998 AQ ₁₀
1998 BQ	14.1	0.15	19990122	70.85418	356.88251	106.17030	7.41120	0.1402011	2.2848640	19	4	1987–1999	0.96	M-v	3	Williams	31397	1998 BQ
1998 BA ₂	14.1	0.15	19990122	193.63861	303.87160	48.17135	4.18471	0.1847168	2.5620098	31	4	1955–1999	0.76	M-v	2	Williams	31555	1998 BA ₂
1998 BB ₂	12.4	0.15	19990122	292.80029	157.54442	102.38678	17.76385	0.1379009	3.1203654	68	4	1988–1999	0.62	M-v	2	Williams	31797	1998 BB ₂
1998 BW ₂	12.9	0.15	19990122	165.14570	267.56760	108.93162	8.57970	0.1074593	3.0388992	31	5	1977–1999	0.70	M-v	2	Williams	34019	1998 BW ₂
1998 BD ₅	13.2	0.15	19990122	294.42089	115.84074	149.19236	5.79125	0.1289058	3.1097150	38	4	1989–1999	0.58	M-v	1	Williams	31397	1998 BD ₅
1998 BA ₉	13.1	0.15	19990122	154.68624	105.77946	285.26774	8.06807	0.0806811	3.1734378	27	4	1987–1999	0.59	M-v	1	Williams	31265	1998 BA ₉
1998 BK ₁₀	14.5	0.15	19990122	205.66174	282.91186	57.04740	6.90864	0.2290339	2.5562561	38	3	1995–1999	0.59	M-v	4	Williams	31399	1998 BK ₁₀
1998 BK ₁₁	13.5	0.15	19990122	181.51667	359.71352	358.37193	0.65775	0.1074478	2.7562623	48	5	1991–1999	0.69	M-v	1	Williams	31265	1998 BK ₁₁
1998 BC ₁₂	12.4	0.15	19990122	74.31116	354.12704	110.90653	11.62190	0.0293872	3.0401366	39	4	1986–1999	0.68	M-v	2	Williams	31798	1998 BC ₁₂
1998 BV ₁₂	12.7	0.15	19990122	249.15174	324.11724	338.30393	1.30035	0.0622381	2.8711661	37	5	1977–1999	0.46	M-v	1	Williams	31399	1998 BV ₁₂
1998 BX ₁₃	13.2	0.15	19990122	190.75444	180.83376	114.56488	4.70977	0.2245424	2.8496262	42	5	1977–1999	0.65	M-v	1	Williams	34019	1998 BX ₁₃
1998 BM ₁₅	13.2	0.15	19990122	256.10333	38.23540	259.96279	2.67247	0.0460798	3.1546928	35	4	1981–1999	0.53	M-v	1	Williams	32753	1998 BM ₁₅
1998 BA ₂₀	14.8	0.15	19990122	190.98779	151.13945	206.32768	0.23174	0.0696591	2.7971940	18	3	1996–1999	0.53	M-v	5	Williams	32683	1998 BA ₂₀
1998 BU ₂₅	12.5	0.15	19990122	47.08285	13.92864	134.60489	10.60835	0.0509859	3.0440103	83	4	1977–1999	0.76	M-v	2	Williams	34019	1998 BU ₂₅
1998 BT ₂₆	13.4	0.15	19990122	16.05409	138.70679	335.39011	15.54721	0.0724139	3.1759275	63	2	1998–1999	0.46	M-v	3	Williams	33967	1998 BT ₂₆

1998 BC ₃₅	13.9	0.15	19990122	332.34630	62.37112	108.84546	3.19110	0.0435236	2.9511014	42	2	1997–1999	0.63	M-v	3	Williams	33968	1998 BC ₃₅
1998 CH	12.9	0.15	19990122	142.34343	293.61620	106.48820	22.76197	0.0686160	2.6912356	74	3	1997–1999	0.38	M-v	2	Williams	34019	1998 CH
1998 CV ₁	12.3	0.15	19990122	112.16961	296.69103	111.59026	8.38763	0.2061772	3.9243919	46	4	1989–1999	0.84	M-v	1	Williams	32059	1998 CV ₁
1998 CM ₂	13.9	0.15	19990122	100.62132	287.32609	137.37841	3.15284	0.1505257	2.4314565	45	3	1991–1999	0.70	M-v	2	Williams	31799	1998 CM ₂
1998 CS ₂	13.2	0.15	19990122	105.97455	295.32461	97.33783	6.80338	0.0782296	2.8782402	46	2	1998–1999	0.58	M-v	3	Williams	33968	1998 CS ₂
1998 DP	11.9	0.15	19990122	222.64807	217.05014	112.90223	13.94708	0.1198922	3.1620329	50	2	1998–1999	0.27	M-v	3	Marsden	34019	1998 DP
1998 DP ₁	14.2	0.15	19990122	98.97127	344.18319	123.01086	7.22868	0.0911712	2.4568080	32	4	1992–1999	0.69	M-v	2	Williams	31800	1998 DP ₁
1998 DS ₈	13.1	0.15	19990122	283.97215	100.55803	120.45053	3.01865	0.0650061	2.9371803	41	2	1997–1999	0.60	M-v	4	Williams	33968	1998 DS ₈
1998 EG ₉	13.1	0.15	19990122	182.22881	214.07358	120.14933	4.87566	0.0966736	2.4691299	33	2	1998–1999	0.53	M-v	4	Williams	33968	1998 EG ₉
1998 FN ₁₂	14.8	0.15	19990122	333.01905	261.13166	6.61439	1.92408	0.0280784	2.8557109	26	2	1995–1998	0.54	M-v	4	Williams	32971	1998 FN ₁₂
1998 FY ₃₅	15.2	0.15	19990122	8.34594	269.51945	13.34262	5.80461	0.1797701	2.1997347	28	2	1989–1998	0.66	M-v	4	Williams	33968	1998 FY ₃₅
1998 HO ₃	14.7	0.15	19990122	10.99462	84.11695	191.28083	14.79427	0.1296059	2.6040318	22	1	78 days	0.59	M-v	4	Williams		1998 HO ₃
1998 HH ₇₇	15.2	0.15	19990122	142.00484	124.44130	3.62057	1.19829	0.1263682	2.4145771	20	1	67 days	0.60	M-v	7 D	Williams	34019	1998 HH ₇₇
1998 MU ₇	14.6	0.15	19990122	29.03339	84.24950	262.16474	4.87426	0.2048053	2.2414556	47	1	192 days	0.61	M-v	3	Williams	33558	1998 MU ₇
1998 NA	13.3	0.15	19990122	21.58394	37.81475	334.09758	9.18665	0.1776761	2.5783762	79	2	1992–1999	0.67	M-v	2	Williams	34020	1998 NA
1998 OX ₁₄	13.7	0.15	19990122	75.24601	313.67755	326.95166	12.50484	0.1363901	2.5861348	47	1	154 days	0.77	M-v	4	Williams	33755	1998 OX ₁₄
1998 PU	14.9	0.15	19990122	22.25555	31.31020	332.28833	6.11870	0.2050319	2.3954601	54	1	130 days	0.57	M-v	4	Williams	33559	1998 PU
1998 PP ₁	12.3	0.15	19990122	323.79134	114.03609	290.52860	9.52196	0.0720702	3.2419023	34	1	140 days	0.55	M-v	4	Williams	33079	1998 PP ₁
1998 QX	15.3	0.15	19990122	35.48570	156.20108	165.57330	36.50746	0.2014571	2.7310545	24	3	1989–1998	0.64	M-v	3	Williams	33080	1998 QX
1998 QS ₅	14.5	0.15	19990122	356.44881	56.02064	338.41429	6.71671	0.2288884	2.7369065	46	1	114 days	0.53	M-v	4	Williams	33559	1998 QS ₅
1998 QZ ₅	15.8	0.15	19990122	36.52454	5.37701	5.21292	5.13143	0.2685183	2.5343569	17	1	85 days	0.57	M-v	5	Williams	33347	1998 QZ ₅
1998 QK ₆	13.7	0.15	19990122	41.69649	146.93415	206.16318	6.35129	0.1830696	3.9797990	22	1	82 days	0.57	M-v	5	Williams	33347	1998 QK ₆
1998 QL ₆	15.4	0.15	19990122	10.66081	220.02803	193.39346	3.40320	0.1925362	2.6236239	28	1	82 days	0.51	M-v	4	Williams	33347	1998 QL ₆
1998 QO ₆	15.2	0.15	19990122	355.64324	53.68427	24.89056	5.60244	0.2102102	2.5554283	23	1	137 days	0.75	M-v	4	Williams	33755	1998 QO ₆
1998 QR ₆	15.7	0.15	19990122	57.45721	282.08368	62.79150	1.10381	0.1937418	2.6541575	32	1	107 days	0.59	M-v	5	Williams	34020	1998 QR ₆
1998 QL ₂₄	13.7	0.15	19990122	254.59278	278.28064	201.83822	3.86514	0.0265987	2.4312432	27	3	1982–1998	0.85	M-v	3	Williams	33559	1998 QL ₂₄
1998 QZ ₂₅	14.4	0.15	19990122	344.99628	38.20081	15.24231	2.81799	0.1604174	2.4609169	40	1	90 days	0.69	M-v	5	Williams	33081	1998 QZ ₂₅
1998 QW ₃₄	13.3	0.15	19990122	52.08204	130.57804	175.60465	14.83186	0.2002242	2.7742098	32	2	1992–1998	0.66	M-v	4	Williams	33560	1998 QW ₃₄
1998 QR ₃₈	13.6	0.15	19990122	1.82860	52.29743	318.66159	9.08044	0.1004894	3.1342731	31	1	104 days	0.60	M-v	4	Williams	33082	1998 QR ₃₈
1998 QT ₃₉	14.1	0.15	19990122	353.25801	255.44852	142.95108	7.69208	0.1937274	2.5533893	38	2	1992–1998	0.54	M-v	4	Williams	33560	1998 QT ₃₉
1998 QH ₄₀	14.9	0.15	19990122	358.07195	142.80474	259.24235	2.94715	0.2224483	2.3972617	31	2	1987–1998	0.74	M-v	4	Williams	33560	1998 QH ₄₀
1998 QP ₄₀	13.1	0.15	19990122	282.48016	147.30344	319.91857	12.43336	0.1140551	2.6090577	39	4	1975–1998	0.68	M-v	4	Williams	33560	1998 QP ₄₀
1998 QV ₄₀	13.5	0.15	19990122	24.71532	125.71597	223.98474	4.08465	0.0464402	2.7776110	38	3	1978–1998	0.64	M-v	3	Williams	32706	1998 QV ₄₀
1998 QH ₄₂	14.2	0.15	19990122	356.23577	51.97032	338.06147	13.92045	0.1281791	2.5990564	37	1	137 days	0.64	M-v	4	Williams	34020	1998 QH ₄₂
1998 QN ₄₂	14.2	0.15	19990122	35.85712	10.15827	326.36469	8.52096	0.1848211	2.7267053	55	2	1996–1998	0.74	M-v	3	Williams	33560	1998 QN ₄₂
1998 QS ₄₄	13.3	0.15	19990122	158.30572	240.41364	329.78215	6.15925	0.0756236	2.7687570	34	2	1996–1998	0.64	M-v	3	Williams	33560	1998 QS ₄₄
1998 QC ₄₅	14.6	0.15	19990122	8.52355	143.96896	235.44426	5.37509	0.1563757	2.5927060	37	1	90 days	0.58	M-v	4	Williams		1998 QC ₄₅
1998 QD ₄₅	14.8	0.15	19990122	358.27137	112.88501	283.60103	5.61843	0.1266151	2.3381986	42	2	1991–1998	0.66	M-v	4	Williams	33560	1998 QD ₄₅
1998 QV ₄₅	14.8	0.15	19990122	338.28522	247.05174	187.78408	8.63621	0.3137706	2.6888994	23	1	90 days	0.51	M-v	5	Williams		1998 QV ₄₅
1998 QU ₄₆	14.7	0.15	19990122	354.06742	105.70920	296.29793	5.85790	0.1259604	2.3814157	25	1	90 days	0.52	M-v	5	Williams		1998 QU ₄₆
1998 QT ₅₁	14.6	0.15	19990122	66.42528	355.68188	316.80707	6.45759	0.1493163	2.3052645	47	2	1991–1998	0.73	M-v	4	Williams	34020	1998 QT ₅₁
1998 QV ₅₁	14.7	0.15	19990122	54.27205	11.17616	316.31466	7.61623	0.1371362	2.3938366	58	3	1987–1998	0.68	M-v	3	Williams	33560	1998 QV ₅₁
1998 QB ₅₂	13.7	0.15	19990122	39.37067	155.53713	183.01448	13.00269	0.1809465	2.6695526	61	4	1985–1998	0.64	M-v	2	Williams	33560	1998 QB ₅₂
1998 QM ₅₄	14.3	0.15	19990122	38.19321	57.84946	301.77770	3.99203	0.1732401	2.2299003	41	1	186 days	0.65	M-v	3	Williams	34020	1998 QM ₅₄
1998 QO ₅₄	14.8	0.15	19990122	59.93528	45.17183	269.58401	2.52036	0.2134519	2.6238285	48	2	1997–1998	0.72	M-v	4	Williams	32976	1998 QO ₅₄
1998 QL ₅₅	14.7	0.15	19990122	33.14144	350.48887	17.65610	0.89309	0.1962663	3.1679495	31	1	80 days	0.46	M-v	5	Williams	33348	1998 QL ₅₅
1998 QM ₅₅	15.4	0.15	19990122	354.96312	265.25630	169.12022	0.65561	0.1013402	2.1759192	29	1	133 days	0.52	M-v	4	Williams	33756	1998 QM ₅₅
1998 QP ₅₅	14.9	0.15	19990122	60.76201	308.87251	27.33621	2.81577	0.2060650	2.6756110	33	1	80 days	0.69	M-v	5	Williams	33348	1998 QP ₅₅
1998 QS ₅₅	14.2	0.15	19990122	44.16386	181.57489	185.77892	2.32402	0.0693249	2.8283308	38	4	1983–1998	0.76	M-v	3	Williams	34020	1998 QS ₅₅
1998 QR ₅₈	15.3	0.15	19990122	338.82801	77.44704	353.27256	5.59069	0.1610976	2.3151312	47	3	1977–1998	0.60	M-v	3	Williams	33085	1998 QR ₅₈
1998 QT ₆₀	13.3	0.15	19990122	21.60522	127.06995	298.92037	21.89788	0.3495624	2.4467402	149	3	1984–1999	0.60	M-v	1	Williams	34020	1998 QT ₆₀
1998 QU ₆₀	14.9	0.15	19990122	58.89457	106.32158	196.40032	6.87977	0.1383809	2.3419889	37	3	1983–1998	0.63	M-v	2	Williams	34020	1998 QU ₆₀
1998 QF ₇₀	12.9	0.15	19990122	282.38085	239.47060	212.91530	15.65498	0.0967429	3.1995324	33	2	1996–1998	0.77	M-v	4	Williams	34020	1998 QF ₇₀

1998 QC ₇₁	14.6	0.15	19990122	23.97908	112.31922	237.40924	7.23000	0.2845334	2.8513045	37	2	1979–1998	0.73	M-v	3	Williams	33561	1998 QC ₇₁
1998 QE ₇₁	14.3	0.15	19990122	101.06196	24.64219	225.28203	7.37337	0.2321924	2.3983326	30	1	83 days	0.49	M-v	5	Williams	33086	1998 QE ₇₁
1998 QE ₇₃	12.7	0.15	19990122	60.46400	10.76808	294.77108	8.73399	0.0633553	3.0082037	36	3	1962–1998	0.52	M-v	4	Williams	33561	1998 QE ₇₃
1998 QN ₇₅	12.4	0.15	19990122	355.28035	202.64087	188.16460	22.01246	0.0956785	2.6611652	41	4	1968–1998	0.72	M-v	2	Williams	33561	1998 QN ₇₅
1998 QK ₇₆	14.2	0.15	19990122	69.35559	74.42510	223.05866	13.12961	0.1965687	2.6956212	19	1	82 days	0.48	M-v	4	Williams		1998 QK ₇₆
1998 QW ₈₅	14.4	0.15	19990122	48.33777	100.23673	230.27560	6.60547	0.1406886	2.3924941	32	2	1987–1998	0.44	M-v	3	Williams	33562	1998 QW ₈₅
1998 QR ₈₆	14.4	0.15	19990122	23.09190	61.29112	299.85638	7.85928	0.2667561	2.7180705	27	1	82 days	0.69	M-v	4	Williams		1998 QR ₈₆
1998 QL ₈₉	14.8	0.15	19990122	45.87132	106.25530	225.46845	12.63526	0.2455546	2.5938952	42	2	1994–1998	0.76	M-v	4	Williams	33562	1998 QL ₈₉
1998 QT ₉₀	14.0	0.15	19990122	93.67816	230.88786	53.36711	5.45642	0.1205333	2.5236237	65	3	1990–1998	0.71	M-v	2	Williams	33088	1998 QT ₉₀
1998 QJ ₉₁	15.5	0.15	19990122	29.87676	138.61802	233.14741	5.43098	0.3417510	2.5982449	48	2	1977–1998	0.71	M-v	4	Williams	33509	1998 QJ ₉₁
1998 QR ₉₁	15.3	0.15	19990122	29.65192	284.03884	102.28767	0.58634	0.1954042	2.1874083	44	1	193 days	0.63	M-v	3	Williams	33756	1998 QR ₉₁
1998 QV ₉₁	15.3	0.15	19990122	19.48879	224.34114	175.20838	2.26340	0.2091917	2.3760525	33	2	1976–1998	0.80	M-v	3	Williams	33268	1998 QV ₉₁
1998 QC ₉₂	14.4	0.15	19990122	16.70596	223.43065	183.02929	2.26538	0.1611547	2.3038176	42	1	136 days	0.50	M-v	4	Williams	33756	1998 QC ₉₂
1998 QF ₉₂	15.3	0.15	19990122	105.99717	283.23044	23.16315	21.89058	0.0774847	1.9384426	41	1	103 days	0.76	M-v	4	Williams	33562	1998 QF ₉₂
1998 QL ₉₂	13.7	0.15	19990122	20.73708	226.29199	177.74129	2.01611	0.2127671	2.3738446	51	3	1954–1999	0.68	M-v	2	Williams	34020	1998 QL ₉₂
1998 QP ₉₂	15.1	0.15	19990122	55.89058	254.49009	90.91487	3.41375	0.2530814	2.3215739	44	1	78 days	0.61	M-v	5	Williams	33349	1998 QP ₉₂
1998 QW ₉₂	14.4	0.15	19990122	19.33721	340.14068	66.12663	3.30741	0.2039422	2.4044147	51	1	174 days	0.77	M-v	4 D	Williams	34020	1998 QW ₉₂
1998 QF ₉₃	14.3	0.15	19990122	39.94795	175.83460	198.61766	13.45794	0.1986430	2.6275779	19	1	108 days	0.66	M-v	4	Williams	34020	1998 QF ₉₃
1998 QH ₉₃	13.5	0.15	19990122	349.07484	212.19541	245.19933	11.20508	0.2257942	2.6626769	43	1	171 days	0.71	M-v	4	Williams	34020	1998 QH ₉₃
1998 QN ₉₃	13.1	0.15	19990122	16.69846	209.52593	203.40884	14.37984	0.1705220	2.6478930	24	1	160 days	0.69	M-v	4	Williams	34020	1998 QN ₉₃
1998 QP ₉₃	13.6	0.15	19990122	41.47367	269.18477	108.87087	6.96046	0.1208590	2.4122585	27	1	160 days	0.73	M-v	4	Williams	34021	1998 QP ₉₃
1998 QU ₉₆	14.1	0.15	19990122	65.23740	75.39334	227.45910	10.59629	0.1689426	2.6852179	17	1	87 days	0.62	M-v	4	Williams		1998 QU ₉₆
1998 QK ₉₈	14.2	0.15	19990122	350.40328	340.80517	69.20223	5.58171	0.1703034	2.7867988	22	1	79 days	0.49	M-v	4	Williams		1998 QK ₉₈
1998 QV ₁₀₂	12.8	0.15	19990122	9.36531	322.67287	47.16215	6.34524	0.2925643	3.9568200	51	4	1975–1998	0.74	M-v	2	Williams	34021	1998 QV ₁₀₂
1998 QV ₁₀₄	14.9	0.15	19990122	13.64801	310.32046	70.48974	5.30900	0.1533555	2.6273935	20	1	81 days	0.56	M-v	4	Williams		1998 QV ₁₀₄
1998 RT ₄	15.2	0.15	19990122	2.86318	244.58328	170.68153	31.70704	0.4030371	2.7268928	30	1	171 days	0.65	M-v	3	Williams	34021	1998 RT ₄
1998 RD ₅	14.4	0.15	19990122	144.11187	169.08822	77.49728	5.93331	0.1048540	2.3860696	67	3	1976–1998	0.74	M-v	3	Williams	33350	1998 RD ₅
1998 RG ₁₆	12.7	0.15	19990122	37.49796	96.05956	270.02962	13.72445	0.1741689	2.6693141	23	1	61 days	0.68	M-v	5	Williams		1998 RG ₁₆
1998 RT ₄₆	14.9	0.15	19990122	50.85249	21.34413	311.38812	5.59019	0.1473845	2.4258303	21	1	61 days	0.56	M-v	5	Williams		1998 RT ₄₆
1998 RK ₄₇	14.6	0.15	19990122	77.66132	351.79979	311.72435	6.22153	0.1363789	2.3338723	50	2	1987–1998	0.79	M-v	4	Williams	33564	1998 RK ₄₇
1998 RG ₄₉	15.4	0.15	19990122	86.86681	108.62650	184.31361	3.02994	0.1461848	2.1929205	35	3	1985–1998	0.63	M-v	3	Williams	34021	1998 RG ₄₉
1998 RD ₅₁	13.5	0.15	19990122	109.78507	37.48190	234.24848	5.10228	0.0556503	2.6514000	50	3	1981–1998	0.58	M-v	3	Williams	33564	1998 RD ₅₁
1998 RB ₅₃	15.2	0.15	19980924	83.29189	252.45291	1.80450	10.68086	0.1794414	2.6938566	17	1	31 days	0.88			Williams		1998 RB ₅₃
1998 RK ₅₇	14.5	0.15	19990122	86.55748	128.35501	154.33003	2.60858	0.1966425	2.4279163	44	2	1994–1998	0.72	M-v	5	Williams	33565	1998 RK ₅₇
1998 RC ₅₈	13.3	0.15	19990122	112.84244	115.68099	139.43915	1.72949	0.1193351	3.1577413	50	3	1982–1998	0.58	M-v	3	Williams	34022	1998 RC ₅₈
1998 RL ₅₉	14.1	0.15	19990122	327.94002	223.63677	205.81790	3.43159	0.0827401	2.8019317	40	4	1989–1998	0.64	M-v	1	Williams	34022	1998 RL ₅₉
1998 RG ₆₁	15.7	0.15	19990122	30.06579	26.36409	344.96374	4.41907	0.1635265	2.2464301	27	1	101 days	0.53	M-v	4	Williams	34022	1998 RG ₆₁
1998 RH ₆₃	15.4	0.15	19990122	42.32178	242.02838	108.07496	3.14771	0.1876305	2.2080043	28	1	126 days	0.57	M-v	4	Williams	34022	1998 RH ₆₃
1998 RX ₆₃	13.8	0.15	19990122	49.09493	210.63590	109.61290	3.19574	0.2009900	3.1134772	36	4	1982–1998	0.79	M-v	2	Williams	33002	1998 RX ₆₃
1998 RB ₆₅	13.2	0.15	19990122	134.71898	157.17116	81.94557	0.08826	0.1169933	3.2292834	37	3	1990–1998	0.64	M-v	4	Williams	34022	1998 RB ₆₅
1998 RA ₆₈	12.8	0.15	19990122	48.96796	336.60787	357.39092	10.29804	0.1689652	2.8092954	50	3	1979–1999	0.82	M-v	2	Williams	34022	1998 RA ₆₈
1998 RW ₇₀	15.1	0.15	19990122	26.82954	243.44709	131.70826	4.48748	0.1472005	2.1980230	40	3	1990–1998	0.76	M-v	3	Williams	33565	1998 RW ₇₀
1998 RH ₇₁	13.7	0.15	19990122	24.07330	324.88134	40.15265	4.80662	0.2175761	2.7990555	40	2	1992–1998	0.62	M-v	3	Williams	33565	1998 RH ₇₁
1998 RS ₇₃	15.0	0.15	19990122	34.42556	113.97552	243.81516	2.56128	0.2339546	2.5946424	50	4	1977–1998	0.67	M-v	2	Williams	33565	1998 RS ₇₃
1998 RG ₇₅	13.6	0.15	19990122	309.65838	279.28869	182.37246	13.04250	0.1292263	2.6193020	36	1	62 days	0.53	M-v	5	Williams		1998 RG ₇₅
1998 RU ₇₆	14.9	0.15	19990122	60.30916	167.97133	149.62059	6.20035	0.2535443	2.3636904	43	3	1976–1998	0.61	M-v	3	Williams	33010	1998 RU ₇₆
1998 RZ ₇₇	15.5	0.15	19990122	47.60293	221.39024	128.95070	3.25074	0.1769764	2.1642249	41	2	1995–1998	0.66	M-v	4	Williams	33352	1998 RZ ₇₇
1998 RG ₇₉	15.6	0.15	19990122	61.23087	236.57982	93.27311	4.01863	0.1842388	2.2018076	38	1	62 days	0.68	M-v	5	Williams		1998 RG ₇₉
1998 RL ₇₉	14.5	0.15	19990122	49.23476	229.02073	115.21343	3.78079	0.1785228	2.3142165	49	5	1977–1998	0.68	M-v	2	Williams	33566	1998 RL ₇₉
1998 RZ ₇₉	13.2	0.15	19990122	313.26282	356.85554	92.51024	4.97415	0.0642413	2.7902725	58	2	1997–1998	0.53	M-v	5	Williams	33353	1998 RZ ₇₉
1998 RC ₈₀	13.4	0.15	19990122	358.38313	243.09383	155.13551	11.12638	0.1160538	3.0646587	17	1	95 days	0.69	M-v	5	Williams	34022	1998 RC ₈₀
1998 SP	13.7	0.15	19990122	53.41179	318.48276	19.38090	4.98618	0.1485663	3.1628424	43	1	61 days	0.75	M-v	5	Williams		1998 SP
1998 SQ	11.0	0.15	19990122	328.49512	252.99559	182.31410	0.90063	0.0961733	5.2570064	53	1	128 days	0.63	M-v	5	Williams	34022	1998 SQ

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1998 SY	14.9	0.15	19981014	353.04206	6.93303	28.77128	4.51733	0.1477183	2.6025696	43	1	59 days	1.06		Williams		1998 SY
1998 SK ₁	13.6	0.15	19990122	320.59575	36.04724	64.03981	1.60248	0.1375152	3.1377069	47	2	1992–1999	0.77	M-v 4	Williams	33757	1998 SK ₁
1998 SO ₁	14.7	0.15	19981014	294.15736	319.59840	149.00259	1.48574	0.1394856	2.3929836	39	1	59 days	0.82		Williams		1998 SO ₁
1998 SL ₂	14.0	0.15	19990122	8.67985	67.33683	328.91291	6.11117	0.2694323	2.5465591	90	2	1990–1999	0.68	M-v 3	Williams	33757	1998 SL ₂
1998 SN ₂	14.7	0.15	19990122	28.04488	269.59137	119.69469	0.22647	0.1815785	3.0866234	27	2	1997–1999	0.50	M-v 3	Williams	34022	1998 SN ₂
1998 SU ₃	16.2	0.15	19981014	351.55350	15.53022	22.97414	2.40561	0.2118254	2.3687118	26	1	57 days	0.57		Williams		1998 SU ₃
1998 SX ₇	12.9	0.15	19990122	177.05754	153.21402	43.18137	0.77593	0.1263552	3.1217717	50	4	1990–1998	0.78	M-v 1	Williams	34022	1998 SX ₇
1998 SH ₁₀	13.4	0.15	19990122	3.49571	351.46372	60.32791	0.95113	0.0639186	2.7904995	45	2	1991–1998	0.52	M-v 4	Williams	33354	1998 SH ₁₀
1998 SB ₁₂	15.6	0.15	19990122	8.01567	211.83896	197.34761	3.29332	0.2383065	3.0563678	17	1	75 days	0.45	M-v 4	Williams		1998 SB ₁₂
1998 SL ₁₃	13.1	0.15	19981014	1.47291	230.84419	138.41975	7.33995	0.1507849	2.9236139	9	1	54 days	5.13		Williams		1998 SL ₁₃
1998 SV ₁₄	14.1	0.15	19990122	166.74060	147.09267	93.74071	4.89930	0.0782383	2.2215732	62	3	1980–1998	0.63	M-v 3	Williams	33354	1998 SV ₁₄
1998 SA ₁₅	19.7	0.15	19990122	15.37355	331.02314	114.42908	7.08786	0.5583624	1.9166164	29	1	181 days	0.70	M-v 5	Williams	33106	1998 SA ₁₅
1998 SP ₂₁	15.7	0.15	19990122	49.06079	112.43512	237.56130	1.90334	0.2344134	2.3671857	42	3	1987–1998	0.59	M-v 4	Williams	33277	1998 SP ₂₁
1998 SR ₂₁	15.1	0.15	19981014	293.36427	246.59901	213.43455	6.20537	0.0633080	2.3793582	20	1	54 days	0.55		Williams		1998 SR ₂₁
1998 SV ₂₂	14.8	0.15	19990122	6.83551	206.08813	205.32502	5.90902	0.1050502	2.3872707	68	2	1994–1998	0.66	M-v 4	Williams	33566	1998 SV ₂₂
1998 SH ₂₃	13.4	0.15	19990122	53.28503	168.89678	142.77194	5.69009	0.2107309	3.1491278	111	2	1981–1998	0.66	M-v 4	Williams	33566	1998 SH ₂₃
1998 SX ₂₃	15.4	0.15	19990122	70.21501	196.65648	119.92996	4.90525	0.1433680	2.2419103	45	2	1991–1998	0.73	M-v 4	Williams	33019	1998 SX ₂₃
1998 SZ ₂₄	14.6	0.15	19981014	53.68788	163.18289	153.14690	7.19722	0.1563218	2.5349974	21	1	59 days	0.56		Williams		1998 SZ ₂₄
1998 SA ₂₅	14.2	0.15	19990122	324.55658	316.48924	138.38650	5.93750	0.0495745	2.2954128	38	2	1993–1999	0.60	M-v 4	Williams	33757	1998 SA ₂₅
1998 SG ₂₅	12.8	0.15	19990122	222.43406	140.18556	46.29401	13.64132	0.1146715	2.6585979	72	5	1979–1999	0.63	M-v 2	Williams	33757	1998 SG ₂₅
1998 SH ₂₅	12.9	0.15	19990122	121.99187	208.91858	71.88775	6.33403	0.0208201	2.7424588	64	2	1997–1999	0.63	M-v 3	Williams	33757	1998 SH ₂₅
1998 SO ₂₅	15.5	0.15	19981014	359.12550	335.62676	46.88584	6.32684	0.2386635	2.3928977	39	1	53 days	0.57		Williams		1998 SO ₂₅
1998 SS ₂₅	15.3	0.15	19990122	6.01675	347.55890	63.97358	6.21914	0.1616908	2.3262267	52	1	119 days	0.63	M-v 4	Williams	33757	1998 SS ₂₅
1998 SJ ₂₆	13.2	0.15	19981014	314.79446	38.67334	46.34718	14.94912	0.1901914	3.1356642	31	1	53 days	0.81		Williams		1998 SJ ₂₆
1998 SV ₂₆	13.7	0.15	19990122	300.86548	294.24975	265.14466	12.23129	0.1473387	2.6329683	51	1	148 days	0.62	M-v 4	Williams	34022	1998 SV ₂₆
1998 SW ₃₂	14.8	0.15	19990122	325.44564	82.53419	5.40137	4.81938	0.2338677	2.5624964	46	3	1986–1998	0.90	M-v 4	Williams	34022	1998 SW ₃₂
1998 SN ₃₄	15.9	0.15	19990122	358.07958	226.39078	196.23282	21.75013	0.0894106	1.9438213	44	2	1960–1998	0.57	M-v 4	Williams	33023	1998 SN ₃₄
1998 SK ₃₆	16.3	0.15	19990122	24.37202	308.33672	87.16015	6.17149	0.2930993	2.5717478	25	1	72 days	0.31	M-v 4	Williams	33567	1998 SK ₃₆
1998 SF ₃₇	15.0	0.15	19981014	337.39191	199.17581	216.52300	5.04368	0.1445184	2.4201055	40	1	54 days	0.63		Williams		1998 SF ₃₇
1998 SP ₃₇	14.8	0.15	19990122	334.07628	233.17486	218.59835	3.75175	0.1082340	2.3187456	45	2	1989–1999	0.64	M-v 4	Williams	33757	1998 SP ₃₇
1998 SR ₃₇	14.1	0.15	19990122	56.02644	132.84605	216.27604	5.35848	0.0844902	2.6251063	50	1	123 days	0.63	M-v 4	Williams	33757	1998 SR ₃₇
1998 SS ₃₇	15.9	0.15	19990122	91.59868	92.53552	217.58749	3.50728	0.1362745	2.2128501	30	2	1991–1999	0.84	M-v 4	Williams	34023	1998 SS ₃₇
1998 SU ₃₇	14.2	0.15	19990122	273.22448	296.05496	211.42076	6.91073	0.0535277	2.3481539	33	2	1975–1998	0.51	M-v 5	Williams	33278	1998 SU ₃₇
1998 SB ₄₆	15.9	0.15	19981014	336.17609	50.85247	14.28727	6.24013	0.2447572	2.4035468	21	1	53 days	0.29		Williams		1998 SB ₄₆
1998 SC ₄₆	13.5	0.15	19990122	29.30212	154.59707	218.85241	2.69603	0.1136012	3.0885306	40	3	1982–1999	0.51	M-v 3	Williams	33757	1998 SC ₄₆
1998 SG ₄₆	14.6	0.15	19990122	12.09403	32.08559	12.62585	3.23916	0.2234847	2.6197746	52	1	109 days	0.49	M-v 4	Williams	33757	1998 SG ₄₆
1998 SE ₄₇	13.4	0.15	19990122	329.48307	53.63178	33.60162	5.76491	0.0674939	3.0016808	34	2	1993–1998	0.68	M-v 5	Williams	33356	1998 SE ₄₇
1998 SN ₄₈	14.6	0.15	19990122	341.17930	82.19329	6.35690	1.63844	0.1885941	2.6221355	43	2	1994–1998	0.53	M-v 4	Williams	33279	1998 SN ₄₈
1998 SF ₄₉	12.4	0.15	19990122	285.45369	109.03163	19.65117	2.39038	0.0706580	3.3376550	55	1	64 days	0.64	M-v 5	Williams		1998 SF ₄₉
1998 SG ₄₉	12.7	0.15	19990122	333.88832	234.26850	213.52371	8.14417	0.1224119	2.7903818	54	3	1989–1999	0.68	M-v 3	Williams	33757	1998 SG ₄₉
1998 SR ₄₉	17.2	0.15	19990122	16.26539	54.43090	21.61222	29.20720	0.5345358	2.4778161	64	1	144 days	0.54	M-v 4	Williams	34023	1998 SR ₄₉
1998 ST ₄₉	17.7	0.15	19990122	21.27595	47.38749	18.78742	24.65138	0.5940819	2.3087771	57	1	166 days	0.55	M-v 4	Williams	34023	1998 ST ₄₉
1998 SB ₅₁	15.0	0.15	19990122	66.52281	104.35914	221.84703	1.26472	0.2336042	2.3567249	39	2	1994–1998	0.58	M-v 5	Williams	33280	1998 SB ₅₁
1998 SU ₅₂	11.4	0.15	19990122	333.41089	147.69582	285.17005	2.28040	0.1132018	5.1415933	54	1	85 days	0.58	M-v 4	Williams	33567	1998 SU ₅₂
1998 SC ₅₈	14.0	0.15	19980924	48.91651	293.58753	13.67142	21.98015	0.0656041	3.1807081	25	1	39 days	0.71		Williams		1998 SC ₅₈
1998 SH ₅₈	13.9	0.15	19990122	39.30305	170.11641	178.40316	8.30761	0.1760225	2.5739919	56	2	1997–1998	0.72	M-v 3	Williams	33567	1998 SH ₅₈
1998 SL ₆₂	15.7	0.15	19990122	325.69915	253.88045	201.05392	20.87355	0.0976347	1.9330859	25	1	123 days	0.59	M-v 4	Williams	33758	1998 SL ₆₂
1998 SB ₆₃	12.7	0.15	19990122	323.78208	59.14384	23.00464	22.40289	0.0481728	2.6530042	74	3	1981–1999	0.74	M-v 2	Williams	33758	1998 SB ₆₃
1998 SJ ₆₃	14.7	0.15	19990122	20.03860	96.92341	297.34672	3.51990	0.3221115	2.4689675	53	1	103 days	0.65	M-v 4	Williams	34023	1998 SJ ₆₃
1998 SM ₆₃	14.2	0.15	19990122	321.14660	116.55940	324.55140	5.68071	0.0619240	2.3044094	60	2	1991–1998	0.60	M-v 4	Williams	33568	1998 SM ₆₃
1998 SY ₆₃	13.1	0.15	19990122	214.11651	145.70350	54.11942	6.97362	0.0934919	2.3151963	43	1	115 days	0.65	M-v 4	Williams	33758	1998 SY ₆₃
1998 SH ₆₄	14.9	0.15	19990122	12.03078	333.80606	67.91458	6.06260	0.1916620	2.6179633	29	1	80 days	0.79	M-v 4	Williams	34023	1998 SH ₆₄
1998 SJ ₆₄	13.9	0.15	19990122	254.35033	105.89205	59.26979	4.63982	0.0715402	2.2948691	38	1	119 days	0.64	M-v 4	Williams	34023	1998 SJ ₆₄

1998 SN ₆₄	14.3	0.15	19990122	70.25176	132.94429	187.16115	12.20559	0.2022713	2.5563096	46	2	1997–1998	0.81	M-v	4	Williams	34023	1998 SN ₆₄
1998 ST ₆₄	16.1	0.15	19981014	353.16370	302.51522	92.55820	3.53666	0.1711766	2.3747648	29	1	57 days	0.71			Williams		1998 ST ₆₄
1998 SG ₆₅	14.7	0.15	19990122	49.18400	219.46670	140.04438	2.86512	0.1009217	2.3454720	32	2	1993–1998	0.62	M-v	4	Williams	33568	1998 SG ₆₅
1998 SO ₆₅	15.7	0.15	19981014	30.45358	254.39779	88.71488	4.70474	0.1642002	2.3166084	32	1	59 days	0.74			Williams		1998 SO ₆₅
1998 SR ₆₅	14.8	0.15	19990122	45.90121	256.76978	98.93047	2.79703	0.1905401	2.4760872	28	1	84 days	0.60	M-v	4	Williams	34023	1998 SR ₆₅
1998 SV ₆₅	13.6	0.15	19990122	199.15438	25.40211	187.21019	12.43317	0.1303560	2.4377996	42	3	1985–1998	0.69	M-v	4	Williams	33282	1998 SV ₆₅
1998 SY ₆₅	14.1	0.15	19981014	49.64308	225.76024	102.77395	4.69110	0.0921667	2.7851827	31	1	57 days	0.98			Williams		1998 SY ₆₅
1998 SB ₆₆	14.3	0.15	19990122	54.84208	258.45805	78.08348	4.99684	0.2349328	2.5783914	43	1	84 days	0.67	M-v	4	Williams	33568	1998 SB ₆₆
1998 SC ₆₆	14.8	0.15	19981014	35.37815	200.93534	132.64256	3.18648	0.2071293	2.3775747	31	1	55 days	0.64			Williams		1998 SC ₆₆
1998 SD ₆₇	14.5	0.15	19990122	56.18113	298.68116	48.58885	5.93842	0.1925998	2.2282927	59	2	1988–1999	0.75	M-v	4	Williams	33758	1998 SD ₆₇
1998 SN ₆₇	14.0	0.15	19990122	318.08188	70.31837	40.64995	15.63744	0.1669975	2.6495393	35	2	1996–1998	0.94	M-v	4	Williams	33568	1998 SN ₆₇
1998 SQ ₇₀	13.7	0.15	19990122	26.16606	239.10403	135.54581	2.33696	0.1177429	2.9589276	35	3	1978–1998	0.69	M-v	4	Williams	33282	1998 SQ ₇₀
1998 SA ₇₁	14.2	0.15	19981014	286.57704	288.26711	183.55338	9.56021	0.1313310	2.5599113	44	1	54 days	1.13			Williams		1998 SA ₇₁
1998 SH ₇₁	15.2	0.15	19981014	343.44404	262.34869	144.21624	2.89136	0.1682706	2.3927860	39	1	54 days	1.04			Williams		1998 SH ₇₁
1998 SW ₇₁	13.9	0.15	19981014	3.81467	189.52489	190.54404	14.54221	0.1221922	3.1400826	30	1	54 days	0.97			Williams		1998 SW ₇₁
1998 SD ₇₂	14.4	0.15	19990122	31.00318	297.70471	65.98784	2.52228	0.2635102	2.9803364	52	2	1993–1999	0.66	M-v	4	Williams	33758	1998 SD ₇₂
1998 SH ₇₂	15.1	0.15	19990122	27.50494	339.93360	42.77258	3.11321	0.2043168	2.3978426	46	1	79 days	0.63	M-v	4	Williams	34023	1998 SH ₇₂
1998 SP ₇₂	16.0	0.15	19981014	359.39913	315.08070	70.54079	2.27209	0.1960100	2.4412590	18	1	54 days	0.54		D	Williams		1998 SP ₇₂
1998 SQ ₇₂	14.5	0.15	19990122	56.13490	147.85617	189.36403	13.32646	0.2062385	2.5593350	33	1	84 days	0.62	M-v	4	Williams	33568	1998 SQ ₇₂
1998 ST ₇₂	13.9	0.15	19990122	359.97050	313.33522	95.56928	3.17084	0.0876531	2.9476831	14	3	1990–1998	0.79	M-v	4	Williams	33969	1998 ST ₇₂
1998 SZ ₇₂	13.4	0.15	19990122	68.56492	213.63830	107.48616	2.67731	0.1467133	3.1176366	33	3	1981–1998	0.69	M-v	3	Williams	33283	1998 SZ ₇₂
1998 SA ₇₃	14.8	0.15	19990122	26.91390	353.35733	33.81664	6.93544	0.1781479	2.2770985	68	2	1991–1999	0.59	M-v	3	Williams	33758	1998 SA ₇₃
1998 SH ₇₃	15.2	0.15	19990122	18.36878	300.71342	94.27642	2.32076	0.1929952	2.3858564	57	1	82 days	0.69	M-v	4	Williams	33568	1998 SH ₇₃
1998 SF ₇₄	15.7	0.15	19981014	322.88848	304.41440	133.91082	3.07146	0.2070206	2.3945696	24	1	54 days	0.73			Williams		1998 SF ₇₄
1998 SH ₇₄	15.2	0.15	19981014	322.45494	30.09210	55.08324	5.35437	0.2657877	2.5480638	34	1	57 days	0.66			Williams		1998 SH ₇₄
1998 SN ₇₄	13.8	0.15	19981014	241.93176	49.03875	96.36263	4.79128	0.0348643	2.7327221	36	1	57 days	0.68			Williams		1998 SN ₇₄
1998 SO ₇₄	15.4	0.15	19981014	1.11373	217.04999	165.05597	5.98788	0.2637600	2.7298511	44	1	57 days	0.80			Williams		1998 SO ₇₄
1998 SW ₇₄	14.2	0.15	19990122	335.26306	34.76871	50.90929	7.35961	0.1060661	2.3583839	59	2	1971–1999	0.65	M-v	4	Williams	33758	1998 SW ₇₄
1998 SY ₇₄	14.0	0.15	19990122	78.40267	221.86680	82.93093	4.26982	0.2191694	2.6424604	49	3	1971–1998	0.77	M-v	2	Williams	33284	1998 SY ₇₄
1998 SR ₁₁₇	13.9	0.15	19990122	21.37197	16.91745	5.22611	10.73090	0.0529613	2.7468393	32	2	1996–1998	0.58	M-v	4	Williams	34023	1998 SR ₁₁₇
1998 SR ₁₁₈	14.7	0.15	19990122	16.27685	199.37592	189.73344	2.36456	0.0568420	2.5439740	28	3	1980–1998	0.73	M-v	4	Williams	34024	1998 SR ₁₁₈
1998 SK ₁₁₉	13.1	0.15	19990122	311.33265	78.57188	22.43030	9.34879	0.1182466	2.7759245	45	4	1989–1999	0.77	M-v	2	Williams	34024	1998 SK ₁₁₉
1998 SC ₁₂₂	14.7	0.15	19990122	359.33217	65.61533	351.01605	4.34392	0.1544080	2.5319364	36	5	1954–1999	0.65	M-v	3	Williams	34024	1998 SC ₁₂₂
1998 SQ ₁₂₃	15.8	0.15	19981014	2.40570	191.06272	186.31330	3.27486	0.2354890	2.6222765	35	1	57 days	0.72			Williams		1998 SQ ₁₂₃
1998 SL ₁₂₉	15.8	0.15	19990122	35.68871	195.45658	173.77791	2.54153	0.1766474	2.3431452	30	3	1993–1998	0.61	M-v	4	Williams	34024	1998 SL ₁₂₉
1998 SG ₁₃₀	13.9	0.15	19990122	37.78797	354.65782	13.32894	8.72195	0.2160202	2.2643511	50	3	1981–1999	0.66	M-v	2	Williams	34024	1998 SG ₁₃₀
1998 SH ₁₃₁	16.2	0.15	19981014	343.25884	65.43953	351.49960	4.79617	0.3198485	2.5791297	33	1	52 days	0.64			Williams		1998 SH ₁₃₁
1998 ST ₁₃₁	14.0	0.15	19990122	229.54401	257.02441	292.26205	4.92102	0.1231523	2.1829362	40	4	1985–1998	0.80	M-v	3	Williams	33362	1998 ST ₁₃₁
1998 SV ₁₃₁	14.0	0.15	19990122	54.07083	124.81758	224.65832	12.93798	0.0654098	2.5961325	48	3	1990–1998	0.73	M-v	3	Williams	33569	1998 SV ₁₃₁
1998 SD ₁₃₂	14.7	0.15	19981014	39.21781	14.54323	317.80542	4.38333	0.1646427	2.5964491	34	1	52 days	0.49			Williams		1998 SD ₁₃₂
1998 SV ₁₃₂	13.3	0.15	19990122	31.46940	136.43780	234.50795	6.46993	0.0676346	3.0000712	48	1	114 days	0.55	M-v	4	Williams	33759	1998 SV ₁₃₂
1998 SA ₁₃₃	14.3	0.15	19990122	110.86597	279.09812	6.44784	8.88078	0.1458812	2.2620710	45	4	1981–1998	0.55	M-v	1	Williams	33363	1998 SA ₁₃₃
1998 SE ₁₃₅	13.6	0.15	19990122	67.86696	128.74554	182.92310	9.24571	0.2048366	3.1416773	39	2	1992–1998	0.68	M-v	4	Williams	34024	1998 SE ₁₃₅
1998 SH ₁₃₅	13.7	0.15	19981014	16.08760	181.00286	182.89536	10.74707	0.0634997	3.1111690	40	1	57 days	0.70			Williams		1998 SH ₁₃₅
1998 SM ₁₃₅	14.9	0.15	19981014	328.14269	4.09169	63.73997	3.28164	0.1912603	2.3756978	38	1	49 days	0.42			Williams		1998 SM ₁₃₅
1998 SF ₁₃₈	12.5	0.15	19990122	121.30654	233.70003	32.91833	1.23746	0.1378761	3.1598088	42	3	1979–1999	0.64	M-v	3	Williams	33708	1998 SF ₁₃₈
1998 SS ₁₃₈	15.2	0.15	19981014	12.26885	160.32132	201.82947	12.12386	0.2705472	2.6947147	46	1	49 days	0.69			Williams		1998 SS ₁₃₈
1998 SV ₁₃₈	14.4	0.15	19981014	38.59768	330.34652	6.88159	9.55231	0.1183646	2.5745284	34	1	52 days	0.57			Williams		1998 SV ₁₃₈
1998 SA ₁₃₉	14.6	0.15	19990122	92.50977	324.51274	336.94518	3.73582	0.1728894	2.2824909	50	4	1990–1998	0.66	M-v	2	Williams	33295	1998 SA ₁₃₉
1998 SE ₁₃₉	15.1	0.15	19981014	320.79108	219.05045	215.92436	12.27025	0.1249660	2.6939606	27	1	49 days	0.95			Williams		1998 SE ₁₃₉
1998 SY ₁₃₉	12.5	0.15	19990122	124.12940	43.24543	237.00845	10.16121	0.0220128	3.0986566	40	1	104 days	0.60	M-v	5	Williams	33759	1998 SY ₁₃₉
1998 SE ₁₄₀	14.4	0.15	19990122	59.84063	344.81349	359.29963	9.31465	0.1098112	2.5459015	28	3	1992–1998	0.61	M-v	4	Williams	34025	1998 SE ₁₄₀
1998 SM ₁₄₀	16.2	0.15	19981014	326.18953	198.44908	229.69239	3.77678	0.1182061	2.2839416	30	1	51 days	0.69			Williams		1998 SM ₁₄₀

1998 SU ₁₄₀	15.7	0.15	19990122	35.70637	162.19403	212.59458	4.10901	0.1166628	2.3292578	37	2	1973–1998	0.90	M-v	4	Williams	34025	1998 SU ₁₄₀
1998 SV ₁₄₀	14.6	0.15	19990122	81.43925	288.94329	17.46958	14.89885	0.2037222	2.5396392	43	1	64 days	0.67	M-v	5	Williams		1998 SV ₁₄₀
1998 SC ₁₄₁	14.2	0.15	19990122	53.83991	138.79452	200.25111	11.17335	0.2003387	2.6777518	42	1	61 days	0.62	M-v	5	Williams		1998 SC ₁₄₁
1998 SG ₁₄₁	16.3	0.15	19990122	34.89562	355.75335	14.73366	5.26612	0.2542692	2.3941291	14	1	62 days	0.62	M-v	5	Williams		1998 SG ₁₄₁
1998 SJ ₁₄₁	12.7	0.15	19990122	235.43886	156.35356	23.21673	13.51210	0.1075517	2.6793045	52	5	1950–1999	0.65	M-v	2	Williams	33760	1998 SJ ₁₄₁
1998 SW ₁₄₃	15.4	0.15	19990122	44.49843	183.55131	174.43194	2.67380	0.1842696	2.4000525	47	4	1979–1998	0.70	M-v	3	Williams	33296	1998 SW ₁₄₃
1998 SE ₁₄₄	13.6	0.15	19990122	342.56451	58.35511	25.10837	8.83933	0.2149504	2.7926960	37	2	1984–1999	0.79	M-v	4	Williams	34025	1998 SE ₁₄₄
1998 SQ ₁₄₄	13.7	0.15	19990122	13.85294	158.45336	236.95116	0.68617	0.0828108	2.8573901	43	2	1993–1998	0.76	M-v	4	Williams	34025	1998 SQ ₁₄₄
1998 ST ₁₄₄	13.0	0.15	19990122	9.00650	197.34747	200.29773	9.20617	0.0748842	3.2045615	33	3	1981–1998	0.69	M-v	4	Williams	33569	1998 ST ₁₄₄
1998 SA ₁₄₅	13.5	0.15	19990122	45.31230	322.97978	21.48247	15.18968	0.2241137	3.1654563	38	1	122 days	0.74	M-v	4	Williams	33760	1998 SA ₁₄₅
1998 SH ₁₄₅	16.1	0.15	19990122	25.11899	358.01389	30.34296	2.77491	0.2011861	2.4073995	30	2	1983–1998	0.79	M-v	4	Williams	33970	1998 SH ₁₄₅
1998 SE ₁₄₆	13.5	0.15	19990122	338.54759	246.17065	203.78348	7.28089	0.2037576	2.8071301	31	1	113 days	0.62	M-v	4	Williams	34025	1998 SE ₁₄₆
1998 SH ₁₄₆	15.1	0.15	19990122	81.76345	115.19846	199.17516	6.70829	0.1892657	2.2697730	25	1	61 days	0.97	M-v	5	Williams		1998 SH ₁₄₆
1998 ST ₁₄₆	14.4	0.15	19990122	58.20442	286.03286	61.86530	2.31279	0.1648046	2.2000457	37	2	1997–1999	0.74	M-v	4	Williams	33760	1998 ST ₁₄₆
1998 SX ₁₄₆	13.1	0.15	19990122	99.62549	114.17399	169.16152	3.10712	0.2083721	3.2525438	25	3	1986–1998	0.86	M-v	4	Williams	34025	1998 SX ₁₄₆
1998 SP ₁₄₇	13.1	0.15	19990122	135.52427	152.97070	112.93017	2.76871	0.0754715	3.0277570	42	5	1979–1998	0.60	M-v	1	Williams	34025	1998 SP ₁₄₇
1998 SS ₁₄₇	12.9	0.15	19990122	210.04875	166.93657	31.90245	22.04870	0.0534812	3.2357047	23	1	60 days	0.78	M-v	5	Williams		1998 SS ₁₄₇
1998 SS ₁₆₁	15.0	0.15	19990122	359.76118	276.05783	145.09624	2.50728	0.2023161	2.4264746	54	2	1994–1998	0.75	M-v	4	Williams	33299	1998 SS ₁₆₁
1998 SX ₁₆₁	15.3	0.15	19981014	353.82234	243.36503	146.67127	3.99060	0.1726642	2.5227329	29	1	57 days	0.73			Williams		1998 SX ₁₆₁
1998 SQ ₁₆₂	13.3	0.15	19981014	320.58351	193.78024	252.33607	7.53821	0.1964860	3.1822502	20	1	52 days	1.47			Williams		1998 SQ ₁₆₂
1998 SR ₁₆₂	13.3	0.15	19990122	141.64321	26.23721	227.33968	8.88267	0.1601954	2.7811983	55	2	1992–1999	0.85	M-v	5	Williams	33760	1998 SR ₁₆₂
1998 SS ₁₆₃	14.9	0.15	19990122	23.17630	346.42521	42.84235	13.37693	0.1690778	2.6925487	20	1	60 days	0.90	M-v	6	Williams	33366	1998 SS ₁₆₃
1998 SU ₁₆₃	13.7	0.15	19981014	100.34606	224.06783	51.61424	9.65126	0.1461428	2.5548617	25	1	57 days	0.70		D	Williams		1998 SU ₁₆₃
1998 SX ₁₆₃	13.3	0.15	19990122	73.53120	282.82704	46.70359	11.50727	0.0908232	3.0908581	37	2	1996–1998	0.42	M-v	3	Williams	33301	1998 SX ₁₆₃
1998 SE ₁₆₄	13.7	0.15	19990122	102.49402	245.46074	42.59468	14.28256	0.2215343	2.7091047	33	1	81 days	0.59	M-v	4	Williams	33570	1998 SE ₁₆₄
1998 SF ₁₆₄	14.7	0.15	19990122	24.16613	341.42716	49.75203	11.71727	0.0413618	2.7268456	33	1	68 days	0.52	M-v	5	Williams	33366	1998 SF ₁₆₄
1998 TB	13.8	0.15	19990122	350.19921	352.64092	110.31080	5.95076	0.1154126	2.4356843	56	3	1979–1999	0.54	M-v	2	Williams	34025	1998 TB
1998 TC	14.4	0.15	19990122	8.22345	198.48220	284.12281	11.87914	0.1232394	2.4020523	41	1	159 days	0.77	M-v	4	Williams	34025	1998 TC
1998 TK	13.7	0.15	19981014	189.81070	342.18704	220.97498	10.07104	0.0660491	3.0477195	27	1	35 days	0.69			Williams		1998 TK
1998 TQ ₂	16.2	0.15	19981014	357.05118	160.93320	233.13743	4.11156	0.2075209	2.5896696	21	1	34 days	0.40			Williams		1998 TQ ₂
1998 TN ₃	15.4	0.15	19981014	5.40237	334.04084	41.63300	14.89152	0.1838639	2.5831441	19	1	32 days	0.49			Williams		1998 TN ₃
1998 TC ₅	13.3	0.15	19990122	50.51966	95.94617	231.18012	14.90358	0.2856845	3.1525961	34	2	1997–1998	0.54	M-v	3	Williams	33367	1998 TC ₅
1998 TD ₅	14.9	0.15	19990122	9.08251	333.77754	80.88689	4.33544	0.1272573	2.4623250	32	2	1992–1998	0.55	M-v	5	Williams	33367	1998 TD ₅
1998 TH ₅	14.2	0.15	19990122	30.34569	241.75978	135.09762	2.85147	0.1914766	3.1199159	40	3	1995–1998	0.54	M-v	3	Williams	33367	1998 TH ₅
1998 TK ₅	14.4	0.15	19990122	324.84575	45.59568	59.25277	7.23782	0.0833474	2.4108139	38	2	1977–1998	0.54	M-v	5	Williams	33570	1998 TK ₅
1998 TM ₅	14.9	0.15	19990122	96.38012	235.85491	64.72406	3.86296	0.1936785	2.6278184	28	3	1971–1998	0.78	M-v	4	Williams	33302	1998 TM ₅
1998 TN ₅	12.5	0.15	19981014	238.83919	315.43372	212.99220	13.20136	0.0947207	3.1191371	39	1	37 days	0.60			Williams		1998 TN ₅
1998 TO ₅	14.1	0.15	19990122	1.94507	212.69060	211.70164	11.13968	0.1628044	2.6249927	40	1	93 days	0.64	M-v	4	Williams	34025	1998 TO ₅
1998 TS ₅	14.0	0.15	19981014	359.74496	343.59789	50.56052	14.50469	0.1561372	2.6159097	27	1	31 days	1.16			Williams		1998 TS ₅
1998 TU ₅	15.6	0.15	19981103	57.65336	271.74370	50.84315	5.64130	0.1872636	2.2774886	31	1	56 days	0.78			Williams		1998 TU ₅
1998 TX ₅	12.7	0.15	19990122	101.12447	26.35554	269.02299	1.89501	0.1265682	2.7854394	54	2	1993–1998	0.57	M-v	5	Williams	33367	1998 TX ₅
1998 TY ₅	15.6	0.15	19981014	8.68983	306.67064	69.51744	4.45510	0.2719749	2.6057829	26	1	29 days	1.00			Williams		1998 TY ₅
1998 TC ₆	14.8	0.15	19990122	25.96860	235.91144	160.36816	2.99654	0.0349934	2.3983260	34	2	1990–1998	0.50	M-v	4	Williams	33367	1998 TC ₆
1998 TF ₆	15.2	0.15	19990122	13.29704	342.95198	68.68796	3.07663	0.1422633	2.4403818	47	1	82 days	0.49	M-v	4	Williams	34025	1998 TF ₆
1998 TQ ₆	14.5	0.15	19990122	60.88729	242.38671	113.15578	7.75397	0.1427927	2.3487441	39	1	121 days	0.44	M-v	4	Williams	34025	1998 TQ ₆
1998 TU ₆	14.1	0.15	19990122	71.76990	247.41786	84.16948	2.74915	0.1289294	2.9318950	46	2	1997–1998	0.64	M-v	4	Williams	33571	1998 TU ₆
1998 TY ₆	14.8	0.15	19990122	70.65826	223.67975	104.08167	8.74403	0.2348114	2.6881653	31	1	96 days	0.76	M-v	5	Williams	33760	1998 TY ₆
1998 TE ₈	16.0	0.15	19990122	90.46979	88.46103	216.99816	7.78677	0.2417788	2.0885120	32	2	1997–1998	0.61	M-v	5	Williams	33367	1998 TE ₈
1998 TQ ₉	15.0	0.15	19981014	336.72105	216.17673	209.29823	5.30346	0.1931995	2.3789451	22	1	33 days	0.91			Williams		1998 TQ ₉
1998 TC ₁₀	13.7	0.15	19981014	330.72020	9.12591	62.43340	1.53756	0.1442449	3.2372850	24	1	33 days	0.76			Williams		1998 TC ₁₀
1998 TJ ₁₀	14.4	0.15	19981014	333.10849	18.65611	50.56048	2.06874	0.1554295	3.0657470	28	1	53 days	0.64			Williams		1998 TJ ₁₀
1998 TL ₁₀	15.8	0.15	19981014	316.25294	273.90974	179.93946	0.15797	0.1752646	2.3718337	27	1	35 days	0.63			Williams		1998 TL ₁₀
1998 TD ₁₅	15.2	0.15	19981014	12.84573	163.82437	216.63099	14.04336	0.0937113	2.5504674	27	1	32 days	0.77			Williams		1998 TD ₁₅

1998 TO ₁₅	13.1	0.15	19990122	320.45584	243.68803	222.33148	11.72703	0.1374868	2.6839089	57	6	1954–1999	0.69	M-v	1	Williams	34026	1998 TO ₁₅
1998 TB ₁₆	15.9	0.15	19981014	50.83620	67.70421	249.47485	2.19139	0.2141035	2.2371499	24	1	30 days	0.57			Williams		1998 TB ₁₆
1998 TG ₁₇	15.6	0.15	19990122	71.62441	89.07614	225.87994	4.38557	0.2596963	2.4169235	44	1	95 days	0.69	M-v	5	Williams	33761	1998 TG ₁₇
1998 TW ₁₇	15.5	0.15	19981014	345.08584	325.85024	88.79083	2.62593	0.1643964	2.4186020	25	1	31 days	0.75			Williams		1998 TW ₁₇
1998 TA ₁₈	13.6	0.15	19990122	39.56569	96.78175	261.74048	6.87111	0.2760600	2.3502396	32	5	1973–1999	0.71	M-v	2	Williams	34026	1998 TA ₁₈
1998 TD ₁₈	13.6	0.15	19981014	59.88400	66.26957	230.41060	13.27080	0.2456508	3.1567576	30	1	58 days	0.66			Williams		1998 TD ₁₈
1998 TF ₁₈	14.4	0.15	19990122	0.03924	217.23052	204.26679	4.51263	0.1896117	2.5687554	54	1	62 days	0.42	M-v	5	Williams	34026	1998 TF ₁₈
1998 TO ₁₉	15.7	0.15	19981014	313.24587	225.06757	229.27316	3.12218	0.2107633	2.3565631	32	1	34 days	0.63			Williams		1998 TO ₁₉
1998 TK ₃₀	14.5	0.15	19990122	51.14456	149.19215	208.78379	11.31664	0.1520398	2.4103731	31	1	99 days	0.56	M-v	4	Williams	34026	1998 TK ₃₀
1998 TM ₃₀	15.1	0.15	19981014	9.58846	153.52596	223.02263	2.60080	0.2173385	2.5938120	19	1	35 days	0.50			Williams		1998 TM ₃₀
1998 TN ₃₀	15.5	0.15	19990122	59.93619	105.55269	236.84229	0.41906	0.2005688	2.4248190	32	3	1979–1999	0.66	M-v	3	Williams	33761	1998 TN ₃₀
1998 TO ₃₀	15.6	0.15	19981014	334.14671	221.97328	207.20863	3.79396	0.1647218	2.6306700	18	1	35 days	0.54			Williams		1998 TO ₃₀
1998 TQ ₃₀	14.8	0.15	19990122	78.93958	88.64144	234.17074	1.80010	0.1447618	2.5389027	23	2	1978–1998	0.61	M-v	5	Williams	33305	1998 TQ ₃₀
1998 TR ₃₀	14.0	0.15	19990122	169.20581	28.71066	213.78820	5.35264	0.0264939	2.9921221	32	2	1996–1999	0.56	M-v	3	Williams	33761	1998 TR ₃₀
1998 TU ₃₀	13.7	0.15	19990122	301.06260	98.01955	31.40222	11.45391	0.1117453	3.1454527	20	1	90 days	0.51	M-v	5	Williams	33761	1998 TU ₃₀
1998 TV ₃₀	14.6	0.15	19981014	52.56093	345.99337	345.01870	2.13052	0.1373744	2.5489919	18	1	36 days	0.82			Williams		1998 TV ₃₀
1998 TW ₃₀	13.6	0.15	19981014	353.66521	24.98623	18.14122	9.31692	0.0987855	3.0101696	18	1	36 days	0.69			Williams		1998 TW ₃₀
1998 TD ₃₂	14.5	0.15	19990122	283.75309	171.37219	333.08133	4.21702	0.0851528	2.3694278	28	2	1978–1998	0.67	M-v	5	Williams	33306	1998 TD ₃₂
1998 TF ₃₂	15.0	0.15	19990122	56.96371	323.98834	19.49868	10.96543	0.1832883	2.6128480	20	1	76 days	0.76	M-v	5	Williams	33369	1998 TF ₃₂
1998 TH ₃₂	15.0	0.15	19981014	327.69019	212.01394	219.14798	11.93232	0.1283674	2.7831955	18	1	34 days	1.03			Williams		1998 TH ₃₂
1998 TJ ₃₂	15.4	0.15	19981014	353.10234	163.81404	236.09564	4.48880	0.1634273	3.1114125	18	1	34 days	0.74			Williams		1998 TJ ₃₂
1998 TL ₃₂	13.6	0.15	19990122	236.23412	167.13131	17.42414	7.41839	0.1571749	2.6793093	30	2	1976–1998	0.55	M-v	5	Williams	33306	1998 TL ₃₂
1998 TM ₃₂	15.0	0.15	19981014	94.99749	343.27695	297.98307	1.30659	0.1127047	2.4121803	31	1	37 days	0.60			Williams		1998 TM ₃₂
1998 TN ₃₂	14.8	0.15	19981014	357.05169	172.60875	221.12213	11.14193	0.1626197	3.0568345	29	1	34 days	0.61			Williams		1998 TN ₃₂
1998 TY ₃₂	14.7	0.15	19981014	310.07512	55.76107	38.18106	9.36717	0.1213782	2.7653833	19	1	31 days	0.51			Williams		1998 TY ₃₂
1998 TH ₃₃	15.2	0.15	19981014	63.83665	266.01527	43.50865	6.85909	0.1673929	2.2434980	18	1	31 days	0.64		D	Williams		1998 TH ₃₃
1998 TJ ₃₃	15.5	0.15	19990122	40.04933	307.62337	64.92572	3.76162	0.1765638	2.3452124	31	2	1993–1998	0.52	M-v	4	Williams	33306	1998 TJ ₃₃
1998 TN ₃₃	13.8	0.15	19990122	29.46317	293.68412	89.95659	3.16756	0.0720674	2.8898817	28	2	1996–1998	0.60	M-v	4	Williams	33306	1998 TN ₃₃
1998 TP ₃₃	15.6	0.15	19981103	55.49969	277.54439	51.37744	7.28489	0.1420738	2.2904648	22	1	55 days	0.60			Williams		1998 TP ₃₃
1998 TQ ₃₃	13.3	0.15	19990122	249.94367	136.81949	42.23200	14.65215	0.1450050	2.7621114	36	1	72 days	0.53	M-v	5	Williams	33571	1998 TQ ₃₃
1998 TR ₃₃	14.3	0.15	19990122	83.56225	213.24804	102.47171	2.71357	0.1494668	2.8700835	27	2	1993–1998	0.51	M-v	5	Williams	33306	1998 TR ₃₃
1998 TT ₃₃	16.3	0.15	19981014	14.10895	303.89055	63.32008	3.86568	0.2497805	2.3520681	21	1	32 days	0.59			Williams		1998 TT ₃₃
1998 TU ₃₃	15.9	0.15	19981014	23.92342	276.78070	80.16549	4.05824	0.2170940	2.5628066	19	1	31 days	0.60			Williams		1998 TU ₃₃
1998 TZ ₃₃	16.3	0.15	19981014	345.92571	326.28000	86.87227	3.71160	0.2094617	2.3083186	18	1	31 days	0.46			Williams		1998 TZ ₃₃
1998 TN ₃₄	13.5	0.15	19981014	125.09473	212.54046	44.28145	13.03165	0.1110744	2.7132144	22	1	57 days	0.68			Williams		1998 TN ₃₄
1998 TY ₃₄	15.1	0.15	19981014	331.19058	250.09410	181.62235	2.27580	0.1929255	2.4195169	19	1	31 days	0.54			Williams		1998 TY ₃₄
1998 UG	14.0	0.15	19990122	8.11828	118.67406	304.86889	21.78365	0.2297003	2.2645708	15	1	98 days	0.29	M-v	4	Williams	34026	1998 UG
1998 UQ	16.2	0.15	19990122	40.89248	303.12288	37.58476	9.91306	0.3333685	2.3288253	81	2	1991–1998	0.59	M-v	3	Williams	33571	1998 UQ
1998 UZ	13.4	0.15	19990122	316.62316	266.75427	215.05627	12.07629	0.1988980	2.6214175	66	4	1953–1999	0.55	M-v	2	Williams	33761	1998 UZ
1998 UA ₁	15.2	0.15	19990122	4.80535	14.35443	49.75658	4.87090	0.1727872	2.3092860	61	1	84 days	0.47	M-v	4	Williams	33761	1998 UA ₁
1998 UD ₁	16.1	0.15	19990122	15.37586	67.24567	317.70060	20.34757	0.4230852	3.1449658	53	1	163 days	0.45	M-v	3	Williams	33571	1998 UD ₁
1998 UX ₂	16.1	0.15	19981014	292.73845	243.26535	223.65318	7.23796	0.0671397	2.3642352	16	1	25 days	0.61			Williams		1998 UX ₂
1998 UL ₆	12.9	0.15	19990122	348.39184	30.20191	111.57174	12.19870	0.0532646	2.9976548	45	1	114 days	0.49	M-v	3	Williams	34026	1998 UL ₆
1998 UA ₇	12.5	0.15	19990122	64.45987	269.14724	93.23419	22.71813	0.0727189	3.1519942	30	1	86 days	0.60	M-v	4	Williams	34026	1998 UA ₇
1998 UE ₇	15.1	0.15	19990122	47.13005	142.25933	207.76132	13.57249	0.3206648	2.6215697	33	3	1981–1998	0.48	M-v	3	Williams	33370	1998 UE ₇
1998 UW ₇	14.5	0.15	19990122	329.99010	294.78945	170.28456	7.79869	0.1155314	2.5449519	30	2	1990–1998	0.77	M-v	5	Williams	33572	1998 UW ₇
1998 UX ₇	12.9	0.15	19981103	42.50702	150.67057	202.30631	11.43032	0.1218210	3.2116934	19	1	48 days	0.59			Williams		1998 UX ₇
1998 UY ₇	13.4	0.15	19990122	36.59629	188.31330	194.98615	9.70626	0.1092400	2.5826152	34	3	1969–1999	0.56	M-v	2	Williams	34026	1998 UY ₇
1998 UZ ₇	15.4	0.15	19990122	4.71226	224.24740	205.03547	13.14369	0.2657442	2.6336605	43	2	1996–1998	0.57	M-v	3	Williams	33572	1998 UZ ₇
1998 UP ₈	14.4	0.15	19990122	46.75526	77.61817	272.82181	1.75974	0.2083996	2.7024700	50	1	64 days	0.59	M-v	5	Williams	33371	1998 UP ₈
1998 UF ₁₁	15.7	0.15	19990122	353.11186	18.90466	69.80125	3.82142	0.3618065	3.0685780	25	1	120 days	0.56	M-v	4	Williams		1998 UF ₁₁
1998 UK ₁₁	15.0	0.15	19981014	4.17266	182.37600	204.77759	5.95278	0.1385523	2.4660034	24	1	35 days	0.67			Williams		1998 UK ₁₁
1998 US ₁₃	15.2	0.15	19981103	356.29254	342.99381	60.96069	3.04744	0.1093421	2.9420217	9	1	22 days	0.23			Williams		1998 US ₁₃

1998 UY ₁₃	15.9	0.15	19981014	48.07764	164.62379	172.12154	1.79317	0.1063659	2.7612100	9	1	7 days	0.12		Williams		1998 UY ₁₃
1998 UF ₁₄	13.6	0.15	19990122	54.52581	284.22397	69.44330	3.05669	0.0940153	2.9360160	31	1	78 days	0.45	M-v	5	Williams	33761 1998 UF ₁₄
1998 UC ₁₅	15.9	0.15	19990122	323.87948	336.10568	139.44126	6.81259	0.1041497	2.4773805	22	1	62 days	0.46	M-v	5	Williams	33572 1998 UC ₁₅
1998 UE ₁₅	15.0	0.15	19990122	82.37434	208.19995	120.83696	8.86557	0.2359270	2.1678205	19	2	1988–1998	0.52	M-v	5	Williams	33310 1998 UE ₁₅
1998 UH ₁₅	13.5	0.15	19981103	64.63360	127.11546	193.48503	13.15214	0.2143641	2.6367189	30	1	57 days	0.45			Williams	1998 UH ₁₅
1998 UR ₁₅	13.5	0.15	19990122	353.42045	64.72704	10.57623	0.67344	0.1534944	3.1699846	50	1	171 days	0.61	M-v	4	Williams	34026 1998 UR ₁₅
1998 UJ ₁₆	14.7	0.15	19990122	47.03664	329.80689	101.57925	6.13106	0.1575687	2.3124267	27	1	113 days	0.58	M-v	5	Williams	34026 1998 UJ ₁₆
1998 UO ₁₆	15.2	0.15	19981103	1.43603	264.24986	139.44312	4.40345	0.1225164	2.7687330	16	1	23 days	0.97			Williams	1998 UO ₁₆
1998 UP ₁₆	15.0	0.15	19981103	209.91208	333.81504	221.36799	4.65828	0.0734923	2.2666546	30	1	38 days	0.86		D	Williams	1998 UP ₁₆
1998 US ₁₆	15.5	0.15	19990122	92.79787	190.33009	124.69302	6.46134	0.1873823	2.2791777	31	1	65 days	0.58	M-v	5	Williams	33573 1998 US ₁₆
1998 UF ₁₈	15.2	0.15	19990122	307.42241	328.70743	164.54352	7.78337	0.1036432	2.3501949	29	2	1983–1998	0.67	M-v	5	Williams	33573 1998 UF ₁₈
1998 UN ₁₈	13.3	0.15	19990122	3.11062	309.44606	133.16858	27.18436	0.1546178	3.1731634	24	1	133 days	0.70	M-v	3	Williams	34026 1998 UN ₁₈
1998 UT ₁₈	19.4	0.15	19990122	9.29805	49.83446	64.78139	13.59101	0.3296658	1.4056269	89	1	144 days	0.64	M-v	4	Williams	34026 1998 UT ₁₈
1998 UO ₁₉	15.6	0.15	19981103	326.04558	221.60504	223.48742	15.25480	0.2149891	2.5431119	24	1	50 days	0.58			Williams	1998 UO ₁₉
1998 UB ₂₀	15.2	0.15	19990122	39.45486	279.40267	96.45498	0.70129	0.0991274	2.6391219	36	1	93 days	0.55	M-v	5	Williams	34026 1998 UB ₂₀
1998 UC ₂₀	15.4	0.15	19981103	60.89061	266.09314	49.72037	2.92556	0.2206652	2.3839915	32	1	53 days	0.72			Williams	1998 UC ₂₀
1998 UD ₂₀	14.1	0.15	19990122	58.37240	211.63190	130.71855	5.26538	0.2005113	3.1335895	22	2	1997–1998	0.69	M-v	4	Williams	33312 1998 UD ₂₀
1998 UZ ₂₁	14.0	0.15	19990122	76.77861	256.81539	53.63813	10.07290	0.1523940	2.7238090	34	1	105 days	0.67	M-v	5	Williams	33762 1998 UZ ₂₁
1998 UT ₂₂	15.5	0.15	19990122	33.79862	314.54197	71.30156	14.06891	0.1591262	2.5440204	34	1	83 days	0.73	M-v	4	Williams	33762 1998 UT ₂₂
1998 UA ₂₃	14.7	0.15	19990122	310.33641	82.04377	56.86827	2.93068	0.1541104	2.3912205	27	1	103 days	0.79	M-v	5	Williams	1998 UA ₂₃
1998 UO ₂₃	13.3	0.15	19990122	31.25486	131.93691	249.45037	22.84650	0.2561137	3.1312757	42	1	101 days	0.82	M-v	4	Williams	34027 1998 UO ₂₃
1998 UX ₂₃	14.3	0.15	19981014	41.63573	251.18023	71.67472	7.78736	0.2176270	2.5587119	18	1	28 days	0.40		D	Williams	1998 UX ₂₃
1998 UE ₂₄	14.8	0.15	19990122	21.74972	313.03381	79.60583	7.67248	0.0941704	2.3344866	25	2	1997–1998	0.61	M-v	5	Williams	33314 1998 UE ₂₄
1998 UV ₂₄	13.8	0.15	19990122	28.53459	331.47676	54.43220	2.79791	0.0806554	2.9481771	42	3	1978–1999	0.41	M-v	3	Williams	34027 1998 UV ₂₄
1998 UW ₂₄	17.1	0.15	19981014	18.97485	163.19194	193.58341	1.62233	0.2741790	2.3585094	18	1	26 days	0.60			Williams	1998 UW ₂₄
1998 UP ₂₆	15.2	0.15	19981103	358.27336	353.50530	50.58519	14.92836	0.2589853	2.7566676	28	1	55 days	0.95			Williams	1998 UP ₂₆
1998 UG ₂₉	14.4	0.15	19981014	154.33721	82.24590	161.26659	6.98105	0.0810745	2.4709785	9	1	27 days	0.48			Williams	1998 UG ₂₉
1998 UM ₂₉	14.2	0.15	19990122	354.76357	10.45937	67.08780	12.91755	0.1627149	2.6508750	20	1	69 days	0.48	M-v	4	Williams	33574 1998 UM ₂₉
1998 UP ₃₀	16.6	0.15	19981103	5.42828	243.38905	153.02769	5.16811	0.2417040	2.4067357	14	1	32 days	0.84			Williams	1998 UP ₃₀
1998 UT ₃₀	14.0	0.15	19981103	66.29748	244.08712	90.63632	11.21567	0.0557342	3.0026914	14	1	31 days	0.55			Williams	1998 UT ₃₀
1998 UH ₃₁	12.4	0.15	19990122	30.54730	347.58017	62.13820	14.31072	0.1390728	2.6266827	35	4	1951–1999	0.82	M-v	2	Williams	34027 1998 UH ₃₁
1998 UJ ₃₂	14.2	0.15	19990122	46.04731	170.91339	226.11183	5.93373	0.1127751	2.1962868	19	1	133 days	0.54	M-v	5	Williams	1998 UJ ₃₂
1998 UN ₃₂	13.8	0.15	19990122	345.28863	219.46781	276.54188	11.70926	0.1099280	2.6879199	45	2	1989–1999	0.57	M-v	3	Williams	34027 1998 UN ₃₂
1998 UQ ₃₂	14.1	0.15	19990122	41.40877	342.99655	85.43043	5.63344	0.1065647	2.2992586	47	2	1996–1999	0.51	M-v	4	Williams	34027 1998 UQ ₃₂
1998 UW ₃₄	16.2	0.15	19990122	342.29205	215.49314	227.15546	3.99919	0.1624584	2.4131846	18	1	94 days	0.62	M-v	5	D Williams	34027 1998 UW ₃₄
1998 UV ₃₆	15.5	0.15	19981014	38.38334	5.44006	330.56601	3.05548	0.1628781	2.5902857	26	1	37 days	0.70		D	Williams	1998 UV ₃₆
1998 UF ₃₇	13.5	0.15	19990122	103.69874	251.19345	33.33379	1.34652	0.1472574	3.1249637	37	3	1984–1999	0.63	M-v	2	Williams	34027 1998 UF ₃₇
1998 UU ₃₇	14.6	0.15	19981103	291.47120	274.98749	199.97009	12.95603	0.1370090	2.6710191	21	1	17 days	0.68		D	Williams	1998 UU ₃₇
1998 UC ₃₈	14.6	0.15	19981103	306.48907	35.69471	57.28828	9.78719	0.0964861	2.7438164	21	1	17 days	0.87		D	Williams	1998 UC ₃₈
1998 UD ₃₈	14.4	0.15	19990122	38.97010	304.05680	54.45204	9.94000	0.1930344	2.7704850	33	1	111 days	0.63	M-v	4	Williams	34027 1998 UD ₃₈
1998 UB ₃₉	16.6	0.15	19981103	2.33091	356.80151	33.65644	7.66999	0.2088336	2.3325624	21	1	17 days	0.66		D	Williams	1998 UB ₃₉
1998 UP ₃₉	14.2	0.15	19990122	345.30941	232.31671	216.39828	11.85195	0.2643023	2.6428003	50	3	1981–1999	0.64	M-v	2	Williams	34027 1998 UP ₃₉
1998 UB ₄₀	14.8	0.15	19981103	308.31943	83.99903	15.11623	5.80205	0.1306793	2.3063716	23	1	20 days	0.60		D	Williams	1998 UB ₄₀
1998 UG ₄₀	14.1	0.15	19981103	21.49822	63.81650	299.45492	3.93451	0.1770865	3.1230647	20	1	20 days	0.72		D	Williams	1998 UG ₄₀
1998 UC ₄₁	14.7	0.15	19981103	158.41193	30.08651	202.19709	3.68424	0.0644676	2.4436155	19	1	17 days	0.81		D	Williams	1998 UC ₄₁
1998 UK ₄₁	16.8	0.15	19981103	12.11197	290.42219	82.50521	4.39680	0.2570487	2.2829714	22	1	17 days	0.62			Williams	1998 UK ₄₁
1998 UF ₄₂	14.2	0.15	19990122	113.77682	225.95240	58.86441	2.28654	0.1289651	2.5628897	28	1	96 days	0.71	M-v	6	Williams	34027 1998 UF ₄₂
1998 UL ₄₂	16.6	0.15	19981103	344.17333	204.75104	210.53306	5.86782	0.1121549	2.2865016	12	1	17 days	0.61			Williams	1998 UL ₄₂
1998 UJ ₄₃	15.2	0.15	19981103	219.28727	249.52009	291.35435	4.70260	0.0402987	2.4623153	11	1	18 days	0.66			Williams	1998 UJ ₄₃
1998 VG	13.5	0.15	19990122	5.81378	354.35322	56.28163	3.82606	0.1920507	3.1551139	64	3	1981–1999	0.57	M-v	2	Williams	34027 1998 VG
1998 VK	14.5	0.15	19990122	12.87971	93.28412	312.65985	12.12354	0.1835945	2.5309974	30	1	132 days	0.64	M-v	4	Williams	33762 1998 VK
1998 VU	14.3	0.15	19981103	31.82379	311.38923	47.92755	11.39596	0.1052657	3.0342557	38	1	57 days	0.58		D	Williams	1998 VU
1998 VZ ₂	14.8	0.15	19981123	110.16141	64.94067	233.17168	9.32965	0.0618141	2.9758907	14	1	35 days	0.81			Williams	1998 VZ ₂

1998 VX ₃	16.2	0.15	19990122	16.68946	350.16009	71.77467	6.64924	0.1987798	2.4207757	27	3	1992–1998	0.74	M-v	4	Williams	33709	1998 VX ₃
1998 VS ₄	16.4	0.15	19981103	70.24805	166.52312	149.56502	5.76546	0.1748470	2.1899358	9	1	3 days	0.79		E	Williams		1998 VS ₄
1998 VB ₅	13.1	0.15	19990122	162.92943	225.54866	37.50324	1.30608	0.0587878	3.0586306	55	4	1981–1999	0.81	M-v	1	Williams	34027	1998 VB ₅
1998 VB ₆	13.7	0.15	19990122	40.68462	66.54690	256.92101	6.37181	0.2182075	2.2739475	30	4	1974–1998	0.85	M-v	2	Williams	34028	1998 VB ₆
1998 VH ₆	15.1	0.15	19990122	342.92438	68.29576	24.75744	9.43639	0.0990030	2.3014765	31	1	62 days	0.61	M-v	5	Williams	33763	1998 VH ₆
1998 VF ₇	14.0	0.15	19990122	12.29901	176.39660	225.58507	13.00804	0.2491779	2.6032220	56	1	111 days	0.59	M-v	4	Williams	34028	1998 VF ₇
1998 VM ₇	15.2	0.15	19981103	294.08275	36.92248	67.35250	6.44099	0.0938160	2.2312003	12	1	4 days	0.47			Williams		1998 VM ₇
1998 VQ ₇	13.5	0.15	19990122	115.10234	212.76025	70.10211	7.36392	0.1030279	2.3755748	39	2	1990–1999	0.49	M-v	5	Williams	34028	1998 VQ ₇
1998 VS ₇	15.6	0.15	19981014	347.22920	14.20926	29.25253	12.51606	0.1858238	2.7035466	27	1	36 days	0.63			Williams		1998 VS ₇
1998 VX ₇	14.9	0.15	19981103	334.08274	213.83697	217.26471	8.33451	0.2037499	2.7898302	32	1	59 days	0.68			Williams		1998 VX ₇
1998 VC ₈	14.5	0.15	19981014	347.48129	212.46313	189.58271	10.76027	0.1276630	2.9885475	27	1	36 days	0.68			Williams		1998 VC ₈
1998 VJ ₈	16.0	0.15	19981103	342.59096	266.76524	152.61262	2.19913	0.2124475	2.7581516	24	1	19 days	0.78			D Williams		1998 VJ ₈
1998 VN ₈	14.7	0.15	19990122	57.15228	2.77657	341.25171	2.77271	0.1658812	2.4409795	37	3	1975–1998	0.56	M-v	3	Williams	33970	1998 VN ₈
1998 VX ₈	14.4	0.15	19981103	104.10273	18.78400	261.61604	6.10697	0.1134141	2.3490942	21	1	18 days	0.51			Williams		1998 VX ₈
1998 VM ₉	16.4	0.15	19981103	8.57785	207.93212	174.41356	1.06230	0.1940735	2.3879945	20	1	17 days	0.89			Williams		1998 VM ₉
1998 VU ₉	14.3	0.15	19990122	351.26664	127.71518	297.88511	2.58529	0.0853243	2.5177833	20	2	1992–1998	0.76	M-v	6	Williams	33318	1998 VU ₉
1998 VS ₁₀	15.7	0.15	19981103	34.13259	305.83595	43.14464	9.12555	0.1744337	2.3365163	12	1	4 days	0.70			Williams		1998 VS ₁₀
1998 VT ₁₀	13.5	0.15	19981103	116.36413	212.74930	53.23373	4.02708	0.1508967	2.1909924	13	1	4 days	0.39			E Williams		1998 VT ₁₀
1998 VW ₁₀	17.5	0.15	19981103	330.76691	72.60922	10.60631	0.83157	0.2264478	2.2403306	11	1	4 days	0.48			Williams		1998 VW ₁₀
1998 VE ₁₁	17.1	0.15	19981103	5.08066	175.52773	214.01218	3.20993	0.2493273	2.3313335	13	1	4 days	0.55			E Williams		1998 VE ₁₁
1998 VK ₁₁	16.6	0.15	19981103	308.92154	50.83337	50.30015	6.88358	0.1280433	2.2014825	15	1	5 days	0.55			Williams		1998 VK ₁₁
1998 VN ₁₁	14.4	0.15	19981103	91.33634	175.84149	107.39052	2.03000	0.2053045	2.1709141	13	1	4 days	0.47			E Williams		1998 VN ₁₁
1998 VQ ₁₂	14.6	0.15	19981103	260.45831	310.99160	201.85437	6.16779	0.1421206	2.1719925	16	1	5 days	0.37			E Williams		1998 VQ ₁₂
1998 VR ₁₂	14.9	0.15	19981103	349.47647	295.95554	115.80834	2.47915	0.1378684	2.6919896	12	1	4 days	0.66			E Williams		1998 VR ₁₂
1998 VS ₁₂	15.3	0.15	19981103	27.28579	270.30921	88.61454	3.26693	0.1806339	2.5960767	12	1	4 days	0.63			Williams		1998 VS ₁₂
1998 VW ₁₂	15.1	0.15	19981103	17.23718	233.83905	137.85707	2.00093	0.1976321	3.1005508	13	1	4 days	0.49			E Williams		1998 VW ₁₂
1998 VX ₁₂	16.1	0.15	19981103	320.27966	28.96811	73.96926	2.74952	0.2632117	2.4615389	10	1	4 days	0.89			E Williams		1998 VX ₁₂
1998 VY ₁₂	14.9	0.15	19981103	10.10959	336.79471	46.89068	13.84923	0.1724766	2.6967324	12	1	4 days	0.66			Williams		1998 VY ₁₂
1998 VZ ₁₂	14.4	0.15	19981103	95.59126	227.71514	51.10300	5.30521	0.2177309	2.3856184	13	1	4 days	0.43			Williams		1998 VZ ₁₂
1998 VA ₁₃	15.1	0.15	19981103	327.19350	244.62809	191.95154	1.41378	0.0788571	2.3288330	13	1	4 days	0.50			E Williams		1998 VA ₁₃
1998 VB ₁₃	15.8	0.15	19990122	23.98069	241.70077	155.22703	1.16377	0.1573081	2.2871985	31	2	1993–1998	0.60	M-v	3	Williams	34028	1998 VB ₁₃
1998 VF ₁₃	14.0	0.15	19981103	299.61307	324.84713	159.95898	0.76500	0.2319816	3.3596908	13	1	4 days	0.74			E Williams		1998 VF ₁₃
1998 VH ₁₃	16.8	0.15	19981103	321.41649	222.34099	238.46426	1.43131	0.2532046	2.3140955	15	1	6 days	0.85			E Williams		1998 VH ₁₃
1998 VL ₁₃	14.9	0.15	19981103	48.43844	296.46355	42.39583	6.92840	0.1273950	2.2738686	13	1	4 days	0.39			Williams		1998 VL ₁₃
1998 VS ₁₃	15.5	0.15	19981103	63.69170	278.23204	30.26814	11.95878	0.2390794	2.4675171	21	1	17 days	0.64			Williams		1998 VS ₁₃
1998 VT ₁₃	16.6	0.15	19981103	348.15122	42.33822	13.33773	4.50806	0.1451780	2.1818185	13	1	5 days	0.83			E Williams		1998 VT ₁₃
1998 VU ₁₃	14.6	0.15	19981103	65.60809	77.63225	234.95469	12.63340	0.1836102	2.6014466	16	1	6 days	0.69			Williams		1998 VU ₁₃
1998 VY ₁₃	15.9	0.15	19981103	25.57170	119.34780	240.65666	11.68827	0.2141326	2.7468526	11	1	5 days	0.75			Williams		1998 VY ₁₃
1998 VZ ₁₃	14.0	0.15	19990122	4.32988	166.32879	256.74461	5.32020	0.1011246	2.2505981	37	4	1954–1999	0.70	M-v	4	Williams	34028	1998 VZ ₁₃
1998 VA ₁₄	15.2	0.15	19981103	7.38000	138.85745	250.22079	8.38178	0.1768270	2.8822685	11	1	5 days	0.67			E Williams		1998 VA ₁₄
1998 VB ₁₄	16.2	0.15	19981103	333.67185	85.54247	352.75087	4.85514	0.1800831	2.5539240	10	1	5 days	0.99			Williams		1998 VB ₁₄
1998 VD ₁₄	14.9	0.15	19981103	260.44384	192.48586	314.41172	4.90291	0.0623615	2.4537219	12	1	5 days	0.72			E Williams		1998 VD ₁₄
1998 VF ₁₄	13.5	0.15	19981103	165.24075	208.29680	22.74018	16.69344	0.2336653	2.6654217	11	1	5 days	0.85			E Williams		1998 VF ₁₄
1998 VG ₁₄	16.3	0.15	19981103	89.47495	11.34293	287.95000	4.85683	0.1056001	2.2485649	10	1	5 days	0.52			Williams		1998 VG ₁₄
1998 VK ₁₄	13.9	0.15	19981103	127.05845	242.18741	27.17873	15.64302	0.0599441	2.5341023	13	1	5 days	0.26			Williams		1998 VK ₁₄
1998 VL ₁₄	14.1	0.15	19990122	55.92814	104.33920	240.49135	10.14495	0.2210206	2.5493807	32	1	86 days	0.68	M-v	5	Williams	34028	1998 VL ₁₄
1998 VM ₁₄	18.2	0.15	19981103	30.49607	101.18755	255.19063	4.16755	0.1903932	1.9640427	9	1	5 days	0.76			Williams		1998 VM ₁₄
1998 VN ₁₄	16.0	0.15	19981103	332.69808	59.89369	26.39917	8.95727	0.2602121	2.4999657	12	1	5 days	0.93			E Williams		1998 VN ₁₄
1998 VR ₁₄	14.8	0.15	19981103	335.99883	43.39439	34.61521	18.28165	0.2272448	2.8898177	13	1	5 days	0.63			Williams		1998 VR ₁₄
1998 VL ₁₅	15.1	0.15	19981103	347.11332	196.23830	223.16657	13.94241	0.2083673	2.6263842	12	1	4 days	0.58			Williams		1998 VL ₁₅
1998 VO ₁₅	16.9	0.15	19981103	354.73340	351.49980	54.78910	1.48182	0.0765749	2.0487476	12	1	4 days	0.44			E Williams		1998 VO ₁₅
1998 VQ ₁₅	11.8	0.15	19981103	51.15645	287.72993	43.65496	9.51849	0.1590603	5.2920250	12	1	4 days	0.62			E Williams		1998 VQ ₁₅
1998 VR ₁₅	10.8	0.15	19981103	44.44103	307.90294	43.41062	10.40573	0.0342714	5.1512626	13	1	4 days	0.55			E Williams		1998 VR ₁₅

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1998 VT ₁₅	15.0	0.15	19981103	349.17363	203.65385	212.32355	8.10036	0.1966273	2.5502372	13	1	4 days	0.46	E	Williams	1998 VT ₁₅
1998 VW ₁₅	16.0	0.15	19981103	46.77440	129.64341	196.93795	4.34647	0.2511995	2.5947607	11	1	4 days	1.06	E	Williams	1998 VW ₁₅
1998 VB ₁₆	14.5	0.15	19981103	317.46709	323.95787	130.22766	2.87009	0.1503729	2.3952543	13	1	4 days	0.39		Williams	1998 VB ₁₆
1998 VY ₁₆	13.6	0.15	19981103	44.88245	281.01489	51.33856	18.61899	0.2141167	3.2337515	13	1	4 days	0.31		Williams	1998 VY ₁₆
1998 VD ₁₇	14.3	0.15	19981103	321.14224	230.92617	213.10560	22.01478	0.0715801	2.6628820	16	1	6 days	0.57		Williams	1998 VD ₁₇
1998 VK ₁₇	16.7	0.15	19981103	332.69456	20.68679	59.90136	2.96136	0.1926683	2.4203283	12	1	4 days	0.58		Williams	1998 VK ₁₇
1998 VL ₁₇	16.4	0.15	19981014	13.31753	327.45665	45.48486	3.33006	0.1917648	2.3958227	21	1	59 days	0.63		Williams	1998 VL ₁₇
1998 VM ₁₇	13.8	0.15	19981014	265.83532	277.18237	218.05393	8.85692	0.0354400	3.0555981	21	1	27 days	0.68		Williams	1998 VM ₁₇
1998 VO ₁₇	14.2	0.15	19981103	27.04390	141.83695	223.01556	10.23507	0.1437162	2.8277662	12	1	4 days	0.38	E	Williams	1998 VO ₁₇
1998 VY ₁₇	16.5	0.15	19981103	9.04509	63.32675	321.99482	2.15648	0.2518745	2.4553857	13	1	5 days	0.51		Williams	1998 VY ₁₇
1998 VZ ₁₇	17.7	0.15	19981103	342.48242	61.18345	11.60333	3.13861	0.2826740	2.3601538	10	1	5 days	0.89		Williams	1998 VZ ₁₇
1998 VE ₁₈	14.4	0.15	19981103	95.73118	318.70950	334.29577	4.49906	0.1194694	2.5240122	13	1	5 days	0.87	E	Williams	1998 VE ₁₈
1998 VF ₁₈	14.1	0.15	19981103	179.23019	204.83114	18.58052	8.97158	0.0701897	2.3845656	12	1	5 days	0.76	E	Williams	1998 VF ₁₈
1998 VH ₁₈	15.3	0.15	19990122	54.83942	91.01362	270.28096	5.17349	0.1653509	2.1410203	28	1	116 days	0.95	M-v 5	Williams	1998 VH ₁₈
1998 VM ₁₈	12.7	0.15	19981103	151.16008	4.30884	242.72751	13.27098	0.0840230	2.4750557	18	1	26 days	0.86		Williams	1998 VM ₁₈
1998 VN ₁₈	16.2	0.15	19981103	42.45153	352.94012	355.14950	5.08020	0.1415227	2.3253826	12	1	5 days	0.98	E	Williams	1998 VN ₁₈
1998 VQ ₁₈	12.7	0.15	19981103	93.36783	353.22871	288.83781	4.63770	0.2514700	2.9850067	13	1	5 days	0.47		Williams	1998 VQ ₁₈
1998 VT ₁₈	13.3	0.15	19981103	279.41873	243.96810	249.88446	9.77404	0.0875487	3.0694327	11	1	5 days	0.40	E	Williams	1998 VT ₁₈
1998 VW ₁₈	16.6	0.15	19981103	333.80608	193.07075	256.11580	3.31487	0.2905460	2.5774389	12	1	5 days	0.76		Williams	1998 VW ₁₈
1998 VX ₁₈	14.6	0.15	19981103	56.24774	82.78887	257.07459	3.91712	0.0632870	2.1582180	12	1	5 days	0.52		Williams	1998 VX ₁₈
1998 VH ₁₉	14.5	0.15	19981103	162.96213	168.24208	65.02673	6.92315	0.1402394	2.2895161	14	1	4 days	0.99	E	Williams	1998 VH ₁₉
1998 VJ ₁₉	14.1	0.15	19981103	237.38194	73.53260	97.26952	3.76889	0.0795963	2.9174811	12	1	4 days	0.86	E	Williams	1998 VJ ₁₉
1998 VA ₂₀	16.0	0.15	19981103	325.18620	22.45628	76.94063	5.76699	0.2701931	2.9283399	11	1	4 days	1.07		Williams	1998 VA ₂₀
1998 VF ₂₀	16.2	0.15	19981103	338.78186	252.60350	184.83922	2.44783	0.2567041	2.6519038	11	1	4 days	0.89	E	Williams	1998 VF ₂₀
1998 VG ₂₀	15.9	0.15	19981103	301.23330	5.05939	118.71507	2.03830	0.2112155	2.4699184	12	1	4 days	0.94	E	Williams	1998 VG ₂₀
1998 VF ₂₁	14.0	0.15	19981103	6.41393	156.88939	237.60255	9.91181	0.1100988	2.9770966	11	1	5 days	0.42	E	Williams	1998 VF ₂₁
1998 VM ₂₁	14.8	0.15	19981103	96.67064	30.08153	266.39380	3.52416	0.0965834	2.7913363	11	1	5 days	1.06	E	Williams	1998 VM ₂₁
1998 VN ₂₁	15.4	0.15	19981103	28.62987	37.86609	313.01722	2.98264	0.2990077	2.8161125	11	1	5 days	0.52		Williams	1998 VN ₂₁
1998 VQ ₂₁	15.2	0.15	19981103	66.00014	70.83796	249.75180	7.14653	0.1526748	2.4214163	11	1	5 days	0.58	E	Williams	1998 VQ ₂₁
1998 VR ₂₁	12.8	0.15	19981103	163.41270	351.95023	243.16935	13.20580	0.2210003	2.8750798	12	1	5 days	0.57		Williams	1998 VR ₂₁
1998 VS ₂₁	14.5	0.15	19981103	115.51114	349.03850	292.71235	3.38516	0.0702459	2.6926848	12	1	5 days	0.66	E	Williams	1998 VS ₂₁
1998 VU ₂₁	16.1	0.15	19981103	20.25461	8.05501	8.97494	5.01619	0.1374678	2.2381975	13	1	5 days	0.69		Williams	1998 VU ₂₁
1998 VX ₂₁	16.1	0.15	19981103	333.46754	96.09945	345.17595	4.55883	0.1669544	2.5206716	13	1	5 days	0.62		Williams	1998 VX ₂₁
1998 VY ₂₁	16.8	0.15	19981103	345.74941	143.25825	276.69635	5.44847	0.0498001	2.1726498	12	1	5 days	0.50		Williams	1998 VY ₂₁
1998 VE ₂₂	14.1	0.15	19981103	110.42368	257.27080	28.53433	15.00207	0.1017350	3.0880773	14	1	6 days	0.54		Williams	1998 VE ₂₂
1998 VG ₂₂	14.8	0.15	19981103	52.70256	21.68520	301.19626	3.05574	0.2626713	2.5945242	13	1	5 days	0.72	E	Williams	1998 VG ₂₂
1998 VH ₂₂	16.2	0.15	19981103	11.48009	134.09497	251.34364	7.08267	0.2270450	2.8014389	10	1	5 days	0.33		Williams	1998 VH ₂₂
1998 VC ₂₃	17.0	0.15	19990122	10.56163	174.52851	242.89049	2.01330	0.3147998	2.7449774	21	1	95 days	0.42	M-v 4	Williams	1998 VC ₂₃
1998 VN ₂₄	13.5	0.15	19990122	357.91978	3.35935	66.02686	14.32556	0.1528381	2.6716333	43	1	88 days	0.70	M-v 4 D	Doppler	1998 VN ₂₄
1998 VN ₂₆	15.6	0.15	19981103	340.22085	42.74634	31.70731	8.35514	0.1937453	2.5225245	13	1	5 days	0.58		Williams	1998 VN ₂₆
1998 VL ₂₈	14.7	0.15	19981103	311.52208	265.81465	204.08004	10.01929	0.1491303	2.4163667	10	1	4 days	0.43		Williams	1998 VL ₂₈
1998 VC ₂₉	12.7	0.15	19990122	62.11724	212.51732	138.08824	4.98846	0.1126796	3.1891712	36	4	1975–1998	0.45	M-v 2	Williams	1998 VC ₂₉
1998 VE ₂₉	16.0	0.15	19981103	27.42281	233.44552	124.07854	4.55703	0.2934737	2.4775615	10	1	4 days	0.41		Williams	1998 VE ₂₉
1998 VH ₂₉	13.8	0.15	19990122	6.07250	352.33099	72.28251	13.74041	0.1416452	2.6458851	36	1	106 days	0.66	M-v 4	Williams	1998 VH ₂₉
1998 VQ ₂₉	13.2	0.15	19990122	67.92803	85.74941	257.17272	11.86039	0.2022005	2.6174606	39	2	1981–1999	0.73	M-v 4	Williams	1998 VQ ₂₉
1998 VU ₂₉	13.3	0.15	19990122	4.52719	169.23912	260.35951	9.10546	0.1445983	2.8058860	42	1	98 days	0.68	M-v 4	Williams	1998 VU ₂₉
1998 VC ₃₀	15.9	0.15	19981103	8.31613	313.53027	85.71242	3.77981	0.1045152	2.1749936	13	1	14 days	0.82		Williams	1998 VC ₃₀
1998 VE ₃₀	15.8	0.15	19981103	348.39582	228.76681	198.71127	8.70937	0.2287405	2.6274149	10	1	4 days	0.89		Williams	1998 VE ₃₀
1998 VF ₃₀	10.8	0.15	19990122	352.05168	2.94172	67.00091	25.63168	0.1306759	5.2224667	24	1	102 days	0.77	M-v 4	Williams	1998 VF ₃₀
1998 VJ ₃₀	13.9	0.15	19990122	18.59742	328.95767	76.17165	12.22087	0.1575889	3.1579864	30	1	95 days	0.57	M-v 4	Williams	1998 VJ ₃₀
1998 VQ ₃₁	13.6	0.15	19990122	34.42887	153.92165	243.46923	12.72792	0.1640435	2.6581984	17	1	97 days	0.55	M-v 4	Williams	1998 VQ ₃₁
1998 VU ₃₁	15.4	0.15	19981103	0.78424	13.41305	27.30871	23.57747	0.1908186	2.2869294	13	1	2 days	0.89	E	Williams	1998 VU ₃₁
1998 VS ₃₂	12.3	0.15	19990122	246.40875	164.50555	91.64999	15.29629	0.0891075	3.1473405	18	1	95 days	0.47	M-v 5	Williams	1998 VS ₃₂

1998 VW ₃₂	15.2	0.15	19990122	129.18228	238.39026	54.15162	0.77289	0.1197445	2.4573976	29	1	95 days	0.61	M-v	6	Williams		1998 VW ₃₂
1998 VX ₃₂	15.4	0.15	19990122	74.15822	289.79530	54.70833	3.08988	0.1351528	2.5276842	39	1	67 days	0.68	M-v	5	Williams	34029	1998 VX ₃₂
1998 VK ₃₃	14.2	0.15	19990122	147.44948	241.23484	32.17334	4.85745	0.0918418	2.9056265	37	5	1976–1998	0.63	M-v	1	Williams	34029	1998 VK ₃₃
1998 VT ₃₃	15.2	0.15	19990122	26.45495	114.96360	323.26746	5.25000	0.1637126	2.2952596	33	1	118 days	0.61	M-v	4	Williams	34029	1998 VT ₃₃
1998 VR ₃₄	14.7	0.15	19990122	137.75694	332.19104	315.06380	1.13188	0.0367709	2.8729633	21	3	1996–1999	0.53	M-v	3	Williams	34029	1998 VR ₃₄
1998 VY ₃₄	14.6	0.15	19990122	39.15509	274.43271	109.06160	6.64805	0.1944117	2.3136299	30	1	108 days	0.75	M-v	4	Williams	34029	1998 VY ₃₄
1998 VC ₃₅	13.0	0.15	19981103	292.44852	245.51137	252.26119	11.79217	0.2358528	2.6590124	11	1	10 days	0.76			Williams		1998 VC ₃₅
1998 VF ₃₅	11.9	0.15	19990122	303.01215	301.03036	188.20046	10.12600	0.0518417	3.0120388	39	3	1985–1999	0.69	M-v	3	Williams	33764	1998 VF ₃₅
1998 VL ₃₅	14.2	0.15	19981103	59.59390	113.50962	267.12011	11.26297	0.1598310	2.5794453	9	1	16 days	0.59			Williams		1998 VL ₃₅
1998 VQ ₃₆	14.6	0.15	19981103	341.56899	170.01047	252.99516	8.06011	0.2353717	2.5746733	13	1	6 days	0.56			Williams		1998 VQ ₃₆
1998 VR ₃₆	12.4	0.15	19981213	324.04173	206.94704	242.03979	12.07104	0.1315818	2.6819013	23	1	58 days	0.53			Williams		1998 VR ₃₆
1998 VZ ₃₆	12.6	0.15	19981103	93.90648	49.12652	222.47515	15.15830	0.2932482	2.7884594	13	1	4 days	0.43			Williams		1998 VZ ₃₆
1998 VE ₃₇	14.0	0.15	19990122	340.70813	83.67898	9.08038	9.07006	0.1813244	2.7710232	33	3	1981–1998	0.74	M-v	3	Williams	33518	1998 VE ₃₇
1998 VG ₃₇	16.0	0.15	19981103	344.41179	174.07455	257.25579	5.32304	0.3172742	2.5971020	12	1	5 days	0.54			Williams		1998 VG ₃₇
1998 VJ ₃₇	16.8	0.15	19981103	341.38725	279.43912	148.79984	1.95574	0.2109745	2.5990134	12	1	4 days	1.02			Williams		1998 VJ ₃₇
1998 VL ₃₇	15.2	0.15	19981103	349.74180	31.39067	22.54743	8.82765	0.0911262	2.5233053	13	1	5 days	0.74		E	Williams		1998 VL ₃₇
1998 VN ₃₇	15.0	0.15	19981103	331.53125	196.53467	246.66413	13.88071	0.1784395	2.8036741	10	1	5 days	0.67			Williams		1998 VN ₃₇
1998 VO ₃₇	16.9	0.15	19981103	348.71945	28.86070	28.43510	5.39012	0.1557841	2.1400992	11	1	5 days	0.48		E	Williams		1998 VO ₃₇
1998 VU ₃₇	15.9	0.15	19981103	28.80942	346.87410	13.59780	5.87955	0.2130350	2.4158963	12	1	5 days	0.47			Williams		1998 VU ₃₇
1998 VJ ₃₈	15.6	0.15	19981103	11.10643	21.29934	3.40845	4.53243	0.2775683	2.7718263	13	1	5 days	0.46			Williams		1998 VJ ₃₈
1998 VK ₃₈	13.6	0.15	19981103	233.18519	126.88919	48.18482	13.21905	0.1499257	3.2188568	11	1	4 days	0.64		E	Williams		1998 VK ₃₈
1998 VO ₃₈	13.3	0.15	19990122	348.63268	201.33983	242.26334	7.60060	0.1901772	3.1502491	37	1	108 days	0.54	M-v	4	Williams	34029	1998 VO ₃₈
1998 VN ₄₀	15.1	0.15	19990122	36.29412	294.61687	89.81000	3.18436	0.1217606	2.9503614	21	2	1993–1999	0.64	M-v	5	Williams	33519	1998 VN ₄₀
1998 VV ₄₁	14.2	0.15	19990122	235.24361	4.09840	249.54951	2.75603	0.1570345	2.1959976	35	3	1977–1999	0.72	M-v	4	Williams	34029	1998 VV ₄₁
1998 VJ ₄₂	14.8	0.15	19981103	162.35486	191.66117	39.61284	5.14603	0.2220571	2.1920178	9	1	5 days	0.48		E	Williams		1998 VJ ₄₂
1998 VG ₄₄	6.5	0.15	19990102	24.93450	244.72630	127.49388	3.04500	0.2694446	39.5307634	12	1	126 days	0.44		E	Marsden		1998 VG ₄₄
1998 WM	16.6	0.15	19990122	274.42180	172.42876	45.71806	22.51823	0.3154362	1.2245453	94	1	130 days	0.51	M-v	4	Marsden	34029	1998 WM
1998 WP	13.6	0.15	19990122	64.21653	110.61110	246.58647	10.77040	0.2730445	2.6573670	37	2	1989–1999	0.78	M-v	4	Williams	34029	1998 WP
1998 WS	12.4	0.15	19990122	3.73982	94.89542	9.14475	27.49928	0.3954691	2.6536811	158	4	1976–1999	0.57	M-v	1	Williams	34029	1998 WS
1998 WL ₁	14.7	0.15	19990122	21.85192	331.34960	96.19347	7.04802	0.0897991	2.4210170	24	2	1992–1998	0.54	M-v	4	Williams	33520	1998 WL ₁
1998 WD ₂	13.9	0.15	19990122	339.82215	195.55187	298.42891	11.23480	0.2834767	2.9084414	38	1	116 days	0.58	M-v	4	Williams	34029	1998 WD ₂
1998 WN ₂	15.0	0.15	19990122	44.15012	131.58806	312.68788	12.15328	0.1605005	2.5535854	24	1	123 days	0.63	M-v	4	Williams	34029	1998 WN ₂
1998 WC ₃	14.6	0.15	19990122	45.83038	340.98837	114.82897	6.25849	0.0190437	2.7227405	29	4	1991–1999	0.59	M-v	1	Williams	33971	1998 WC ₃
1998 WU ₅	15.2	0.15	19981103	9.61867	139.65797	243.26579	12.65190	0.1938247	2.7560453	12	1	5 days	0.49			Williams		1998 WU ₅
1998 WV ₅	12.8	0.15	19990122	172.44303	352.46127	250.86478	13.50745	0.1071804	3.0321100	24	1	80 days	0.59	M-v	5	Williams	34029	1998 WV ₅
1998 WZ ₅	10.5	0.15	19990122	358.37872	272.07542	160.22305	12.80533	0.0944332	5.2319510	22	3	1986–1998	0.85	M-v	4	Williams	34029	1998 WZ ₅
1998 WP ₆	14.4	0.15	19990122	351.53625	49.03856	59.74867	4.87460	0.1450118	2.5445530	33	3	1995–1999	0.59	M-v	4	Williams	34030	1998 WP ₆
1998 WB ₇	13.5	0.15	19990122	91.83627	357.09781	326.59505	0.93280	0.1114027	2.9471550	30	1	88 days	0.61	M-v	6	Williams	34030	1998 WB ₇
1998 WM ₇	13.4	0.15	19990122	344.19181	66.19167	94.65883	9.08198	0.2184658	2.5679699	44	1	168 days	0.62	M-v	3	Williams	34030	1998 WM ₇
1998 WB ₈	14.3	0.15	19990122	287.14065	141.80916	25.45703	1.12536	0.1438935	2.3242650	24	2	1996–1998	0.62	M-v	5	Williams	33971	1998 WB ₈
1998 WC ₈	13.3	0.15	19990122	22.71295	290.09657	108.27123	8.82162	0.2629158	2.7307331	29	2	1989–1999	0.68	M-v	3	Williams	34030	1998 WC ₈
1998 WJ ₈	12.7	0.15	19990122	74.83914	257.49349	80.02713	17.20643	0.0800760	3.1257009	44	1	98 days	0.52	M-v	4	Williams	34030	1998 WJ ₈
1998 WU ₈	15.6	0.15	19981123	33.54044	248.26889	113.19526	8.37427	0.2877025	2.3087514	12	1	30 days	0.37			Williams		1998 WU ₈
1998 WE ₉	12.7	0.15	19990122	117.23392	255.38401	102.76176	11.15541	0.0867447	3.0020078	43	1	88 days	0.51	M-v	4	Williams	34030	1998 WE ₉
1998 WL ₉	14.6	0.15	19990122	326.16435	183.76923	311.18435	4.37508	0.1579586	3.1740423	47	2	1988–1999	0.78	M-v	4	Williams	34030	1998 WL ₉
1998 WR ₉	14.7	0.15	19990122	91.23264	108.92369	217.53365	1.36027	0.1076889	2.7427404	23	2	1993–1998	0.78	M-v	6	Williams	33972	1998 WR ₉
1998 WS ₉	14.0	0.15	19990122	133.64808	221.74241	69.42018	6.79481	0.1002427	2.3571071	38	1	114 days	0.59	M-v	4	Williams	34030	1998 WS ₉
1998 WN ₁₁	11.4	0.15	19990122	356.09839	318.68945	110.40634	4.50770	0.1702178	5.1885213	17	1	66 days	0.86	M-v	5	Williams	34030	1998 WN ₁₁
1998 WP ₁₁	13.8	0.15	19990122	103.79801	237.96629	70.62632	14.63314	0.1603965	2.6297164	21	1	85 days	0.59	M-v	5	Williams		1998 WP ₁₁
1998 WA ₁₂	15.0	0.15	19990122	336.94625	291.27454	178.22635	2.89095	0.1505159	2.4441230	32	2	1996–1998	0.78	M-v	5	Williams	34030	1998 WA ₁₂
1998 WQ ₁₃	15.2	0.15	19990122	37.87084	11.99923	16.13138	3.37233	0.2196448	2.3456320	29	3	1987–1998	0.84	M-v	4	Williams	34030	1998 WQ ₁₃
1998 WZ ₁₄	15.0	0.15	19990122	334.53538	14.30328	96.20681	3.52060	0.1139420	2.4069819	20	1	80 days	0.39	M-v	5	Williams		1998 WZ ₁₄
1998 WB ₁₅	14.8	0.15	19990122	57.16259	286.31099	82.52133	7.30620	0.0622796	2.7802213	17	1	84 days	0.70	M-v	6	Williams		1998 WB ₁₅

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1998 WL ₁₅	15.4	0.15	19990122	354.90251	358.35243	86.14723	7.31252	0.0934191	2.3225266	20	1	91 days	0.71	M-v	5	Williams		1998 WL ₁₅
1998 WM ₁₅	14.7	0.15	19990122	8.74408	338.25526	87.63668	7.42302	0.0863806	2.4805986	29	1	97 days	0.43	M-v	4	Williams	34030	1998 WM ₁₅
1998 WO ₁₅	15.0	0.15	19990122	71.55565	262.69820	77.17802	13.24509	0.1843640	2.6710291	20	1	97 days	0.65	M-v	5	Williams		1998 WO ₁₅
1998 WP ₁₅	13.1	0.15	19990122	352.41358	3.37615	74.18951	17.18877	0.0557191	3.1972697	24	1	94 days	0.60	M-v	4	Williams		1998 WP ₁₅
1998 WC ₁₆	13.1	0.15	19990122	111.67391	233.66982	74.92730	11.43725	0.0984731	2.9778409	37	1	95 days	0.67	M-v	5	Williams	34030	1998 WC ₁₆
1998 WE ₁₆	14.2	0.15	19990122	349.47991	4.70103	80.35817	6.63715	0.0911197	3.2165558	21	1	80 days	0.81	M-v	5	Williams	34030	1998 WE ₁₆
1998 WN ₁₆	13.9	0.15	19990122	6.89718	243.77722	190.52388	1.82695	0.1826270	2.3757598	37	1	172 days	0.61	M-v	4	Williams	34030	1998 WN ₁₆
1998 WO ₁₆	14.3	0.15	19990122	306.31537	67.48616	64.64533	6.35449	0.0768741	3.2262036	21	1	64 days	0.50	M-v	5	Williams	34030	1998 WO ₁₆
1998 WA ₁₇	14.0	0.15	19990122	308.37064	292.33013	200.86567	1.62939	0.0916216	3.1487361	20	1	85 days	0.52	M-v	6	Williams		1998 WA ₁₇
1998 WC ₁₇	14.3	0.15	19990122	103.75132	234.25375	88.68582	2.91580	0.0700016	2.6931339	39	1	87 days	0.53	M-v	5	Williams	34030	1998 WC ₁₇
1998 WG ₁₇	14.7	0.15	19990122	129.78087	118.33578	173.29013	0.39330	0.1506026	2.5735896	25	2	1992–1999	0.69	M-v	5	Williams	34030	1998 WG ₁₇
1998 WJ ₁₇	12.2	0.15	19990122	87.17923	83.18359	234.18147	4.20874	0.2156084	3.9857544	22	1	83 days	0.65	M-v	6	Williams		1998 WJ ₁₇
1998 WR ₁₈	13.8	0.15	19990122	155.91820	18.68487	255.43883	6.71042	0.0960636	2.6958167	17	1	87 days	0.59	M-v	5	Williams		1998 WR ₁₈
1998 WV ₁₈	11.8	0.15	19990122	248.17945	309.94541	243.79419	11.25309	0.1398572	3.9376390	21	1	83 days	0.64	M-v	5 D	Williams		1998 WV ₁₈
1998 WY ₁₈	15.0	0.15	19990122	359.21450	175.12561	259.54467	2.03946	0.0548855	2.6904154	23	1	81 days	0.46	M-v	5	Williams		1998 WY ₁₈
1998 WK ₁₉	13.1	0.15	19990122	28.97181	163.97868	278.20216	12.92689	0.1235686	2.5758532	45	1	76 days	0.60	M-v	4	Williams	33766	1998 WK ₁₉
1998 WN ₁₉	13.6	0.15	19990122	54.34791	124.58119	280.07268	11.85075	0.2597065	2.5716241	23	1	92 days	0.59	M-v	5	Williams	34031	1998 WN ₁₉
1998 WS ₁₉	14.1	0.15	19990122	33.10100	75.17591	14.39161	11.75456	0.2506516	2.6278133	24	1	110 days	0.79	M-v	5	Williams	34031	1998 WS ₁₉
1998 WV ₁₉	12.7	0.15	19990122	30.20185	201.65697	271.12106	13.45234	0.1317801	2.6024981	19	1	86 days	0.53	M-v	6	Williams		1998 WV ₁₉
1998 WW ₁₉	13.5	0.15	19990122	60.80541	266.64910	96.50942	7.86070	0.0637173	3.1803122	37	5	1975–1998	0.52	M-v	1	Williams	34031	1998 WW ₁₉
1998 WA ₂₀	12.9	0.15	19990122	270.18141	81.07459	105.45909	10.88570	0.0303395	3.0198755	34	1	101 days	0.58	M-v	5	Williams	34031	1998 WA ₂₀
1998 WR ₂₀	13.6	0.15	19981123	359.41483	337.90804	76.99393	11.76142	0.2068942	3.1691853	16	1	32 days	0.85			Williams		1998 WR ₂₀
1998 WZ ₂₀	15.7	0.15	19990122	33.90746	103.19036	291.02128	2.24367	0.1702629	2.2472924	31	2	1991–1999	0.77	M-v	4	Williams	34031	1998 WZ ₂₀
1998 WR ₂₁	10.2	0.15	19990122	39.66757	135.41942	241.65715	14.99082	0.0697041	5.2326560	45	2	1986–1999	0.81	M-v	4	Williams	34031	1998 WR ₂₁
1998 WA ₂₂	15.2	0.15	19990122	102.34471	227.95582	78.41810	3.46313	0.2164140	2.3836859	36	3	1971–1999	0.62	M-v	2	Williams	34031	1998 WA ₂₂
1998 WS ₂₂	15.0	0.15	19990122	136.03802	208.39459	78.38687	6.08527	0.1310428	2.3262019	21	1	87 days	0.59	M-v	5	Williams	34031	1998 WS ₂₂
1998 WF ₂₃	15.8	0.15	19990122	15.16767	147.33213	272.20096	2.87481	0.1611905	2.3045490	17	1	93 days	0.67	M-v	4	Williams		1998 WF ₂₃
1998 WG ₂₃	15.3	0.15	19990122	104.23233	46.03620	268.56269	3.29292	0.1165659	2.3741109	14	1	88 days	0.69	M-v	6	Williams		1998 WG ₂₃
1998 WL ₂₃	14.2	0.15	19990122	343.24979	200.78464	246.14179	0.82779	0.0274065	2.9003136	17	1	95 days	0.81	M-v	5	Williams		1998 WL ₂₃
1998 WT ₂₃	12.5	0.15	19990122	37.68821	33.50281	62.73475	11.65101	0.1151600	2.9174991	40	4	1990–1999	0.61	M-v	2	Williams	33972	1998 WT ₂₃
1998 WU ₂₃	12.9	0.15	19990122	356.10071	129.62708	18.94795	9.42552	0.0751350	2.7787156	37	5	1953–1999	0.63	M-v	2	Williams	33972	1998 WU ₂₃
1998 WV ₂₃	13.4	0.15	19990122	320.61181	198.10803	352.53681	13.36409	0.1062702	2.6989682	48	3	1986–1999	0.67	M-v	3	Williams	33973	1998 WV ₂₃
1998 WW ₂₃	12.7	0.15	19990122	329.23986	105.15850	91.63908	15.22452	0.2582427	2.9147491	18	1	85 days	0.71	M-v	5	Williams		1998 WW ₂₃
1998 WY ₂₃	12.9	0.15	19990122	327.06406	102.09211	85.82553	14.07966	0.1226945	2.6870576	19	1	85 days	0.53	M-v	5	Williams		1998 WY ₂₃
1998 WB ₂₄	13.4	0.15	19990122	55.02861	317.87490	120.32825	10.12729	0.1358434	2.7769061	26	1	110 days	0.58	M-v	4	Williams	34031	1998 WB ₂₄
1998 WC ₂₄	13.0	0.15	19990122	293.95225	235.09222	350.40931	13.11379	0.1210656	2.6055511	54	2	1995–1999	0.73	M-v	4	Williams	34031	1998 WC ₂₄
1998 WD ₂₄	12.7	0.15	19990122	308.28562	236.85952	347.80952	8.05578	0.2090308	2.8707606	39	1	115 days	0.61	M-v	5	Williams	34031	1998 WD ₂₄
1998 WF ₂₄	15.5	0.15	19990122	97.42089	65.36394	258.27339	2.46880	0.1127618	2.3206581	26	3	1987–1999	0.55	M-v	2	Williams	34031	1998 WF ₂₄
1998 WW ₃₀	16.3	0.15	19990122	37.69546	245.45405	138.48656	7.84376	0.2309772	2.6874013	21	1	65 days	0.60	M-v	5	Williams	33766	1998 WW ₃₀
1998 XB	15.5	0.15	19990122	247.73234	202.56547	75.87523	13.59681	0.3511686	0.9077958	165	1	95 days	0.52	M-v	5	Williams	34031	1998 XB
1998 XC	13.6	0.15	19990122	99.12159	94.55060	260.97917	3.50924	0.1469821	2.2568960	50	5	1977–1999	0.66	M-v	3	Williams	34031	1998 XC
1998 XD	14.4	0.15	19990122	19.64444	344.18082	107.63405	8.77842	0.2607600	2.9778060	24	1	107 days	0.46	M-v	4	Marsden	34031	1998 XD
1998 XF	13.0	0.15	19990122	274.87227	222.33185	23.98925	11.45532	0.1303582	2.7815995	31	2	1992–1999	0.47	M-v	4	Williams	34031	1998 XF
1998 XX ₁	14.6	0.15	19981213	129.64036	211.78281	67.40845	10.12549	0.1314715	2.7599941	9	1	14 days	0.12			Williams		1998 XX ₁
1998 XA ₃	14.2	0.15	19990122	60.67914	247.93168	123.25426	4.21876	0.1986946	2.5325656	25	1	74 days	0.77	M-v	5	Williams		1998 XA ₃
1998 XN ₃	13.2	0.15	19990122	92.96165	299.26446	34.74780	1.76555	0.1947262	3.1940243	35	5	1969–1999	0.63	M-v	1	Williams	34031	1998 XN ₃
1998 XC ₄	13.5	0.15	19990122	32.96571	127.49131	283.23621	0.97279	0.0670054	2.8419799	51	5	1978–1999	0.64	M-v	1	Williams	34031	1998 XC ₄
1998 XH ₅	12.6	0.15	19990122	358.78542	355.92009	112.58701	12.60063	0.0448635	3.1697261	45	1	88 days	0.83	M-v	4	Williams	34032	1998 XH ₅
1998 XY ₈	14.1	0.15	19990122	24.66485	134.19038	277.97351	10.79954	0.1937498	2.3646821	80	4	1978–1999	0.60	M-v	2	Williams	34032	1998 XY ₈
1998 XZ ₈	12.4	0.15	19990122	40.69773	78.34581	310.84377	16.96931	0.3207816	3.1025587	74	1	96 days	0.58	M-v	4	Marsden	34032	1998 XZ ₈
1998 XC ₉	18.1	0.15	19990122	10.21545	120.75785	320.35743	9.31249	0.5308426	2.7514543	100	1	98 days	0.48	M-v	4	Williams	34032	1998 XC ₉
1998 XV ₉	15.7	0.15	19981213	288.75333	62.67025	114.85470	13.21285	0.2538465	2.8986315	10	1	2 days	0.57		E	Williams		1998 XV ₉
1998 XW ₉	13.6	0.15	19990122	35.06935	264.37936	175.02424	2.24927	0.0522224	2.8453270	45	1	81 days	0.49	M-v	4	Williams	34032	1998 XW ₉

1998 XN ₁₀	15.3	0.15	19990122	337.02524	33.44793	128.55451	2.99921	0.1599725	2.3588133	33	1	71 days	0.49	M-v	4	Williams	34032	1998 XN ₁₀
1998 XP ₁₁	13.8	0.15	19990122	266.64806	262.88697	302.74649	8.77743	0.0492356	2.9760233	34	5	1989–1999	0.80	M-v	1	Williams	34032	1998 XP ₁₁
1998 XN ₁₂	13.1	0.15	19990122	353.37033	85.77622	73.57161	14.79344	0.1010665	2.6207145	26	1	66 days	0.41	M-v	5	Williams		1998 XN ₁₂
1998 XY ₁₂	14.8	0.15	19981213	256.52575	31.77712	161.74573	7.36561	0.1120990	2.3961423	22	1	2 days	0.49		E	Williams		1998 XY ₁₂
1998 XN ₁₃	15.1	0.15	19990122	297.31749	84.56065	73.55467	5.17134	0.2164043	2.6681496	18	1	82 days	0.39	M-v	5	Williams		1998 XN ₁₃
1998 XN ₁₆	14.2	0.15	19990122	14.72301	162.59206	285.95576	24.84076	0.1860737	2.3286231	33	2	1992–1999	0.75	M-v	3	Williams	33973	1998 XN ₁₆
1998 XQ ₁₆	18.1	0.15	19990122	2.99745	151.03751	315.58228	8.97168	0.4270199	2.3781485	70	1	98 days	0.64	M-v	4	Williams	34032	1998 XQ ₁₆
1998 XU ₁₆	13.0	0.15	19990122	316.38439	88.35164	84.90035	10.80689	0.0621245	3.1556335	31	1	64 days	0.59	M-v	4	Williams		1998 XU ₁₆
1998 XL ₁₇	14.2	0.15	19990122	305.03154	112.47926	61.89021	6.32960	0.0685406	2.4280247	38	3	1992–1999	0.80	M-v	3	Williams	34032	1998 XL ₁₇
1998 XM ₁₈	15.8	0.15	19990122	345.34868	334.19842	118.92787	0.66338	0.1326505	3.1781783	12	1	68 days	0.22	M-v	5	Williams		1998 XM ₁₈
1998 XH ₂₀	14.6	0.15	19990122	21.66803	341.09995	109.37049	15.01426	0.0691885	2.6258450	17	1	93 days	0.54	M-v	4	Williams	34032	1998 XH ₂₀
1998 XS ₂₀	12.7	0.15	19990122	226.04884	338.87354	290.31371	15.84081	0.2495559	2.7467431	29	1	83 days	0.45	M-v	5	Williams		1998 XS ₂₀
1998 XF ₂₃	15.0	0.15	19990122	218.07424	295.74937	287.60021	1.22633	0.1818075	2.4109846	14	1	81 days	0.24	M-v	5	Williams		1998 XF ₂₃
1998 XG ₂₄	12.4	0.15	19990122	82.55226	93.48941	290.48772	14.60725	0.0958282	3.1925815	38	5	1975–1999	0.68	M-v	1	Williams	34033	1998 XG ₂₄
1998 XC ₂₆	13.9	0.15	19990122	18.94786	137.73019	341.23397	11.96623	0.1172242	2.4748602	27	1	98 days	0.45	M-v	4	Williams		1998 XC ₂₆
1998 XD ₂₆	13.5	0.15	19990122	8.86357	98.21159	37.94533	8.55915	0.1075440	2.7862337	30	1	89 days	0.62	M-v	4	Williams	34033	1998 XD ₂₆
1998 XF ₂₆	14.9	0.15	19981213	314.01578	347.91991	135.84507	1.58548	0.1735267	3.3094668	9	1	13 days	0.21			Williams		1998 XF ₂₆
1998 XO ₂₈	13.6	0.15	19981123	86.99737	58.49247	276.57883	3.09177	0.0122638	2.7710160	21	1	23 days	0.58			Williams		1998 XO ₂₈
1998 XF ₄₄	14.2	0.15	19990122	0.51122	75.85618	23.32817	6.25496	0.0964646	2.4372654	35	2	1996–1999	0.88	M-v	4	Williams	34033	1998 XF ₄₄
1998 XG ₅₀	14.8	0.15	19990122	299.45057	249.79078	294.59093	5.47059	0.1377303	2.2950744	29	2	1982–1999	0.72	M-v	5	Williams	33716	1998 XG ₅₀
1998 XD ₅₁	11.8	0.15	19990122	322.44024	196.73910	318.52522	7.76497	0.1298401	3.9612280	27	3	1992–1999	0.67	M-v	3	Williams	34033	1998 XD ₅₁
1998 XJ ₅₃	13.0	0.15	19990122	222.67137	182.20614	72.39096	2.79435	0.0991894	3.0713918	35	5	1981–1999	0.65	M-v	1	Williams	34033	1998 XJ ₅₃
1998 XG ₆₁	13.1	0.15	19990122	103.77017	75.89390	294.27029	15.23687	0.0943806	2.7330931	29	1	137 days	0.73	M-v	4	Williams	34033	1998 XG ₆₁
1998 XW ₆₂	13.5	0.15	19990122	23.42300	54.98484	26.63270	18.27568	0.0795952	3.0051046	36	4	1974–1999	0.65	M-v	1	Williams	34033	1998 XW ₆₂
1998 XF ₇₂	14.2	0.15	19990122	343.49049	140.05123	340.08028	8.05364	0.1041232	2.3344903	26	2	1989–1999	0.76	M-v	4	Williams	33719	1998 XF ₇₂
1998 XN ₇₇	9.5	0.15	19981123	92.48095	116.52293	213.24676	24.14726	0.0630969	5.2038062	12	1	36 days	0.80			Williams		1998 XN ₇₇
1998 XQ ₇₇	14.7	0.15	19990102	58.81892	210.77757	150.83624	5.72134	0.1776519	2.2616672	18	1	39 days	0.51			Williams		1998 XQ ₇₇
1998 XR ₇₇	14.5	0.15	19990122	45.86924	290.63348	83.41245	6.33958	0.2774908	2.5571584	15	1	61 days	0.47	M-v	6 D	Doppler		1998 XR ₇₇
1998 XG ₈₀	12.8	0.15	19990122	77.12936	232.18065	117.33469	15.55721	0.1525043	3.1616247	32	3	1991–1999	0.48	M-v	2	Williams	33974	1998 XG ₈₀
1998 XP ₉₂	12.4	0.15	19990122	66.54333	144.42352	238.56166	9.65540	0.1178915	3.0226782	28	3	1982–1999	0.77	M-v	3	Williams	34034	1998 XP ₉₂
1998 XD ₉₆	14.1	0.15	19990122	83.48082	282.72953	117.57480	3.13865	0.0766513	2.9098801	26	3	1984–1999	0.68	M-v	4	Williams	33974	1998 XD ₉₆
1998 XH ₉₆	13.6	0.15	19990122	241.85676	136.26865	120.50785	9.95651	0.1018774	2.7664099	31	2	1996–1999	0.58	M-v	4	Williams	33975	1998 XH ₉₆
1998 XN ₉₆	12.1	0.15	19990122	17.31894	346.33692	115.79231	2.41737	0.1415085	3.2048803	38	2	1982–1999	0.82	M-v	4	Williams	33975	1998 XN ₉₆
1998 XS ₉₆	17.3	0.15	19981123	21.15528	303.01187	110.43039	2.21761	0.2857742	2.1750857	4	1	2 days	0.12		E	Marsden		1998 XS ₉₆
1998 XT ₉₆	17.3	0.15	19981213	28.24987	313.55840	111.53127	3.27478	0.2001909	2.3455275	5	1	3 days	0.08			Marsden		1998 XT ₉₆
1998 XW ₉₆	14.7	0.15	19981213	222.45483	325.26061	301.74353	2.92106	0.2465926	2.2679156	7	1	27 days	0.93		E	Marsden		1998 XW ₉₆
1998 XX ₉₆	14.4	0.15	19981213	216.63369	334.16796	294.43289	1.44037	0.1165696	2.7701939	10	1	11 days	0.52		E	Marsden		1998 XX ₉₆
1998 XY ₉₆	15.6	0.15	19981213	287.56782	229.19169	341.08049	0.88733	0.1893284	2.7923229	10	1	15 days	0.29		E	Marsden		1998 XY ₉₆
1998 XZ ₉₆	13.3	0.15	19981213	207.03297	160.11192	115.87366	14.19084	0.1211522	2.6362815	7	1	3 days	0.93		E	Marsden		1998 XZ ₉₆
1998 XA ₉₇	15.9	0.15	19981213	214.47705	156.34437	110.99274	7.03053	0.1167338	2.3292303	6	1	2 days	0.20		E	Marsden		1998 XA ₉₇
1998 XB ₉₇	16.0	0.15	19981213	359.75571	174.29636	298.36953	5.44220	0.0762379	2.4265642	8	1	27 days	0.20			Marsden		1998 XB ₉₇
1998 XC ₉₇	14.1	0.15	19981213	355.40029	132.91071	349.30102	1.37430	0.2246039	3.1672849	6	1	3 days	1.12		E	Marsden		1998 XC ₉₇
1998 XE ₉₇	13.8	0.15	19981213	24.79279	131.48252	312.53225	2.66684	0.0632042	2.2771188	6	1	3 days	0.28		E	Marsden		1998 XE ₉₇
1998 XF ₉₇	15.9	0.15	19981213	15.10653	348.59076	101.07810	5.52686	0.1810484	2.5356734	6	1	3 days	0.40		E	Marsden		1998 XF ₉₇
1998 XG ₉₇	15.4	0.15	19990122	39.71338	126.85110	311.17428	4.04489	0.0960156	2.7226079	10	1	63 days	0.38	M-v	8	Marsden		1998 XG ₉₇
1998 XH ₉₇	13.7	0.15	19981213	180.62905	183.13109	110.81835	8.79805	0.0152127	2.6794803	6	1	3 days	0.72		E	Marsden		1998 XH ₉₇
1998 XJ ₉₇	13.6	0.15	19981213	186.18229	287.27571	3.03374	1.23553	0.0946414	2.5330998	7	1	3 days	1.49		E	Marsden		1998 XJ ₉₇
1998 YC	14.7	0.15	19990122	63.97179	119.86967	282.01591	3.05653	0.0949411	2.2346277	42	1	66 days	0.60	M-v	6	Williams		1998 YC
1998 YE	13.8	0.15	19990122	310.58108	323.67430	240.73663	4.31226	0.0739627	2.2649974	65	4	1990–1999	0.63	M-v	2	Williams	34034	1998 YE
1998 YG	13.7	0.15	19990122	356.12985	285.48002	227.30038	1.40329	0.1457901	2.6721393	29	1	94 days	0.60	M-v	5	Williams		1998 YG
1998 YH	14.2	0.15	19990122	349.66910	218.05285	305.29738	4.25541	0.2152697	2.6101029	41	2	1982–1999	0.71	M-v	3	Williams	34034	1998 YH
1998 YR	12.0	0.15	19990122	209.08355	349.04357	277.87327	10.48746	0.1562684	3.0417180	41	4	1980–1999	0.62	M-v	2	Williams	34034	1998 YR
1998 YX	12.9	0.15	19990122	42.44403	320.74774	99.62859	11.68089	0.0805552	3.0116801	33	3	1982–1999	0.49	M-v	2	Williams	34034	1998 YX

1998 YN ₁	17.6	0.15	19990122	309.73193	147.39210	61.92596	6.30193	0.4649395	1.5563848	102	1	87 days	0.57	M-v	5	Marsden	34035	1998 YN ₁
1998 YR ₁	13.0	0.15	19990122	225.83332	130.85379	157.75235	12.63799	0.0607222	2.7328958	34	2	1990–1999	0.60	M-v	5	Williams	33975	1998 YR ₁
1998 YT ₁	14.0	0.15	19990122	73.47725	234.54154	173.31279	1.99413	0.2148694	2.3543216	54	3	1990–1999	0.70	M-v	4	Williams	34035	1998 YT ₁
1998 YU ₁	14.1	0.15	19990122	50.50302	268.57729	173.93900	2.76702	0.1442523	2.4524883	46	2	1997–1999	0.59	M-v	3	Williams	34035	1998 YU ₁
1998 YA ₂	14.8	0.15	19990122	309.69433	228.05072	321.79211	4.43583	0.0504057	2.2052165	48	2	1976–1999	0.72	M-v	4	Williams	34035	1998 YA ₂
1998 YE ₂	13.7	0.15	19990122	292.38675	250.78635	309.45243	8.39429	0.0123272	2.9673615	30	2	1996–1999	0.60	M-v	4	Williams	33975	1998 YE ₂
1998 YF ₂	15.3	0.15	19990122	10.91401	8.39151	107.05792	2.30942	0.1420557	2.4248347	37	1	89 days	0.42	M-v	4	Williams	34035	1998 YF ₂
1998 YL ₂	16.4	0.15	19990122	315.64823	93.91653	93.98637	2.20374	0.1290309	2.3818589	35	2	1977–1999	0.62	M-v	5	Williams	33975	1998 YL ₂
1998 YS ₂	13.6	0.15	19990122	132.26305	238.02776	122.36723	15.86341	0.0472812	3.2278432	24	1	85 days	0.66	M-v	5	Williams	34035	1998 YS ₂
1998 YT ₂	13.2	0.15	19990122	197.52893	181.08805	120.48268	11.60378	0.0869010	2.9970152	29	1	69 days	0.60	M-v	5	Williams	34035	1998 YT ₂
1998 YU ₂	15.6	0.15	19990122	260.00855	278.81701	324.89661	5.87724	0.0828614	2.3721011	19	1	61 days	0.68	M-v	7	Williams		1998 YU ₂
1998 YB ₃	13.1	0.15	19990122	269.97149	293.26419	290.72514	14.15425	0.2123120	2.8648770	41	5	1980–1999	0.74	M-v	1	Williams	34035	1998 YB ₃
1998 YD ₃	14.1	0.15	19990122	88.09861	316.85160	50.43841	3.16787	0.1376967	2.2860830	35	6	1982–1999	0.71	M-v	2	Williams	34035	1998 YD ₃
1998 YE ₃	14.4	0.15	19990122	331.24403	226.04455	283.69738	7.13392	0.1290719	2.3313995	42	2	1993–1999	0.61	M-v	4	Williams	34035	1998 YE ₃
1998 YF ₃	13.7	0.15	19990122	86.83960	72.28661	287.72548	6.34384	0.2156961	2.5803570	44	3	1956–1999	0.66	M-v	3	Williams	34035	1998 YF ₃
1998 YG ₃	12.7	0.15	19990122	127.44690	240.92328	94.58162	10.70538	0.0939092	2.9993138	31	1	65 days	0.62	M-v	5	Williams		1998 YG ₃
1998 YV ₃	14.5	0.15	19990122	57.32281	242.96934	140.33458	2.55999	0.2365563	3.1718584	21	1	84 days	0.38	M-v	5	Williams		1998 YV ₃
1998 YW ₃	17.8	0.15	19990122	179.17614	194.76181	94.34471	28.79626	0.4625413	1.0999793	47	1	87 days	0.60	M-v	5	Williams	34035	1998 YW ₃
1998 YY ₃	14.7	0.15	19990122	9.94294	359.21273	70.61800	8.06581	0.2098886	2.5427422	38	1	74 days	0.34	M-v	4	Williams	34035	1998 YY ₃
1998 YL ₄	14.5	0.15	19990122	288.87433	268.49727	312.64172	6.53808	0.0662120	2.3220933	51	1	94 days	0.61	M-v	4	Williams	34035	1998 YL ₄
1998 YO ₄	16.2	0.15	19990122	235.34301	199.32003	28.65710	9.33026	0.2483629	1.6535428	46	2	1993–1999	0.55	M-v	4	Williams	33772	1998 YO ₄
1998 YD ₅	13.3	0.15	19990122	31.39364	328.17684	123.29056	19.12784	0.1272478	3.2157605	25	1	89 days	0.41	M-v	4	Williams		1998 YD ₅
1998 YE ₅	13.6	0.15	19990122	253.88872	154.28859	105.31061	2.75865	0.1928809	3.1614526	27	1	68 days	0.51	M-v	5	Williams		1998 YE ₅
1998 YS ₅	12.7	0.15	19990122	71.97823	285.28046	110.73027	11.53720	0.1021383	2.9957158	38	1	91 days	0.63	M-v	5	Williams	34035	1998 YS ₅
1998 YA ₆	14.6	0.15	19990102	259.54199	8.34776	176.56167	3.83807	0.0596022	2.1780223	24	1	36 days	0.50			Williams		1998 YA ₆
1998 YN ₆	13.4	0.15	19990122	334.79355	38.41564	125.51750	22.95377	0.0695986	3.2139018	36	3	1995–1999	0.57	M-v	3	Williams	33976	1998 YN ₆
1998 YY ₆	14.3	0.15	19990102	278.38941	322.03314	232.62370	4.83471	0.0694944	2.7396116	16	1	58 days	0.46			Williams		1998 YY ₆
1998 YZ ₆	13.6	0.15	19990102	52.74855	266.64560	98.05246	9.81997	0.1731236	2.7884007	30	1	39 days	0.64			Williams		1998 YZ ₆
1998 YA ₇	13.8	0.15	19990102	13.86341	321.90638	94.53833	11.59116	0.1597502	2.9374564	25	1	48 days	0.44			Williams		1998 YA ₇
1998 YT ₇	14.0	0.15	19990102	12.07818	88.64764	11.99263	22.05282	0.0697232	2.5902325	15	1	56 days	0.39			Williams		1998 YT ₇
1998 YB ₈	18.9	0.15	19990122	9.96044	342.28712	106.77108	8.88043	0.4719074	2.4190675	96	1	87 days	0.61	M-v	4	Williams	34036	1998 YB ₈
1998 YF ₈	13.5	0.15	19990122	15.75698	228.38315	232.62276	4.66213	0.1712185	3.1798214	32	1	91 days	0.56	M-v	4	Williams	34036	1998 YF ₈
1998 YK ₈	15.1	0.15	19990122	289.43615	78.91756	129.85064	5.40223	0.1368519	2.3034942	25	1	68 days	0.54	M-v	5	Williams		1998 YK ₈
1998 YL ₈	13.2	0.15	19990122	68.90234	277.05964	94.97624	12.17548	0.2524804	2.5177411	65	2	1991–1999	0.58	M-v	4	Williams	34036	1998 YL ₈
1998 YM ₈	15.6	0.15	19990122	16.97487	93.93078	333.75478	28.97787	0.4051085	2.7532127	31	1	45 days	0.60	M-v	4	Williams	34036	1998 YM ₈
1998 YN ₉	13.6	0.15	19990122	326.16344	218.93394	341.04591	8.26996	0.1384696	2.5597069	21	1	89 days	0.46	M-v	5	Williams		1998 YN ₉
1998 YU ₉	14.0	0.15	19990122	254.61746	109.74480	129.09562	12.82450	0.1360142	2.3633677	36	2	1992–1999	0.54	M-v	4	Williams	34036	1998 YU ₉
1998 YD ₁₀	13.6	0.15	19990122	45.70947	319.61817	92.63135	3.28665	0.0842104	2.9069552	26	2	1994–1999	0.54	M-v	5	Williams	33976	1998 YD ₁₀
1998 YE ₁₀	13.2	0.15	19990122	141.71035	214.60998	95.19817	17.73366	0.2106250	2.7258825	20	1	78 days	0.64	M-v	6	Williams		1998 YE ₁₀
1998 YP ₁₀	14.5	0.15	19990122	68.06682	101.46894	348.54096	3.99545	0.1089293	2.5891422	12	1	88 days	0.35	M-v	6	Williams		1998 YP ₁₀
1998 YP ₁₁	16.4	0.15	19990122	322.54136	74.23516	145.06522	15.03577	0.3891489	1.7207408	132	1	94 days	0.58	M-v	4	Williams	34036	1998 YP ₁₁
1998 YQ ₁₁	18.0	0.15	19990122	1.49087	245.49744	256.84233	11.94080	0.3961723	1.8740385	48	1	85 days	0.61	M-v	5	Williams	34036	1998 YQ ₁₁
1998 YC ₁₂	14.3	0.15	19990122	256.19903	290.10366	314.45327	7.26774	0.1705469	2.2994473	29	1	71 days	0.47	M-v	5	Williams	34036	1998 YC ₁₂
1998 YF ₁₂	13.1	0.15	19990122	185.29933	203.70135	95.92862	11.10464	0.0826408	3.0075642	41	2	1997–1999	0.63	M-v	3	Williams	34036	1998 YF ₁₂
1998 YJ ₁₂	14.8	0.15	19990122	291.27701	130.39242	46.17518	9.32481	0.2091329	2.5437902	16	1	87 days	0.31	M-v	5	Williams		1998 YJ ₁₂
1998 YP ₁₂	12.8	0.15	19990122	116.56237	57.47902	300.50068	1.84104	0.0869337	3.0020274	49	1	52 days	0.87			Williams		1998 YP ₁₂
1998 YL ₁₃	13.9	0.15	19990122	65.60919	286.32310	106.32926	12.41561	0.1704508	2.5192913	19	1	90 days	0.58	M-v	5	Williams		1998 YL ₁₃
1998 YQ ₁₅	15.1	0.15	19990122	343.85110	16.08102	124.95377	5.49199	0.0972036	2.2442688	31	1	69 days	0.59	M-v	5	Williams		1998 YQ ₁₅
1998 YY ₁₅	14.1	0.15	19990122	24.54422	298.64088	152.71753	2.09998	0.1374535	3.1914182	40	2	1971–1999	0.67	M-v	4	Williams	34036	1998 YY ₁₅
1998 YM ₁₆	14.4	0.15	19990122	321.79929	7.46521	164.84857	1.13100	0.1129637	3.1236482	21	1	91 days	0.42	M-v	4	Williams		1998 YM ₁₆
1998 YU ₁₆	14.9	0.15	19990122	347.39947	243.52669	254.68758	1.37887	0.1217475	2.3966257	32	2	1977–1999	0.75	M-v	4	Williams	34036	1998 YU ₁₆
1998 YV ₁₆	13.4	0.15	19990122	51.67394	259.05132	158.18381	1.45836	0.1376855	3.1532110	24	1	63 days	0.70	M-v	5 D	Williams		1998 YV ₁₆
1998 YB ₁₇	16.4	0.15	19990102	328.81756	26.22231	132.78337	3.49635	0.1250442	3.1896973	12	1	53 days	0.29			Williams		1998 YB ₁₇

1998 YG ₁₇	15.1	0.15	19990102	258.02251	315.83118	268.29347	0.76605	0.0169411	2.9144774	18	1	52 days	0.53	Williams	1998 YG ₁₇
1998 YJ ₁₇	16.4	0.15	19990102	10.48580	331.06345	135.59908	1.98011	0.1081280	3.0047038	16	1	52 days	0.44	Williams	1998 YJ ₁₇
1998 YN ₁₇	17.2	0.15	19990102	345.63029	16.23267	120.80816	1.46099	0.0908728	2.6319369	12	1	53 days	0.33	Williams	1998 YN ₁₇
1998 YO ₁₇	16.0	0.15	19990102	0.91384	190.43729	289.47596	1.29354	0.0100814	2.6648990	15	1	51 days	0.35	Williams	1998 YO ₁₇
1998 YT ₂₀	13.1	0.15	19990122	187.31367	345.80476	308.39335	9.48569	0.1168351	3.0609325	27	4	1953–1999	0.57	M-v 2 Williams	33976 1998 YT ₂₀
1998 YS ₂₁	14.8	0.15	19981213	9.97006	166.73037	294.88734	4.72019	0.1312760	3.2173762	11	1	17 days	0.26	Marsden	1998 YS ₂₁
1998 YT ₂₁	15.1	0.15	19981213	25.36507	142.53859	295.20880	7.38639	0.1511856	2.7170097	24	1	38 days	0.56	Marsden	1998 YT ₂₁
1998 YE ₂₂	16.9	0.15	19990102	329.02017	326.99166	190.84698	0.15062	0.1178346	2.8914151	12	1	49 days	0.39	Williams	1998 YE ₂₂
1998 YJ ₂₂	13.8	0.15	19990122	14.27899	301.09050	161.64522	5.77566	0.0156609	2.7338051	43	4	1992–1999	0.66	M-v 2 Williams	34037 1998 YJ ₂₂
1998 YN ₂₂	13.3	0.15	19990122	352.31183	349.32685	136.60227	9.93424	0.0382365	2.7229557	31	2	1992–1999	0.57	M-v 4 Williams	33727 1998 YN ₂₂
1998 YO ₂₂	14.1	0.15	19990122	30.76794	303.82685	125.13411	11.95704	0.2417231	2.7144458	30	2	1993–1999	0.50	M-v 4 Williams	34037 1998 YO ₂₂
1998 YD ₂₈	14.2	0.15	19981213	54.78786	104.80490	291.30343	10.44168	0.1961379	2.5658375	26	1	36 days	0.77	Marsden	1998 YD ₂₈
1998 YR ₂₉	14.3	0.15	19990122	12.09934	117.46981	359.02873	14.21893	0.0947566	3.1976369	22	1	54 days	0.62	Williams	1998 YR ₂₉
1998 YS ₂₉	14.9	0.15	19990122	25.66696	82.88958	8.50373	9.11442	0.2052873	2.4523795	27	1	55 days	0.91	Williams	1998 YS ₂₉
1998 YT ₂₉	13.5	0.15	19990122	68.51271	32.40407	19.03958	13.50077	0.1186204	3.1928389	19	1	57 days	0.66	Williams	1998 YT ₂₉
1998 YZ ₂₉	12.8	0.15	19990122	355.43462	74.22948	65.78968	11.34476	0.0537579	2.9885355	18	1	57 days	0.24	Williams	1998 YZ ₂₉
1999 AK	13.6	0.15	19990122	304.27094	303.72355	250.15305	7.59432	0.1364804	2.6690904	34	2	1997–1999	0.54	M-v 4 Williams	34037 1999 AK
1999 AR	11.1	0.15	19990122	232.71052	313.32602	305.93817	16.50293	0.1811921	2.5334109	12	1	74 days	0.25	M-v 5 Nakano	1999 AR
1999 AS	13.6	0.15	19990122	128.04173	284.06673	54.04226	4.78634	0.1448925	2.6261837	23	2	1996–1999	0.81	M-v 4 Williams	34037 1999 AS
1999 AW	15.2	0.15	19990122	2.45706	32.01152	83.55096	6.14456	0.1571787	2.3581646	32	1	90 days	0.53	M-v 4 Williams	1999 AW
1999 AC ₂	13.8	0.15	19990122	245.64434	37.11610	204.62189	2.00783	0.1837394	2.3643238	46	4	1949–1999	0.86	M-v 1 Williams	34037 1999 AC ₂
1999 AG ₂	14.3	0.15	19990122	223.42892	236.48898	25.05703	4.26292	0.0441492	2.2066451	54	5	1989–1999	0.72	M-v 1 Williams	34037 1999 AG ₂
1999 AL ₂	12.9	0.15	19990122	64.00600	75.36092	332.18763	8.96598	0.0972684	3.0169769	34	1	96 days	0.61	M-v 5 Williams	34037 1999 AL ₂
1999 AQ ₂	15.0	0.15	19990122	323.91617	163.42703	18.64727	5.76036	0.0888499	2.2676091	36	3	1982–1999	0.61	M-v 3 Williams	34037 1999 AQ ₂
1999 AR ₂	14.9	0.15	19990102	22.99047	53.80559	49.74630	5.70956	0.1268328	2.4278271	31	1	48 days	0.47	Williams	1999 AR ₂
1999 AT ₂	13.5	0.15	19990122	117.45303	284.63099	92.70995	8.17716	0.0961098	2.7572188	23	1	38 days	0.57	Williams	1999 AT ₂
1999 AU ₂	14.0	0.15	19990122	75.73114	16.80559	34.69163	6.72993	0.1292912	2.6026194	31	2	1982–1999	0.60	M-v 5 Williams	33977 1999 AU ₂
1999 AM ₃	15.0	0.15	19990211	158.35717	20.14710	302.83358	22.33123	0.0374191	1.9482210	25	1	56 days	0.50	Nakano	1999 AM ₃
1999 AN ₃	14.8	0.15	19990122	61.04977	100.75656	309.21698	3.33601	0.1496611	2.3146720	26	1	44 days	0.51	Williams	1999 AN ₃
1999 AP ₃	13.4	0.15	19990122	325.32705	55.05623	121.05117	18.11977	0.1042322	3.2059052	25	1	41 days	0.60	Williams	1999 AP ₃
1999 AR ₃	14.7	0.15	19990122	213.72471	221.45446	65.22932	4.08099	0.1539192	2.2598606	40	4	1977–1999	0.61	M-v 2 Williams	34038 1999 AR ₃
1999 AS ₃	14.2	0.15	19990122	323.86332	72.23960	100.16171	7.82349	0.0673474	2.3845958	29	1	41 days	0.56	Williams	1999 AS ₃
1999 AU ₃	16.1	0.15	19990122	27.39471	117.69123	337.88221	7.12940	0.1199034	2.2772886	22	1	45 days	0.53	Williams	1999 AU ₃
1999 AZ ₃	13.8	0.15	19990122	228.20727	213.07721	54.24390	2.95320	0.0149126	2.8870266	29	1	45 days	0.70	Williams	1999 AZ ₃
1999 AF ₄	18.2	0.15	19990122	4.40311	154.68668	295.05602	12.56575	0.6175292	2.8265072	108	1	152 days	0.48	M-v 4 Williams	34038 1999 AF ₄
1999 AM ₄	15.1	0.15	19990122	333.79302	70.77482	87.25810	4.26177	0.0519259	2.1515971	34	3	1993–1999	0.66	M-v 4 Williams	34038 1999 AM ₄
1999 AN ₄	14.0	0.15	19990122	283.79450	276.14241	316.34560	22.24204	0.2379536	2.3397918	26	1	71 days	0.55	M-v 5 Williams	1999 AN ₄
1999 AQ ₄	13.4	0.15	19990122	168.05919	352.03345	329.95000	9.97766	0.0967576	3.0059532	27	1	44 days	0.52	Williams	1999 AQ ₄
1999 AA ₅	14.8	0.15	19990122	55.13812	297.54746	114.14207	12.95182	0.2261225	2.6446927	30	1	40 days	0.73	Williams	1999 AA ₅
1999 AD ₅	13.8	0.15	19990122	74.18659	279.16535	126.57253	27.63155	0.1264212	2.5495336	78	1	70 days	0.70	M-v 5 Williams	1999 AD ₅
1999 AE ₅	14.7	0.15	19990122	20.12156	335.50800	133.44939	2.88751	0.1671205	3.1151256	19	1	39 days	0.54	Williams	1999 AE ₅
1999 AH ₅	13.9	0.15	19990122	327.37488	191.58422	333.40899	13.00083	0.1068085	2.3527631	39	3	1981–1999	0.64	M-v 3 Williams	34038 1999 AH ₅
1999 AJ ₅	13.5	0.15	19990122	50.94924	345.75478	67.89417	10.07121	0.2124385	2.6139760	43	5	1968–1999	0.70	M-v 2 Williams	34038 1999 AJ ₅
1999 AO ₅	15.5	0.15	19990122	26.63068	122.93554	334.38427	12.16354	0.1382550	2.6049083	25	1	43 days	0.56	Williams	1999 AO ₅
1999 AP ₅	14.6	0.15	19990122	276.27959	203.20845	26.50325	4.85502	0.1152317	2.2282654	43	3	1986–1999	0.59	M-v 5 Williams	34038 1999 AP ₅
1999 AS ₅	15.4	0.15	19990122	51.61996	350.16246	79.71027	6.48013	0.1293294	2.6538641	25	1	39 days	0.75	Williams	1999 AS ₅
1999 AV ₅	13.5	0.15	19990122	120.70633	12.85295	348.37586	12.07703	0.1347474	2.7269785	31	1	55 days	0.59	Williams	1999 AV ₅
1999 AX ₅	15.8	0.15	19990122	1.64374	57.86216	73.16419	4.98599	0.0608521	2.2005093	27	2	1996–1999	0.72	M-v 5 Williams	34039 1999 AX ₅
1999 AZ ₅	14.3	0.15	19990122	6.10695	359.74602	130.94955	1.52528	0.0865272	3.0703610	29	3	1988–1999	0.66	M-v 4 Williams	33978 1999 AZ ₅
1999 AS ₆	14.0	0.15	19990122	34.07235	312.46592	121.94225	16.81017	0.1870298	2.6892655	31	1	88 days	0.56	M-v 4 Williams	1999 AS ₆
1999 AW ₆	14.8	0.15	19990122	318.44948	28.25961	142.36978	3.51107	0.0742788	2.4815673	38	1	44 days	0.86	Williams	1999 AW ₆
1999 AZ ₆	13.0	0.15	19990122	275.83028	284.21190	291.16574	8.40134	0.0411172	2.9900768	26	1	85 days	0.59	M-v 5 Williams	34039 1999 AZ ₆
1999 AB ₇	13.7	0.15	19990122	5.60418	343.26487	136.80052	11.53479	0.0464391	3.0232409	14	1	70 days	0.63	M-v 5 Williams	1999 AB ₇

1999 AC ₇	15.1	0.15	19990122	347.76108	359.12310	140.58875	7.54699	0.0764392	2.4084033	23	2	1996–1999	0.45	M-v	4	Williams	33978	1999 AC ₇
1999 AD ₇	14.0	0.15	19990122	36.00111	194.93609	249.36053	3.47352	0.0892260	3.1732755	24	3	1991–1999	0.78	M-v	3	Williams	34039	1999 AD ₇
1999 AG ₇	14.4	0.15	19990122	295.79964	324.57996	233.54129	3.45150	0.0747439	2.2568402	39	4	1980–1999	0.65	M-v	3	Williams	34039	1999 AG ₇
1999 AL ₇	14.6	0.15	19990122	13.87977	316.54893	152.53896	6.44416	0.0795446	2.3563113	28	3	1990–1999	0.58	M-v	3	Williams	34039	1999 AL ₇
1999 AR ₇	16.6	0.15	19990122	322.24529	58.21814	85.51416	40.62872	0.2140810	1.6445110	71	1	54 days	0.57	M-v	6	Williams	34039	1999 AR ₇
1999 AU ₇	14.8	0.15	19990122	257.42357	204.03921	43.82402	4.98262	0.0697723	2.1902798	33	2	1978–1999	0.55	M-v	5	Williams	34039	1999 AU ₇
1999 AW ₇	13.8	0.15	19990122	115.46749	263.23546	95.36206	14.66937	0.1347290	2.5659485	13	1	36 days	0.44			Williams		1999 AW ₇
1999 AY ₇	14.2	0.15	19990122	26.24218	1.80199	91.30346	10.09204	0.1223457	2.2630569	23	1	36 days	0.39			Williams		1999 AY ₇
1999 AA ₈	14.8	0.15	19990122	335.94578	110.78333	52.04279	6.73413	0.2013347	2.3349462	23	1	36 days	0.64			Williams		1999 AA ₈
1999 AC ₈	15.1	0.15	19990122	317.45308	159.13308	21.10931	5.88969	0.1079084	2.2152346	36	4	1986–1999	0.70	M-v	2	Williams	34039	1999 AC ₈
1999 AE ₈	13.7	0.15	19990122	306.43085	215.01724	338.84771	11.52546	0.0353976	2.5136081	23	1	66 days	0.45	M-v	5	Williams		1999 AE ₈
1999 AF ₈	14.8	0.15	19990122	86.61156	323.54341	80.55741	6.75218	0.0464549	2.2462453	28	1	39 days	0.52			Williams		1999 AF ₈
1999 AL ₈	15.6	0.15	19990122	4.61574	313.32320	129.24834	5.32666	0.2273640	2.3081404	18	1	96 days	0.37	M-v	4	Williams		1999 AL ₈
1999 AT ₈	14.3	0.15	19990102	62.26639	159.11950	191.15328	4.59600	0.1601442	2.6153568	7	1	7 days	0.72			Williams		1999 AT ₈
1999 AU ₈	13.8	0.15	19990122	191.58647	20.23318	266.62900	6.52398	0.0593167	2.3759857	11	1	43 days	0.36			Williams		1999 AU ₈
1999 AR ₉	12.8	0.15	19990122	121.76099	35.12301	337.96541	25.55225	0.1471250	3.2011170	26	1	68 days	0.67	M-v	5	Williams		1999 AR ₉
1999 AS ₉	15.1	0.15	19990122	241.80624	179.66399	92.34027	5.97604	0.1022694	2.1840723	42	4	1978–1999	0.60	M-v	3	Williams	33978	1999 AS ₉
1999 AU ₉	14.6	0.15	19990122	105.76174	308.38076	76.28882	5.39266	0.1281749	2.1934613	30	2	1978–1999	0.63	M-v	4	Williams	33979	1999 AU ₉
1999 AH ₁₀	13.7	0.15	19990122	44.02404	334.31352	138.92406	2.77363	0.0295377	2.9356662	38	3	1996–1999	0.59	M-v	3	Williams	34039	1999 AH ₁₀
1999 AP ₁₀	16.5	0.15	19990122	18.96960	46.73800	357.66170	7.64673	0.5754385	2.3748005	161	1	65 days	0.49	M-v	4	Williams	34039	1999 AP ₁₀
1999 AQ ₁₀	20.4	0.15	19990122	231.46381	299.52503	327.45020	6.56135	0.2345736	0.9368259	131	1	42 days	0.42	M-v	6	Williams	34040	1999 AQ ₁₀
1999 AA ₁₃	14.0	0.15	19990122	335.33840	32.49807	120.61983	6.66730	0.1253745	3.1390515	24	1	64 days	0.69	M-v	5	Williams		1999 AA ₁₃
1999 AH ₁₃	15.4	0.15	19990122	322.23573	22.80449	147.30341	2.49463	0.0851613	3.1634471	17	2	1996–1999	0.37	M-v	4	Williams	33979	1999 AH ₁₃
1999 AC ₁₆	14.4	0.15	19990122	44.77186	311.43490	115.02495	8.78224	0.1093481	2.7661262	21	1	64 days	0.58	M-v	5	Marsden		1999 AC ₁₆
1999 AF ₁₉	12.8	0.15	19990122	170.30107	11.21434	315.53890	11.49675	0.0272399	3.1541952	47	3	1982–1999	0.68	M-v	3	Williams	34040	1999 AF ₁₉
1999 AN ₁₉	15.6	0.15	19990122	180.84054	182.42025	134.05059	7.31204	0.1670974	2.3273708	17	1	31 days	0.33			Williams		1999 AN ₁₉
1999 AU ₁₉	15.9	0.15	19990122	241.58588	139.62684	127.18753	1.43629	0.1277448	2.2824604	17	1	32 days	0.84		D	Williams		1999 AU ₁₉
1999 AJ ₂₀	13.6	0.15	19990122	39.53711	94.54244	347.16424	1.74553	0.2188402	3.9866877	23	3	1996–1999	0.84	M-v	4	Williams	33980	1999 AJ ₂₀
1999 AM ₂₀	12.9	0.15	19990122	180.04227	173.04564	124.26942	11.33366	0.0893720	2.9886003	30	3	1991–1999	0.45	M-v	4	Williams	34040	1999 AM ₂₀
1999 AP ₂₀	15.3	0.15	19990122	88.40627	241.35656	141.49852	3.82341	0.1911229	2.1523080	30	1	34 days	0.84			Williams		1999 AP ₂₀
1999 AA ₂₁	13.3	0.15	19990122	98.01588	34.97811	333.30254	23.67775	0.2055863	2.4375878	29	1	68 days	0.46	M-v	5	Nakano		1999 AA ₂₁
1999 AE ₂₁	14.3	0.15	19990122	71.43124	285.14021	116.42690	14.30036	0.2495196	2.4680703	41	2	1993–1999	0.69	M-v	4	Williams	34040	1999 AE ₂₁
1999 AM ₂₁	14.5	0.15	19990122	95.89439	222.64974	141.64687	2.85334	0.2142099	2.4378747	19	1	33 days	0.53			Williams		1999 AM ₂₁
1999 AR ₂₁	15.4	0.15	19990122	328.94691	229.21764	301.58378	1.82433	0.0796660	2.3009948	44	2	1997–1999	0.53	M-v	4	Williams	33980	1999 AR ₂₁
1999 AU ₂₁	13.7	0.15	19990122	96.90943	234.63429	157.17495	2.00552	0.0824879	3.0023942	38	3	1976–1999	0.69	M-v	4	Williams	33980	1999 AU ₂₁
1999 AY ₂₁	14.0	0.15	19990122	316.75440	356.66724	193.63481	4.82419	0.0965919	3.1180034	30	3	1991–1999	0.57	M-v	4	Williams	34040	1999 AY ₂₁
1999 AZ ₂₁	14.9	0.15	19990122	36.12116	169.38757	272.79433	4.59666	0.2032112	2.3941566	40	2	1994–1999	0.59	M-v	5	Williams	34040	1999 AZ ₂₁
1999 AQ ₂₂	15.0	0.15	19990122	343.19605	90.43573	82.58236	15.76645	0.3052518	2.6894667	31	1	36 days	0.41			Williams		1999 AQ ₂₂
1999 AR ₂₂	13.3	0.15	19990122	299.84149	166.72473	62.08544	18.42722	0.1583872	3.1266186	15	1	35 days	0.83			Williams		1999 AR ₂₂
1999 AY ₂₂	13.9	0.15	19990122	15.03194	203.28204	292.29815	3.05327	0.1141145	2.3239245	25	1	69 days	0.35	M-v	5	Williams		1999 AY ₂₂
1999 AZ ₂₂	14.1	0.15	19990122	5.54541	87.23781	47.94485	7.28241	0.0405350	2.3092015	34	2	1996–1999	0.54	M-v	4	Williams	33980	1999 AZ ₂₂
1999 AA ₂₃	14.9	0.15	19990122	0.75593	89.97280	49.26760	6.57046	0.1331309	2.3129648	31	3	1987–1999	0.62	M-v	3	Williams	33980	1999 AA ₂₃
1999 AQ ₂₃	13.6	0.15	19990122	288.59648	98.18372	135.44182	14.72014	0.1223102	2.6244003	28	2	1991–1999	0.51	M-v	4	Williams	33981	1999 AQ ₂₃
1999 AR ₂₃	13.3	0.15	19990122	50.88897	310.54675	131.81701	13.73376	0.1437009	2.5502874	42	1	111 days	0.47	M-v	4	Williams	34041	1999 AR ₂₃
1999 AS ₂₃	12.5	0.15	19990122	224.49188	144.43132	149.00081	11.78597	0.0949670	2.9928792	33	2	1980–1999	0.62	M-v	4	Williams	33981	1999 AS ₂₃
1999 AZ ₂₃	13.2	0.15	19990122	10.22426	82.56369	43.13969	13.25942	0.1569774	2.6183664	26	1	34 days	0.40			Williams		1999 AZ ₂₃
1999 AE ₂₄	14.3	0.15	19990122	68.81935	288.09183	113.54944	12.76360	0.2967414	2.6498205	28	3	1990–1999	0.64	M-v	3	Williams	33981	1999 AE ₂₄
1999 AF ₂₄	13.3	0.15	19990122	275.44889	80.81131	115.43542	11.51507	0.1165565	2.6425046	38	2	1992–1999	0.83	M-v	4	Williams	33981	1999 AF ₂₄
1999 AG ₂₄	12.6	0.15	19990122	189.85453	337.62672	318.12614	1.79011	0.1638715	3.1207065	28	4	1991–1999	0.65	M-v	2	Williams	33981	1999 AG ₂₄
1999 AK ₂₄	14.5	0.15	19990122	282.19924	290.69412	278.37578	10.17007	0.1207096	2.4261279	11	1	38 days	0.24			Williams		1999 AK ₂₄
1999 AM ₂₄	14.5	0.15	19990122	198.43489	163.64953	149.57199	7.99334	0.2012204	2.4819428	29	1	67 days	0.41	M-v	5	Williams		1999 AM ₂₄
1999 AN ₂₄	13.9	0.15	19990122	51.34424	299.69544	148.89529	2.41254	0.0693843	2.9502424	41	3	1996–1999	0.47	M-v	3	Williams	33981	1999 AN ₂₄
1999 AP ₂₄	14.5	0.15	19990122	6.47320	358.05514	140.36519	3.41779	0.0555542	2.6461262	27	1	39 days	0.45			Williams		1999 AP ₂₄

1999 AS ₂₄	15.0	0.15	19990122	91.59304	70.07547	331.97509	6.40854	0.1149573	2.3831906	23	1	40 days	0.75		Williams		1999 AS ₂₄
1999 AX ₂₄	15.4	0.15	19990122	340.48741	28.82814	140.11848	3.15106	0.1377618	2.4310029	35	2	1988–1999	0.72	M-v 4	Williams	33982	1999 AX ₂₄
1999 AY ₂₄	16.9	0.15	19990122	2.13741	12.01026	129.43892	1.65576	0.1036691	2.4473560	12	1	39 days	0.39		Williams		1999 AY ₂₄
1999 AA ₂₅	15.4	0.15	19990122	358.83104	6.71924	151.88274	5.74278	0.0727530	2.2029322	36	2	1989–1999	0.65	M-v 4	Williams	34041	1999 AA ₂₅
1999 AF ₂₅	14.1	0.15	19990122	225.53127	315.75753	356.26970	4.97623	0.1986916	2.2522002	41	5	1973–1999	0.67	M-v 2	Williams	33982	1999 AF ₂₅
1999 AK ₂₅	15.4	0.15	19990211	315.00182	170.15563	21.93184	0.91299	0.1315384	2.3901724	23	1	55 days	0.84		Williams		1999 AK ₂₅
1999 AN ₂₅	15.7	0.15	19990122	69.66092	70.79965	331.48559	18.71045	0.1069704	1.9413333	29	1	36 days	0.76		Williams		1999 AN ₂₅
1999 AQ ₂₅	14.0	0.15	19990122	26.37617	331.02615	138.76949	2.25926	0.1661756	3.1729279	31	1	39 days	0.55		Williams		1999 AQ ₂₅
1999 AR ₂₅	15.1	0.15	19990122	265.16449	287.70671	335.78033	1.57315	0.2150110	2.3450445	37	2	1992–1999	0.53	M-v 4	Williams	33982	1999 AR ₂₅
1999 AS ₂₅	13.7	0.15	19990122	249.91015	125.36011	142.81509	10.87321	0.0761231	2.9824649	27	1	64 days	0.67	M-v 5	Williams		1999 AS ₂₅
1999 AX ₂₅	12.9	0.15	19990122	69.05992	98.75455	303.54911	18.35416	0.1214007	3.1594936	34	1	58 days	0.61		Williams		1999 AX ₂₅
1999 AZ ₂₆	14.4	0.15	19990122	30.55294	144.69406	306.61140	5.09958	0.0705625	2.7935932	22	2	1992–1999	0.63	M-v 5	Williams	33982	1999 AZ ₂₆
1999 AR ₃₀	14.5	0.15	19990122	94.96554	211.85237	160.82741	0.51891	0.1349086	2.9919148	9	1	27 days	0.18		Williams		1999 AR ₃₀
1999 AT ₃₀	14.5	0.15	19990122	22.54799	323.86592	131.17257	10.72762	0.1281410	3.4471078	12	1	29 days	0.25		Williams		1999 AT ₃₀
1999 AY ₃₀	15.0	0.15	19990122	143.67727	198.83712	128.75976	14.79758	0.3010621	2.5828318	11	1	30 days	0.23		Williams		1999 AY ₃₀
1999 AH ₃₁	16.5	0.15	19990122	67.96825	271.37061	128.87565	3.09387	0.2303607	2.3236054	12	1	30 days	0.27		Williams		1999 AH ₃₁
1999 AJ ₃₁	16.5	0.15	19990122	271.22758	248.81909	354.08922	0.95826	0.1556539	2.4256518	12	1	33 days	0.22		Williams		1999 AJ ₃₁
1999 AS ₃₁	14.1	0.15	19990122	220.77077	320.75737	331.26495	5.27557	0.2194303	2.5436919	21	2	1980–1999	0.68	M-v 5	Williams	33982	1999 AS ₃₁
1999 AD ₃₃	12.6	0.15	19990122	320.58051	40.12004	121.36710	11.06526	0.0239295	2.9809700	34	1	69 days	0.78	M-v 5 D	Williams		1999 AD ₃₃
1999 AQ ₃₄	14.9	0.15	19990122	19.01494	328.29157	146.85318	11.60117	0.1334517	2.5680311	21	1	29 days	0.61		Williams		1999 AQ ₃₄
1999 AR ₃₄	14.7	0.15	19990122	319.70698	24.20776	169.17240	2.20703	0.1599704	2.3022548	37	3	1978–1999	0.59	M-v 4	Williams	33982	1999 AR ₃₄
1999 BD	14.9	0.15	19990122	152.22668	336.64990	351.72748	3.32993	0.1585333	2.2161882	26	5	1974–1999	0.71	M-v 2	Williams	33983	1999 BD
1999 BF	15.8	0.15	19990122	19.02377	113.78890	345.90847	5.24100	0.1716589	2.4330657	35	1	44 days	0.55		Williams		1999 BF
1999 BG	15.1	0.15	19990122	329.86201	196.34605	325.25100	6.57382	0.0569990	2.4155188	28	2	1995–1999	0.69	M-v 4	Williams	33983	1999 BG
1999 BK	15.2	0.15	19990122	40.74963	111.35549	312.41084	28.13627	0.2360741	2.5893280	28	1	30 days	0.69		Williams		1999 BK
1999 BN	14.0	0.15	19990211	350.10716	138.95971	5.25985	23.65096	0.1939684	2.7111134	39	1	59 days	0.38		Marsden		1999 BN
1999 BS	15.1	0.15	19990122	58.71552	223.49975	180.16085	2.41164	0.1607262	2.3869243	16	4	1979–1999	0.81	M-v 3	Williams	33983	1999 BS
1999 BW	14.5	0.15	19990122	294.88304	124.45765	76.44545	2.07076	0.1189675	2.6112290	28	4	1953–1999	0.50	M-v 3	Williams	33983	1999 BW
1999 BZ	13.4	0.15	19990122	3.10523	85.98123	73.26088	22.91911	0.0408487	2.6335017	17	3	1980–1999	0.47	M-v 3	Williams	33983	1999 BZ
1999 BO ₁	13.0	0.15	19990122	208.31988	173.75768	108.24331	9.11686	0.1855610	2.5678594	50	4	1992–1999	0.61	M-v 2	Williams	34042	1999 BO ₁
1999 BW ₁	13.4	0.15	19990122	309.90720	34.30088	162.20329	7.26057	0.0115860	2.7202182	41	2	1990–1999	0.54	M-v 4	Williams	33984	1999 BW ₁
1999 BB ₂	13.8	0.15	19990122	16.24685	116.76453	334.96873	12.15125	0.2687229	2.6500210	48	1	116 days	0.55	M-v 4	Williams	34042	1999 BB ₂
1999 BK ₂	16.0	0.15	19990122	113.29147	278.05047	81.43098	23.12232	0.1051687	1.9306152	20	1	35 days	0.76		Williams		1999 BK ₂
1999 BM ₂	15.6	0.15	19990122	54.20664	292.76693	143.39895	15.59067	0.1399362	2.5850415	26	1	35 days	0.72		Williams		1999 BM ₂
1999 BP ₂	14.4	0.15	19990122	82.88433	357.06769	43.90205	6.35392	0.1318921	2.4079616	28	2	1996–1999	0.74	M-v 5	Williams	33984	1999 BP ₂
1999 BR ₂	15.0	0.15	19990122	333.97536	95.11275	70.86624	7.57782	0.0383539	2.3114449	36	3	1982–1999	0.68	M-v 3	Williams	33984	1999 BR ₂
1999 BS ₂	13.4	0.15	19990122	166.60233	335.78521	358.84507	10.03492	0.0513679	3.0433324	21	1	34 days	0.78		Williams		1999 BS ₂
1999 BT ₂	15.8	0.15	19990122	12.48508	143.88139	322.73458	23.73400	0.3381148	2.4095978	37	1	34 days	0.54		Williams		1999 BT ₂
1999 BW ₂	14.1	0.15	19990122	326.27241	181.12796	354.75223	11.56587	0.0696245	2.3123398	18	1	34 days	0.39		Williams		1999 BW ₂
1999 BX ₂	13.2	0.15	19990122	16.25689	2.46812	120.09703	10.71834	0.1276937	3.1767047	29	3	1988–1999	0.65	M-v 3	Williams	33984	1999 BX ₂
1999 BY ₂	14.8	0.15	19990122	23.41535	334.72563	135.40018	16.93955	0.1633670	2.7225836	31	1	89 days	0.51	M-v 4	Williams	34042	1999 BY ₂
1999 BZ ₂	14.3	0.15	19990122	339.24006	158.85825	5.92616	5.63555	0.0608562	2.4799474	26	2	1995–1999	0.60	M-v 4	Williams	33984	1999 BZ ₂
1999 BA ₃	15.0	0.15	19990122	0.64319	27.05184	111.58546	7.72873	0.2219360	2.5664032	30	1	105 days	0.51	M-v 3	Williams	34042	1999 BA ₃
1999 BG ₃	15.4	0.15	19990122	332.30704	86.46997	80.92482	26.33654	0.2206404	3.1104012	18	1	35 days	1.03		Williams		1999 BG ₃
1999 BO ₃	13.1	0.15	19990122	11.66208	50.04428	64.56858	19.22262	0.2258464	3.1063421	57	2	1992–1999	0.65	M-v 4	Williams	34042	1999 BO ₃
1999 BU ₃	13.3	0.15	19990122	348.81823	343.77383	164.13631	1.29452	0.1268148	3.2173000	27	1	27 days	0.74		Williams		1999 BU ₃
1999 BW ₃	15.7	0.15	19990122	27.82032	330.55078	98.55807	26.19781	0.2821571	2.3243935	32	1	122 days	0.60	M-v 4	Williams		1999 BW ₃
1999 BZ ₃	14.4	0.15	19990122	174.79115	187.69307	145.98442	4.48541	0.1790786	2.2280862	42	4	1977–1999	0.69	M-v 2	Williams	33985	1999 BZ ₃
1999 BA ₄	14.2	0.15	19990122	274.47429	133.91580	77.66197	5.55014	0.0877063	2.4456504	24	1	98 days	0.50	M-v 4	Williams	34042	1999 BA ₄
1999 BC ₄	12.8	0.15	19990122	276.88344	88.28296	128.10861	11.25664	0.0378436	3.0696524	50	4	1987–1999	0.58	M-v 2	Williams	33985	1999 BC ₄
1999 BD ₄	13.2	0.15	19990211	243.30325	241.57494	6.80999	3.05720	0.1378743	3.0942219	22	1	56 days	1.18		Williams		1999 BD ₄
1999 BL ₄	15.2	0.15	19990122	323.96385	47.45544	146.76323	4.14559	0.1950258	2.6933987	31	1	63 days	0.47	M-v 4	Williams		1999 BL ₄
1999 BQ ₄	14.6	0.15	19990122	124.68690	40.43463	324.36052	2.50180	0.2084895	2.5976739	22	2	1997–1999	0.51	M-v 4	Williams	33985	1999 BQ ₄

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1999 BR ₄	15.6	0.15	19990122	24.30084	327.83188	145.52420	0.48886	0.1095883	2.6040095	15	1	34 days	0.23		Williams		1999 BR ₄
1999 BW ₄	15.7	0.15	19990122	22.75860	146.53784	332.07443	5.76938	0.0866085	2.5654590	25	2	1997–1999	0.65	M-v 4	Williams	33985	1999 BW ₄
1999 BE ₅	14.1	0.15	19990122	295.87586	78.20754	115.16708	12.75872	0.0774509	2.5846383	30	1	111 days	0.57	M-v 4	Williams		1999 BE ₅
1999 BN ₅	14.1	0.15	19990122	43.18380	210.18141	141.19789	5.97958	0.3418809	2.6644331	37	1	176 days	0.58	M-v 4 D	Williams		1999 BN ₅
1999 BO ₅	13.5	0.15	19990122	314.71734	202.05766	327.65654	7.72064	0.0097377	2.4126015	26	2	1986–1999	0.70	M-v 4	Williams	33986	1999 BO ₅
1999 BP ₅	14.7	0.15	19990122	19.60383	309.91983	182.08503	4.71455	0.1395369	2.3382302	21	1	61 days	0.50	M-v 5	Williams		1999 BP ₅
1999 BR ₅	13.6	0.15	19990122	313.72701	26.97271	164.81545	1.43892	0.1326974	3.2055579	34	4	1973–1999	0.73	M-v 2	Williams	33986	1999 BR ₅
1999 BS ₅	15.5	0.15	19990122	309.46607	295.09358	261.37908	0.66420	0.1459158	2.4402455	12	1	20 days	0.41		Williams		1999 BS ₅
1999 BW ₅	15.4	0.15	19990122	18.22977	162.07827	309.07661	5.47382	0.0770464	2.4311418	20	1	26 days	0.69		Williams		1999 BW ₅
1999 BX ₅	14.6	0.15	19990211	326.90969	237.41523	313.50326	6.49766	0.0703916	2.3392222	21	1	58 days	0.62		Williams		1999 BX ₅
1999 BC ₆	15.4	0.15	19990211	35.91904	317.38323	156.36310	7.46916	0.1687932	2.3271076	12	1	53 days	0.21		Williams		1999 BC ₆
1999 BF ₆	14.9	0.15	19990122	26.90212	341.39921	156.63032	2.82812	0.0028981	2.8638888	12	1	63 days	0.33	M-v 6	Williams		1999 BF ₆
1999 BO ₆	16.7	0.15	19990122	279.21692	254.67980	1.38420	3.69581	0.1167569	2.2359980	12	1	61 days	0.30	M-v 6	Williams		1999 BO ₆
1999 BT ₆	15.0	0.15	19990122	247.89004	221.30601	73.95792	4.69123	0.0491074	2.2578943	23	2	1997–1999	0.68	M-v 5	Williams	33986	1999 BT ₆
1999 BW ₆	14.1	0.15	19990122	320.53954	149.86252	74.87403	5.70826	0.0273745	2.7263049	25	1	62 days	0.62	M-v 6	Williams		1999 BW ₆
1999 BE ₇	15.1	0.15	19990122	356.55417	102.72977	37.37953	7.16147	0.0560277	2.3179880	32	1	82 days	0.69	M-v 4	Williams		1999 BE ₇
1999 BF ₇	13.8	0.15	19990122	305.11215	119.39111	92.16879	6.54264	0.0700478	2.3202599	25	1	28 days	0.52		Williams		1999 BF ₇
1999 BG ₇	14.1	0.15	19990122	312.96999	52.44347	150.57612	9.60958	0.0938762	2.7597393	49	2	1995–1999	0.69	M-v 4	Williams	34043	1999 BG ₇
1999 BK ₇	15.8	0.15	19990211	45.05212	113.60679	338.15460	2.72609	0.1199896	2.3348017	46	1	57 days	0.53		Williams		1999 BK ₇
1999 BL ₇	14.9	0.15	19990122	226.45843	194.56774	73.04675	7.93111	0.1023160	2.3111073	28	1	28 days	0.69		Williams		1999 BL ₇
1999 BB ₈	15.8	0.15	19990122	21.16871	318.31325	147.21704	5.96162	0.0977711	2.3556398	16	1	25 days	0.77		Williams		1999 BB ₈
1999 BE ₈	16.4	0.15	19990122	11.86037	320.73834	147.87498	9.81887	0.4749239	2.5329971	98	1	94 days	0.54	M-v 4	Williams	34043	1999 BE ₈
1999 BF ₈	13.2	0.15	19990122	12.15562	68.55623	65.82221	2.34241	0.0730732	3.0762215	66	4	1978–1999	0.62	M-v 1	Williams	33986	1999 BF ₈
1999 BJ ₈	18.0	0.15	19990122	334.92113	221.34248	340.01158	9.02755	0.5498046	1.8980820	236	1	39 days	0.44	M-v 5	Williams	34043	1999 BJ ₈
1999 BK ₈	13.9	0.15	19990122	87.57115	322.12630	58.18688	5.56081	0.1790774	2.2478817	37	1	128 days	0.67	M-v 4	Williams	34043	1999 BK ₈
1999 BV ₈	15.8	0.15	19990211	16.08786	336.89744	150.97838	4.40974	0.1743950	2.4201839	26	1	56 days	0.69		Williams		1999 BV ₈
1999 BW ₈	14.9	0.15	19990122	53.08136	284.00305	141.63711	13.25094	0.1453745	2.5673585	27	1	27 days	0.42		Williams		1999 BW ₈
1999 BZ ₈	15.7	0.15	19990122	357.53024	9.02541	127.00644	9.59103	0.1284347	2.4790238	24	1	32 days	0.40		Williams		1999 BZ ₈
1999 BA ₉	14.1	0.15	19990122	247.95216	300.81889	319.83192	12.70402	0.1427717	2.5326390	40	2	1995–1999	0.64	M-v 5	Williams	33987	1999 BA ₉
1999 BB ₉	14.8	0.15	19990122	106.77727	59.48312	320.32504	6.35838	0.0768829	2.6250312	27	1	32 days	1.24		Williams		1999 BB ₉
1999 BE ₉	15.2	0.15	19990122	32.20579	311.97675	141.78917	9.75122	0.1218974	2.7873936	23	1	32 days	0.71		Williams		1999 BE ₉
1999 BJ ₉	15.3	0.15	19990122	251.80546	71.48342	190.50896	2.06390	0.1883320	2.3947840	78	3	1992–1999	0.70	M-v 4	Williams	33987	1999 BJ ₉
1999 BK ₉	14.1	0.15	19990122	56.31355	109.61272	291.85007	7.79922	0.3267024	2.6059453	33	1	107 days	0.57	M-v 4	Williams	34043	1999 BK ₉
1999 BM ₉	15.4	0.15	19990211	68.70837	358.88238	45.62273	3.51245	0.1433506	2.2975520	20	1	56 days	0.33		Williams		1999 BM ₉
1999 BO ₉	13.1	0.15	19990122	118.35501	146.97547	232.01124	4.57375	0.0729327	2.7496729	56	5	1972–1999	0.56	M-v 1	Williams	33987	1999 BO ₉
1999 BS ₉	13.1	0.15	19990211	96.41463	28.28936	344.02035	11.18590	0.1401451	2.6764864	29	1	53 days	0.43		Williams		1999 BS ₉
1999 BY ₉	17.4	0.15	19990122	322.55891	286.89750	254.84820	0.94218	0.3024564	1.8300550	43	1	49 days	0.62	M-v 6	Marsden		1999 BY ₉
1999 BD ₁₀	15.7	0.15	19990122	353.99592	182.49895	318.58852	8.45381	0.1530747	2.4075449	28	1	33 days	0.60		Williams		1999 BD ₁₀
1999 BF ₁₀	14.9	0.15	19990122	4.07636	351.66873	137.57449	7.20076	0.1005681	2.5670955	40	1	42 days	0.61		Williams		1999 BF ₁₀
1999 BG ₁₀	14.0	0.15	19990122	249.04021	125.26133	140.26005	8.35636	0.1846150	2.7660368	28	1	23 days	0.61		Williams		1999 BG ₁₀
1999 BH ₁₀	13.6	0.15	19990122	199.11854	147.15692	154.49620	4.01650	0.1189420	2.8011821	26	3	1987–1999	0.71	M-v 4	Williams	33987	1999 BH ₁₀
1999 BK ₁₀	15.3	0.15	19990122	48.03563	114.24175	324.96050	6.27847	0.0710672	2.3079733	21	1	61 days	0.50	M-v 6	Williams		1999 BK ₁₀
1999 BN ₁₀	13.8	0.15	19990122	201.68515	333.32818	323.42787	15.22966	0.0474579	3.0427593	24	1	34 days	0.46		Williams		1999 BN ₁₀
1999 BP ₁₀	16.7	0.15	19990122	344.45954	16.59706	145.72046	2.36048	0.1668166	2.3168307	24	2	1992–1999	0.55	M-v 4	Williams	33988	1999 BP ₁₀
1999 BW ₁₀	15.8	0.15	19990122	355.96618	12.11007	137.12286	8.09535	0.2518914	2.6777414	24	1	29 days	0.69		Williams		1999 BW ₁₀
1999 BE ₁₁	15.5	0.15	19990122	110.22151	243.18472	138.80267	6.71825	0.1275195	2.3279244	22	3	1979–1999	0.79	M-v 4	Williams	33988	1999 BE ₁₁
1999 BS ₁₁	15.5	0.15	19990122	119.20384	47.62729	319.50472	3.27167	0.1963155	2.2228586	23	2	1994–1999	0.68	M-v 5	Williams	33988	1999 BS ₁₁
1999 BD ₁₂	13.9	0.15	19990122	221.58490	202.82411	84.32049	11.33393	0.2261022	2.3420445	25	4	1989–1999	0.73	M-v 2	Williams	33988	1999 BD ₁₂
1999 BF ₁₂	13.7	0.15	19990122	274.11771	216.07537	14.69579	12.48492	0.1073777	2.6461781	26	1	57 days	0.59		Williams		1999 BF ₁₂
1999 BJ ₁₂	14.2	0.15	19990211	260.15949	206.65607	40.59630	1.17339	0.1284364	3.0887868	35	1	48 days	0.94		Williams		1999 BJ ₁₂
1999 BK ₁₂	13.9	0.15	19990211	67.90686	304.74830	105.47918	14.96974	0.2057342	2.8626763	27	1	51 days	0.52		Williams		1999 BK ₁₂
1999 BL ₁₂	14.1	0.15	19990122	108.75104	268.17307	76.62228	6.80843	0.1739906	2.2591208	27	1	86 days	0.48	M-v 4	Williams		1999 BL ₁₂
1999 BN ₁₂	13.3	0.15	19990122	25.76532	49.42825	35.72843	6.26812	0.1802255	2.5283941	31	1	150 days	0.55	M-v 4	Williams		1999 BN ₁₂

1999 BP ₁₂	14.5	0.15	19990211	324.87888	158.07896	6.49599	6.05483	0.0166861	2.3055912	16	1	51 days	0.42		Williams	1999 BP ₁₂
1999 BQ ₁₂	13.0	0.15	19990211	140.17490	238.23943	100.79064	16.09211	0.1636027	2.5652035	27	1	48 days	0.59		Williams	1999 BQ ₁₂
1999 BS ₁₂	15.1	0.15	19990122	123.91038	122.86294	221.72635	5.10375	0.1380812	2.3885803	23	3	1990–1999	0.55	M-v 4	Williams	33988 1999 BS ₁₂
1999 BL ₁₃	14.1	0.15	19990122	97.47881	247.31068	163.50456	14.60516	0.1012476	2.5962648	11	1	29 days	0.64		Williams	1999 BL ₁₃
1999 BO ₁₃	13.7	0.15	19990122	290.35433	84.83788	161.29317	11.48106	0.1310935	3.0759640	13	1	29 days	0.79		Williams	1999 BO ₁₃
1999 BP ₁₃	13.0	0.15	19990211	26.11967	141.49057	338.78531	6.65037	0.2363507	2.6889822	21	1	57 days			Williams	1999 BP ₁₃
1999 BQ ₁₃	14.6	0.15	19990122	61.67190	112.11638	331.88451	5.37304	0.0847047	2.1964770	22	1	69 days	0.55	M-v 5	Williams	1999 BQ ₁₃
1999 BM ₁₄	15.3	0.15	19990211	322.28513	101.10338	70.70016	3.99134	0.1281120	2.3855978	26	1	51 days	0.67		Williams	1999 BM ₁₄
1999 BN ₁₄	13.7	0.15	19990122	323.02727	109.59128	52.17123	1.99582	0.1182159	3.1050047	16	1	122 days	0.58	M-v 4	Williams	1999 BN ₁₄
1999 BO ₁₄	15.2	0.15	19990122	28.91358	84.30844	1.95835	8.39972	0.1736894	2.3472058	27	2	1992–1999	0.50	M-v 4	Williams	33988 1999 BO ₁₄
1999 BR ₁₄	14.6	0.15	19990211	310.65313	151.72022	59.05335	6.80699	0.0643526	2.2932335	25	1	48 days	0.45		Williams	1999 BR ₁₄
1999 BZ ₁₄	14.9	0.15	19990122	337.13899	302.58265	228.12070	8.09558	0.1093985	2.7273498	32	2	1997–1999	0.75	M-v 5	Williams	33989 1999 BZ ₁₄
1999 BF ₁₅	14.5	0.15	19990122	75.70977	182.54005	207.18233	1.86516	0.2039920	2.3966915	31	3	1994–1999	0.63	M-v 3	Williams	33989 1999 BF ₁₅
1999 BK ₁₅	13.9	0.15	19990122	333.62459	210.57692	341.65415	11.76114	0.1302253	2.6542703	29	2	1997–1999	0.57	M-v 3	Williams	33989 1999 BK ₁₅
1999 BN ₁₅	14.7	0.15	19990122	314.34346	60.39480	157.52761	8.93810	0.1666138	2.3259364	19	1	60 days	0.58	M-v 5	Williams	1999 BN ₁₅
1999 BP ₁₅	14.0	0.15	19990122	3.95624	15.31626	107.77581	12.82259	0.1340931	2.6596378	36	1	147 days	0.63	M-v 4	Williams	34045 1999 BP ₁₅
1999 BY ₂₅	12.5	0.15	19990122	144.33679	7.33982	333.03187	15.91108	0.0607835	3.1412747	27	3	1977–1999	0.69	M-v 4	Williams	33990 1999 BY ₂₅
1999 BZ ₂₅	14.7	0.15	19990122	51.65207	85.52100	341.81486	5.43641	0.0707880	2.7609394	14	2	1997–1999	0.52	M-v 4	Williams	33990 1999 BZ ₂₅
1999 BA ₂₆	15.5	0.15	19990122	22.57932	335.16738	114.34139	24.95276	0.2564380	2.2934532	32	1	63 days	0.45	M-v 5	Nakano	1999 BA ₂₆
1999 BE ₂₆	15.0	0.15	19990122	16.09621	278.44684	194.89434	4.20207	0.1715486	2.6416483	30	1	36 days	0.83		Williams	1999 BE ₂₆
1999 BJ ₂₉	16.2	0.15	19990122	279.70986	266.39307	322.40742	1.20935	0.1232155	2.2209131	22	1	36 days	0.59		D Williams	1999 BJ ₂₉
1999 BN ₃₀	15.2	0.15	19990122	347.90315	24.03534	113.38537	7.44963	0.1418147	2.5914439	23	1	64 days	0.58	M-v 5	Marsden	1999 BN ₃₀
1999 CB	13.0	0.15	19990211	25.94831	0.25898	105.26106	12.18249	0.1520745	3.1877601	21	1	16 days	0.56		Williams	1999 CB
1999 CC	15.1	0.15	19990122	49.12553	349.71369	66.51299	5.81197	0.2664687	2.3537288	27	1	55 days	0.56		Williams	1999 CC
1999 CD	15.3	0.15	19990122	60.31442	0.25940	54.66364	6.26392	0.1691885	2.2906041	37	1	56 days	0.70		Williams	1999 CD
1999 CE	15.1	0.15	19990122	85.48861	349.44785	45.64282	7.38951	0.1191549	2.3298937	22	2	1976–1999	0.67	M-v 5	Williams	33991 1999 CE
1999 CF	14.6	0.15	19990211	55.49144	317.55116	109.42516	12.95498	0.1749845	2.6609953	17	1	16 days	0.59		Williams	1999 CF
1999 CG	16.0	0.15	19990211	357.49483	92.19667	52.74905	5.10583	0.1842388	2.3722261	26	1	16 days	0.63		Williams	1999 CG
1999 CJ	12.8	0.15	19990122	29.83863	91.37083	9.01973	10.53377	0.0859407	2.9798894	24	1	85 days	0.43	M-v 4	Nakano	1999 CJ
1999 CM	14.4	0.15	19990211	318.98920	109.85060	94.01706	16.55017	0.2887875	2.8009514	33	1	18 days	0.47		Williams	1999 CM
1999 CO	14.4	0.15	19990122	265.21417	122.69563	118.95674	5.73593	0.0677022	2.4521333	27	1	93 days	0.57	M-v 5	Williams	34045 1999 CO
1999 CP	14.1	0.15	19990122	306.40256	95.50815	135.89337	23.30621	0.3491230	2.5554465	39	1	69 days	0.68	M-v 5	Nakano	1999 CP
1999 CR	14.7	0.15	19990211	331.63691	213.70711	333.34937	18.19606	0.2134149	3.1351024	24	1	44 days	0.60		Williams	1999 CR
1999 CS	16.2	0.15	19990211	57.09823	96.12055	337.00196	11.97298	0.1278803	2.3633111	21	1	19 days	0.59		Williams	1999 CS
1999 CV	15.0	0.15	19990122	211.43947	197.19815	99.99401	6.50323	0.1792224	2.2482027	23	3	1990–1999	0.77	M-v 3	Williams	33991 1999 CV
1999 CW	12.7	0.15	19990122	7.05437	11.03975	121.09002	7.92330	0.1048457	3.1592185	40	4	1982–1999	0.51	M-v 2	Williams	33991 1999 CW
1999 CX	14.7	0.15	19990122	237.54294	198.51599	77.48468	3.52958	0.1615918	2.2255326	23	3	1990–1999	0.67	M-v 5	Williams	33991 1999 CX
1999 CZ	15.0	0.15	19990211	47.49598	16.73806	57.98558	3.58201	0.2178436	2.3608347	21	1	15 days	0.48		Williams	1999 CZ
1999 CA ₁	15.4	0.15	19990211	307.11141	123.36783	92.24498	9.99162	0.2039342	2.4180755	24	1	39 days	0.67		Williams	1999 CA ₁
1999 CG ₁	13.5	0.15	19990211	11.00119	8.55326	120.29745	6.16337	0.0540208	2.8503488	28	1	34 days	0.57		Williams	1999 CG ₁
1999 CH ₁	15.0	0.15	19990211	271.29144	257.11706	345.21391	13.54260	0.0446207	2.3343622	14	1	17 days	0.60		Williams	1999 CH ₁
1999 CL ₁	15.8	0.15	19990303	20.45102	127.74418	7.98647	5.79951	0.1400594	2.3191748	18	1	38 days	0.49		Nakano	1999 CL ₁
1999 CM ₁	14.3	0.15	19990211	68.68058	352.22879	69.56531	3.03059	0.0677613	2.8671813	23	1	17 days	0.80		Williams	1999 CM ₁
1999 CR ₁	14.5	0.15	19990211	325.72145	197.75171	350.13396	14.24713	0.0572974	2.6537472	19	1	16 days	0.78		Williams	1999 CR ₁
1999 CS ₁	14.1	0.15	19990303	292.23250	147.96445	89.89719	6.62339	0.1325692	2.2776013	20	1	37 days	0.48		Nakano	1999 CS ₁
1999 CT ₁	13.9	0.15	19990303	23.93253	126.05288	355.42683	15.78197	0.1498267	3.1614646	26	1	37 days	0.62		Nakano	1999 CT ₁
1999 CV ₁	14.1	0.15	19990122	131.65958	345.95686	16.14047	8.52939	0.1610688	2.3586731	25	3	1979–1999	0.80	M-v 4	Williams	33992 1999 CV ₁
1999 CW ₁	13.8	0.15	19990122	92.09734	43.43022	356.20155	14.96224	0.1137383	2.5505584	24	2	1993–1999	0.69	M-v 5	Williams	33992 1999 CW ₁
1999 CX ₁	12.8	0.15	19990303	134.86164	245.80371	120.95346	16.07393	0.1909972	2.5718361	23	1	37 days	0.49		Nakano	1999 CX ₁
1999 CY ₁	14.4	0.15	19990211	324.73836	229.97838	304.26984	1.83304	0.1274273	2.4348167	31	1	38 days	0.80		Williams	1999 CY ₁
1999 CZ ₁	15.1	0.15	19990122	347.73677	177.03407	320.12984	17.02515	0.0853842	1.9528182	48	1	105 days	0.70	M-v 4	Williams	34046 1999 CZ ₁
1999 CB ₂	15.0	0.15	19990211	359.74959	140.71001	12.79875	6.61451	0.1745618	2.5390566	32	1	40 days	0.58		Williams	1999 CB ₂
1999 CC ₂	13.9	0.15	19990303	28.93569	64.40697	65.44954	4.64662	0.0432860	2.7852847	26	1	36 days	0.65		Nakano	1999 CC ₂

1999 CD ₂	14.3	0.15	19990122	126.35510	273.59217	98.18581	5.68498	0.1689642	2.2725323	38	3	1993–1999	0.70	M-v	3	Williams	33992	1999 CD ₂
1999 CE ₂	15.5	0.15	19990211	345.36016	194.21296	332.77835	2.01649	0.1270573	2.4006112	30	1	53 days	0.78			Williams		1999 CE ₂
1999 CF ₂	16.4	0.15	19990211	19.69903	71.90567	39.09239	6.41081	0.1573997	2.3099255	21	1	32 days	0.77			Williams		1999 CF ₂
1999 CO ₂	13.0	0.15	19990211	10.40035	41.09803	104.85652	22.68005	0.0308287	2.6900389	19	1	12 days	0.55			Williams		1999 CO ₂
1999 CR ₂	15.9	0.15	19990211	80.13771	31.38954	4.95762	7.16164	0.2114661	2.2527725	15	1	37 days	0.72			Williams		1999 CR ₂
1999 CV ₂	15.7	0.15	19990211	296.73477	251.63889	326.40370	11.63984	0.0716785	2.9910587	7	1	14 days	0.30			Williams		1999 CV ₂
1999 CY ₂	15.2	0.15	19990211	69.43524	116.27069	296.13528	1.46013	0.1956300	2.3882243	46	1	37 days	0.74			Williams		1999 CY ₂
1999 CZ ₂	13.7	0.15	19990122	2.89104	308.99024	186.89932	0.80718	0.1736050	3.1528416	46	2	1982–1999	0.55	M-v	4	Williams	33992	1999 CZ ₂
1999 CA ₃	14.0	0.15	19990122	60.45294	335.58486	103.29848	7.15967	0.0717800	2.4284950	50	3	1982–1999	0.60	M-v	1	Williams	33992	1999 CA ₃
1999 CE ₃	16.2	0.15	19990211	350.36524	203.52096	312.81616	7.82218	0.2147557	2.7793559	26	1	30 days	0.58			Williams		1999 CE ₃
1999 CH ₃	15.3	0.15	19990211	22.79200	31.84117	66.22584	8.51015	0.3554562	2.6958328	33	1	18 days	0.66			Nakano		1999 CH ₃
1999 CK ₃	14.8	0.15	19990303	58.49794	181.85924	265.70701	7.58957	0.1024274	2.7588131	23	1	44 days	0.62			Nakano		1999 CK ₃
1999 CL ₃	12.5	0.15	19990211	77.91359	310.74440	112.37431	11.00074	0.0605817	3.0411588	24	1	53 days	0.52			Nakano		1999 CL ₃
1999 CN ₃	15.5	0.15	19990122	32.14636	286.85160	156.33198	6.64118	0.0967414	2.4056070	15	1	60 days	0.31	M-v	4	Williams		1999 CN ₃
1999 CQ ₃	13.5	0.15	19990211	50.65422	331.86978	121.06049	24.34781	0.0546737	2.6841270	15	1	8 days	0.48			Williams		1999 CQ ₃
1999 CR ₃	16.1	0.15	19990211	20.94358	337.39394	134.44857	33.02315	0.1943743	1.8626963	57	1	53 days	0.59			Williams		1999 CR ₃
1999 CS ₃	18.7	0.15	19990122	0.05761	351.82859	135.10984	27.74176	0.4270068	2.4773045	48	1	38 days	0.76	M-v	5	Williams		1999 CS ₃
1999 CT ₃	18.0	0.15	19990122	264.61662	268.17000	322.00467	34.24347	0.1319156	1.4269415	42	1	38 days	0.64	M-v	5	Williams		1999 CT ₃
1999 CU ₃	16.6	0.15	19990122	256.81898	305.45460	339.28861	11.39554	0.5239864	1.5764103	54	1	31 days	0.57	M-v	6	Williams		1999 CU ₃
1999 CX ₃	17.2	0.15	19990303	292.24240	79.43318	156.12739	23.76378	0.1044185	1.9063484	27	1	45 days	0.84			Williams		1999 CX ₃
1999 CE ₄	15.2	0.15	19990211	228.84197	155.51694	135.30103	2.57296	0.0255121	2.8888040	17	1	33 days	0.36			Williams		1999 CE ₄
1999 CG ₄	14.9	0.15	19990303	23.78780	148.27773	342.65909	5.53071	0.1186359	2.3376250	41	1	41 days	0.70			Williams		1999 CG ₄
1999 CH ₄	17.4	0.15	19990211	5.60926	158.11675	346.39939	3.56227	0.2279231	2.5624505	11	1	32 days	0.42			Williams		1999 CH ₄
1999 CJ ₄	15.0	0.15	19990303	82.91180	316.04521	108.71066	7.01071	0.1203319	2.2462234	23	1	41 days	0.76			Nakano		1999 CJ ₄
1999 CM ₄	16.0	0.15	19990211	326.32639	90.21670	126.99177	22.77578	0.3155714	2.3115220	24	1	33 days	0.82			Williams		1999 CM ₄
1999 CP ₄	16.2	0.15	19990211	329.73602	22.49787	148.80225	3.32531	0.1086426	2.3724099	13	1	42 days	0.75			Williams		1999 CP ₄
1999 CR ₄	13.6	0.15	19990122	285.58948	279.86329	295.22006	8.89776	0.0486782	2.5956487	25	1	92 days	0.36	M-v	5	Williams		1999 CR ₄
1999 CS ₄	14.2	0.15	19990211	107.05838	202.16906	198.52474	2.00855	0.1479911	2.3625861	16	1	29 days	0.59			Williams		1999 CS ₄
1999 CT ₄	13.4	0.15	19990211	66.48067	227.45868	220.81945	1.30523	0.0891257	2.9621172	8	1	31 days	1.64			Williams		1999 CT ₄
1999 CY ₄	13.5	0.15	19990211	121.09680	241.85797	107.40707	9.97321	0.1255212	2.3919329	14	1	33 days	1.00			Williams		1999 CY ₄
1999 CD ₅	16.6	0.15	19990211	0.83932	69.35759	82.19110	4.75200	0.2031384	2.2786937	22	1	9 days	0.64			Williams		1999 CD ₅
1999 CH ₅	13.5	0.15	19990303	44.90572	99.81164	331.69936	8.24906	0.2028443	2.7961888	26	1	40 days	0.48			Nakano		1999 CH ₅
1999 CJ ₅	12.5	0.15	19990303	87.89423	45.18694	19.26222	10.68166	0.1079665	2.9729215	14	1	38 days	0.53			Nakano		1999 CJ ₅
1999 CL ₅	13.5	0.15	19990122	132.21668	18.88397	359.56394	14.03902	0.0826299	2.5946196	30	4	1976–1999	0.62	M-v	2	Williams	33992	1999 CL ₅
1999 CO ₅	14.3	0.15	19990303	8.79351	103.65232	23.15385	11.60953	0.2096528	2.6470527	32	1	58 days	0.53			Nakano		1999 CO ₅
1999 CQ ₅	14.3	0.15	19990211	40.30518	86.85340	21.91419	6.63733	0.1206921	2.4219783	30	1	32 days	1.08			Williams		1999 CQ ₅
1999 CR ₅	13.1	0.15	19990303	33.48776	109.50729	15.23896	9.34811	0.0976298	2.6754857	13	1	32 days	0.43			Nakano		1999 CR ₅
1999 CS ₅	12.8	0.15	19990303	121.03349	299.40568	94.94031	6.32048	0.1112886	2.4168716	13	1	32 days	0.59			Nakano		1999 CS ₅
1999 CT ₅	13.9	0.15	19990303	128.77680	271.99654	116.59255	5.74341	0.1150838	2.5218875	16	1	38 days	0.85			Williams		1999 CT ₅
1999 CU ₅	13.0	0.15	19990303	4.49424	16.72200	143.67250	15.63001	0.1369195	2.5523549	16	1	52 days	0.34			Nakano		1999 CU ₅
1999 CW ₅	13.1	0.15	19990303	42.17475	52.72133	53.54907	5.72227	0.1830554	2.5469129	10	1	32 days	0.28			Nakano		1999 CW ₅
1999 CZ ₅	14.5	0.15	19990122	46.23137	95.45344	328.76914	19.08180	0.1276796	2.4371696	18	1	26 days	0.51			Williams		1999 CZ ₅
1999 CA ₆	14.8	0.15	19990122	327.93343	50.78070	124.71451	24.53439	0.2226635	2.3725971	16	1	32 days	0.35			Williams		1999 CA ₆
1999 CF ₆	16.1	0.15	19990211	43.08605	320.59622	123.54643	25.12041	0.0956664	1.9311124	13	1	8 days	0.53			Williams		1999 CF ₆
1999 CV ₆	17.1	0.15	19990211	32.85568	122.78474	329.13287	22.62122	0.1986364	2.2615465	17	1	14 days	0.63			Williams		1999 CV ₆
1999 CB ₇	16.4	0.15	19990211	42.37831	323.72323	129.15605	26.01781	0.0714769	2.0121790	13	1	10 days	0.45			Williams		1999 CB ₇
1999 CG ₇	14.8	0.15	19990211	42.01861	327.67465	124.51067	22.50828	0.0993847	2.5517368	16	1	10 days	0.43			Williams		1999 CG ₇
1999 CN ₇	14.5	0.15	19990211	26.50004	322.56386	146.78288	29.99339	0.1830479	2.6551429	16	1	13 days	0.43			Williams		1999 CN ₇
1999 CQ ₇	14.1	0.15	19990211	127.00814	30.71003	339.19233	22.86043	0.1814611	2.2771138	20	1	38 days	0.76			Williams		1999 CQ ₇
1999 CV ₇	16.4	0.15	19990211	351.64893	182.81510	342.99001	22.49892	0.3033558	3.0021353	14	1	13 days	0.68			Williams		1999 CV ₇
1999 CW ₇	16.4	0.15	19990122	11.54423	125.02022	345.04626	14.60363	0.2871364	1.8260872	62	1	41 days	0.55	M-v	5	Williams		1999 CW ₇
1999 CY ₇	14.7	0.15	19990303	339.40656	205.21447	345.33580	26.90568	0.1968607	2.2909936	49	1	41 days				Williams		1999 CY ₇
1999 CB ₈	15.2	0.15	19990211	328.39729	237.15525	295.55005	2.05187	0.0976425	2.1610443	26	1	12 days	1.14			Williams		1999 CB ₈

1999 CD ₈	16.2	0.15	19990211	74.06877	110.06846	314.57409	7.17320	0.0875738	2.3539419	21	1	30 days	0.94	Williams	1999 CD ₈
1999 CE ₈	15.4	0.15	19990211	27.91458	151.49710	318.09373	9.94494	0.1791432	3.1723740	18	1	30 days	0.86	Williams	1999 CE ₈
1999 CF ₈	15.9	0.15	19990211	58.30153	280.52075	143.53087	6.67807	0.1192437	2.3398983	16	1	25 days	0.43	Williams	1999 CF ₈
1999 CH ₈	13.0	0.15	19990303	303.79568	132.03923	101.05073	12.58670	0.1358740	2.6312295	21	1	37 days	0.56	Williams	1999 CH ₈
1999 CJ ₈	13.2	0.15	19990211	258.03902	139.26246	132.71253	9.99492	0.0565325	2.9899989	14	1	31 days	0.47	Williams	1999 CJ ₈
1999 CK ₈	14.9	0.15	19990211	2.63420	94.80493	64.31020	2.74645	0.1302630	2.8745775	15	1	34 days	0.70	Williams	1999 CK ₈
1999 CL ₈	15.2	0.15	19990211	349.36673	29.20767	147.08688	14.52240	0.1880424	2.6565892	24	1	33 days	0.44	Williams	1999 CL ₈
1999 CQ ₈	15.2	0.15	19990122	277.47430	92.83234	140.25763	8.02171	0.1981895	2.2609820	20	1	29 days	0.66	Williams	1999 CQ ₈
1999 CT ₈	18.3	0.15	19990122	59.13467	40.00741	337.19394	44.51717	0.3936062	1.2496523	24	1	39 days	0.62	M-v 6 Williams	1999 CT ₈
1999 CV ₈	19.6	0.15	19990122	41.95214	279.12491	132.13100	15.26774	0.3519028	1.2977719	61	1	31 days	0.68	M-v 6 Williams	1999 CV ₈
1999 CW ₈	18.5	0.15	19990122	332.58813	261.93501	317.37466	33.62738	0.5980011	2.2305037	66	1	32 days	0.61	M-v 6 Williams	1999 CW ₈
1999 CY ₈	15.2	0.15	19990211	89.56878	43.81434	15.88640	8.07968	0.1471630	2.4672524	8	1	26 days	0.31	Marsden	1999 CY ₈
1999 CA ₉	16.1	0.15	19990211	245.14159	131.10374	144.19096	0.69441	0.1789460	2.2180376	21	1	8 days	0.87	Williams	1999 CA ₉
1999 CC ₉	15.0	0.15	19990211	232.52337	98.25529	208.82517	12.97756	0.1805047	2.5773656	12	1	33 days	0.50	Williams	1999 CC ₉
1999 CD ₉	16.3	0.15	19990211	354.67786	357.96573	156.85931	14.35268	0.0809519	2.6405816	23	1	30 days	0.99	Williams	1999 CD ₉
1999 CF ₉	17.9	0.15	19990122	316.39342	89.50130	157.65846	5.54682	0.5985980	1.7727845	216	1	42 days	0.50	M-v 5 Marsden	1999 CF ₉
1999 CG ₉	25.2	0.15	19990122	25.73456	313.36807	139.10317	5.14853	0.0640831	1.0600332	42	1	24 days	0.68	M-v 5 Williams	34048 1999 CG ₉
1999 CL ₉	14.8	0.15	19990211	331.96654	171.49103	10.78615	11.66757	0.1537438	2.6644984	23	1	13 days	0.74	Williams	1999 CL ₉
1999 CN ₉	14.4	0.15	19990303	54.60805	64.92983	20.09300	9.45234	0.2334135	2.3852357	11	1	36 days	0.57	Nakano	1999 CN ₉
1999 CO ₉	13.4	0.15	19990303	69.44900	39.44155	49.04153	7.48917	0.0704529	2.3023354	11	1	30 days	0.59	Nakano	1999 CO ₉
1999 CP ₉	13.5	0.15	19990303	39.08781	83.58672	15.10503	14.22778	0.2896310	3.1324990	11	1	30 days	0.39	Nakano	1999 CP ₉
1999 CQ ₉	13.8	0.15	19990303	355.85532	74.23364	97.96963	8.28253	0.1991669	2.5824971	11	1	31 days	0.27	Nakano	1999 CQ ₉
1999 CR ₉	15.7	0.15	19990303	271.77638	296.27025	328.69020	7.15299	0.1338925	2.2781227	16	1	42 days	0.25	Williams	1999 CR ₉
1999 CU ₉	14.1	0.15	19990303	196.07460	18.56046	324.28636	10.74911	0.2662505	2.3949692	17	1	41 days	0.77	Williams	1999 CU ₉
1999 CV ₉	15.0	0.15	19990303	290.66017	296.49766	329.02608	14.81413	0.2144733	2.5553260	20	1	41 days	0.59	Williams	1999 CV ₉
1999 CX ₉	13.0	0.15	19990211	341.84604	39.06682	143.88501	11.20450	0.0397623	2.9910179	25	1	29 days	0.24	Williams	1999 CX ₉
1999 CA ₁₀	16.1	0.15	19990211	7.58157	36.47013	123.19441	3.01835	0.1437112	2.3784613	19	1	30 days	0.36	Williams	1999 CA ₁₀
1999 CD ₁₀	13.5	0.15	19990211	18.56399	50.64666	113.40137	10.72342	0.0651698	2.7674410	8	1	24 days	0.44	Williams	1999 CD ₁₀
1999 CE ₁₀	15.7	0.15	19990211	174.34577	172.56775	102.41650	5.19556	0.1661241	2.2126372	8	1	11 days	0.77	Williams	1999 CE ₁₀
1999 CG ₁₀	13.8	0.15	19990303	316.47175	185.18244	37.11279	7.02338	0.0811720	2.6130544	12	1	32 days	0.49	Williams	1999 CG ₁₀
1999 CJ ₁₀	13.7	0.15	19990211	251.59510	274.38514	12.02814	14.45596	0.1024992	2.5637535	11	1	29 days	0.70	Williams	1999 CJ ₁₀
1999 CM ₁₀	14.7	0.15	19990122	330.97080	167.24993	355.32186	2.11633	0.1150210	2.7498522	54	3	1990–1999	0.56	M-v 4 Williams	33993 1999 CM ₁₀
1999 CP ₁₀	17.1	0.15	19990122	320.86736	34.53957	151.76097	23.71351	0.2312043	2.2505056	14	1	30 days	0.73	Williams	1999 CP ₁₀
1999 CS ₁₀	16.3	0.15	19990211	30.54066	137.09104	322.63204	12.95324	0.2109289	2.5791601	18	1	14 days	0.58	Williams	1999 CS ₁₀
1999 CU ₁₀	14.2	0.15	19990211	57.54797	129.66924	299.71377	24.00046	0.1278952	2.2778607	12	1	9 days	0.27	Williams	1999 CU ₁₀
1999 CF ₁₁	17.0	0.15	19990211	127.54333	211.10798	155.61321	25.19243	0.0870860	1.9428381	13	1	8 days	1.18	Williams	1999 CF ₁₁
1999 CG ₁₁	15.5	0.15	19990211	26.56535	296.43926	161.54557	26.25889	0.2239644	3.1868950	10	1	9 days	0.68	Williams	1999 CG ₁₁
1999 CS ₁₁	15.7	0.15	19990211	359.56602	189.86704	316.47541	17.69311	0.0721018	1.9645466	16	1	9 days	0.56	Williams	1999 CS ₁₁
1999 CY ₁₁	16.2	0.15	19990122	29.82439	144.69943	319.69359	19.60607	0.0877958	1.9135418	19	1	32 days	0.36	Williams	1999 CY ₁₁
1999 CZ ₁₁	16.9	0.15	19990211	66.56697	118.10504	313.19502	18.78286	0.1073120	1.9107960	16	1	11 days	0.68	Williams	1999 CZ ₁₁
1999 CD ₁₂	14.6	0.15	19990303	22.32569	331.51476	156.55462	13.50900	0.1206687	2.3573858	23	1	40 days	0.67	Williams	1999 CD ₁₂
1999 CG ₁₂	14.8	0.15	19990211	14.29997	333.83886	158.75754	25.96870	0.2020934	2.4233706	18	1	36 days	0.49	Williams	1999 CG ₁₂
1999 CH ₁₂	14.7	0.15	19990211	90.24023	88.02377	333.35107	22.17810	0.0447785	1.9329841	12	1	4 days	0.43	Williams	1999 CH ₁₂
1999 CJ ₁₂	14.9	0.15	19990303	96.18260	254.33807	160.31844	22.88714	0.1206910	1.9180958	19	1	39 days	0.51	Williams	1999 CJ ₁₂
1999 CL ₁₂	13.6	0.15	19990303	153.74939	204.09490	149.10368	17.14394	0.0929584	3.1441972	22	1	43 days	1.56	Williams	1999 CL ₁₂
1999 CU ₁₂	15.9	0.15	19990211	19.50452	165.03733	310.76361	10.59760	0.2414840	2.6845101	21	1	9 days	0.52	Williams	1999 CU ₁₂
1999 CZ ₁₃	13.1	0.15	19990122	339.50460	115.54738	59.84020	9.37900	0.2619014	3.7519367	90	1	52 days	0.76	Williams	1999 CZ ₁₃
1999 CA ₁₄	14.9	0.15	19990122	36.38060	328.11850	124.91966	4.28433	0.1090677	2.3326979	26	3	1992–1999	0.51	M-v 3 Williams	33993 1999 CA ₁₄
1999 CE ₁₄	15.0	0.15	19990122	30.49452	257.23597	211.09461	5.07743	0.0766128	2.2211100	34	3	1989–1999	0.61	M-v 4 Williams	33993 1999 CE ₁₄
1999 CF ₁₄	14.5	0.15	19990303	329.38992	50.75099	175.78755	18.93714	0.2040770	2.5822780	32	1	38 days	0.85	Williams	1999 CF ₁₄
1999 CJ ₁₄	13.3	0.15	19990303	335.25182	37.20095	180.15546	17.60181	0.1554146	2.9001613	36	1	35 days	0.93	Williams	1999 CJ ₁₄
1999 CL ₁₄	14.0	0.15	19990211	289.97030	256.77669	337.25157	2.95534	0.0976869	2.7618592	7	1	21 days	0.72	Williams	1999 CL ₁₄
1999 CN ₁₄	14.6	0.15	19990211	334.54639	31.81640	153.49049	13.35391	0.1333814	2.6124630	30	1	38 days	0.58	Williams	1999 CN ₁₄

1999 CP ₁₄	13.4	0.15	19990303	335.42801	250.55864	298.62146	4.75035	0.0977487	3.1768608	17	1	32 days	0.61	Williams	1999 CP ₁₄
1999 CQ ₁₄	13.6	0.15	19990211	21.73727	321.90322	164.10025	13.45983	0.1128302	2.5925243	16	1	24 days	0.60	Williams	1999 CQ ₁₄
1999 CR ₁₄	13.9	0.15	19990211	219.03589	340.92785	325.73346	12.83164	0.1619645	2.6934665	10	1	28 days	0.46	Williams	1999 CR ₁₄
1999 CS ₁₄	13.2	0.15	19990211	134.36896	171.49158	219.03070	1.60013	0.0694243	2.8893616	10	1	25 days	0.70	Williams	1999 CS ₁₄
1999 CT ₁₄	14.0	0.15	19990303	35.03282	322.17753	165.87373	13.21263	0.1152066	2.4210544	16	1	31 days	0.54	Williams	1999 CT ₁₄
1999 CU ₁₄	13.6	0.15	19990211	167.34112	195.13064	165.85014	4.67326	0.0681083	2.7603288	14	1	40 days	1.20	Williams	1999 CU ₁₄
1999 CW ₁₄	15.3	0.15	19990303	331.38885	39.35337	171.86913	2.60292	0.1646311	2.4186061	20	1	35 days		Williams	1999 CW ₁₄
1999 CP ₁₅	14.1	0.15	19990303	250.24637	270.12505	354.08102	22.33177	0.1026591	1.9258025	16	1	41 days	0.59	Williams	1999 CP ₁₅
1999 CJ ₁₆	15.2	0.15	19990122	40.44412	278.89642	160.99368	1.91289	0.1935246	2.3369263	41	3	1979–1999	0.79	M-v 4 Williams	33994 1999 CJ ₁₆
1999 CL ₁₆	14.4	0.15	19990211	42.25306	287.26726	151.73283	24.64539	0.2817090	3.1964714	14	1	31 days	0.40	Williams	1999 CL ₁₆
1999 CM ₁₆	14.2	0.15	19990122	270.15782	74.75512	166.46309	5.62458	0.0603511	2.5516785	21	1	65 days	0.60	M-v 5 Williams	1999 CM ₁₆
1999 CU ₁₇	13.0	0.15	19990122	329.63692	230.24851	302.47105	0.77639	0.2546850	3.0973979	12	1	19 days	0.59	Williams	1999 CU ₁₇
1999 CV ₁₇	13.8	0.15	19990211	354.07557	131.79680	4.32733	1.12195	0.1694320	3.2301803	11	1	13 days	0.54	Williams	1999 CV ₁₇
1999 CD ₁₈	13.0	0.15	19990122	352.75306	98.43885	32.34050	11.01418	0.1184254	3.2217332	16	1	63 days	0.57	M-v 5 Williams	1999 CD ₁₈
1999 CH ₁₈	14.4	0.15	19990122	358.17868	140.52694	344.04792	13.82810	0.0761892	2.3852886	13	1	21 days	0.72	Williams	1999 CH ₁₈
1999 CJ ₁₈	13.9	0.15	19990211	59.28399	343.94467	75.09783	11.20757	0.0936412	2.9788003	16	1	9 days	0.45	Williams	1999 CJ ₁₈
1999 CV ₁₈	15.4	0.15	19990122	22.54777	26.26173	66.77910	13.29485	0.1514515	3.1778126	13	1	21 days	0.77	Williams	1999 CV ₁₈
1999 CA ₁₉	13.0	0.15	19990122	189.55053	207.32640	89.34527	11.74034	0.0726364	3.0468248	21	1	28 days	0.78	Williams	1999 CA ₁₉
1999 CC ₁₉	15.4	0.15	19990122	356.91475	14.67571	114.39109	13.21809	0.1245377	2.3982873	24	1	40 days	0.79	D Williams	1999 CC ₁₉
1999 CJ ₁₉	14.6	0.15	19990211	208.75319	304.16650	344.72237	2.41924	0.1435661	2.1662194	16	1	13 days	0.52	Williams	1999 CJ ₁₉
1999 CS ₁₉	13.2	0.15	19990211	173.02216	4.31169	314.34869	9.75312	0.0671311	3.0005017	19	1	31 days	0.54	Williams	1999 CS ₁₉
1999 CV ₁₉	14.8	0.15	19990211	125.73042	31.96553	321.39065	7.83148	0.1771971	2.2543587	19	1	38 days	0.40	Williams	1999 CV ₁₉
1999 CX ₁₉	13.7	0.15	19990211	259.70761	139.31600	116.44814	11.42583	0.2296722	3.1173739	19	1	13 days	0.52	Williams	1999 CX ₁₉
1999 CY ₁₉	14.1	0.15	19990211	114.51740	250.57615	117.93203	11.87096	0.0904758	3.0099266	16	1	13 days	0.58	Williams	1999 CY ₁₉
1999 CF ₂₀	14.6	0.15	19990122	16.43000	99.97238	2.83928	12.69363	0.1272291	2.6094841	16	1	26 days	0.45	Williams	1999 CF ₂₀
1999 CG ₂₀	13.8	0.15	19990211	32.09734	342.84455	95.98650	19.05350	0.2544341	3.1693385	13	1	8 days	0.74	Williams	1999 CG ₂₀
1999 CU ₂₀	14.4	0.15	19990211	186.12559	342.03838	325.15925	14.22811	0.1226580	2.5937926	16	1	13 days	0.71	Williams	1999 CU ₂₀
1999 CD ₂₁	15.2	0.15	19990211	65.31324	72.98852	337.11998	2.04205	0.1657131	2.5303065	12	1	13 days	0.73	Williams	1999 CD ₂₁
1999 CA ₂₂	13.7	0.15	19990122	39.58354	71.99207	355.02580	13.81816	0.2123539	3.2218324	16	1	31 days	0.70	Williams	1999 CA ₂₂
1999 CB ₂₂	14.3	0.15	19990211	8.37505	52.85308	67.48003	12.26906	0.1638878	2.9870308	13	1	8 days	0.68	Williams	1999 CB ₂₂
1999 CC ₂₂	14.5	0.15	19990211	68.76610	356.89029	53.17902	12.33062	0.1102258	3.0282673	13	1	8 days	0.44	Williams	1999 CC ₂₂
1999 CF ₂₂	13.6	0.15	19990211	323.36093	79.53950	103.39067	19.86650	0.1556149	3.1461078	13	1	8 days	0.54	Williams	1999 CF ₂₂
1999 CC ₂₄	15.4	0.15	19990211	299.08980	83.54741	127.61228	3.82429	0.1082357	2.2890663	13	1	14 days	0.43	Williams	1999 CC ₂₄
1999 CE ₂₅	15.7	0.15	19990211	353.55966	70.48392	76.20352	5.04371	0.1745635	2.4156651	13	1	10 days	0.48	Williams	1999 CE ₂₅
1999 CN ₂₅	15.6	0.15	19990211	65.40861	328.42768	83.65361	3.53504	0.1824248	2.4098403	11	1	14 days	0.58	Williams	1999 CN ₂₅
1999 CB ₂₆	16.5	0.15	19990211	21.66556	330.24136	139.02697	1.33194	0.1639505	2.3065121	19	1	5 days	0.63	Williams	1999 CB ₂₆
1999 CD ₂₆	15.9	0.15	19990211	310.64522	250.94969	306.89007	1.73872	0.0977725	2.6030522	14	1	13 days	0.70	Williams	1999 CD ₂₆
1999 CE ₂₆	14.8	0.15	19990211	116.06390	222.07473	140.62955	3.47561	0.2232360	2.8460868	10	1	6 days	0.85	E Williams	1999 CE ₂₆
1999 CS ₂₆	15.4	0.15	19990211	317.44212	110.87685	81.18652	3.46878	0.1170817	2.4175976	19	1	14 days	0.59	Williams	1999 CS ₂₆
1999 CG ₂₇	15.5	0.15	19990211	315.10750	180.13069	11.36810	6.04872	0.1006592	2.3994040	13	1	3 days	0.71	E Williams	1999 CG ₂₇
1999 CH ₂₇	15.4	0.15	19990211	4.28903	58.82145	73.48346	5.63503	0.1371455	2.6662206	16	1	3 days	0.84	E Williams	1999 CH ₂₇
1999 CO ₂₇	15.2	0.15	19990211	284.02025	162.66108	51.97419	6.21270	0.0183346	2.2790618	13	1	10 days	0.46	Williams	1999 CO ₂₇
1999 CQ ₂₇	13.9	0.15	19990211	254.29283	167.16096	81.68685	11.24881	0.0589324	2.9889165	13	1	8 days	0.54	Williams	1999 CQ ₂₇
1999 CE ₂₈	12.5	0.15	19990211	176.13963	223.47912	96.83471	12.83165	0.1934281	2.6795199	13	1	10 days	0.47	Williams	1999 CE ₂₈
1999 CG ₂₈	14.1	0.15	19990211	268.28020	230.02255	9.83699	7.13587	0.0932985	2.4539447	29	1	10 days	1.26	Williams	1999 CG ₂₈
1999 CH ₂₈	13.9	0.15	19990211	263.53888	122.41023	120.92271	22.60946	0.0719037	3.2278758	28	1	10 days	0.92	E Williams	1999 CH ₂₈
1999 CK ₂₈	13.4	0.15	19990211	100.76914	264.87393	124.21200	22.89984	0.0862709	3.1987782	31	1	10 days	0.72	E Williams	1999 CK ₂₈
1999 CR ₂₈	15.3	0.15	19990211	23.98822	135.75414	334.45589	11.01818	0.1086817	3.0744270	15	1	14 days	0.63	Williams	1999 CR ₂₈
1999 CT ₂₈	15.8	0.15	19990211	111.99500	244.48637	126.76966	7.35706	0.1866667	2.3356492	14	1	14 days	0.66	Williams	1999 CT ₂₈
1999 CU ₂₈	14.7	0.15	19990211	18.08859	137.70184	333.98026	8.17258	0.2368231	2.7128692	19	1	39 days	0.36	Williams	1999 CU ₂₈
1999 CV ₂₈	14.4	0.15	19990211	1.32914	173.16088	326.48847	10.05525	0.0325124	3.0558325	24	1	14 days	0.80	Williams	1999 CV ₂₈
1999 CG ₂₉	15.9	0.15	19990211	140.19697	17.18205	330.47935	6.21555	0.2410746	2.3326991	11	1	14 days	0.92	Williams	1999 CG ₂₉
1999 CH ₂₉	15.5	0.15	19990211	341.93505	197.13774	330.19402	6.31751	0.1618885	3.0768831	11	1	13 days	0.72	Williams	1999 CH ₂₉

1999 CM ₂₉	15.5	0.15	19990211	17.39645	138.10319	342.47221	3.10468	0.1171509	2.5403205	13	1	14 days	0.36	Williams	1999 CM ₂₉
1999 CS ₂₉	16.5	0.15	19990122	36.01549	307.43508	131.61049	2.55014	0.2427372	2.4939514	11	1	6 days	0.48	Williams	1999 CS ₂₉
1999 CU ₂₉	13.7	0.15	19990122	273.46015	283.07871	325.47288	3.39695	0.2035733	2.5635696	16	1	6 days	0.59	E Williams	1999 CU ₂₉
1999 CV ₂₉	13.8	0.15	19990122	17.75949	337.67907	139.99539	10.63885	0.1275693	3.8499904	14	1	6 days	0.75	Williams	1999 CV ₂₉
1999 CW ₂₉	16.0	0.15	19990122	327.49930	35.73444	142.26517	16.65211	0.1033363	2.6777302	11	1	6 days	0.64	E Williams	1999 CW ₂₉
1999 CX ₂₉	14.4	0.15	19990122	63.28667	273.91760	141.70466	6.84648	0.1827140	2.7814664	19	1	6 days	0.61	E Williams	1999 CX ₂₉
1999 CC ₃₁	14.5	0.15	19990211	94.45221	50.17783	339.04770	10.02526	0.1547568	3.0231169	12	1	14 days	0.65	Williams	1999 CC ₃₁
1999 CM ₃₁	13.9	0.15	19990211	152.53667	250.24449	86.44361	6.28648	0.2873054	2.5065640	13	1	3 days	1.03	E Williams	1999 CM ₃₁
1999 CO ₃₁	15.0	0.15	19990211	303.90621	130.53652	82.67228	5.33483	0.1594223	2.3404164	16	1	10 days	0.47	Williams	1999 CO ₃₁
1999 CQ ₃₁	14.8	0.15	19990211	298.75894	131.21485	80.58596	6.24870	0.1059346	2.7698949	11	1	3 days	0.89	E Williams	1999 CQ ₃₁
1999 CR ₃₁	13.5	0.15	19990211	186.68860	333.25615	340.28990	16.82493	0.2170429	2.8045337	10	1	3 days	0.59	E Williams	1999 CR ₃₁
1999 CC ₃₂	14.5	0.15	19990122	277.68080	225.32152	23.31366	9.30770	0.2777383	2.3101702	42	1	55 days	0.51	Williams	1999 CC ₃₂
1999 CD ₃₂	15.1	0.15	19990211	297.81119	149.93603	58.83146	7.74289	0.0633199	2.3528033	11	1	10 days	0.71	Williams	1999 CD ₃₂
1999 CJ ₃₂	13.7	0.15	19990211	311.95300	81.34346	121.49546	18.10358	0.1445731	3.1839137	16	1	10 days	0.42	Williams	1999 CJ ₃₂
1999 CK ₃₂	13.6	0.15	19990211	159.38427	226.40014	114.52486	13.96350	0.0110937	3.1010359	18	1	10 days	0.35	E Williams	1999 CK ₃₂
1999 CN ₃₂	14.2	0.15	19990211	180.86953	215.75317	105.00097	10.56148	0.0981357	3.0529897	19	1	10 days	0.72	Williams	1999 CN ₃₂
1999 CN ₃₃	14.2	0.15	19990122	67.04023	291.61709	122.33871	2.65258	0.1764290	3.2187086	13	1	6 days	0.79	E Williams	1999 CN ₃₃
1999 CO ₃₃	16.4	0.15	19990122	324.93209	57.47113	127.93648	2.82191	0.1659645	2.4093124	12	1	6 days	0.76	Williams	1999 CO ₃₃
1999 CP ₃₃	16.2	0.15	19990122	355.93432	174.54641	326.72930	0.10186	0.1301724	2.3069600	22	1	6 days	0.45	E Williams	1999 CP ₃₃
1999 CQ ₃₃	14.7	0.15	19990122	274.42099	287.24503	325.37822	2.11575	0.2391433	2.7295699	17	1	6 days	0.69	Williams	1999 CQ ₃₃
1999 CR ₃₃	16.0	0.15	19990122	340.55886	204.80797	317.59021	2.05423	0.1209287	2.4950513	15	1	6 days	0.67	E Williams	1999 CR ₃₃
1999 CS ₃₃	17.8	0.15	19990211	22.88186	158.51256	309.66750	0.53336	0.2132367	2.1344609	13	1	3 days	0.90	E Williams	1999 CS ₃₃
1999 CU ₃₃	15.0	0.15	19990122	28.83456	136.15735	324.05021	5.90765	0.1628146	3.1678916	15	1	6 days	0.71	E Williams	1999 CU ₃₃
1999 CV ₃₃	14.6	0.15	19990122	295.43805	86.15564	148.01064	2.66296	0.2492088	3.2096043	15	1	6 days	0.85	E Williams	1999 CV ₃₃
1999 CW ₃₃	16.3	0.15	19990122	251.20667	286.91457	326.52386	5.45327	0.0442702	2.5702308	13	1	6 days	0.54	E Williams	1999 CW ₃₃
1999 CX ₃₃	15.0	0.15	19990122	25.29853	140.82407	322.73655	1.85119	0.1794327	3.0753645	18	1	6 days	0.46	E Williams	1999 CX ₃₃
1999 CY ₃₃	16.0	0.15	19990122	17.34685	143.33788	325.83421	4.89407	0.2565147	3.1713437	14	1	6 days	0.55	Williams	1999 CY ₃₃
1999 CZ ₃₃	15.1	0.15	19990211	321.65182	45.64573	145.86083	9.41719	0.1023009	3.0693586	11	1	3 days	0.62	E Williams	1999 CZ ₃₃
1999 CA ₃₄	16.2	0.15	19990122	4.41740	6.39673	125.61672	1.26478	0.1607478	2.6641633	13	1	6 days	0.74	Williams	1999 CA ₃₄
1999 CB ₃₄	14.5	0.15	19990211	294.06050	258.71417	326.49787	13.64965	0.1247848	3.1758488	16	1	13 days	0.87	Williams	1999 CB ₃₄
1999 CC ₃₄	17.3	0.15	19990211	34.61825	319.64518	134.57237	1.53837	0.1978153	2.3441244	11	1	3 days	0.68	E Williams	1999 CC ₃₄
1999 CD ₃₄	16.1	0.15	19990122	2.92354	154.31306	341.23947	2.45805	0.0716146	2.5339722	10	1	6 days	0.58	E Williams	1999 CD ₃₄
1999 CE ₃₄	16.6	0.15	19990122	21.38116	335.62648	128.81106	2.56442	0.2126645	2.5885119	11	1	6 days	0.47	Williams	1999 CE ₃₄
1999 CF ₃₄	16.4	0.15	19990122	297.33341	234.20773	333.91056	3.92799	0.0612868	2.3785609	13	1	6 days	0.58	E Williams	1999 CF ₃₄
1999 CG ₃₄	15.7	0.15	19990122	65.78860	87.98073	332.09712	8.26773	0.1255742	2.5646674	11	1	6 days	1.06	E Williams	1999 CG ₃₄
1999 CH ₃₄	14.5	0.15	19990211	332.99716	56.35669	122.88503	2.34753	0.1139183	3.0964018	19	1	13 days	0.69	Williams	1999 CH ₃₄
1999 CK ₃₄	15.8	0.15	19990122	34.87489	122.90893	335.92463	4.54563	0.0669865	2.2162806	17	1	22 days	0.43	Williams	1999 CK ₃₄
1999 CN ₃₄	16.0	0.15	19990211	339.28063	105.94815	64.88418	1.47906	0.1125777	2.4065959	15	1	13 days	0.65	Williams	1999 CN ₃₄
1999 CN ₃₅	15.3	0.15	19990211	20.63573	353.59669	115.94531	14.61344	0.2270803	2.6187152	15	1	10 days	0.51	Williams	1999 CN ₃₅
1999 CY ₃₅	13.8	0.15	19990211	68.53478	333.77104	84.02314	11.91887	0.1377462	3.0445649	13	1	10 days	0.50	Williams	1999 CY ₃₅
1999 CB ₃₆	14.9	0.15	19990211	259.46941	230.73043	32.58811	10.51642	0.2007990	2.4417743	16	1	10 days	0.45	Williams	1999 CB ₃₆
1999 CC ₃₆	15.2	0.15	19990211	46.87487	12.01076	45.22149	7.96438	0.3475674	2.6496177	15	1	10 days	0.46	Williams	1999 CC ₃₆
1999 CE ₃₆	15.5	0.15	19990211	2.41848	39.91465	99.35484	9.65592	0.1460383	2.3788764	16	1	10 days	0.46	Williams	1999 CE ₃₆
1999 CO ₃₆	15.2	0.15	19990211	17.38955	4.06352	116.35718	12.27895	0.1263288	2.6549884	15	1	10 days	0.81	Williams	1999 CO ₃₆
1999 CS ₃₆	15.4	0.15	19990211	26.10214	3.36513	107.54242	10.25125	0.1114587	2.7618144	12	1	10 days	0.73	Williams	1999 CS ₃₆
1999 CH ₃₇	13.5	0.15	19990211	33.32509	325.81535	134.03593	14.38070	0.1664055	2.7357299	16	1	38 days	0.67	Williams	1999 CH ₃₇
1999 CK ₃₇	13.8	0.15	19990211	95.14129	281.69137	117.55571	6.10734	0.1098329	3.1131879	16	1	3 days	1.00	E Williams	1999 CK ₃₇
1999 CQ ₃₇	14.2	0.15	19990211	138.81157	25.47116	339.15511	11.65024	0.0433819	3.1207279	15	1	13 days	0.61	Williams	1999 CQ ₃₇
1999 CS ₃₇	17.6	0.15	19990211	356.36539	172.23348	338.75864	8.49022	0.1768333	2.4443164	14	1	3 days	1.50	E Williams	1999 CS ₃₇
1999 CT ₃₇	16.3	0.15	19990122	67.07853	290.65721	126.26770	2.84732	0.1372685	2.2259655	14	1	6 days	0.47	E Williams	1999 CT ₃₇
1999 CX ₃₇	14.8	0.15	19990122	248.79427	291.20098	328.53599	4.11042	0.0700490	2.6056113	19	1	6 days	0.73	E Williams	1999 CX ₃₇
1999 CY ₃₇	16.4	0.15	19990122	9.35310	155.99048	327.46685	6.35538	0.2412082	3.0114772	14	1	6 days	1.16	E Williams	1999 CY ₃₇
1999 CZ ₃₇	17.4	0.15	19990122	17.90006	121.58553	341.69494	1.50136	0.2858182	2.4608346	17	1	6 days	1.12	E Williams	1999 CZ ₃₇

1999 CB ₃₈	15.2	0.15	19990122	8.87653	145.20328	338.97295	2.52298	0.2089456	2.6045919	19	1	6 days	0.37	Williams	1999 CB ₃₈
1999 CC ₃₈	14.3	0.15	19990122	337.92961	22.70690	143.01617	6.93174	0.0543026	2.7237272	16	1	6 days	0.46	E Williams	1999 CC ₃₈
1999 CD ₃₈	14.4	0.15	19990211	140.66892	209.46004	144.01480	9.89073	0.2055562	2.4114830	13	1	3 days	0.81	E Williams	1999 CD ₃₈
1999 CF ₃₈	13.3	0.15	19990211	228.62813	321.76229	325.00478	18.40360	0.1080470	3.1292301	12	1	13 days	0.92	Williams	1999 CF ₃₈
1999 CG ₃₈	16.6	0.15	19990211	1.44454	185.89764	317.69155	1.72321	0.1534995	2.4253883	22	1	38 days	0.57	Williams	1999 CG ₃₈
1999 CH ₃₈	14.1	0.15	19990211	189.41572	188.80069	131.58650	3.54429	0.1608027	3.0506837	14	1	3 days	0.75	E Williams	1999 CH ₃₈
1999 CJ ₃₈	14.2	0.15	19990122	240.59174	135.46162	144.07988	13.28374	0.1804904	2.9469939	14	1	6 days	0.42	Williams	1999 CJ ₃₈
1999 CK ₃₈	15.0	0.15	19990122	65.66248	344.06731	77.19270	0.63698	0.1343223	2.6614421	15	1	6 days	0.80	E Williams	1999 CK ₃₈
1999 CL ₃₈	13.3	0.15	19990211	218.33661	330.76386	331.33512	14.68614	0.2277275	3.0370560	18	1	16 days	0.69	Williams	1999 CL ₃₈
1999 CM ₃₈	16.0	0.15	19990211	323.52590	60.27531	138.09422	4.51098	0.1809908	2.7978592	11	1	3 days	0.74	E Williams	1999 CM ₃₈
1999 CO ₃₈	15.7	0.15	19990211	165.93702	211.43702	126.45307	4.12593	0.1163014	2.2322827	13	1	13 days	0.80	Williams	1999 CO ₃₈
1999 CP ₃₈	14.6	0.15	19990211	6.74358	100.90938	36.81108	1.50591	0.1517523	3.0896921	16	1	13 days	0.46	Williams	1999 CP ₃₈
1999 CS ₃₈	14.9	0.15	19990211	269.05510	126.06198	139.36404	14.12014	0.2466619	2.6631154	16	1	13 days	0.80	Williams	1999 CS ₃₈
1999 CX ₃₈	14.3	0.15	19990211	332.66400	143.41498	33.49937	2.33742	0.0588051	2.3020062	28	1	13 days	0.62	Williams	1999 CX ₃₈
1999 CA ₃₉	14.0	0.15	19990211	35.01701	41.32873	69.43840	2.97238	0.0264347	2.8689548	13	1	13 days	0.34	Williams	1999 CA ₃₉
1999 CH ₄₀	15.1	0.15	19990211	354.63010	37.64935	112.84261	13.84713	0.1174982	2.5723837	19	1	10 days	0.52	Williams	1999 CH ₄₀
1999 CM ₄₀	16.0	0.15	19990211	8.77303	84.62236	47.07901	6.45631	0.1287284	2.2206967	19	1	9 days	0.39	Williams	1999 CM ₄₀
1999 CO ₄₀	14.0	0.15	19990211	259.16420	161.27216	98.33051	14.40469	0.1436327	2.6860395	16	1	10 days	0.54	Williams	1999 CO ₄₀
1999 CP ₄₀	12.9	0.15	19990211	282.83533	239.43631	2.31467	16.52809	0.2031491	3.1288834	13	1	12 days	0.67	Williams	1999 CP ₄₀
1999 CQ ₄₀	14.1	0.15	19990211	11.59539	61.36206	67.60427	10.67304	0.0787255	2.9846082	19	1	13 days	0.46	Williams	1999 CQ ₄₀
1999 CV ₄₀	12.8	0.15	19990211	359.46601	101.83873	42.48359	10.87784	0.0518239	2.9896313	13	1	12 days	0.48	Williams	1999 CV ₄₀
1999 CM ₄₁	15.8	0.15	19990122	340.53028	131.91662	31.21622	4.62563	0.1296321	2.2710190	16	1	22 days	0.73	Williams	1999 CM ₄₁
1999 CF ₄₂	16.5	0.15	19990211	93.06920	43.14433	352.73786	6.34145	0.1719415	2.2762378	14	1	13 days	0.68	Williams	1999 CF ₄₂
1999 CG ₄₂	15.2	0.15	19990211	87.85298	29.07757	351.15475	8.75798	0.3808951	2.6633445	15	1	13 days	1.00	Williams	1999 CG ₄₂
1999 CH ₄₂	15.3	0.15	19990211	10.90727	27.28264	99.48687	1.67025	0.2739484	2.8494671	16	1	3 days	0.40	Williams	1999 CH ₄₂
1999 CP ₄₂	15.0	0.15	19990211	263.80740	294.52279	332.62715	10.36535	0.2140111	2.7899753	17	1	38 days	0.83	Williams	1999 CP ₄₂
1999 CV ₄₂	15.4	0.15	19990211	215.11152	322.32959	341.53510	5.50554	0.1956192	2.3067400	17	1	38 days	0.51	Williams	1999 CV ₄₂
1999 CZ ₄₂	16.2	0.15	19990211	150.03995	358.61483	357.85167	1.95774	0.0268394	2.2190659	15	1	38 days	0.50	Williams	1999 CZ ₄₂
1999 CC ₄₃	15.2	0.15	19990211	34.97883	106.82027	351.72972	4.00280	0.1928732	3.2266514	11	1	13 days	0.82	Williams	1999 CC ₄₃
1999 CG ₄₃	15.5	0.15	19990211	323.87267	124.55281	74.90845	2.64205	0.1741154	3.0173006	12	1	13 days	0.62	Williams	1999 CG ₄₃
1999 CH ₄₃	15.3	0.15	19990211	102.31643	50.60872	346.94423	10.39056	0.0815977	2.6319871	18	1	13 days	0.80	Williams	1999 CH ₄₃
1999 CA ₄₅	16.1	0.15	19990211	102.33626	279.45805	111.84034	7.49688	0.1378935	2.2249231	16	1	8 days	0.58	Williams	1999 CA ₄₅
1999 CB ₄₅	14.2	0.15	19990211	17.54175	8.61516	120.64583	11.26267	0.0672858	2.9725347	15	1	8 days	0.43	Williams	1999 CB ₄₅
1999 CH ₄₅	15.3	0.15	19990211	345.15309	32.70030	135.94764	12.75874	0.1346721	2.6684433	12	1	13 days	0.61	Williams	1999 CH ₄₅
1999 CS ₄₅	17.7	0.15	19990211	18.52359	329.05807	134.34968	7.39724	0.3971719	2.7325730	14	1	23 days	0.56	Williams	1999 CS ₄₅
1999 CT ₄₅	15.3	0.15	19990211	37.83181	81.96117	20.11019	2.60367	0.1128945	2.4151641	15	1	13 days	0.50	Williams	1999 CT ₄₅
1999 CZ ₄₅	16.5	0.15	19990211	40.13243	329.63531	121.53644	1.94367	0.1932122	2.3640706	14	1	13 days	0.55	Williams	1999 CZ ₄₅
1999 CC ₄₆	13.9	0.15	19990211	198.72763	347.20947	331.74709	12.23792	0.2990198	2.3564601	8	1	8 days	0.92	Williams	1999 CC ₄₆
1999 CD ₄₆	16.9	0.15	19990211	22.84622	98.28619	18.70265	0.51011	0.1526864	2.2988955	21	1	53 days	0.81	Williams	1999 CD ₄₆
1999 CV ₄₆	15.6	0.15	19990211	310.35246	190.08353	20.36885	3.16346	0.1159209	2.3901142	12	1	13 days	0.59	Williams	1999 CV ₄₆
1999 CZ ₄₆	16.2	0.15	19990211	12.52456	93.36635	40.56123	2.88647	0.1015682	2.3808505	15	1	13 days	0.74	Williams	1999 CZ ₄₆
1999 CA ₄₇	14.0	0.15	19990211	314.53260	67.94061	132.76415	10.08565	0.0425469	3.0262887	13	1	13 days	0.85	Williams	1999 CA ₄₇
1999 CD ₄₇	14.5	0.15	19990211	291.30449	222.05557	2.68324	6.19271	0.0538911	2.3149920	16	1	13 days	0.44	Williams	1999 CD ₄₇
1999 CK ₄₇	13.6	0.15	19990211	269.30661	182.35381	74.01086	1.94339	0.1124820	3.1276730	18	1	13 days	1.01	Williams	1999 CK ₄₇
1999 CS ₄₇	14.1	0.15	19990211	11.81744	341.30354	150.11338	15.80267	0.2364149	3.1621161	25	1	38 days	0.53	Williams	1999 CS ₄₇
1999 CA ₄₈	15.3	0.15	19990211	20.16740	164.40915	321.82136	2.75645	0.1035833	2.3856585	22	1	7 days	0.65	Williams	1999 CA ₄₈
1999 CD ₄₈	14.5	0.15	19990122	268.75656	293.49513	333.16515	17.41739	0.2484474	2.6549548	15	1	21 days	0.58	Williams	1999 CD ₄₈
1999 CE ₄₈	15.8	0.15	19990122	301.62844	141.93901	75.18184	0.49423	0.1227740	2.5297083	18	1	29 days	0.55	Williams	1999 CE ₄₈
1999 CG ₄₈	15.0	0.15	19990211	359.71099	5.36021	146.54926	14.49028	0.1112287	2.5589529	23	1	38 days	0.74	Williams	1999 CG ₄₈
1999 CK ₄₈	15.1	0.15	19990122	4.78045	24.96648	115.92995	3.10066	0.0765431	2.6442188	18	1	28 days	0.67	Williams	1999 CK ₄₈
1999 CL ₄₈	15.9	0.15	19990211	45.80416	44.73044	57.69831	2.12335	0.0369879	2.3328543	12	1	8 days	0.62	Williams	1999 CL ₄₈
1999 CO ₄₈	13.6	0.15	19990122	197.35921	331.59411	344.11638	13.02854	0.1095329	2.7684186	26	2	1990-1999	0.90	M-v Williams	33994 1999 CO ₄₈
1999 CP ₄₈	14.3	0.15	19990211	43.69222	343.57256	101.92133	2.84640	0.2456730	3.2290382	13	1	8 days	0.64	Williams	1999 CP ₄₈

1999 CQ ₄₈	15.2	0.15	19990211	286.61801	231.53425	5.00177	4.62738	0.1084217	2.1528783	19	1	38 days	0.99	Williams	1999 CQ ₄₈
1999 CR ₄₈	15.0	0.15	19990211	317.44207	119.72003	87.85836	3.18604	0.1556254	2.3587064	19	1	38 days	0.67	Williams	1999 CR ₄₈
1999 CU ₄₈	15.4	0.15	19990211	13.60078	53.54522	77.64413	3.32890	0.1686291	2.6035685	13	1	13 days	0.69	Williams	1999 CU ₄₈
1999 CY ₄₈	14.0	0.15	19990211	77.71519	309.53246	112.69426	5.88308	0.0912053	2.3685795	24	1	38 days	0.62	Williams	1999 CY ₄₈
1999 CA ₄₉	15.4	0.15	19990211	170.52902	229.87278	108.13165	5.89165	0.1740678	2.1922950	12	1	13 days	0.73	Williams	1999 CA ₄₉
1999 CM ₄₉	15.8	0.15	19990211	303.80407	129.73733	89.64350	8.75778	0.1434249	2.5688632	16	1	8 days	0.74	Williams	1999 CM ₄₉
1999 CN ₄₉	16.7	0.15	19990211	346.06796	135.95526	29.01728	7.30060	0.1260183	2.3005755	15	1	8 days	0.54	Williams	1999 CN ₄₉
1999 CU ₄₉	13.9	0.15	19990211	208.14267	216.22556	92.21550	14.37759	0.1683133	2.5486582	13	1	8 days	1.14	Williams	1999 CU ₄₉
1999 CX ₄₉	16.4	0.15	19990211	317.09187	119.94868	83.06443	7.28221	0.1366345	2.2956861	16	1	8 days	0.54	Williams	1999 CX ₄₉
1999 CY ₄₉	15.7	0.15	19990211	14.64121	97.73582	25.27914	6.48541	0.2808242	3.0697158	19	1	5 days	0.74	Williams	1999 CY ₄₉
1999 CD ₅₀	14.2	0.15	19990211	353.29453	168.34995	352.51602	12.57366	0.1294593	3.1848265	14	1	13 days	0.75	Williams	1999 CD ₅₀
1999 CD ₅₀	16.0	0.15	19990211	114.11165	15.04337	8.54688	5.84898	0.1621289	2.3254660	13	1	8 days	0.96	Williams	1999 CD ₅₀
1999 CF ₅₀	15.0	0.15	19990211	136.58190	19.16674	354.25267	10.50093	0.0414516	2.4950928	12	1	8 days	0.62	Williams	1999 CF ₅₀
1999 CG ₅₀	15.6	0.15	19990211	299.20540	234.57081	351.38416	7.51359	0.1242339	2.3831930	13	1	8 days	0.42	Williams	1999 CG ₅₀
1999 CJ ₅₀	15.5	0.15	19990211	27.96779	107.38572	348.99316	6.12989	0.3186119	2.2457049	20	1	38 days	0.45	Williams	1999 CJ ₅₀
1999 CL ₅₀	15.0	0.15	19990211	37.03576	324.52187	136.23646	2.86189	0.1656227	2.3931242	22	1	38 days	0.60	Williams	1999 CL ₅₀
1999 CN ₅₀	14.2	0.15	19990211	71.90078	271.53799	149.60915	14.40196	0.1752172	2.5696094	22	1	38 days	0.58	Williams	1999 CN ₅₀
1999 CP ₅₀	14.5	0.15	19990211	246.16610	128.72398	154.25274	5.76760	0.1759454	2.2309034	12	1	6 days	0.44	Williams	1999 CP ₅₀
1999 CT ₅₀	13.9	0.15	19990211	309.83349	302.20498	274.34379	0.08225	0.1241730	3.1624265	22	1	38 days	0.75	Williams	1999 CT ₅₀
1999 CZ ₅₀	14.5	0.15	19990211	236.27376	304.02231	348.46784	5.31605	0.1826556	2.2472575	19	1	38 days	0.91	Williams	1999 CZ ₅₀
1999 CA ₅₁	14.7	0.15	19990211	277.28594	121.17987	132.11476	3.08803	0.1531116	2.2724623	21	1	38 days	0.69	Williams	1999 CA ₅₁
1999 CJ ₅₁	14.4	0.15	19990211	295.67135	215.74024	16.57753	3.19672	0.1310662	2.4238729	19	1	38 days	0.70	Williams	1999 CJ ₅₁
1999 CM ₅₁	13.0	0.15	19990211	98.28184	47.74767	347.15165	14.68348	0.2012894	2.6558931	18	1	38 days	0.40	Williams	1999 CM ₅₁
1999 CN ₅₁	14.5	0.15	19990122	109.92603	263.64384	120.55640	5.95250	0.1431894	2.1884535	55	1	64 days	0.53	Williams	1999 CN ₅₁
1999 CP ₅₁	15.7	0.15	19990211	44.84099	2.33887	87.52973	3.53371	0.1861186	2.3860505	22	1	38 days	0.98	Williams	1999 CP ₅₁
1999 CQ ₅₁	13.8	0.15	19990211	318.72827	215.81445	349.70327	13.52959	0.1284746	2.6921813	23	1	38 days	0.67	Williams	1999 CQ ₅₁
1999 CR ₅₁	13.7	0.15	19990211	15.70854	5.00375	133.81841	11.07552	0.0414209	2.9886267	16	1	8 days	0.62	Williams	1999 CR ₅₁
1999 CT ₅₁	15.1	0.15	19990211	35.46705	72.66121	41.01773	4.08314	0.0389918	2.1866025	22	1	38 days	0.72	Williams	1999 CT ₅₁
1999 CU ₅₁	14.8	0.15	19990211	7.58390	149.98502	352.03352	15.50499	0.1505774	3.1536566	12	1	8 days	0.81	Williams	1999 CU ₅₁
1999 CV ₅₁	15.0	0.15	19990211	21.31122	79.98176	41.55467	4.50341	0.1734027	2.5935014	24	1	38 days	0.74	Williams	1999 CV ₅₁
1999 CW ₅₁	13.3	0.15	19990211	44.96666	96.45647	8.97266	9.10359	0.0435360	3.1061066	23	1	38 days	0.81	Williams	1999 CW ₅₁
1999 CY ₅₁	12.5	0.15	19990211	301.32838	208.68887	10.12946	9.19599	0.0795821	2.8007385	22	1	38 days	0.49	Williams	1999 CY ₅₁
1999 CR ₅₂	14.2	0.15	19990211	247.84011	207.41963	72.28812	12.49635	0.1697159	2.6924833	14	1	8 days	1.71	Williams	1999 CR ₅₂
1999 CF ₅₃	12.6	0.15	19990211	49.71396	326.60401	114.62563	8.63586	0.2279255	3.1593340	13	1	8 days	0.27	Williams	1999 CF ₅₃
1999 CH ₅₃	14.9	0.15	19990303	356.08608	146.64060	17.22081	6.33808	0.1080625	2.2309755	32	1	42 days	0.50	Williams	1999 CH ₅₃
1999 CJ ₅₃	15.5	0.15	19990211	54.32421	24.27327	67.90099	5.43933	0.0788447	2.6971565	11	1	8 days	0.93	Williams	1999 CJ ₅₃
1999 CM ₅₃	14.8	0.15	19990211	276.33446	122.92669	122.39042	8.23862	0.0537069	2.7564781	12	1	8 days	0.77	Williams	1999 CM ₅₃
1999 CN ₅₃	15.2	0.15	19990211	70.18263	313.94328	120.71998	6.96989	0.0856433	2.4041449	13	1	8 days	0.59	Williams	1999 CN ₅₃
1999 CP ₅₃	15.3	0.15	19990211	54.37523	359.16437	82.52238	2.97663	0.1650227	2.2604737	13	1	8 days	0.62	Williams	1999 CP ₅₃
1999 CS ₅₃	15.5	0.15	19990211	39.84248	38.84499	58.52377	2.98396	0.1863638	2.3993310	12	1	8 days	0.55	Williams	1999 CS ₅₃
1999 CB ₅₄	14.3	0.15	19990211	191.99857	274.58695	48.05468	0.91599	0.0400108	2.1717002	20	1	38 days	0.60	Williams	1999 CB ₅₄
1999 CE ₅₄	15.9	0.15	19990211	353.41702	185.21689	338.30196	13.86323	0.1444729	2.7619825	21	1	38 days	0.67	Williams	1999 CE ₅₄
1999 CN ₅₄	13.0	0.15	19990211	117.33416	232.57824	157.16065	11.13434	0.1113508	3.0636899	19	1	38 days	0.70	Williams	1999 CN ₅₄
1999 CQ ₅₄	15.6	0.15	19990211	47.90392	101.40103	353.08445	3.61993	0.1326358	2.4575322	15	1	28 days	0.69	Williams	1999 CQ ₅₄
1999 CR ₅₄	14.3	0.15	19990211	276.88447	141.20315	118.06073	3.21223	0.1810603	2.3767895	17	1	38 days	0.82	Williams	1999 CR ₅₄
1999 CV ₅₄	15.4	0.15	19990211	306.38052	158.42047	64.51795	3.46592	0.1457212	2.4115744	16	1	8 days	0.49	Williams	1999 CV ₅₄
1999 CZ ₅₄	12.7	0.15	19990211	78.06154	325.76164	102.78996	6.82652	0.1037911	3.4283925	20	1	13 days	0.77	Nakano	1999 CZ ₅₄
1999 CD ₅₅	14.9	0.15	19990211	152.48869	267.51123	95.25156	5.97485	0.0194986	2.7126311	14	1	8 days	0.89	Williams	1999 CD ₅₅
1999 CE ₅₅	14.2	0.15	19990122	245.30370	142.18614	133.38354	14.91729	0.0881055	2.5994516	19	1	35 days	0.46	Williams	1999 CE ₅₅
1999 CF ₅₅	14.5	0.15	19990211	284.89859	236.36566	357.83993	13.70957	0.0358637	2.5657946	24	1	38 days	0.63	Williams	1999 CF ₅₅
1999 CH ₅₅	14.4	0.15	19990211	278.71825	192.93137	59.13085	6.16483	0.1179120	3.1309068	15	1	9 days	0.62	Williams	1999 CH ₅₅
1999 CJ ₅₅	15.9	0.15	19990211	15.65910	68.13011	62.38556	4.96434	0.1726594	2.5788926	11	1	8 days	0.64	Williams	1999 CJ ₅₅
1999 CK ₅₅	15.6	0.15	19990211	63.40929	26.78715	61.71287	5.77611	0.0239031	2.4421179	13	1	8 days	0.99	Williams	1999 CK ₅₅

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1999 CJ ₅₆	14.6	0.15	19990211	130.32859	261.61377	113.99200	7.88130	0.1267674	2.2844508	20	1	13 days	0.47	Williams	1999 CJ ₅₆
1999 CN ₅₆	15.6	0.15	19990211	123.93147	336.45575	45.89652	4.65568	0.1155449	2.3187037	11	1	8 days	0.74	Williams	1999 CN ₅₆
1999 CQ ₅₆	15.1	0.15	19990122	3.43244	23.33543	119.48223	6.71907	0.1963292	2.5613898	19	1	65 days	0.57	M-v 4 Williams	1999 CQ ₅₆
1999 CU ₅₆	15.4	0.15	19990211	192.87404	196.08881	131.44203	7.94888	0.1436551	2.2672592	10	1	8 days	1.01	Williams	1999 CU ₅₆
1999 CY ₅₆	14.2	0.15	19990211	63.59973	91.43619	346.10239	8.13519	0.1381907	2.6138321	17	1	12 days	0.56	Williams	1999 CY ₅₆
1999 CD ₅₇	13.7	0.15	19990211	25.68059	113.22734	2.51054	2.09016	0.2311631	3.1031831	16	1	37 days	0.49	Williams	1999 CD ₅₇
1999 CE ₅₇	14.5	0.15	19990211	261.93027	288.64668	342.97098	5.34296	0.1565636	2.2778076	37	1	34 days	0.50	Marsden	1999 CE ₅₇
1999 CF ₅₇	14.3	0.15	19990211	209.35872	328.85298	339.25618	3.22884	0.0196278	2.4615024	15	1	38 days	0.88	Williams	1999 CF ₅₇
1999 CM ₅₇	15.3	0.15	19990211	323.44853	52.23705	149.89327	6.06169	0.1071523	2.6850265	12	1	8 days	0.64	Williams	1999 CM ₅₇
1999 CO ₅₇	14.7	0.15	19990211	55.19782	296.53844	149.44289	11.08159	0.1548695	2.5487633	19	1	28 days	0.71	Williams	1999 CO ₅₇
1999 CQ ₅₇	15.4	0.15	19990211	67.97134	81.18233	0.40408	2.48291	0.0690944	2.3250221	12	1	8 days	0.76	E Williams	1999 CQ ₅₇
1999 CS ₅₇	16.2	0.15	19990211	321.96716	223.42951	346.79864	10.05364	0.1994521	2.3665435	10	1	8 days	0.99	Williams	1999 CS ₅₇
1999 CV ₅₇	15.1	0.15	19990211	102.48488	283.05594	117.14458	5.78020	0.1276811	2.2003573	13	1	8 days	0.50	Williams	1999 CV ₅₇
1999 CO ₅₈	16.3	0.15	19990211	0.14496	48.31253	106.45454	8.57013	0.1244630	2.2864156	12	1	13 days	0.75	Williams	1999 CO ₅₈
1999 CQ ₅₈	14.4	0.15	19990211	48.93184	91.53021	358.04299	18.46578	0.1730162	2.5592307	21	1	38 days	0.47	Williams	1999 CQ ₅₈
1999 CU ₅₈	15.1	0.15	19990211	96.46541	315.85010	96.69921	6.84453	0.0835450	2.3081890	13	1	8 days	0.67	Williams	1999 CU ₅₈
1999 CV ₅₈	15.9	0.15	19990211	312.71793	216.64256	3.92857	14.36632	0.1597077	2.6876587	11	1	8 days	0.66	E Williams	1999 CV ₅₈
1999 CX ₅₈	16.3	0.15	19990211	324.64973	153.22345	48.11529	4.51237	0.1275294	2.3500229	12	1	8 days	0.69	Williams	1999 CX ₅₈
1999 CC ₅₉	15.4	0.15	19990211	123.52176	347.82423	29.86486	4.45707	0.0960786	2.2089177	14	1	13 days	0.56	Williams	1999 CC ₅₉
1999 CX ₅₉	13.3	0.15	19990211	37.09962	255.51389	182.06139	15.50511	0.2109985	3.1036869	13	1	9 days	0.41	Williams	1999 CX ₅₉
1999 CD ₆₀	15.0	0.15	19990211	87.87501	220.35482	163.45434	14.44359	0.1748548	2.5852969	11	1	4 days	0.89	Williams	1999 CD ₆₀
1999 CF ₆₀	14.7	0.15	19990211	63.85760	120.63724	307.53540	1.16365	0.1393488	2.5937691	25	1	49 days	0.27	Williams	1999 CF ₆₀
1999 CJ ₆₀	16.2	0.15	19990122	39.80601	284.39729	161.50532	1.91230	0.1852621	2.6430792	22	1	60 days	0.63	M-v 5 Williams	1999 CJ ₆₀
1999 CL ₆₀	14.5	0.15	19990211	316.78118	237.05245	320.52870	4.79312	0.0831442	3.0943196	15	1	14 days	0.50	Williams	1999 CL ₆₀
1999 CM ₆₀	16.1	0.15	19990211	60.69402	119.89497	321.52177	4.30176	0.0476851	2.4862427	15	1	14 days	0.90	Williams	1999 CM ₆₀
1999 CO ₆₀	14.5	0.15	19990211	53.54527	282.53819	155.89563	4.64628	0.1320975	2.4093534	16	1	11 days	0.62	Williams	1999 CO ₆₀
1999 CP ₆₀	15.6	0.15	19990211	131.21425	91.38245	273.48123	2.34367	0.1128888	2.2805978	12	1	8 days	0.59	Williams	1999 CP ₆₀
1999 CR ₆₀	15.7	0.15	19990122	321.20370	261.21002	285.80751	2.26066	0.1210214	2.3654716	19	1	29 days	0.71	Williams	1999 CR ₆₀
1999 CY ₆₀	14.4	0.15	19990122	9.33109	316.61862	166.09156	4.39609	0.2372153	3.0900897	16	1	25 days	0.36	Williams	1999 CY ₆₀
1999 CB ₆₁	15.5	0.15	19990211	285.71175	344.45125	242.27329	2.36642	0.0924853	2.1743476	19	1	28 days	0.61	Williams	1999 CB ₆₁
1999 CP ₆₁	12.4	0.15	19990211	11.94275	320.60935	163.68759	9.75056	0.1040872	3.3952298	13	1	8 days	0.25	Williams	1999 CP ₆₁
1999 CV ₆₁	14.4	0.15	19990211	132.19630	68.18046	286.06533	9.15814	0.1331992	2.9588880	12	1	4 days	0.80	E Williams	1999 CV ₆₁
1999 CW ₆₁	15.1	0.15	19990211	87.38315	93.74105	291.19452	12.24299	0.2126220	2.5859108	16	1	7 days	0.67	Williams	1999 CW ₆₁
1999 CX ₆₁	13.7	0.15	19990211	222.40866	13.97886	276.46872	11.33554	0.2887861	2.6187463	12	1	4 days	0.70	Williams	1999 CX ₆₁
1999 CZ ₆₁	13.9	0.15	19990122	3.35594	305.88723	180.93141	11.44778	0.0697828	3.1186366	18	1	35 days	0.94	Williams	1999 CZ ₆₁
1999 CH ₆₂	13.6	0.15	19990211	127.49842	160.53311	203.68774	10.34622	0.0632731	3.1366667	12	1	9 days	0.53	Williams	1999 CH ₆₂
1999 CC ₆₃	13.1	0.15	19990211	269.04792	16.88013	226.27747	5.05613	0.1204310	3.1549033	13	1	8 days	0.29	Williams	1999 CC ₆₃
1999 CN ₆₃	13.7	0.15	19990211	76.72788	206.29065	210.54919	11.53909	0.0510899	2.9134790	12	1	9 days	0.64	Williams	1999 CN ₆₃
1999 CQ ₆₃	14.8	0.15	19990211	347.53068	323.41435	190.80820	11.69094	0.0801841	2.9924036	13	1	9 days	0.58	Williams	1999 CQ ₆₃
1999 CU ₆₃	13.6	0.15	19990211	278.80498	301.67183	292.62550	13.17508	0.1288849	3.1140012	12	1	4 days	0.67	E Williams	1999 CU ₆₃
1999 CZ ₆₃	15.6	0.15	19990211	75.66431	167.18200	236.20054	4.56291	0.1775587	2.5605378	13	1	8 days	0.56	Williams	1999 CZ ₆₃
1999 CD ₆₄	13.8	0.15	19990211	98.72489	89.21173	300.06309	13.19899	0.1149844	2.6228312	13	1	8 days	0.38	Williams	1999 CD ₆₄
1999 CF ₆₄	13.2	0.15	19990211	219.34746	121.70463	161.27094	16.07321	0.0373174	3.0511306	11	1	8 days	0.46	Williams	1999 CF ₆₄
1999 CL ₆₄	14.1	0.15	19990211	44.92219	267.95000	177.99362	11.70150	0.1061241	2.9927865	13	1	8 days	0.45	Williams	1999 CL ₆₄
1999 CM ₆₄	14.3	0.15	19990211	7.91350	249.40744	241.73384	6.73245	0.0925493	2.7461762	13	1	8 days	0.30	Williams	1999 CM ₆₄
1999 CR ₆₄	13.0	0.15	19990211	163.57750	134.23376	197.98735	12.86489	0.1741461	2.5874023	13	1	9 days	0.31	Williams	1999 CR ₆₄
1999 CS ₆₄	12.5	0.15	19990211	20.44881	195.90874	282.08530	15.97502	0.0860287	3.1521093	13	1	9 days	0.46	Williams	1999 CS ₆₄
1999 CG ₆₅	14.2	0.15	19990211	18.52095	290.59896	189.55955	9.73352	0.0592797	2.9885361	13	1	8 days	0.38	Williams	1999 CG ₆₅
1999 CH ₆₅	13.8	0.15	19990211	312.23791	322.80348	234.87244	6.44901	0.0898961	2.7619414	16	1	8 days	0.74	Williams	1999 CH ₆₅
1999 CK ₆₅	15.0	0.15	19990211	115.01649	194.37765	171.66767	11.83371	0.2132068	2.4166665	13	1	8 days	0.55	Williams	1999 CK ₆₅
1999 CQ ₆₅	16.4	0.15	19990211	44.37072	237.74495	194.52545	5.03866	0.2478761	2.5947507	16	1	8 days	0.54	Williams	1999 CQ ₆₅
1999 CL ₆₆	16.5	0.15	19990211	296.30043	34.05548	183.20558	4.34731	0.1131950	2.2803279	16	1	8 days	0.57	Williams	1999 CL ₆₆
1999 CM ₆₆	15.5	0.15	19990211	328.38375	27.44371	157.28589	12.48587	0.1646956	2.6560562	14	1	35 days	0.63	Williams	1999 CM ₆₆

1999 CO ₆₆	14.0	0.15	19990211	324.26686	252.51351	291.75389	8.22466	0.0844285	3.0601241	13	1	8 days	0.53	Williams	1999 CO ₆₆
1999 CR ₆₆	14.5	0.15	19990211	21.97359	303.55197	171.56353	10.75538	0.0942977	3.0490027	15	1	13 days	0.57	Williams	1999 CR ₆₆
1999 CS ₆₆	14.7	0.15	19990211	9.30454	242.34968	248.56275	5.39584	0.0813283	2.3731591	13	1	8 days	0.45	Williams	1999 CS ₆₆
1999 CU ₆₆	14.8	0.15	19990211	0.71841	217.59964	284.55694	9.52502	0.0802988	3.0592622	13	1	10 days	0.78	Marsden	1999 CU ₆₆
1999 CY ₆₆	13.1	0.15	19990211	112.28614	99.58248	283.73182	14.29094	0.0731524	3.2451201	13	1	9 days	0.56	Williams	1999 CY ₆₆
1999 CB ₆₇	12.4	0.15	19990211	149.98244	85.86244	257.82405	11.23720	0.2128612	2.5960929	13	1	11 days	0.43	Williams	1999 CB ₆₇
1999 CC ₆₇	13.8	0.15	19990211	354.70591	237.15789	272.55448	10.92073	0.0845868	2.5657813	13	1	11 days	0.42	Williams	1999 CC ₆₇
1999 CD ₆₇	14.6	0.15	19990211	342.65848	327.56168	197.41556	11.99636	0.1240210	3.1213040	13	1	11 days	0.42	Williams	1999 CD ₆₇
1999 CE ₆₇	12.9	0.15	19990211	49.56820	164.69431	275.91546	12.69962	0.1432612	2.5944229	11	1	11 days	0.44	Williams	1999 CE ₆₇
1999 CS ₆₇	14.1	0.15	19990211	20.70683	298.50550	181.73798	10.35518	0.0370682	3.0111331	13	1	8 days	0.39	Williams	1999 CS ₆₇
1999 CE ₆₈	15.2	0.15	19990211	0.04271	288.58881	214.07776	5.59680	0.0605907	2.3825557	12	1	8 days	0.63	Williams	1999 CE ₆₈
1999 CH ₆₈	13.6	0.15	19990211	132.93190	49.11888	318.63599	7.55781	0.0334893	3.1201982	13	1	9 days	0.66	E Williams	1999 CH ₆₈
1999 CK ₆₈	14.2	0.15	19990211	34.46681	140.42132	321.56915	11.42180	0.1025542	2.5692729	16	1	9 days	0.50	Williams	1999 CK ₆₈
1999 CQ ₆₈	15.8	0.15	19990211	322.65074	303.55912	251.32572	2.32702	0.1735278	2.4292989	13	1	8 days	0.42	Williams	1999 CQ ₆₈
1999 CZ ₆₈	16.3	0.15	19990211	292.66287	33.67935	186.15950	5.95641	0.0906083	2.2812701	11	1	8 days	0.71	Williams	1999 CZ ₆₈
1999 CP ₆₉	14.4	0.15	19990211	300.20205	357.17534	214.05989	6.19231	0.0742649	2.3522408	13	1	9 days	0.31	Williams	1999 CP ₆₉
1999 CD ₇₀	15.6	0.15	19990211	0.84933	263.72648	240.67337	7.37999	0.1613481	2.7548128	12	1	11 days	0.71	Williams	1999 CD ₇₀
1999 CG ₇₀	13.8	0.15	19990211	269.51032	34.34505	220.22533	7.07770	0.1641171	2.7114287	13	1	9 days	0.65	Williams	1999 CG ₇₀
1999 CH ₇₀	14.7	0.15	19990211	34.29406	208.07662	257.38507	6.55270	0.0779665	2.6289298	13	1	9 days	0.61	Williams	1999 CH ₇₀
1999 CR ₇₀	13.8	0.15	19990303	39.85048	288.06246	165.69302	13.01498	0.1861870	2.7058499	19	1	40 days	0.32	Williams	1999 CR ₇₀
1999 CU ₇₀	13.2	0.15	19990211	217.33396	121.85902	171.11387	9.84756	0.0805593	3.0533351	13	1	8 days	0.53	Williams	1999 CU ₇₀
1999 CW ₇₀	15.4	0.15	19990211	14.27309	326.39743	158.14159	13.30461	0.1342197	2.6612874	13	1	8 days	0.57	Williams	1999 CW ₇₀
1999 CE ₇₁	15.2	0.15	19990211	24.56696	175.92992	291.01661	4.92497	0.2165516	2.5388597	16	1	8 days	0.65	Williams	1999 CE ₇₁
1999 CJ ₇₁	14.7	0.15	19990211	144.27983	31.28896	318.59560	7.30194	0.1816040	2.2963282	15	1	4 days	0.78	E Williams	1999 CJ ₇₁
1999 CK ₇₁	13.9	0.15	19990211	226.86759	130.27185	163.48350	6.67136	0.2058512	3.0443512	19	1	32 days	0.88	Williams	1999 CK ₇₁
1999 CL ₇₁	14.0	0.15	19990211	323.87309	262.30202	287.61851	3.32226	0.1081228	2.7508881	16	1	8 days	0.35	Williams	1999 CL ₇₁
1999 CM ₇₁	15.2	0.15	19990211	312.73674	38.17889	159.42621	9.47952	0.0537647	2.7943566	14	1	8 days	0.78	E Williams	1999 CM ₇₁
1999 CW ₇₁	15.8	0.15	19990211	318.37115	314.85742	247.27068	4.79095	0.1687611	2.3578669	12	1	9 days	0.80	Williams	1999 CW ₇₁
1999 CE ₇₂	14.3	0.15	19990211	17.08226	239.01158	244.02489	6.54870	0.1506508	3.1763147	13	1	9 days	0.76	Williams	1999 CE ₇₂
1999 CH ₇₂	15.5	0.15	19990303	24.58177	247.75318	228.67372	5.65809	0.1900956	2.5393590	16	1	38 days	0.62	Williams	1999 CH ₇₂
1999 CJ ₇₂	14.9	0.15	19990211	358.86957	281.31472	226.59198	6.70191	0.2236462	3.1556572	12	1	9 days	0.57	Williams	1999 CJ ₇₂
1999 CP ₇₂	14.9	0.15	19990211	218.94675	101.57397	197.57668	12.04866	0.1770596	2.6468852	12	1	11 days	0.62	Williams	1999 CP ₇₂
1999 CY ₇₂	13.2	0.15	19990211	281.63140	312.15190	280.22014	10.99314	0.0521086	2.5823689	13	1	11 days	0.29	Williams	1999 CY ₇₂
1999 CD ₇₃	14.8	0.15	19990211	107.03361	85.11961	300.41949	14.25014	0.1583901	2.6524672	13	1	9 days	0.75	Williams	1999 CD ₇₃
1999 CF ₇₃	15.0	0.15	19990211	324.49687	339.17104	207.20867	5.75504	0.0578704	2.3900381	12	1	9 days	0.56	Williams	1999 CF ₇₃
1999 CH ₇₃	14.7	0.15	19990211	6.73340	255.66866	243.20975	4.52627	0.0370512	2.2326227	13	1	9 days	0.62	Williams	1999 CH ₇₃
1999 CW ₇₃	16.5	0.15	19990211	39.58284	256.90653	195.68427	3.21724	0.1588148	2.2096290	12	1	8 days	0.54	Williams	1999 CW ₇₃
1999 CZ ₇₃	14.8	0.15	19990303	263.27226	103.23548	155.60036	15.25951	0.0956626	2.5840999	22	1	40 days	0.66	Williams	1999 CZ ₇₃
1999 CD ₇₄	16.5	0.15	19990211	311.67433	44.76543	160.58344	6.26451	0.1107850	2.5528736	14	1	28 days	0.86	Williams	1999 CD ₇₄
1999 CF ₇₄	16.5	0.15	19990211	33.74463	296.92423	168.49421	3.03500	0.1023527	2.3510698	20	1	36 days	0.69	Williams	1999 CF ₇₄
1999 CP ₇₄	15.0	0.15	19990211	209.38659	119.39915	182.30494	6.48354	0.0544265	2.7772112	11	1	6 days	0.89	Doppler	1999 CP ₇₄
1999 CT ₇₄	15.7	0.15	19990211	33.27413	198.13160	272.00292	5.70500	0.0613594	2.3916241	12	1	9 days	0.45	Williams	1999 CT ₇₄
1999 CY ₇₄	13.7	0.15	19990211	65.58917	169.84412	266.94441	9.82660	0.0665552	3.0107614	15	1	11 days	0.46	Williams	1999 CY ₇₄
1999 CA ₇₅	15.1	0.15	19990211	316.78220	6.07017	191.31228	12.92705	0.0712441	2.6726810	12	1	11 days	0.54	Williams	1999 CA ₇₅
1999 CB ₇₅	12.4	0.15	19990211	56.08187	272.67963	176.75263	21.71143	0.0319498	3.1702027	13	1	11 days	0.62	Williams	1999 CB ₇₅
1999 CE ₇₅	14.7	0.15	19990211	342.80428	326.22035	209.69061	11.28276	0.2172071	2.9399579	13	1	11 days	0.65	Williams	1999 CE ₇₅
1999 CQ ₇₅	13.8	0.15	19990211	272.65876	8.04844	246.08648	8.31239	0.1439285	2.7837030	13	1	11 days	0.57	Williams	1999 CQ ₇₅
1999 CC ₇₆	15.1	0.15	19990122	233.96950	318.21887	321.07636	14.01945	0.0926024	2.6179428	22	1	35 days	0.52	Williams	1999 CC ₇₆
1999 CG ₇₆	16.1	0.15	19990303	45.86505	192.11360	260.26154	1.48086	0.1724044	2.3888584	21	1	38 days	0.73	Williams	1999 CG ₇₆
1999 CK ₇₆	15.8	0.15	19990211	306.79108	46.22872	157.38387	4.25386	0.0278648	2.3241478	22	1	11 days	1.18	E Williams	1999 CK ₇₆
1999 CP ₇₆	13.9	0.15	19990211	247.82354	35.64128	248.34770	2.59797	0.2213363	2.8083226	13	1	6 days	0.64	Doppler	1999 CP ₇₆
1999 CR ₇₆	15.1	0.15	19990211	276.92605	54.98155	181.36773	5.05510	0.0306236	2.6303363	13	1	6 days	0.84	Doppler	1999 CR ₇₆
1999 CS ₇₆	15.4	0.15	19990211	142.87784	158.68992	204.20409	3.19962	0.0684357	2.5454517	12	1	6 days	0.86	Doppler	1999 CS ₇₆

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1999 CW ₇₆	15.1	0.15	19990211	309.45474	270.61737	294.12485	6.06785	0.0560292	2.2293529	13	1	9 days	0.39	Williams	1999 CW ₇₆
1999 CY ₇₆	16.4	0.15	19990211	344.20465	332.45208	195.58507	4.24177	0.1055928	2.2879495	13	1	4 days	0.51	Doppler	1999 CY ₇₆
1999 CJ ₇₇	14.3	0.15	19990211	310.57592	270.30559	293.83621	9.54275	0.0377903	3.0505980	13	1	9 days	0.62	Williams	1999 CJ ₇₇
1999 CW ₇₇	13.6	0.15	19990211	307.07085	7.47751	204.94159	8.43016	0.0857193	2.3522876	13	1	4 days	0.37	Williams	1999 CW ₇₇
1999 CY ₇₇	14.6	0.15	19990211	304.56096	295.67369	291.02169	11.47262	0.1708275	2.6958960	13	1	4 days	0.39	Williams	1999 CY ₇₇
1999 CZ ₇₇	14.7	0.15	19990211	52.41636	181.94115	253.90893	7.15971	0.2203402	2.8043248	13	1	4 days	0.50	Williams	1999 CZ ₇₇
1999 CC ₇₈	13.5	0.15	19990211	194.92840	146.26093	175.65487	14.73866	0.2217992	2.5480414	13	1	9 days	0.54	Williams	1999 CC ₇₈
1999 CD ₇₈	14.7	0.15	19990211	69.31333	162.23022	262.71035	4.89686	0.1403022	2.2132723	13	1	9 days	0.26	Williams	1999 CD ₇₈
1999 CF ₇₈	16.0	0.15	19990211	342.34030	240.06644	299.72305	8.63787	0.2306574	3.0979538	13	1	9 days	0.75	Williams	1999 CF ₇₈
1999 CJ ₇₈	12.8	0.15	19990211	79.36656	214.65683	192.20226	7.33258	0.2213244	3.2729538	13	1	9 days	0.48	Williams	1999 CJ ₇₈
1999 CS ₇₈	13.9	0.15	19990211	268.32568	84.43175	173.42696	7.13914	0.1344613	3.1068664	13	1	6 days	0.91	Doppler	1999 CS ₇₈
1999 CD ₇₉	14.0	0.15	19990211	173.89144	178.47852	158.95561	7.24941	0.0575875	2.8499583	20	1	36 days	0.74	Williams	1999 CD ₇₉
1999 CE ₇₉	14.9	0.15	19990211	318.84433	22.87877	190.04796	1.28587	0.2178201	3.1321893	24	1	36 days	0.81	Williams	1999 CE ₇₉
1999 CG ₇₉	14.5	0.15	19990211	68.30575	257.80679	159.11100	8.26986	0.2342186	2.8142261	21	1	5 days	0.86	E Williams	1999 CG ₇₉
1999 CH ₇₉	15.1	0.15	19990211	45.79007	218.38692	227.51754	1.87408	0.1969343	2.6789918	16	1	6 days	0.74	Doppler	1999 CH ₇₉
1999 CJ ₇₉	16.0	0.15	19990211	329.10059	356.23460	194.58073	2.30254	0.1400363	2.4004601	20	1	36 days	0.85	Williams	1999 CJ ₇₉
1999 CN ₇₉	14.6	0.15	19990211	221.31682	137.13531	166.99474	7.42563	0.2138568	2.3032178	15	1	7 days	1.04	E Williams	1999 CN ₇₉
1999 CP ₇₉	13.2	0.15	19990211	273.09755	87.24752	167.01711	12.74266	0.1370355	2.6718542	20	1	36 days	0.59	Williams	1999 CP ₇₉
1999 CT ₇₉	15.3	0.15	19990211	21.59629	234.60989	249.47620	3.98042	0.0991250	2.2792848	13	1	9 days	0.28	Williams	1999 CT ₇₉
1999 CA ₈₀	16.3	0.15	19990211	296.51648	307.39078	299.96267	9.36660	0.2739888	2.4446557	12	1	4 days	0.59	Williams	1999 CA ₈₀
1999 CB ₈₀	14.9	0.15	19990211	211.74313	133.61859	176.98267	15.82985	0.2026129	2.5692907	13	1	4 days	0.67	E Williams	1999 CB ₈₀
1999 CC ₈₀	12.6	0.15	19990211	281.71829	340.60692	282.20270	8.66821	0.2661606	3.1178072	13	1	4 days	0.41	Williams	1999 CC ₈₀
1999 CD ₈₀	14.0	0.15	19990211	76.05868	238.86956	180.12228	13.50923	0.1480852	2.6252943	16	1	36 days	0.69	Williams	1999 CD ₈₀
1999 CF ₈₀	13.5	0.15	19990211	64.53771	143.47276	290.67535	9.15404	0.1363887	2.8981842	13	1	4 days	0.39	Williams	1999 CF ₈₀
1999 CH ₈₀	15.3	0.15	19990211	258.67595	66.61461	211.97237	7.65454	0.2371624	2.2711674	13	1	4 days	0.57	Williams	1999 CH ₈₀
1999 CO ₈₀	12.9	0.15	19990211	150.99826	58.88821	296.65894	13.41519	0.2166628	3.0309035	13	1	4 days	0.57	Williams	1999 CO ₈₀
1999 CV ₈₀	14.8	0.15	19990211	19.98363	293.96502	199.10396	9.96286	0.0137934	3.1731632	12	1	4 days	0.83	E Williams	1999 CV ₈₀
1999 CX ₈₀	14.6	0.15	19990211	356.95533	263.25287	251.72797	4.66224	0.0953774	2.2245978	22	1	36 days	0.59	Williams	1999 CX ₈₀
1999 CA ₈₁	14.5	0.15	19990211	7.23056	333.20339	170.14376	15.63605	0.1111334	2.6004791	23	1	36 days	0.87	Williams	1999 CA ₈₁
1999 CF ₈₁	14.3	0.15	19990211	235.09092	80.84755	221.99338	7.76621	0.2528451	2.4340298	12	1	4 days	0.87	E Williams	1999 CF ₈₁
1999 CG ₈₁	14.7	0.15	19990211	358.99600	217.38995	298.18900	5.79878	0.0610859	2.3336578	22	1	36 days	0.77	Williams	1999 CG ₈₁
1999 CK ₈₁	14.7	0.15	19990211	127.12300	169.21707	210.57771	6.22237	0.1372450	2.3866664	12	1	4 days	0.98	E Williams	1999 CK ₈₁
1999 CM ₈₁	13.9	0.15	19990211	62.17108	245.51382	187.86071	13.00327	0.2065302	3.0610808	21	1	36 days	0.81	Williams	1999 CM ₈₁
1999 CV ₈₁	14.6	0.15	19990211	302.72791	254.62108	330.66145	2.92919	0.1177074	2.1896803	21	1	36 days	0.64	Williams	1999 CV ₈₁
1999 CX ₈₁	14.6	0.15	19990211	19.28227	191.36543	301.90433	5.06302	0.0995702	2.2767284	21	1	36 days	0.48	Williams	1999 CX ₈₁
1999 CA ₈₂	14.4	0.15	19990303	265.83908	309.26353	334.17363	8.36685	0.2211987	2.3290619	15	1	40 days	0.42	Williams	1999 CA ₈₂
1999 CG ₈₂	16.4	0.15	19990211	209.01413	180.73066	104.76262	3.02702	0.0515635	2.2687666	18	1	22 days	0.99	Williams	1999 CG ₈₂
1999 CC ₈₄	15.3	0.15	19990211	26.15238	0.68855	84.74572	15.53132	0.2390560	2.6553817	13	1	8 days	0.60	Williams	1999 CC ₈₄
1999 CP ₈₄	13.7	0.15	19990102	187.26351	297.06954	353.64985	14.72969	0.1309439	2.6038069	16	1	58 days	0.54	Williams	1999 CP ₈₄
1999 CV ₈₄	15.2	0.15	19990122	334.58568	82.11228	71.96942	9.94898	0.1019793	2.7488076	16	1	27 days	0.60	Williams	1999 CV ₈₄
1999 CX ₈₄	14.2	0.15	19990122	296.58006	120.22111	86.17575	9.55387	0.1788422	2.4253925	16	1	27 days	0.41	Williams	1999 CX ₈₄
1999 CX ₈₅	14.3	0.15	19990211	158.35705	10.66816	314.71503	8.22548	0.1793203	2.2768359	16	1	39 days	0.91	Williams	1999 CX ₈₅
1999 CD ₈₆	14.7	0.15	19990211	200.56993	160.67623	131.51309	8.48464	0.0459815	2.7621353	11	1	3 days	0.88	E Williams	1999 CD ₈₆
1999 CN ₈₇	16.5	0.15	19990122	339.02730	55.53514	105.20182	2.26254	0.2223044	2.2546732	13	1	25 days	0.65	Williams	1999 CN ₈₇
1999 CU ₈₇	16.2	0.15	19990211	319.85463	218.47184	335.43850	5.21878	0.2014109	2.3391479	15	1	14 days	0.79	Williams	1999 CU ₈₇
1999 CK ₈₈	14.9	0.15	19990211	33.79456	4.54403	87.32546	13.35826	0.1059172	2.7213202	13	1	8 days	0.75	Williams	1999 CK ₈₈
1999 CC ₈₉	15.6	0.15	19990122	38.57501	318.22931	117.12920	3.09826	0.1983778	2.4301608	24	1	124 days	0.64	M-v 5 Williams	1999 CC ₈₉
1999 CG ₈₉	14.9	0.15	19990211	90.63595	46.31008	341.97951	2.09871	0.1615931	2.4176160	16	1	14 days	0.62	Williams	1999 CG ₈₉
1999 CH ₉₀	14.6	0.15	19990211	120.95295	25.87690	328.98311	2.45562	0.2879139	2.4153197	15	1	6 days	0.62	E Williams	1999 CH ₉₀
1999 CS ₉₀	15.6	0.15	19990211	287.25343	339.85755	226.90948	0.41574	0.0300849	2.6445382	11	1	2 days	1.03	E Williams	1999 CS ₉₀
1999 CT ₉₀	15.1	0.15	19990211	77.86500	251.09765	132.69714	14.69499	0.2606824	2.5703144	10	1	3 days	0.90	E Williams	1999 CT ₉₀
1999 CM ₉₁	15.1	0.15	19990211	357.19874	3.50782	141.09301	13.74998	0.1074215	2.6153463	21	1	6 days	0.95	Williams	1999 CM ₉₁
1999 CS ₉₁	14.2	0.15	19990211	121.96815	31.13955	336.83010	4.21962	0.1418273	3.2074921	10	1	13 days	0.74	Williams	1999 CS ₉₁

1999 CT ₉₁	15.6	0.15	19990211	93.48962	69.30790	331.79526	6.08880	0.0697624	2.3810023	12	1	13 days	0.83	Williams	1999 CT ₉₁
1999 CV ₉₁	17.0	0.15	19990211	38.31193	311.44949	138.65748	2.54942	0.1621240	2.3085203	10	1	13 days	0.92	E Williams	1999 CV ₉₁
1999 CY ₉₁	18.2	0.15	19990122	2.51923	346.20709	143.29972	1.58734	0.2067501	2.2089992	10	1	6 days	0.91	E Williams	1999 CY ₉₁
1999 CF ₉₂	14.2	0.15	19990211	265.52264	250.84062	352.18574	10.50506	0.0897321	2.7522962	23	1	3 days	1.06	E Williams	1999 CF ₉₂
1999 CN ₉₂	14.1	0.15	19990211	19.75225	49.89552	64.26822	10.68787	0.1137635	2.9888176	12	1	12 days	0.54	Williams	1999 CN ₉₂
1999 CO ₉₂	15.1	0.15	19990211	17.67757	118.33130	359.25989	14.38054	0.0791068	3.0036392	11	1	10 days	0.59	Williams	1999 CO ₉₂
1999 CP ₉₂	14.7	0.15	19990211	303.59812	208.69852	0.18351	13.94044	0.1304216	2.6798992	15	1	12 days	0.44	Williams	1999 CP ₉₂
1999 CT ₉₂	14.9	0.15	19990211	246.90069	280.41429	341.09333	14.33345	0.0781862	2.6052333	18	1	14 days	0.60	Williams	1999 CT ₉₂
1999 CV ₉₂	14.5	0.15	19990211	113.20551	252.83611	111.31773	9.69549	0.2638536	2.4373543	10	1	3 days	0.72	E Williams	1999 CV ₉₂
1999 CX ₉₂	14.1	0.15	19990211	189.33435	335.17494	338.41895	14.70602	0.1156205	2.5947182	15	1	14 days	0.77	Williams	1999 CX ₉₂
1999 CL ₉₃	15.6	0.15	19990122	290.30846	79.94495	137.98576	3.59357	0.0807964	2.6522832	9	1	6 days	1.02	E Williams	1999 CL ₉₃
1999 CN ₉₃	15.4	0.15	19990122	80.33998	260.87726	139.95054	13.94573	0.1667957	2.7088697	11	1	6 days	0.91	Williams	1999 CN ₉₃
1999 CO ₉₃	15.7	0.15	19990122	249.32193	107.01841	148.01452	1.63607	0.0529428	2.5208011	11	1	5 days	0.61	E Williams	1999 CO ₉₃
1999 CP ₉₃	16.3	0.15	19990122	35.84620	295.88673	148.01432	4.32724	0.2018003	2.4163040	18	1	5 days	0.64	Williams	1999 CP ₉₃
1999 CQ ₉₃	14.7	0.15	19990122	281.50728	267.61712	320.63377	0.85927	0.0831631	3.1471830	14	1	5 days	0.43	E Williams	1999 CQ ₉₃
1999 CR ₉₃	15.5	0.15	19990122	21.63378	344.83772	128.99326	2.63307	0.0899049	2.6674755	13	1	6 days	0.50	Williams	1999 CR ₉₃
1999 CD ₉₄	14.9	0.15	19990211	303.63193	159.06319	52.51469	5.90425	0.1338972	2.8092914	15	1	10 days	0.65	Williams	1999 CD ₉₄
1999 CG ₉₄	13.3	0.15	19990211	103.91928	270.59880	106.60599	14.92514	0.1983002	2.7944876	13	1	10 days	0.38	Williams	1999 CG ₉₄
1999 CJ ₉₄	13.1	0.15	19990211	81.38310	307.19377	83.88921	11.25298	0.2572288	3.2169017	17	1	3 days	0.92	E Williams	1999 CJ ₉₄
1999 CX ₉₄	14.9	0.15	19990211	4.81825	130.97328	6.24031	6.64116	0.0646842	2.4336933	15	1	14 days	0.46	Williams	1999 CX ₉₄
1999 CL ₉₅	14.4	0.15	19990122	289.73464	95.73357	142.75497	22.45074	0.2236450	3.0638083	11	1	6 days	0.46	Williams	1999 CL ₉₅
1999 CM ₉₅	15.5	0.15	19990211	344.87765	27.22834	136.96405	4.78548	0.1105467	2.6634861	15	1	3 days	0.68	E Williams	1999 CM ₉₅
1999 CN ₉₅	16.3	0.15	19990122	15.31305	338.13972	139.74379	1.48457	0.1929758	3.1816866	14	1	6 days	0.89	E Williams	1999 CN ₉₅
1999 CP ₉₅	14.2	0.15	19990211	67.40945	275.97588	147.92746	9.54606	0.1373740	3.0563343	12	1	3 days	0.76	E Williams	1999 CP ₉₅
1999 CU ₉₅	16.1	0.15	19990211	25.74324	130.55259	341.61638	11.68484	0.1387545	2.6560163	16	1	13 days	0.58	Williams	1999 CU ₉₅
1999 CC ₉₆	15.7	0.15	19990211	67.81763	349.52002	63.80283	6.48129	0.1917479	2.4059985	11	1	10 days	0.47	Williams	1999 CC ₉₆
1999 CY ₉₆	14.7	0.15	19990211	151.11549	231.40071	121.51882	5.20556	0.0986352	2.7279023	12	1	13 days	0.58	Williams	1999 CY ₉₆
1999 CB ₉₇	15.9	0.15	19990211	358.57526	358.94901	151.20031	5.63815	0.1130806	2.6038351	25	1	38 days	1.10	Williams	1999 CB ₉₇
1999 CC ₉₇	16.2	0.15	19990122	26.27915	309.82954	145.07835	11.51145	0.2915174	3.1562251	14	1	34 days	0.35	Williams	1999 CC ₉₇
1999 CG ₉₇	15.4	0.15	19990211	14.89159	2.74312	128.55516	9.10784	0.0897831	2.7469945	14	1	13 days	0.85	Williams	1999 CG ₉₇
1999 CU ₉₇	14.5	0.15	19990211	36.51550	6.91353	94.39887	11.94713	0.0832161	2.5710686	11	1	12 days	0.44	Williams	1999 CU ₉₇
1999 CB ₉₈	15.0	0.15	19990211	278.05833	271.57534	337.66979	12.01905	0.1550189	2.5362553	17	1	38 days	0.78	Williams	1999 CB ₉₈
1999 CC ₉₈	16.4	0.15	19990211	11.44450	127.99776	1.36408	2.01650	0.2360387	2.7122130	24	1	38 days	0.79	Williams	1999 CC ₉₈
1999 CG ₉₈	15.9	0.15	19990211	15.45082	62.47823	65.04277	0.96345	0.1688455	2.6956501	20	1	38 days	0.64	Williams	1999 CG ₉₈
1999 CH ₉₈	15.3	0.15	19990211	23.79977	51.95323	71.72664	1.49944	0.0563017	2.7887037	11	1	13 days	0.73	Williams	1999 CH ₉₈
1999 CK ₉₈	17.4	0.15	19990211	355.92585	158.95479	355.40801	3.86758	0.1385056	2.4229188	10	1	38 days	2.40	Williams	1999 CK ₉₈
1999 CM ₉₈	16.3	0.15	19990211	44.90919	117.79385	323.80787	4.44458	0.2441291	2.5041444	21	1	7 days	0.76	Williams	1999 CM ₉₈
1999 CO ₉₈	15.6	0.15	19990211	318.88513	219.14173	347.05897	4.93729	0.1619048	2.4309188	19	1	13 days	0.59	Williams	1999 CO ₉₈
1999 CP ₉₈	15.6	0.15	19990122	44.02473	304.58800	139.10924	13.95074	0.1926715	2.6062585	15	1	29 days	0.64	Williams	1999 CP ₉₈
1999 CC ₉₉	15.6	0.15	19990211	249.61773	143.94049	129.32206	9.93058	0.0920560	2.5622745	11	1	8 days	0.56	Williams	1999 CC ₉₉
1999 CD ₉₉	16.2	0.15	19990211	341.74164	42.21207	139.09823	13.94727	0.2174503	2.7207465	11	1	8 days	0.73	Williams	1999 CD ₉₉
1999 CM ₉₉	15.4	0.15	19990211	311.31474	230.47858	336.39730	6.17692	0.0601309	2.3228538	16	1	38 days	1.01	Williams	1999 CM ₉₉
1999 CO ₉₉	13.4	0.15	19990211	299.60286	251.15251	339.19889	12.86978	0.1532031	2.7016125	23	1	38 days	0.38	Williams	1999 CO ₉₉
1999 CS ₉₉	14.0	0.15	19990211	207.37442	183.10775	130.65372	11.39068	0.1111544	3.0131083	11	1	8 days	0.78	Williams	1999 CS ₉₉
1999 CE ₁₀₀	16.4	0.15	19990211	24.65167	335.42542	140.77395	13.17153	0.2028742	2.5502356	12	1	8 days	0.69	Williams	1999 CE ₁₀₀
1999 CH ₁₀₀	15.4	0.15	19990211	85.34441	68.99157	345.94344	4.96809	0.1211710	2.2385251	20	1	38 days	0.61	Williams	1999 CH ₁₀₀
1999 CJ ₁₀₀	15.5	0.15	19990211	51.18468	113.90094	335.83690	12.32075	0.1395587	2.6685776	22	1	38 days	0.75	Williams	1999 CJ ₁₀₀
1999 CM ₁₀₀	14.6	0.15	19990211	43.09035	359.44088	93.45932	2.50161	0.2202973	3.2640812	11	1	8 days	0.54	Williams	1999 CM ₁₀₀
1999 CP ₁₀₀	15.5	0.15	19990211	301.39847	217.90229	13.92479	6.61624	0.1744375	2.4180315	16	1	38 days	0.62	Williams	1999 CP ₁₀₀
1999 CQ ₁₀₀	14.4	0.15	19990211	268.46334	145.22393	115.14159	10.54880	0.1168222	3.1888689	13	1	8 days	0.76	Williams	1999 CQ ₁₀₀
1999 CA ₁₀₁	16.3	0.15	19990211	354.06726	161.76556	359.65178	13.49623	0.1856132	2.6335229	16	1	8 days	0.72	Williams	1999 CA ₁₀₁
1999 CB ₁₀₁	16.1	0.15	19990211	278.52161	191.38039	52.00178	5.61520	0.0604508	2.3036390	14	1	9 days	0.70	Williams	1999 CB ₁₀₁
1999 CC ₁₀₁	16.0	0.15	19990211	298.51510	230.77869	355.01349	16.97702	0.0827478	2.5738189	13	1	8 days	0.93	E Williams	1999 CC ₁₀₁

1999 CE ₁₀₁	15.1	0.15	19990211	191.27625	338.53032	348.53607	19.89933	0.1053257	2.2560731	13	1	8 days	0.89	E	Williams	1999 CE ₁₀₁
1999 CH ₁₀₁	14.4	0.15	19990211	72.85472	281.87773	153.47388	10.59487	0.1030528	3.0538266	17	1	25 days	0.62		Williams	1999 CH ₁₀₁
1999 CJ ₁₀₁	14.9	0.15	19990211	5.33728	95.64149	56.06591	2.03675	0.1318066	3.1236324	13	1	25 days	1.00		Marsden	1999 CJ ₁₀₁
1999 CL ₁₀₁	13.7	0.15	19990211	234.36475	272.08783	14.95085	7.00477	0.0406837	2.4833201	18	1	38 days	0.62		Williams	1999 CL ₁₀₁
1999 CN ₁₀₁	15.5	0.15	19990211	109.41610	287.38336	112.91643	9.57382	0.0699511	2.6034252	12	1	8 days	0.86		Williams	1999 CN ₁₀₁
1999 CW ₁₀₁	15.6	0.15	19990211	242.82832	207.13991	88.37577	5.51576	0.2241055	2.2696939	10	1	8 days	0.70		Williams	1999 CW ₁₀₁
1999 CX ₁₀₁	14.5	0.15	19990211	304.17692	204.61408	30.81457	5.76411	0.2091280	2.4575124	13	1	8 days	0.40		Williams	1999 CX ₁₀₁
1999 CM ₁₀₂	15.3	0.15	19990211	359.48324	192.02420	298.25042	3.55917	0.1294688	2.6589787	13	1	5 days	0.63	E	Williams	1999 CM ₁₀₂
1999 CT ₁₀₂	14.4	0.15	19990211	138.59410	32.23042	305.58958	15.54535	0.1993882	2.5621795	13	1	5 days	0.73	E	Williams	1999 CT ₁₀₂
1999 CW ₁₀₂	15.0	0.15	19990122	345.51339	294.01900	208.58186	5.21537	0.0725399	2.4141182	15	1	33 days	0.65		Williams	1999 CW ₁₀₂
1999 CZ ₁₀₂	14.7	0.15	19990211	2.49403	277.45665	211.47938	7.33560	0.1553733	2.5451539	12	1	4 days	0.40		Williams	1999 CZ ₁₀₂
1999 CA ₁₀₃	13.8	0.15	19990211	71.54704	217.65975	171.17210	10.64973	0.2620638	3.0567602	12	1	4 days	0.53		Williams	1999 CA ₁₀₃
1999 CR ₁₀₃	14.5	0.15	19990211	122.04843	175.91645	185.08451	10.50799	0.1008639	2.9305808	11	1	4 days	0.52		Williams	1999 CR ₁₀₃
1999 CS ₁₀₃	15.3	0.15	19990211	308.87803	8.89812	186.32542	6.44732	0.1019200	2.3094765	12	1	4 days	0.51		Williams	1999 CS ₁₀₃
1999 CC ₁₀₄	15.0	0.15	19990211	93.83326	97.39157	309.06525	2.05006	0.0652323	2.7735256	21	1	12 days	0.68		Williams	1999 CC ₁₀₄
1999 CD ₁₀₄	16.4	0.15	19990303	57.70768	284.16728	156.70099	3.68476	0.1398878	2.2785651	33	1	40 days	0.62		Williams	1999 CD ₁₀₄
1999 CF ₁₀₄	14.7	0.15	19990122	28.78872	183.42174	280.30438	1.16477	0.1401984	2.9210508	22	1	32 days	0.46		Williams	1999 CF ₁₀₄
1999 CJ ₁₀₄	15.2	0.15	19990211	288.01218	275.44028	317.90572	3.57113	0.1250229	2.8647499	15	1	14 days	0.64		Williams	1999 CJ ₁₀₄
1999 CK ₁₀₄	14.6	0.15	19990211	32.15976	193.98709	270.25797	0.62850	0.1510896	3.0969951	23	1	57 days	0.68		Williams	1999 CK ₁₀₄
1999 CQ ₁₀₄	15.4	0.15	19990211	326.88830	282.46307	261.38285	2.83539	0.1275320	2.4199391	16	1	8 days	0.51		Williams	1999 CQ ₁₀₄
1999 CB ₁₀₅	14.7	0.15	19990211	40.35125	266.37345	173.59173	15.48588	0.1599681	2.6512931	13	1	9 days	0.55		Williams	1999 CB ₁₀₅
1999 CM ₁₀₅	16.6	0.15	19990211	320.01757	277.31434	273.55942	5.80873	0.1586966	2.3237063	15	1	7 days	0.57		Williams	1999 CM ₁₀₅
1999 CF ₁₀₆	15.1	0.15	19990211	71.61430	241.92173	158.37990	13.54447	0.2304534	2.5214027	13	1	8 days	0.40		Williams	1999 CF ₁₀₆
1999 CK ₁₀₆	14.7	0.15	19990211	85.23698	94.99021	287.59678	13.26158	0.2685630	2.5924802	13	1	4 days	0.45		Williams	1999 CK ₁₀₆
1999 CW ₁₀₆	14.4	0.15	19990122	12.15842	294.08107	185.73229	14.04271	0.0924844	2.7168818	16	1	35 days	0.47		Williams	1999 CW ₁₀₆
1999 CR ₁₀₇	14.4	0.15	19990211	69.29983	251.21248	162.11447	12.17425	0.1575797	2.6620692	11	1	8 days	0.48		Williams	1999 CR ₁₀₇
1999 CT ₁₀₇	13.6	0.15	19990211	229.97575	331.96708	305.71664	12.14755	0.1071056	3.1929072	14	1	9 days	0.62		Williams	1999 CT ₁₀₇
1999 CP ₁₀₈	16.1	0.15	19990211	47.58176	181.82084	263.66203	6.01133	0.1002952	2.1910885	13	1	8 days	0.44		Williams	1999 CP ₁₀₈
1999 CH ₁₀₉	14.6	0.15	19990211	72.03999	216.24720	202.23381	10.33138	0.0732568	3.0355376	9	1	9 days	0.72		Williams	1999 CH ₁₀₉
1999 CQ ₁₀₉	15.5	0.15	19990211	335.53470	289.64222	246.30105	3.97427	0.1495014	2.5848954	13	1	8 days	0.49		Williams	1999 CQ ₁₀₉
1999 CR ₁₀₉	13.0	0.15	19990122	27.27585	180.73176	277.84286	7.01764	0.2122958	3.9765548	48	2	1996–1999	0.62	M-v 4	Williams	33994 1999 CR ₁₀₉
1999 CS ₁₀₉	14.7	0.15	19990211	31.46779	167.94298	290.97334	7.02486	0.1891157	2.8087910	12	1	8 days	0.62		Williams	1999 CS ₁₀₉
1999 CV ₁₀₉	16.2	0.15	19990211	36.58035	188.69181	272.46921	6.71244	0.0822233	2.3931128	11	1	8 days	0.87		Williams	1999 CV ₁₀₉
1999 CW ₁₀₉	15.4	0.15	19990211	119.52464	86.38183	292.04917	12.69093	0.0721077	2.5497620	12	1	9 days	0.77		Williams	1999 CW ₁₀₉
1999 CX ₁₀₉	16.8	0.15	19990211	3.54056	252.54096	247.34868	5.57267	0.0747322	2.1958601	13	1	9 days	0.70		Williams	1999 CX ₁₀₉
1999 CY ₁₀₉	16.2	0.15	19990211	72.22479	189.58026	230.24330	5.79051	0.1090331	2.3857034	13	1	9 days	0.81		Williams	1999 CY ₁₀₉
1999 CG ₁₁₀	13.3	0.15	19990211	246.34990	81.86802	198.28236	16.32683	0.2280791	3.1357106	11	1	11 days	0.83		Williams	1999 CG ₁₁₀
1999 CH ₁₁₀	15.4	0.15	19990211	277.41345	32.05673	207.98243	11.88805	0.1021610	2.5363757	12	1	11 days	0.82		Williams	1999 CH ₁₁₀
1999 CN ₁₁₀	15.0	0.15	19990211	293.88439	358.83441	229.98697	9.25594	0.1442161	2.7660154	9	1	11 days	0.71		Williams	1999 CN ₁₁₀
1999 CQ ₁₁₀	14.3	0.15	19990211	100.78623	207.21105	185.92142	10.36563	0.1071161	2.9792374	13	1	9 days	0.79		Williams	1999 CQ ₁₁₀
1999 CR ₁₁₀	15.5	0.15	19990211	86.69551	202.89220	204.62695	6.21903	0.0904803	2.2945120	13	1	8 days	0.89		Williams	1999 CR ₁₁₀
1999 CS ₁₁₀	15.5	0.15	19990211	114.07963	139.35462	234.90205	5.49083	0.1770598	2.4099169	13	1	8 days	1.04		Williams	1999 CS ₁₁₀
1999 CV ₁₁₀	14.1	0.15	19990211	100.27566	148.04820	239.29738	4.92144	0.1638919	2.3001908	13	1	8 days	0.67		Williams	1999 CV ₁₁₀
1999 CX ₁₁₀	13.6	0.15	19990211	333.80647	227.42329	307.09092	14.72793	0.0534753	3.1045568	12	1	8 days	0.76		Williams	1999 CX ₁₁₀
1999 CZ ₁₁₀	15.3	0.15	19990211	64.78366	238.74485	192.70367	5.29741	0.0812599	2.6420937	11	1	8 days	0.78		Williams	1999 CZ ₁₁₀
1999 CC ₁₁₁	16.1	0.15	19990211	357.60185	228.05461	279.08515	3.93977	0.1636469	2.3946816	13	1	8 days	0.57		Williams	1999 CC ₁₁₁
1999 CF ₁₁₁	14.7	0.15	19990211	7.15620	244.18029	252.86022	2.82340	0.0678992	2.7666092	11	1	8 days	0.66		Williams	1999 CF ₁₁₁
1999 CH ₁₁₁	17.3	0.15	19990211	352.31584	310.73846	204.51203	2.01417	0.1701841	2.3137866	11	1	8 days	0.57		Williams	1999 CH ₁₁₁
1999 CT ₁₁₁	14.7	0.15	19990211	73.54756	138.75037	282.44966	9.21205	0.1129194	3.0897955	11	1	9 days	0.73		Williams	1999 CT ₁₁₁
1999 CU ₁₁₁	13.9	0.15	19990122	353.67678	303.88779	205.33958	8.50461	0.1149640	3.0464544	17	1	64 days	0.67	M-v 4	Williams	1999 CU ₁₁₁
1999 CV ₁₁₁	14.5	0.15	19990211	4.20182	271.37317	228.67178	6.54542	0.1596937	2.7745850	12	1	9 days	0.54		Williams	1999 CV ₁₁₁
1999 CO ₁₁₂	15.3	0.15	19990211	282.21268	318.04019	273.78101	9.24488	0.0481708	2.9261877	16	1	11 days	0.95		Williams	1999 CO ₁₁₂
1999 CP ₁₁₂	14.8	0.15	19990211	56.58016	254.94241	187.43189	10.52507	0.0854541	2.9762718	12	1	9 days	0.68		Williams	1999 CP ₁₁₂

1999 CR ₁₁₂	14.9	0.15	19990211	341.39933	235.90297	294.94921	9.97012	0.1127213	2.6596861	13	1	9 days	0.53	Williams	1999 CR ₁₁₂
1999 CV ₁₁₂	17.1	0.15	19990211	312.68125	251.55705	306.33519	4.10171	0.0505095	2.3071217	11	1	11 days	0.74	Williams	1999 CV ₁₁₂
1999 CA ₁₁₃	15.4	0.15	19990211	27.62286	304.61823	161.82687	14.69001	0.2001583	3.2115349	12	1	6 days	0.95	Doppler	1999 CA ₁₁₃
1999 CD ₁₁₃	14.8	0.15	19990211	192.27722	54.51229	263.11982	6.29356	0.0624534	3.0170381	12	1	9 days	0.70	Williams	1999 CD ₁₁₃
1999 CS ₁₁₃	14.2	0.15	19990211	70.35828	210.64897	227.35344	9.10904	0.0176994	2.9825597	11	1	11 days	1.25	E Williams	1999 CS ₁₁₃
1999 CT ₁₁₃	15.5	0.15	19990211	13.57289	252.47540	236.84523	6.07523	0.1640588	2.2865576	13	1	11 days	0.45	Williams	1999 CT ₁₁₃
1999 CZ ₁₁₃	15.4	0.15	19990211	68.08253	124.33922	302.34502	12.27921	0.1365094	2.7020790	13	1	9 days	0.79	Williams	1999 CZ ₁₁₃
1999 CC ₁₁₄	15.0	0.15	19990211	232.30551	129.77818	164.03929	16.72843	0.2300601	2.5519064	11	1	4 days	0.61	Doppler	1999 CC ₁₁₄
1999 CR ₁₁₄	13.2	0.15	19990211	268.82384	310.66707	300.57531	4.97735	0.0788620	3.1088086	12	1	6 days	0.36	Doppler	1999 CR ₁₁₄
1999 CT ₁₁₄	14.8	0.15	19990211	165.36980	54.22559	287.05406	4.64423	0.1890974	2.5975899	11	1	5 days	1.09	Doppler	1999 CT ₁₁₄
1999 CA ₁₁₅	16.0	0.15	19990211	297.92102	304.58693	277.46419	6.00097	0.0985233	2.2336875	13	1	9 days	0.78	Williams	1999 CA ₁₁₅
1999 CB ₁₁₅	15.2	0.15	19990211	339.90436	249.61822	289.38791	8.19916	0.1639364	3.1029737	12	1	9 days	0.76	Williams	1999 CB ₁₁₅
1999 CD ₁₁₅	15.7	0.15	19990211	71.04014	211.54040	218.23060	6.28630	0.0879472	2.7205563	12	1	9 days	1.01	Williams	1999 CD ₁₁₅
1999 CL ₁₁₅	15.7	0.15	19990211	342.60153	295.78974	246.09156	10.20053	0.2478670	2.6606455	13	1	7 days	0.68	Williams	1999 CL ₁₁₅
1999 CT ₁₁₅	15.9	0.15	19990211	342.71636	340.05203	194.19986	7.64761	0.1529603	2.7675646	12	1	9 days	0.73	Williams	1999 CT ₁₁₅
1999 CZ ₁₁₅	13.9	0.15	19990211	117.84479	190.22749	193.65353	6.95279	0.1125328	3.2468436	13	1	9 days	1.09	Williams	1999 CZ ₁₁₅
1999 CF ₁₁₆	15.8	0.15	19990211	327.80842	254.19964	298.68353	2.03607	0.1419959	2.4326579	30	1	7 days	1.17	Williams	1999 CF ₁₁₆
1999 CV ₁₁₆	14.8	0.15	19990211	65.01446	228.68448	180.00635	13.03466	0.2874733	2.6359013	10	1	9 days	0.78	Williams	1999 CV ₁₁₆
1999 CY ₁₁₆	15.7	0.15	19990211	105.98901	229.79193	154.08973	15.15431	0.1754699	2.5531582	17	1	36 days	0.81	Williams	1999 CY ₁₁₆
1999 CC ₁₁₇	15.4	0.15	19990211	359.38384	341.68079	170.20311	4.28696	0.1974435	2.8789931	30	1	7 days	1.09	E Williams	1999 CC ₁₁₇
1999 CD ₁₁₇	14.5	0.15	19990211	196.59187	97.57945	221.80252	7.01921	0.0741538	2.2833152	12	1	4 days	0.53	Williams	1999 CD ₁₁₇
1999 CE ₁₁₇	14.2	0.15	19990211	114.92302	127.65654	258.41479	7.68492	0.1490682	2.5798511	12	1	4 days	0.61	Williams	1999 CE ₁₁₇
1999 CG ₁₁₇	14.7	0.15	19990211	42.69220	271.95744	175.15726	10.17642	0.2288686	2.4239313	14	1	9 days	0.71	Williams	1999 CG ₁₁₇
1999 CH ₁₁₇	14.5	0.15	19990211	259.36134	345.76575	277.44348	5.67215	0.0689623	2.1865141	18	1	36 days	0.83	Williams	1999 CH ₁₁₇
1999 CL ₁₁₇	15.0	0.15	19990211	327.33456	315.49499	253.81627	11.01346	0.2380519	2.6996321	14	1	7 days	0.58	Williams	1999 CL ₁₁₇
1999 CM ₁₁₇	14.7	0.15	19990303	28.67421	269.52315	213.65031	6.67343	0.1610206	2.2735836	24	1	40 days	0.71	Williams	1999 CM ₁₁₇
1999 CO ₁₁₇	13.0	0.15	19990211	89.20982	85.87328	321.71654	12.58160	0.1833926	2.5597900	21	1	36 days	0.68	Williams	1999 CO ₁₁₇
1999 CP ₁₁₇	13.9	0.15	19990211	281.94154	0.94151	267.05987	7.06413	0.2538182	3.1363247	12	1	4 days	0.64	Williams	1999 CP ₁₁₇
1999 CZ ₁₁₇	13.8	0.15	19990211	294.49184	322.78204	293.17347	5.02877	0.2625651	2.7478822	11	1	4 days	0.56	E Williams	1999 CZ ₁₁₇
1999 CA ₁₁₈	13.7	0.15	19990211	316.24578	268.56789	324.12390	17.23386	0.2787991	3.2022866	12	1	4 days	0.66	Williams	1999 CA ₁₁₈
1999 CB ₁₁₈	13.6	0.15	19990211	300.43750	282.09942	317.66238	13.07426	0.1686922	3.1598789	11	1	4 days	0.92	E Williams	1999 CB ₁₁₈
1999 CH ₁₁₈	15.0	0.15	19990303	323.05045	350.47329	214.42296	2.67676	0.0489996	2.1659189	17	1	40 days	0.50	Williams	1999 CH ₁₁₈
1999 CJ ₁₁₈	16.1	0.15	19990303	305.97095	307.86479	287.27142	3.00121	0.1540057	2.1614044	18	1	40 days	0.71	Williams	1999 CJ ₁₁₈
1999 CN ₁₁₈	14.7	0.15	19990211	141.92350	67.55427	287.88811	1.14883	0.1391771	2.2693206	19	1	14 days	0.82	Williams	1999 CN ₁₁₈
1999 CS ₁₁₈	13.2	0.15	19990211	145.18536	346.72770	18.70738	25.30934	0.2292962	2.4014798	16	1	9 days	1.06	Williams	1999 CS ₁₁₈
1999 CU ₁₁₈	13.5	0.15	19990211	75.36997	148.56408	254.94326	15.70861	0.2497453	3.1402613	28	1	40 days	0.71	Williams	1999 CU ₁₁₈
1999 CB ₁₁₉	6.9	0.15	19990211	0.00000	358.38894	167.92799	9.79517	0.0000000	41.4590087	4	1	8 days	0.20	E Marsden	1999 CB ₁₁₉
1999 CC ₁₁₉	6.8	0.15	19990211	0.00000	342.87588	184.37370	0.60816	0.0000000	44.4390506	4	1	7 days	0.09	E Marsden	1999 CC ₁₁₉
1999 CD ₁₁₉	7.2	0.15	19990211	0.00000	4.56365	165.68962	2.03483	0.0000000	45.0152392	4	1	2 days	0.17	E Marsden	1999 CD ₁₁₉
1999 CE ₁₁₉	8.4	0.15	19990211	0.00280	1.06654	171.53142	1.39427	0.2441563	39.3507093	4	1	7 days	0.11	E Marsden	1999 CE ₁₁₉
1999 CF ₁₁₉	7.1	0.15	19990211	0.00000	178.95533	303.00212	27.28512	0.0000000	42.1642170	4	1	6 days	0.06	E Marsden	1999 CF ₁₁₉
1999 CG ₁₁₉	7.3	0.15	19990211	0.00000	178.28193	304.21948	17.07518	0.0000000	42.9340278	4	1	6 days	0.09	E Marsden	1999 CG ₁₁₉
1999 CH ₁₁₉	7.3	0.15	19990211	0.00000	1.33033	122.28801	19.00310	0.0000000	46.4012663	4	1	8 days	0.04	E Marsden	1999 CH ₁₁₉
1999 CJ ₁₁₉	6.9	0.15	19990211	0.00000	173.11010	312.79164	3.45887	0.0000000	42.7024850	4	1	6 days	0.14	E Marsden	1999 CJ ₁₁₉
1999 CK ₁₁₉	7.9	0.15	19990211	0.00000	2.99857	123.07684	11.59165	0.0000000	42.0815537	4	1	8 days	0.04	E Marsden	1999 CK ₁₁₉
1999 CL ₁₁₉	6.0	0.15	19990211	0.00000	1.46299	125.16756	23.44513	0.0000000	46.7475241	4	1	6 days	0.09	E Marsden	1999 CL ₁₁₉
1999 CM ₁₁₉	7.4	0.15	19990211	0.00000	9.37526	118.13051	2.64045	0.0000000	42.2661035	4	1	7 days	0.09	E Marsden	1999 CM ₁₁₉
1999 CN ₁₁₉	8.0	0.15	19990211	0.00000	136.57692	353.38455	0.87828	0.0000000	44.5649711	4	1	7 days	0.10	E Marsden	1999 CN ₁₁₉
1999 CM ₁₂₁	14.2	0.15	19990211	194.66721	204.78660	94.02639	31.06128	0.0511791	2.5995236	16	1	12 days	0.58	Williams	1999 CM ₁₂₁
1999 CN ₁₂₁	14.0	0.15	19990211	340.74992	142.58673	5.53544	21.83115	0.0597655	2.7258688	13	1	7 days	0.51	Williams	1999 CN ₁₂₁
1999 CP ₁₂₂	14.7	0.15	19990211	22.55121	21.69226	90.97476	25.53066	0.0382406	3.0206578	13	1	7 days	0.72	Williams	1999 CP ₁₂₂
1999 CT ₁₂₃	14.7	0.15	19990211	34.85782	65.15957	29.48100	12.32645	0.1563453	2.6846594	13	1	11 days	0.83	Williams	1999 CT ₁₂₃
1999 CN ₁₂₅	13.5	0.15	19990211	15.18721	50.90392	72.86326	12.39993	0.1529621	2.6763730	13	1	11 days	0.43	Williams	1999 CN ₁₂₅

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1999 CO ₁₂₅	15.2	0.15	19990211	3.94783	106.35960	32.43327	13.28171	0.0785216	2.8409111	12	1	11 days	0.66		Williams	1999 CO ₁₂₅
1999 CT ₁₂₇	14.3	0.15	19990211	307.31436	123.06970	93.55999	13.32049	0.0603129	2.7227891	12	1	7 days	0.83	E	Williams	1999 CT ₁₂₇
1999 CD ₁₂₈	12.3	0.15	19990211	330.85775	113.24940	81.09760	14.30946	0.0779349	3.1882306	13	1	7 days	0.55		Williams	1999 CD ₁₂₈
1999 CA ₁₂₉	16.2	0.15	19990211	22.83749	71.61891	58.25329	12.39828	0.1479995	2.6161907	11	1	12 days	1.17		Williams	1999 CA ₁₂₉
1999 CW ₁₂₉	16.3	0.15	19990122	49.87369	323.48357	105.45116	6.25995	0.0475852	2.7228596	11	1	6 days	0.70	E	Williams	1999 CW ₁₂₉
1999 CY ₁₂₉			19990122	356.28474	113.15765	14.47975	2.32690	0.1168743	2.7779664	6	1	2 days	1.01	E	Williams	1999 CY ₁₂₉
1999 CZ ₁₂₉			19990122	354.77018	120.59815	8.99238	2.05388	0.1148960	2.2119559	6	1	2 days	1.19	E	Williams	1999 CZ ₁₂₉
1999 CA ₁₃₀	18.1	0.15	19990122	14.20833	355.04611	110.98074	6.57260	0.0924301	2.3431399	18	1	28 days	0.51		Williams	1999 CA ₁₃₀
1999 CB ₁₃₀			19990122	356.45984	160.14467	327.47288	6.07893	0.1447011	2.8688319	6	1	2 days	0.58	E	Williams	1999 CB ₁₃₀
1999 CD ₁₃₀			19990122	175.06691	324.18378	343.41301	3.83748	0.0755192	2.2806223	6	1	2 days	0.18	E	Williams	1999 CD ₁₃₀
1999 CE ₁₃₀			19990122	356.58967	164.04777	323.17283	7.76297	0.1161149	3.0522308	8	1	3 days	0.88	E	Williams	1999 CE ₁₃₀
1999 CG ₁₃₀			19990122	356.16895	80.17476	47.92902	2.24359	0.1332740	2.8246118	8	1	3 days	1.17	E	Williams	1999 CG ₁₃₀
1999 CH ₁₃₀			19990122	356.37070	36.35159	91.37096	3.82800	0.1307527	2.8216624	6	1	2 days	1.34	E	Williams	1999 CH ₁₃₀
1999 CL ₁₃₀			19990122	175.20491	256.36595	50.92205	2.33412	0.1213197	2.4055042	6	1	2 days	0.36	E	Williams	1999 CL ₁₃₀
1999 CP ₁₃₀			19990122	355.52708	162.63051	326.28769	6.48637	0.1356481	2.5476099	6	1	2 days	0.24	E	Williams	1999 CP ₁₃₀
1999 CR ₁₃₀			19990122	354.41824	26.50590	103.72189	4.06532	0.1104283	2.1980378	6	1	2 days	1.38	E	Williams	1999 CR ₁₃₀
1999 CW ₁₃₁	8.1	0.15	19990211	0.00000	359.47583	174.62661	7.94560	0.0000000	43.7086666	4	1	8 days	0.14	E	Williams	1999 CW ₁₃₁
1999 CX ₁₃₁	6.8	0.15	19990211	0.00000	1.77738	127.88796	9.21112	0.0000000	42.6998631	7	1	36 days	0.50	E	Williams	1999 CX ₁₃₁
1999 CY ₁₃₁	8.1	0.15	19990211	359.99937	0.10981	148.24483	25.16749	0.1349643	43.9227912	4	1	8 days	0.12	E	Williams	1999 CY ₁₃₁
1999 CZ ₁₃₁	8.1	0.15	19990211	359.99944	359.87781	151.79891	2.37074	0.0324790	44.4100476	4	1	8 days	0.14	E	Williams	1999 CZ ₁₃₁
1999 CA ₁₃₂	7.6	0.15	19990211	359.99932	0.51617	154.88566	12.38941	0.0912018	43.7568561	4	1	6 days	0.08	E	Williams	1999 CA ₁₃₂
1999 CC ₁₃₂	15.9	0.15	19990211	78.49170	272.43181	141.81130	4.33624	0.0447501	2.6062539	9	1	8 days	0.19	E	Williams	1999 CC ₁₃₂
1999 CD ₁₃₂	14.8	0.15	19990211	93.96645	251.99824	141.75807	4.21323	0.0873777	3.1343213	9	1	8 days	0.25	E	Williams	1999 CD ₁₃₂
1999 CJ ₁₃₂	16.3	0.15	19990211	38.41670	308.76158	139.53050	4.31729	0.1447011	2.8854666	9	1	8 days	0.88	E	Williams	1999 CJ ₁₃₂
1999 CL ₁₃₂	15.2	0.15	19990211	341.11408	25.74462	138.77896	17.85078	0.1486506	3.0986306	9	1	5 days	0.10		Williams	1999 CL ₁₃₂
1999 CN ₁₃₂	18.5	0.15	19990211	306.82154	59.10607	135.23678	3.40478	0.0125549	2.1745143	9	1	5 days	0.34	E	Williams	1999 CN ₁₃₂
1999 CP ₁₃₂	14.9	0.15	19990211	209.56981	168.96707	131.93542	3.07276	0.2352731	2.3792285	9	1	8 days	0.22	E	Williams	1999 CP ₁₃₂
1999 CQ ₁₃₂	15.4	0.15	19990211	142.21952	210.78177	134.20150	4.98647	0.2280630	2.5014235	8	1	8 days	0.54	E	Williams	1999 CQ ₁₃₂
1999 CU ₁₃₂	15.6	0.15	19990211	18.04477	341.19276	77.81387	3.67160	0.1517914	2.3374470	12	1	7 days	0.21	E	Williams	1999 CU ₁₃₂
1999 CX ₁₃₂	17.1	0.15	19990211	176.03386	357.20918	316.94659	3.61111	0.1671450	2.2063609	9	1	4 days	0.19	E	Williams	1999 CX ₁₃₂
1999 CJ ₁₃₃	15.1	0.15	19990211	333.61876	54.64278	127.93362	2.25537	0.1508317	3.1964393	9	1	16 days	0.44		Williams	1999 CJ ₁₃₃
1999 CO ₁₃₃	17.7	0.15	19990122	22.15715	337.49580	121.65730	0.91563	0.2657387	2.6319977	9	1	5 days	0.53		Williams	1999 CO ₁₃₃
1999 CP ₁₃₃	7.5	0.15	19990211	359.99900	183.35387	333.97726	2.94329	0.1933509	39.3777004	4	1	6 days		E	Marsden	1999 CP ₁₃₃
1999 CQ ₁₃₃	6.8	0.15	19990211	0.00000	358.61172	123.37630	12.46393	0.0000000	43.7295641	4	1	5 days	0.08	E	Marsden	1999 CQ ₁₃₃
1999 CR ₁₃₃	8.1	0.15	19990211	0.00000	347.98660	135.12963	1.72668	0.0000000	42.2498936	4	1	6 days	0.10	E	Marsden	1999 CR ₁₃₃
1999 CW ₁₃₃	17.7	0.15	19990122	343.36481	15.04437	142.97411	4.89009	0.1267885	2.3312632	9	1	6 days	0.05		Williams	1999 CW ₁₃₃
1999 CK ₁₃₄	15.7	0.15	19990122	98.92757	247.26110	137.25711	4.59331	0.1567904	2.3283287	9	1	6 days	0.09		Williams	1999 CK ₁₃₄
1999 CM ₁₃₄	17.0	0.15	19990122	79.06351	267.53513	141.88170	11.19744	0.1107670	2.6656843	9	1	6 days	0.22	E	Williams	1999 CM ₁₃₄
1999 CW ₁₃₄	18.2	0.15	19990122	24.21729	335.90235	130.61163	0.79133	0.1273868	2.5488188	9	1	6 days	0.25	E	Williams	1999 CW ₁₃₄
1999 CA ₁₃₅	17.0	0.15	19990122	13.36207	131.39267	348.31333	1.85276	0.1780247	2.7515277	9	1	6 days	0.35		Williams	1999 CA ₁₃₅
1999 CG ₁₃₅	15.0	0.15	19990211	46.86132	147.61813	309.33538	1.76654	0.1473198	2.4283456	27	1	40 days	0.44		Williams	1999 CG ₁₃₅
1999 CK ₁₃₅	15.4	0.15	19990211	172.17562	11.97705	334.65066	5.90750	0.1391547	2.4279572	12	1	39 days	0.18		Williams	1999 CK ₁₃₅
1999 CP ₁₃₅	15.6	0.15	19990211	292.71763	2.75115	229.97987	0.55612	0.0323568	2.9963082	14	1	39 days	0.22		Williams	1999 CP ₁₃₅
1999 CT ₁₃₅	16.7	0.15	19990211	244.71130	307.23264	341.76074	5.15242	0.1275546	2.4084463	12	1	38 days	0.40		Williams	1999 CT ₁₃₅
1999 CU ₁₃₅	15.4	0.15	19990211	197.53531	345.02249	344.18590	5.70363	0.1073206	2.6684396	9	1	41 days	1.79		Williams	1999 CU ₁₃₅
1999 CV ₁₃₅	15.6	0.15	19990211	260.60543	277.05404	350.90237	1.99436	0.0436024	2.9388965	12	1	39 days	0.21		Williams	1999 CV ₁₃₅
1999 CA ₁₃₇	17.3	0.15	19990211	273.49463	85.40338	150.36762	10.03250	0.0383961	2.4706392	9	1	7 days	0.31	E	Williams	1999 CA ₁₃₇
1999 CC ₁₃₇	16.3	0.15	19990211	86.63837	240.44098	166.73894	2.16748	0.0962790	2.2603444	9	1	7 days	0.78	E	Williams	1999 CC ₁₃₇
1999 CG ₁₃₇	14.2	0.15	19990211	88.61380	254.28017	150.34686	11.58124	0.1132255	3.0623968	12	1	28 days	0.34		Williams	1999 CG ₁₃₇
1999 CJ ₁₃₇	15.6	0.15	19990211	54.32926	293.81654	153.35757	5.83520	0.0540831	3.4626196	20	1	39 days	0.56		Williams	1999 CJ ₁₃₇
1999 CR ₁₃₇	17.0	0.15	19990211	287.67943	87.17027	148.42180	14.93412	0.1435291	2.7940852	9	1	7 days	0.18		Williams	1999 CR ₁₃₇
1999 CS ₁₃₇	15.9	0.15	19990211	168.88679	157.55099	179.38510	0.61829	0.0820799	3.0316985	15	1	39 days	0.98		Williams	1999 CS ₁₃₇
1999 CV ₁₃₇	16.6	0.15	19990303	57.80377	289.18924	148.17638	4.05284	0.1630780	2.4463117	15	1	43 days	0.24		Williams	1999 CV ₁₃₇

1999 CA ₁₃₈	16.3	0.15	19990211	232.65634	325.95823	325.88616	2.14375	0.2182110	2.4176545	12	1	39 days	0.15	Williams	1999 CA ₁₃₈
1999 CG ₁₃₈	15.9	0.15	19990211	281.96081	301.19314	321.08242	2.95328	0.2121793	2.5649939	12	1	35 days	0.41	Williams	1999 CG ₁₃₈
1999 CH ₁₃₈	14.8	0.15	19990211	172.63537	151.15021	197.06186	1.18993	0.1772742	2.7543217	15	1	36 days	0.35	Williams	1999 CH ₁₃₈
1999 CJ ₁₃₈	15.3	0.15	19990211	209.41575	156.46733	164.61913	1.49799	0.1875779	2.1541876	12	1	30 days	0.32	Williams	1999 CJ ₁₃₈
1999 CH ₁₄₁	15.2	0.15	19990211	30.28882	141.90715	301.40824	0.79686	0.2061088	3.1316646	11	1	39 days	0.25	Williams	1999 CH ₁₄₁
1999 CL ₁₄₂	16.8	0.15	19990211	88.35953	257.83812	134.56465	4.50949	0.1668417	2.6236975	9	1	6 days	0.55	E Williams	1999 CL ₁₄₂
1999 CN ₁₄₂	16.4	0.15	19990211	254.52548	295.86240	329.69943	2.58449	0.2009812	2.3080030	8	1	6 days	0.19	E Williams	1999 CN ₁₄₂
1999 CO ₁₄₂	17.4	0.15	19990211	60.72945	291.84975	126.36045	2.32805	0.1918055	2.6368479	9	1	6 days	0.23	Williams	1999 CO ₁₄₂
1999 CP ₁₄₂	16.0	0.15	19990211	135.59011	14.39596	345.45641	1.44252	0.0595301	2.8564361	9	1	6 days	0.13	Williams	1999 CP ₁₄₂
1999 CR ₁₄₂	15.5	0.15	19990211	139.19867	28.21963	325.85578	8.15986	0.1037013	2.8252182	9	1	6 days	0.14	Williams	1999 CR ₁₄₂
1999 CS ₁₄₂	17.3	0.15	19990211	225.18389	155.55014	135.97675	7.66507	0.2446272	2.1561207	9	1	6 days	0.24	Williams	1999 CS ₁₄₂
1999 CA ₁₄₅	17.7	0.15	19990211	330.13494	228.52140	309.02791	2.31444	0.1357768	2.6273921	8	1	8 days	0.13	E Williams	1999 CA ₁₄₅
1999 CL ₁₄₅	14.9	0.15	19990211	88.24788	109.14829	315.04049	1.77170	0.0805396	3.1697714	18	1	42 days	0.24	Williams	1999 CL ₁₄₅
1999 CO ₁₄₅	15.1	0.15	19990211	134.76657	202.58606	169.43553	4.93052	0.2481157	2.9613161	12	1	33 days	0.33	Williams	1999 CO ₁₄₅
1999 CP ₁₄₅	17.5	0.15	19990211	99.67514	66.84806	336.50402	1.56810	0.1584038	2.2941463	9	1	33 days	0.14	Williams	1999 CP ₁₄₅
1999 CY ₁₄₅	15.2	0.15	19990211	105.28677	88.51545	319.77099	1.35857	0.0655902	2.7819774	12	1	32 days	0.41	Williams	1999 CY ₁₄₅
1999 CB ₁₄₆	15.8	0.15	19990211	56.14020	116.18290	344.74827	9.83057	0.0608134	3.1211986	12	1	41 days	0.19	Williams	1999 CB ₁₄₆
1999 CQ ₁₄₆	15.2	0.15	19990211	88.29604	235.80384	166.02356	4.03406	0.1434120	3.1130584	12	1	39 days	0.20	Williams	1999 CQ ₁₄₆
1999 CY ₁₄₆	17.7	0.15	19990211	23.06602	275.67703	211.65934	0.63088	0.1301659	2.3929195	9	1	32 days	0.19	Williams	1999 CY ₁₄₆
1999 CZ ₁₄₆	14.8	0.15	19990211	212.54502	13.12541	307.24459	1.01453	0.2279268	2.6765525	14	1	32 days	0.41	Williams	1999 CZ ₁₄₆
1999 CA ₁₄₇	15.3	0.15	19990211	87.92171	76.13894	338.20609	8.36500	0.1647912	2.7502758	12	1	40 days	0.37	Williams	1999 CA ₁₄₇
1999 CE ₁₄₇	17.8	0.15	19990211	17.41531	151.80894	344.73117	1.01296	0.1160817	2.3576577	9	1	31 days	0.21	Williams	1999 CE ₁₄₇
1999 CO ₁₄₇	16.9	0.15	19990211	226.60370	317.75510	347.07202	7.35975	0.1237185	2.3600961	12	1	38 days	0.29	Williams	1999 CO ₁₄₇
1999 CV ₁₄₇	16.2	0.15	19990211	13.57150	172.63306	250.55601	1.15598	0.2352726	2.6379509	9	1	6 days	0.29	E Williams	1999 CV ₁₄₇
1999 CW ₁₄₈	15.7	0.15	19990211	94.91433	246.82925	140.13777	13.84072	0.1721231	2.8751361	8	1	6 days	0.47	E Williams	1999 CW ₁₄₈
1999 CG ₁₄₉	16.7	0.15	19990303	279.51694	31.49775	237.38016	0.62117	0.1628956	2.5886924	10	1	38 days	0.36	Williams	1999 CG ₁₄₉
1999 CO ₁₄₉	15.8	0.15	19990303	304.31589	240.38161	347.89178	3.87780	0.0169288	2.7665249	12	1	37 days	0.19	Williams	1999 CO ₁₄₉
1999 CQ ₁₄₉	14.9	0.15	19990122	26.26638	319.63417	171.55526	2.04618	0.0865243	2.9523095	18	1	60 days	0.31	M-v 5 Williams	1999 CQ ₁₄₉
1999 CS ₁₄₉	16.0	0.15	19990303	281.73038	286.42144	346.24191	8.57497	0.2109163	2.2988359	15	1	38 days	0.83	Williams	1999 CS ₁₄₉
1999 CV ₁₄₉	16.1	0.15	19990303	289.60639	96.32245	159.81684	1.51761	0.1195536	3.1535453	12	1	38 days	0.20	Williams	1999 CV ₁₄₉
1999 CW ₁₄₉	14.6	0.15	19990303	221.23303	280.61458	41.99121	0.09432	0.1677276	3.1170599	12	1	37 days	0.16	Williams	1999 CW ₁₄₉
1999 CA ₁₅₀	15.4	0.15	19990303	89.34297	68.51937	358.93528	2.57357	0.1296417	2.5410817	12	1	38 days	0.13	Williams	1999 CA ₁₅₀
1999 CY ₁₅₀	14.3	0.15	19990211	110.60340	59.94166	340.03815	8.31889	0.0989712	2.6253268	12	1	42 days	0.14	Williams	1999 CY ₁₅₀
1999 CZ ₁₅₀	17.1	0.15	19990211	89.89623	246.26364	149.34150	6.88700	0.1897601	2.5310572	9	1	29 days	0.19	Williams	1999 CZ ₁₅₀
1999 CE ₁₅₁	15.5	0.15	19990211	157.34311	10.45714	349.86801	6.67934	0.1168811	2.3367560	9	1	31 days	0.32	Williams	1999 CE ₁₅₁
1999 CH ₁₅₂	15.8	0.15	19990211	105.49123	57.84907	329.35989	0.94369	0.1446134	2.9040194	15	1	30 days	0.24	Williams	1999 CH ₁₅₂
1999 CJ ₁₅₂	17.7	0.15	19990211	50.19281	118.74698	328.57143	5.20612	0.0975734	2.3063008	9	1	36 days	0.16	Williams	1999 CJ ₁₅₂
1999 CO ₁₅₂	15.4	0.15	19990211	19.69081	332.27092	150.98147	6.73253	0.0612153	3.0667571	9	1	26 days	0.12	Williams	1999 CO ₁₅₂
1999 CT ₁₅₂	15.4	0.15	19990211	78.23631	106.75321	314.98150	1.25162	0.0569684	2.9992815	12	1	36 days	0.27	Williams	1999 CT ₁₅₂
1999 CL ₁₅₃	13.1	0.15	19990211	283.21878	305.04436	214.51554	0.80626	0.1226306	5.3701015	23	1	27 days	0.57	Williams	1999 CL ₁₅₃
1999 CM ₁₅₃	7.5	0.15	19990211	358.23614	66.64358	83.24494	0.18180	0.0294423	42.8432266	4	1	25 days	0.14	E Marsden	1999 CM ₁₅₃
1999 CN ₁₅₃	7.7	0.15	19990211	0.00000	359.40279	153.04977	7.47820	0.0000000	43.2029896	4	1	25 days	0.16	E Marsden	1999 CN ₁₅₃
1999 CO ₁₅₃	7.3	0.15	19990211	359.99642	212.97562	269.19865	0.60324	0.0517620	43.1632889	4	1	5 days	0.05	E Marsden	1999 CO ₁₅₃
1999 CP ₁₅₃	7.7	0.15	19990211	0.00000	4.45569	122.66287	2.92586	0.0000000	47.0860871	5	1	33 days	0.14	E Marsden	1999 CP ₁₅₃
1999 CQ ₁₅₃	7.6	0.15	19990211	0.00000	336.13582	181.17741	0.20763	0.0000000	44.3300520	4	1	30 days	0.11	E Marsden	1999 CQ ₁₅₃
1999 CR ₁₅₃	8.2	0.15	19990211	359.99893	201.26635	324.49317	1.44243	0.0513185	43.1189198	4	1	31 days	0.05	E Marsden	1999 CR ₁₅₃
1999 CS ₁₅₃	8.1	0.15	19990211	0.00000	144.32173	340.70949	1.04486	0.0000000	43.1775933	5	1	33 days	0.09	E Marsden	1999 CS ₁₅₃
1999 CT ₁₅₃	8.1	0.15	19990211	359.99905	357.65805	163.13926	4.50768	0.0924449	45.1105071	4	1	32 days	0.10	E Marsden	1999 CT ₁₅₃
1999 CU ₁₅₃	7.2	0.15	19990211	0.00000	351.31621	139.02808	2.77393	0.0000000	42.5816037	4	1	31 days	0.07	E Marsden	1999 CU ₁₅₃
1999 CG ₁₅₄	7.1	0.15	19990211	0.00000	32.20359	96.54324	0.68692	0.0000000	45.6864249	5	1	31 days	0.08	E Marsden	1999 CG ₁₅₄
1999 CH ₁₅₄	7.5	0.15	19990211	0.00000	324.52529	166.47565	0.80542	0.0000000	42.9514104	4	1	32 days	0.10	E Marsden	1999 CH ₁₅₄
1999 CJ ₁₅₄			19990122	348.30244	230.03312	286.69459	10.61134	0.1904785	2.9771532	6	1	2 days	0.35	E Williams	1999 CJ ₁₅₄
1999 CM ₁₅₄			19990122	329.44232	305.86949	243.63198	6.67999	0.2481165	3.2319835	6	1	2 days	0.37	E Williams	1999 CM ₁₅₄

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1999 CN ₁₅₄			19990122	4.18515	316.29713	178.65322	11.57181	0.0534192	2.8250483	6	1	2 days	0.33	E	Williams	1999 CN ₁₅₄	
1999 CO ₁₅₄			19990122	206.47447	90.53725	204.73572	7.50199	0.0355583	2.5583177	6	1	2 days	0.33	E	Williams	1999 CO ₁₅₄	
1999 DA	7.9	0.15	19990303	0.06334	84.62422	55.37315	2.79591	0.0000000	45.9213535	14	1	35 days	0.16	E	Marsden	1999 DA	
1999 DZ	15.2	0.15	19990303	27.61894	142.91907	0.52100	7.31776	0.1387973	2.2174591	19	1	32 days	0.69		Williams	1999 DZ	
1999 DB ₁	15.2	0.15	19990122	225.81396	52.26948	228.74914	2.10593	0.1345258	2.2495634	28	2	1997–1999	0.66	M-v	6	Williams	33994 1999 DB ₁
1999 DE ₁	15.0	0.15	19990211	305.28225	29.09675	183.61778	3.46364	0.0764859	2.1924717	28	1	36 days	0.66		Williams	1999 DE ₁	
1999 DJ ₁	16.1	0.15	19990211	268.06348	58.50967	180.76504	21.96674	0.0275057	1.9623601	13	1	5 days	0.60		Williams	1999 DJ ₁	
1999 DM ₁	14.8	0.15	19990303	1.17746	340.07843	178.63347	25.06130	0.2623475	2.3749550	27	1	35 days	0.59		Williams	1999 DM ₁	
1999 DP ₁	13.5	0.15	19990122	291.00681	172.70134	58.29013	14.62429	0.1285765	2.5795209	38	2	1997–1999	0.58	M-v	5	Williams	33995 1999 DP ₁
1999 DS ₁	14.9	0.15	19990211	337.85436	103.15892	63.68808	2.88736	0.0921235	2.8893755	9	1	6 days	0.19		Williams	1999 DS ₁	
1999 DZ ₁	13.9	0.15	19990211	185.30968	209.31274	122.47913	11.36669	0.0143873	3.0318594	19	1	9 days	0.59	E	Williams	1999 DZ ₁	
1999 DA ₂	15.7	0.15	19990211	345.14547	104.25984	68.62351	5.27828	0.1025704	2.5756359	16	1	9 days	0.69		Williams	1999 DA ₂	
1999 DB ₂	18.9	0.15	19990122	339.60909	251.57673	328.27244	11.60789	0.6202940	2.9949079	88	1	33 days	0.62	M-v	6	Williams	1999 DB ₂
1999 DC ₂	14.5	0.15	19990303	335.33036	41.43915	160.34830	23.50282	0.2080418	2.4137208	32	1	32 days	0.57		Williams	1999 DC ₂	
1999 DD ₂	17.1	0.15	19990211	242.42222	316.19967	326.86643	6.24119	0.2192346	2.1531948	24	1	12 days	0.98		Williams	1999 DD ₂	
1999 DE ₂	14.1	0.15	19990303	108.38532	75.69273	329.31651	11.62979	0.1834752	2.6474898	19	1	36 days	0.61		Williams	1999 DE ₂	
1999 DG ₂	13.7	0.15	19990211	120.21278	16.06468	12.04087	14.17233	0.1700589	2.5820840	11	1	9 days	0.60		Williams	1999 DG ₂	
1999 DH ₂	14.2	0.15	19990303	71.65648	332.34063	107.23430	6.23520	0.1429397	2.3267782	8	1	25 days	0.53		Nakano	1999 DH ₂	
1999 DJ ₂	12.9	0.15	19990303	30.72610	65.10512	65.03658	13.71969	0.0518554	3.1319100	22	1	39 days	0.62		Nakano	1999 DJ ₂	
1999 DL ₂	14.6	0.15	19990303	250.18230	172.15397	115.64568	8.78789	0.1002891	2.3691869	9	1	31 days	0.50		Nakano	1999 DL ₂	
1999 DN ₂	12.6	0.15	19990122	34.34898	107.06856	16.18389	14.71554	0.0450746	3.2442839	28	2	1990–1999	0.57	M-v	5	Williams	33995 1999 DN ₂
1999 DO ₂	12.5	0.15	19990303	27.00572	87.28574	46.43792	17.66447	0.0969735	3.2238867	20	1	39 days	0.66		Nakano	1999 DO ₂	
1999 DQ ₂	13.6	0.15	19990303	261.92786	255.24474	20.39143	10.48917	0.0813288	2.6885218	14	1	29 days	0.47		Williams	1999 DQ ₂	
1999 DR ₂	14.1	0.15	19990303	292.89901	132.74880	110.28638	7.68263	0.0739128	2.3061180	10	1	25 days	0.56		Nakano	1999 DR ₂	
1999 DS ₂	13.9	0.15	19990122	347.99225	181.98962	344.11953	9.33209	0.1543810	2.7675245	66	1	96 days	0.46	M-v	3	Williams	1999 DS ₂
1999 DV ₂	13.8	0.15	19990211	122.58279	220.16487	138.29424	2.00041	0.1301216	3.0089513	9	1	7 days	0.67	E	Nakano	1999 DV ₂	
1999 DW ₂	15.5	0.15	19990211	46.79291	261.73381	192.63938	5.52126	0.1124563	2.3377499	13	1	5 days	0.48		Williams	1999 DW ₂	
1999 DX ₂	14.5	0.15	19990211	90.22444	259.88825	153.01174	22.08257	0.0303958	2.6717963	25	1	59 days	0.31		Williams	1999 DX ₂	
1999 DY ₂	21.9	0.15	19990122	349.09672	160.99175	352.44215	7.61467	0.4629902	2.0422857	70	1	30 days	0.70	M-v	6	Williams	1999 DY ₂
1999 DZ ₂	15.0	0.15	19990303	70.78148	37.37815	57.71763	6.54207	0.1079077	2.2990708	13	1	30 days	0.60		Nakano	1999 DZ ₂	
1999 DA ₃	13.9	0.15	19990303	287.04568	143.98551	114.02552	8.44005	0.0396989	2.8548763	13	1	23 days	0.72		Williams	1999 DA ₃	
1999 DC ₃	13.9	0.15	19990303	331.28524	151.36692	62.71813	7.69469	0.1403693	2.2667846	10	1	23 days	0.34		Nakano	1999 DC ₃	
1999 DD ₃	15.4	0.15	19990303	282.49334	112.46731	142.45815	5.70209	0.1185972	2.7217373	9	1	21 days	0.14		Marsden	1999 DD ₃	
1999 DG ₃	15.4	0.15	19990211	119.38192	51.14187	318.05665	6.36209	0.2127828	2.2097538	12	1	11 days	0.49		Williams	1999 DG ₃	
1999 DJ ₃	21.0	0.15	19990211	324.20618	241.09055	329.44167	29.50356	0.3250349	1.6798862	21	1	24 days	0.41		Williams	1999 DJ ₃	
1999 DK ₃	17.3	0.15	19990122	310.84127	102.93026	149.97295	43.10452	0.4437228	2.1153032	67	1	31 days	0.59	M-v	6	Williams	1999 DK ₃
1999 DM ₃	15.2	0.15	19990303	16.22883	358.20222	159.19250	2.81426	0.1617855	2.3320314	21	1	33 days	0.58		Williams	1999 DM ₃	
1999 DP ₃	16.8	0.15	19990303	343.05821	344.68511	190.99602	2.79382	0.1027452	2.3319039	16	1	32 days	0.88		Williams	1999 DP ₃	
1999 DR ₃	11.8	0.15	19990303	310.96641	150.47734	76.34253	12.18304	0.0562491	3.0060829	19	1	33 days	0.27		Nakano	1999 DR ₃	
1999 DW ₃	18.0	0.15	19990211	224.51390	4.90952	288.21977	2.30102	0.1571110	2.0958141	15	1	16 days	0.53		Williams	1999 DW ₃	
1999 DY ₃	14.7	0.15	19990303	170.85612	348.98387	353.01801	1.46611	0.0203703	2.8235576	11	1	28 days	0.32		Williams	1999 DY ₃	
1999 DA ₄	16.2	0.15	19990303	7.79410	17.91281	124.05474	1.58096	0.2338873	2.9991845	15	1	32 days	0.41		Williams	1999 DA ₄	
1999 DB ₄	15.4	0.15	19990303	101.90717	302.29966	95.45058	1.09536	0.1367446	2.5894854	14	1	28 days	0.41		Williams	1999 DB ₄	
1999 DG ₄	14.6	0.15	19990303	28.77691	359.91824	114.04654	2.57796	0.1995401	3.1232972	18	1	29 days	0.27		Williams	1999 DG ₄	
1999 DJ ₄	18.1	0.15	19990122	328.10812	197.32948	20.13371	9.17170	0.4836022	1.8495615	98	1	29 days	0.65	M-v	7	Williams	1999 DJ ₄
1999 DL ₄	13.2	0.15	19990303	340.23183	200.40711	355.67221	10.90438	0.0440911	3.2126232	23	1	30 days	1.09		Williams	1999 DL ₄	
1999 DN ₄	14.6	0.15	19990303	327.57191	201.69155	357.25870	17.18132	0.1886548	3.0102222	45	1	29 days	0.71		Marsden	1999 DN ₄	
1999 DZ ₄	14.7	0.15	19990211	325.51742	322.27694	224.32981	15.28306	0.1095319	2.9232600	13	1	5 days	0.41		Williams	1999 DZ ₄	
1999 DH ₅	14.4	0.15	19990303	46.37735	213.95038	237.99663	13.35414	0.1509102	2.5228249	19	1	36 days	0.36		Williams	1999 DH ₅	
1999 DB ₇	19.9	0.15	19990122	315.08879	29.49324	157.73838	10.78482	0.1957175	1.2075279	48	1	16 days	0.63	M-v	7	Williams	1999 DB ₇
1999 EB	14.8	0.15	19990303	34.18038	123.65373	355.99789	8.69966	0.1270787	2.5577860	27	1	30 days	0.69		Williams	1999 EB	
1999 EC	15.3	0.15	19990303	320.01573	201.45890	5.78423	5.09077	0.0498491	2.7745241	9	1	6 days	0.19		Marsden	1999 EC	
1999 ED	17.9	0.15	19990303	66.27881	284.08279	162.49618	23.28645	0.0780174	1.9373580	13	1	12 days	0.58		Marsden	1999 ED	

1999 EE	15.9	0.15	19990303	83.80977	7.72479	59.26242	3.20640	0.1686234	2.2192920	11	1	13 days	0.22	Marsden	1999 EE
1999 EF	15.1	0.15	19990303	27.15094	320.08160	157.84107	7.13628	0.2267597	3.0633814	8	1	6 days	0.14	Marsden	1999 EF
1999 EH	15.9	0.15	19990303	55.22736	157.29570	319.41923	2.72258	0.0896946	2.3337480	14	1	18 days	0.60	Williams	1999 EH
1999 EJ	14.8	0.15	19990303	303.47247	288.05957	323.53319	2.82544	0.1261425	2.7745495	16	1	17 days	0.57	Williams	1999 EJ
1999 EK	14.8	0.15	19990303	70.97356	193.76489	252.82648	1.42753	0.1552457	2.3915626	12	1	17 days	0.23	Williams	1999 EK
1999 EL	13.0	0.15	19990303	317.76023	50.43523	183.74446	17.09026	0.1736909	3.1115931	14	1	33 days	0.16	Williams	1999 EL
1999 EM	15.4	0.15	19990303	92.30202	92.91142	327.89438	2.98280	0.0786234	2.4277527	9	1	4 days	0.81	E Williams	1999 EM
1999 EN	17.3	0.15	19990303	35.58714	133.29978	333.68536	1.09410	0.1386956	2.4822659	12	1	14 days	0.21	Williams	1999 EN
1999 EQ	15.7	0.15	19990303	57.68953	86.74174	335.56892	2.64206	0.2817741	3.2495222	9	1	8 days	0.18	Williams	1999 EQ
1999 ET	16.3	0.15	19990303	167.53885	2.88237	338.90200	3.65515	0.1813264	2.3066803	9	1	14 days	0.18	Williams	1999 ET
1999 EU	17.5	0.15	19990303	256.63424	286.48692	342.62660	2.44703	0.1114425	2.2978555	9	1	8 days	0.19	Williams	1999 EU
1999 EG ₁	15.3	0.15	19990303	312.65595	246.57581	335.57465	7.04111	0.1128382	3.0813124	12	1	12 days	0.71	E Williams	1999 EG ₁
1999 EL ₁	15.1	0.15	19990303	178.76247	177.82255	167.89838	27.03015	0.3305121	2.8335904	8	1	6 days	0.40	Williams	1999 EL ₁
1999 EP ₁	16.4	0.15	19990303	107.84100	173.30238	220.37984	0.93154	0.2427912	2.5188338	8	1	6 days	0.16	Williams	1999 EP ₁
1999 EQ ₁	14.3	0.15	19990303	217.41955	333.11564	341.44669	10.22964	0.1053782	2.9545947	12	1	12 days	0.20	Williams	1999 EQ ₁
1999 EZ ₁	16.3	0.15	19990303	311.62067	76.38096	138.34624	1.94736	0.1545539	3.1084780	8	1	6 days	0.19	E Williams	1999 EZ ₁
1999 EF ₂	16.4	0.15	19990303	80.40576	97.41408	346.48233	2.58576	0.0395126	2.4636773	9	1	9 days	0.34	E Williams	1999 EF ₂
1999 EG ₂	15.2	0.15	19990303	191.67112	2.03713	340.51401	0.67538	0.2390253	2.5425964	9	1	7 days	0.21	E Williams	1999 EG ₂
1999 EJ ₂	13.2	0.15	19990303	318.88490	43.40611	192.36657	14.79078	0.0735514	2.5979876	16	1	11 days	0.51	Williams	1999 EJ ₂
1999 EK ₂	17.7	0.15	19990303	226.89750	131.23563	144.80958	23.07666	0.0431256	1.9419386	9	1	3 days	0.39	Williams	1999 EK ₂
1999 EM ₂	17.0	0.15	19990303	0.05250	179.09227	348.75420	3.91450	0.0628368	2.4236779	12	1	8 days	0.27	Williams	1999 EM ₂
1999 EP ₂	16.9	0.15	19990303	42.57804	113.39441	357.46512	3.33117	0.1791578	3.2788326	8	1	8 days	0.33	E Williams	1999 EP ₂
1999 EV ₂	14.6	0.15	19990303	357.30100	119.65374	51.21957	6.83752	0.0524307	2.2669674	8	1	8 days	0.27	Williams	1999 EV ₂
1999 EX ₂	15.7	0.15	19990303	93.61737	260.09985	158.91942	23.87600	0.0788498	1.9087367	22	1	35 days	0.74	Williams	1999 EX ₂
1999 EY ₂	15.7	0.15	19990303	28.67807	273.15558	157.01921	20.30844	0.2768236	1.9885751	26	1	4 days	0.82	Williams	1999 EY ₂
1999 EZ ₂	14.9	0.15	19990303	320.10103	238.38224	355.18998	9.84431	0.2322490	2.6286683	11	1	6 days	0.63	Williams	1999 EZ ₂
1999 EB ₃	14.2	0.15	19990303	141.89102	175.20237	164.58274	8.51690	0.1673300	2.7115036	6	1	7 days	0.53	E Williams	1999 EB ₃
1999 EC ₃	14.4	0.15	19990303	229.98533	328.99920	355.31652	10.63669	0.1072889	2.9894779	9	1	13 days	0.16	Williams	1999 EC ₃
1999 EE ₃	14.5	0.15	19990303	261.42535	90.11009	223.16068	10.89731	0.1573707	2.8930825	8	1	9 days	0.20	Marsden	1999 EE ₃
1999 EF ₃	14.1	0.15	19990303	335.87662	41.61768	178.37097	14.17190	0.1259482	3.1135258	25	1	14 days	0.35	Marsden	1999 EF ₃
1999 EK ₃	13.9	0.15	19990303	19.78453	336.93069	173.28118	12.49856	0.1826758	2.5780435	39	1	9 days	0.82	Williams	1999 EK ₃
1999 EM ₃	15.2	0.15	19990303	17.65811	140.81967	13.56146	15.17906	0.2448271	2.5710356	19	1	10 days	0.30	Williams	1999 EM ₃
1999 EN ₃	17.6	0.15	19990303	252.20154	244.28057	35.05915	0.92387	0.1813618	2.1529297	15	1	4 days	0.53	Williams	1999 EN ₃
1999 EO ₃	19.1	0.15	19990303	9.96103	304.35791	159.96236	23.73410	0.6019268	2.6591214	33	1	10 days	0.83	Williams	1999 EO ₃
1999 EP ₃	15.8	0.15	19990303	312.00435	253.27443	353.90126	7.77052	0.1093996	2.2034885	9	1	9 days	0.40	Williams	1999 EP ₃
1999 EQ ₃	15.4	0.15	19990303	253.17039	209.60162	90.18624	3.18611	0.2222696	2.3672041	11	1	8 days	0.31	Marsden	1999 EQ ₃
1999 ET ₃	13.8	0.15	19990303	247.16687	297.62005	30.32649	11.05883	0.1840892	2.9540607	8	1	6 days	0.11	Marsden	1999 ET ₃
1999 EY ₃	16.9	0.15	19990303	277.65368	98.88132	152.67664	4.72899	0.1333386	2.6456589	9	1	8 days	0.72	E Williams	1999 EY ₃
1999 EZ ₃	15.4	0.15	19990303	69.31845	59.14288	1.68738	1.10050	0.2046704	3.0725784	9	1	8 days	0.93	E Williams	1999 EZ ₃
1999 EA ₄	18.0	0.15	19990303	61.53055	88.47730	348.69691	2.37430	0.1524329	2.2742566	9	1	8 days	0.19	Williams	1999 EA ₄
1999 EQ ₄	12.3	0.15	19990303	221.75431	140.98654	190.88230	11.42269	0.1136213	2.9527571	12	1	8 days	0.62	Williams	1999 EQ ₄
1999 ER ₄	13.6	0.15	19990303	282.35782	71.10989	200.30746	4.35576	0.1471240	2.8414363	8	1	2 days	0.46	E Williams	1999 ER ₄
1999 ET ₄	15.7	0.15	19990303	257.60058	272.35957	24.41082	6.17274	0.1309934	2.3402873	24	1	10 days	0.86	Williams	1999 ET ₄
1999 EV ₄	13.9	0.15	19990303	271.09667	93.95412	182.00019	12.34383	0.0400442	2.6943909	8	1	11 days	0.29	Williams	1999 EV ₄
1999 EX ₄	14.1	0.15	19990303	84.26611	70.06430	6.43312	21.10439	0.1847900	3.1445954	8	1	13 days	0.33	Williams	1999 EX ₄
1999 EY ₄	15.3	0.15	19990303	305.34411	128.40377	123.79736	8.76369	0.2496007	2.8203812	9	1	7 days	0.69	Williams	1999 EY ₄
1999 EZ ₄	14.9	0.15	19990303	149.19236	287.24452	96.54941	9.52698	0.1885965	2.3616995	8	1	7 days	0.50	Williams	1999 EZ ₄
1999 EA ₅	14.8	0.15	19990303	94.08188	14.77685	53.31263	4.60985	0.1075574	2.2921435	9	1	11 days		Williams	1999 EA ₅
1999 EB ₅	15.0	0.15	19990303	324.11709	126.28725	83.14001	3.26767	0.1210443	2.9606824	18	1	10 days	0.42	Williams	1999 EB ₅
1999 ED ₅	19.7	0.15	19990303	312.63017	273.80593	5.80163	18.15753	0.4655892	1.7434554	30	1	11 days	1.08	Williams	1999 ED ₅
1999 EE ₅	18.0	0.15	19990323	353.53039	192.82261	355.57622	31.01634	0.2819136	1.6695929	122	1	12 days	0.72	Nakano	1999 EE ₅
1999 EF ₅	19.0	0.15	19990323	359.11964	178.63918	6.33347	31.17332	0.4308494	2.2407394	41	1	12 days	0.65	Nakano	1999 EF ₅
1999 EG ₅	12.4	0.15	19990323	171.12892	286.37947	81.44731	11.76950	0.1261317	3.0310248	10	1	10 days	0.64	Nakano	1999 EG ₅

1999 EH ₅	13.1	0.15	19990303	52.00278	140.14886	356.38249	9.70383	0.0244978	3.0052113	22	1	9 days	0.57	Williams	1999 EH ₅
1999 EJ ₅	15.5	0.15	19990303	277.19331	308.41263	327.44844	5.30875	0.0591053	2.4315596	18	1	8 days	0.61	Williams	1999 EJ ₅
1999 EK ₅	15.8	0.15	19990303	85.13296	63.60157	20.33162	5.26207	0.0527034	2.4230591	14	1	11 days	0.37	Williams	1999 EK ₅
1999 EL ₅	14.4	0.15	19990303	151.25748	101.23200	287.34107	0.92981	0.0674051	2.8299126	8	1	12 days	0.23	Williams	1999 EL ₅
1999 EO ₅	16.6	0.15	19990303	328.99436	255.21267	325.12913	3.87784	0.0794425	2.2461573	6	1	8 days	0.28	Williams	1999 EO ₅
1999 EU ₅	13.6	0.15	19990303	14.70026	28.55156	126.45358	2.99445	0.0217425	2.8972373	18	1	10 days	1.26	E Williams	1999 EU ₅
1999 EZ ₅	16.5	0.15	19990303	314.15154	230.54331	11.25070	5.50010	0.0994800	2.3623447	9	1	7 days	0.23	Williams	1999 EZ ₅
1999 EB ₆	14.7	0.15	19990303	148.72949	21.73368	16.12726	14.80248	0.0942793	2.5247866	11	1	11 days	0.27	Williams	1999 EB ₆
1999 EC ₆	15.3	0.15	19990303	205.31819	319.23489	34.21136	2.42948	0.0954251	2.8300076	15	1	12 days	0.49	Williams	1999 EC ₆
1999 ED ₆	14.2	0.15	19990303	181.36719	355.15262	17.91332	28.81525	0.1243721	2.6916796	20	1	10 days	0.60	Williams	1999 ED ₆
1999 EE ₆	15.8	0.15	19990303	53.38643	101.43225	18.67645	6.04155	0.1531164	2.4080693	13	1	8 days	1.00	Williams	1999 EE ₆
1999 EG ₆	15.9	0.15	19990211	20.86729	137.42430	15.31514	13.26874	0.1638405	2.5559087	11	1	52 days	0.20	Williams	1999 EG ₆
1999 EH ₆	15.4	0.15	19990303	222.96354	330.60914	344.12676	8.05641	0.1626038	2.3772642	9	1	7 days	0.36	Williams	1999 EH ₆
1999 EL ₆	16.2	0.15	19990303	74.16978	99.52010	342.22699	3.60175	0.0970349	2.5395120	9	1	7 days	0.46	E Williams	1999 EL ₆
1999 EO ₆	17.0	0.15	19990303	68.92541	229.41542	210.99542	2.16020	0.1352230	2.6262810	8	1	7 days	0.49	Williams	1999 EO ₆
1999 ER ₆	16.5	0.15	19990303	86.72729	235.31476	186.07563	3.77384	0.1892798	2.6194736	9	1	9 days	0.46	Williams	1999 ER ₆
1999 ES ₆	18.8	0.15	19990303	8.62807	169.36068	346.54392	4.93406	0.1653283	2.3601443	9	1	8 days	0.92	Williams	1999 ES ₆
1999 ET ₆	18.2	0.15	19990303	31.48463	273.31098	215.85705	0.88492	0.1173787	2.3627917	9	1	9 days	0.29	Williams	1999 ET ₆
1999 EU ₆	18.0	0.15	19990303	33.95630	277.57159	207.35738	0.94773	0.1354095	2.4476293	8	1	9 days	0.35	Williams	1999 EU ₆
1999 EW ₆	16.4	0.15	19990303	41.77778	291.27017	187.09475	1.69600	0.1089731	2.3180808	9	1	9 days	0.27	Williams	1999 EW ₆
1999 EY ₆	15.9	0.15	19990303	327.85511	29.12720	180.32822	1.56918	0.1064038	2.4388447	11	1	6 days	0.48	E Marsden	1999 EY ₆
1999 EC ₇	16.8	0.15	19990303	86.92571	264.67693	170.59142	4.70033	0.0793253	2.3369148	12	1	10 days	0.32	E Williams	1999 EC ₇
1999 ED ₇	16.2	0.15	19990303	52.04650	103.48048	9.19263	21.94071	0.0751498	1.9054136	17	1	28 days	0.54	Williams	1999 ED ₇
1999 EE ₇	15.4	0.15	19990303	32.34992	126.44703	6.53114	28.08695	0.0931575	2.4128075	13	1	8 days	0.80	Williams	1999 EE ₇
1999 EG ₇	16.4	0.15	19990303	148.10875	265.06286	104.56011	4.12735	0.1626137	2.5258494	9	1	5 days	0.32	Williams	1999 EG ₇
1999 EG ₈	16.2	0.15	19990303	326.83952	217.49589	19.83435	27.41221	0.1420567	3.1956394	9	1	10 days	0.21	Williams	1999 EG ₈
1999 FA	20.7	0.15	19990122	12.45035	294.75252	166.30980	11.92808	0.1307512	1.0727105	122	1	11 days	0.56	M-v 6 Williams	1999 FA
1999 FB	17.3	0.15	19990323	71.91316	2.80797	37.33727	12.84407	0.6057201	1.1787957	74	1	11 days	0.55	Nakano	1999 FB
1999 FD	14.2	0.15	19990303	307.51097	99.87383	151.47961	5.54497	0.1929706	2.5672197	19	1	11 days	0.52	Williams	1999 FD
1999 FE	14.6	0.15	19990303	126.81518	293.29003	116.07959	3.59895	0.0593176	2.9182736	9	1	7 days	0.28	Williams	1999 FE
1999 FG	14.0	0.15	19990303	19.02846	314.28395	198.03315	7.26755	0.1372338	3.1377989	11	1	7 days	0.59	Williams	1999 FG
1999 FH	14.6	0.15	19990303	266.86229	107.67964	193.59996	11.81560	0.2904791	2.3434436	22	1	7 days	0.70	Williams	1999 FH
1999 FK	14.7	0.15	19990303	189.05302	292.59026	57.79559	7.15202	0.1837760	2.3776965	6	1	7 days	0.49	Williams	1999 FK
1999 FN	14.5	0.15	19990303	351.52938	1.40506	198.61046	13.04757	0.1222499	2.6775250	16	1	3 days	0.56	Williams	1999 FN
1999 FO	14.2	0.15	19990303	268.96181	307.25592	4.79012	6.18307	0.2717522	2.4183923	16	1	3 days	1.18	E Williams	1999 FO
1999 FP	14.1	0.15	19990303	74.29137	108.12220	359.93706	4.43904	0.0901151	2.8126069	14	1	3 days	0.98	E Williams	1999 FP
1999 FQ	15.5	0.15	19990303	156.38589	189.29919	204.48268	7.99582	0.0912316	2.7839593	9	1	4 days	0.19	E Williams	1999 FQ
1999 FE ₁	14.5	0.15	19990303	242.99778	308.70526	19.19865	2.24287	0.1499823	2.8397492	9	1	4 days	0.13	E Williams	1999 FE ₁
1999 FF ₁	15.1	0.15	19990303	289.62524	284.13303	18.70793	12.73496	0.3282481	2.5921558	10	1	6 days	0.21	Marsden	1999 FF ₁
1999 FH ₁	15.0	0.15	19990303	326.78607	212.10462	25.67591	5.39310	0.1068144	3.1848969	9	1	4 days	0.28	E Williams	1999 FH ₁
1999 FL ₁	15.6	0.15	19990303	284.19528	290.68131	341.30270	10.60329	0.2718230	2.5015881	9	1	5 days	0.52	E Williams	1999 FL ₁
1999 FM ₁	17.4	0.15	19990303	281.42599	280.45125	341.37027	5.90399	0.1544048	2.3404605	9	1	6 days	0.35	E Williams	1999 FM ₁
1999 FN ₁	16.1	0.15	19990303	283.87062	83.03412	173.20608	10.19863	0.1252053	2.9611335	9	1	3 days	0.38	E Williams	1999 FN ₁
1999 FR ₁	17.6	0.15	19990303	296.93012	276.62223	336.59573	2.40430	0.2148671	2.4561023	9	1	3 days	0.21	E Williams	1999 FR ₁
1999 FX ₁	14.9	0.15	19990303	318.98894	234.47312	347.15446	4.35485	0.1568402	3.1760161	9	1	6 days	0.18	Williams	1999 FX ₁
1999 FA ₂	14.0	0.15	19990303	258.01161	298.71334	347.77642	3.29192	0.1582859	3.8496878	9	1	3 days	0.31	E Williams	1999 FA ₂
1999 FB ₂	15.1	0.15	19990303	216.77176	151.09700	170.70045	6.79678	0.1873526	3.0356823	9	1	3 days	0.29	E Williams	1999 FB ₂
1999 FC ₂	16.5	0.15	19990303	84.96159	67.67816	349.58832	13.92439	0.2244239	2.6767737	9	1	5 days	0.27	Williams	1999 FC ₂
1999 FE ₂	15.5	0.15	19990303	13.82438	334.87114	172.10175	5.27993	0.1661985	2.3564357	14	1	7 days		Williams	1999 FE ₂
1999 FP ₂	15.7	0.15	19990303	302.82218	254.38819	355.73235	19.99109	0.2040538	3.0545800	9	1	8 days	0.21	Williams	1999 FP ₂
1999 FQ ₂	14.7	0.15	19990303	21.74728	150.31656	357.51081	10.41277	0.0360125	3.1573997	9	1	8 days	0.12	E Williams	1999 FQ ₂
1999 FV ₂	17.0	0.15	19990303	287.20732	251.45179	2.01954	6.73055	0.0889766	2.2407327	8	1	8 days	0.21	Williams	1999 FV ₂
1999 FZ ₂	15.5	0.15	19990303	359.42119	354.87708	192.94473	6.73051	0.0747732	2.3175507	26	1	7 days	0.77	Williams	1999 FZ ₂

1999 FB ₃	16.5	0.15	19990303	283.99854	278.34402	13.53490	1.41136	0.2256524	2.4255547	9	1	5 days	0.14	Williams	1999 FB ₃
1999 FC ₃	16.3	0.15	19990303	313.73537	233.41490	16.05298	7.38733	0.1405307	2.6575319	9	1	5 days	0.15	Williams	1999 FC ₃
1999 FG ₃	16.4	0.15	19990303	337.77406	35.58200	183.44345	2.83887	0.1680849	2.3905852	9	1	5 days	0.16	Williams	1999 FG ₃
1999 FH ₃	16.5	0.15	19990303	46.60693	310.44410	175.16767	2.39861	0.1970642	2.6529194	12	1	6 days	0.38	Williams	1999 FH ₃
1999 FJ ₃	15.6	0.15	19990303	22.47626	307.05494	178.09439	23.42373	0.2170759	2.3383182	21	1	5 days	0.54	Williams	1999 FJ ₃
1999 FL ₃	15.6	0.15	19990303	162.69325	2.10878	13.15204	21.76995	0.0907351	1.9789807	14	1	4 days	0.83	E Williams	1999 FL ₃
1999 FM ₃	15.7	0.15	19990303	319.00512	226.72066	15.54111	22.49435	0.2360217	2.5131460	13	1	4 days	0.82	E Williams	1999 FM ₃
1999 FN ₃	16.1	0.15	19990303	217.88364	321.41245	13.62884	22.78307	0.1185371	2.0178461	18	1	4 days	0.95	Williams	1999 FN ₃
1999 FO ₃	15.5	0.15	19990303	33.13532	304.09814	184.19805	23.02087	0.2762587	2.5607624	15	1	4 days	1.13	Williams	1999 FO ₃
1999 FP ₃	15.8	0.15	19990303	35.92459	312.21753	180.64647	23.89311	0.1891439	2.3438884	14	1	4 days	0.87	Williams	1999 FP ₃
1999 FQ ₃	13.2	0.15	19990303	51.18901	247.01990	149.23088	13.17390	0.1567720	2.5128816	12	1	6 days	0.58	Williams	1999 FQ ₃
1999 FS ₃	13.7	0.15	19990303	13.06043	36.49531	114.49931	8.46350	0.1387070	2.4460864	6	1	3 days	0.30	Williams	1999 FS ₃
1999 FV ₃	14.0	0.15	19990303	148.23027	202.52896	178.28111	2.91745	0.1774111	2.8425625	12	1	6 days	0.46	E Marsden	1999 FV ₃
1999 FW ₃	15.4	0.15	19990303	332.33657	31.59837	190.78665	0.97864	0.3164581	3.0778440	9	1	5 days	0.69	Marsden	1999 FW ₃
1999 FZ ₃	17.6	0.15	19990303	5.40903	111.23173	36.48153	1.03976	0.1661566	2.4541699	9	1	8 days	0.26	Williams	1999 FZ ₃
1999 FB ₄	15.5	0.15	19990303	201.82017	159.38527	153.23618	4.89083	0.0968617	2.7667250	8	1	8 days	0.30	Williams	1999 FB ₄
1999 FD ₄	15.4	0.15	19990303	281.26153	1.04048	266.83271	1.24411	0.2151449	2.7469140	9	1	6 days	0.23	Williams	1999 FD ₄
1999 FO ₄	16.0	0.15	19990303	161.50058	191.80638	196.29605	2.56565	0.0533887	2.6200890	15	1	7 days	0.52	E Williams	1999 FO ₄
1999 FP ₄	16.7	0.15	19990303	64.17252	269.75943	192.59068	7.86135	0.1972658	2.3672239	12	1	7 days	0.30	Williams	1999 FP ₄
1999 FR ₄	15.1	0.15	19990303	262.21708	295.37852	13.78780	2.13966	0.1742570	2.9138739	8	1	6 days	0.64	Williams	1999 FR ₄
1999 FS ₄	14.1	0.15	19990303	183.23461	175.33038	195.50331	9.38606	0.0693504	3.0841183	15	1	9 days	0.44	Williams	1999 FS ₄
1999 FU ₄	16.0	0.15	19990303	30.13526	325.94408	188.79659	1.60090	0.1033857	2.9954169	9	1	7 days	0.18	E Williams	1999 FU ₄
1999 FV ₄	16.8	0.15	19990303	35.08955	106.68647	23.36705	0.94073	0.2775102	2.9947365	9	1	6 days	0.24	E Williams	1999 FV ₄
1999 FW ₄	15.0	0.15	19990303	339.14614	195.22631	16.60758	3.31668	0.0895046	2.2425979	9	1	6 days	0.10	Williams	1999 FW ₄
1999 FX ₄	16.7	0.15	19990303	53.07215	95.86178	20.77643	4.06617	0.1902748	2.4860769	9	1	6 days	0.30	Williams	1999 FX ₄
1999 FY ₄	16.5	0.15	19990303	158.49357	201.27182	186.50598	3.79178	0.1545180	2.2027658	9	1	6 days	0.41	Williams	1999 FY ₄
1999 FZ ₄	15.1	0.15	19990303	63.61350	288.18836	192.21653	9.26140	0.0961133	3.1244022	9	1	6 days	0.39	Williams	1999 FZ ₄
1999 FA ₅	15.7	0.15	19990303	274.60123	274.72728	25.05817	4.35162	0.1924149	2.5832917	9	1	6 days	0.22	Williams	1999 FA ₅
1999 FE ₅	16.6	0.15	19990303	112.10668	46.10367	347.99350	7.78922	0.2205717	2.2015595	9	1	4 days	0.16	Williams	1999 FE ₅
1999 FH ₅	18.2	0.15	19990303	319.62844	225.54601	352.83990	0.75135	0.1028169	2.3092777	9	1	5 days	0.30	Williams	1999 FH ₅
1999 FJ ₅	14.6	0.15	19990303	159.05995	7.42468	354.21257	6.86560	0.4028124	2.1740880	9	1	5 days	0.17	Williams	1999 FJ ₅
1999 FK ₅	17.3	0.15	19990303	88.71548	293.45496	140.65586	0.69970	0.0783295	2.6711661	9	1	5 days	0.29	E Williams	1999 FK ₅
1999 FN ₅	16.4	0.15	19990303	248.31383	282.52031	39.40478	2.02474	0.1750322	2.4409189	8	1	5 days	0.22	E Williams	1999 FN ₅
1999 FP ₅	14.2	0.15	19990323	241.95932	287.40242	14.77327	10.15543	0.1040172	3.0246379	8	1	3 days	0.13	Marsden	1999 FP ₅
1999 FQ ₅	17.7	0.15	19990303	143.72727	199.10106	172.87609	26.11928	0.1629192	1.4985527	50	1	6 days	0.87	Williams	1999 FQ ₅
1999 FR ₅	23.4	0.15	19990122	349.03555	148.31213	356.11453	3.79422	0.4768357	1.8430144	77	1	6 days	0.60	M-v 7 Williams	1999 FR ₅
1999 FS ₅	16.0	0.15	19990303	32.65031	248.96739	252.82610	2.06737	0.1615629	2.7155182	6	1	6 days	0.15	Williams	1999 FS ₅
1999 FT ₅	13.9	0.15	19990323	243.31489	317.47967	9.44560	12.66295	0.2477079	2.4993615	14	1	4 days	0.94	E Williams	1999 FT ₅
1999 FV ₅	16.3	0.15	19990303	341.41003	218.29043	311.77496	2.40859	0.2764791	3.0582943	9	1	4 days	0.20	Williams	1999 FV ₅
1999 FX ₅	14.9	0.15	19990303	263.59309	110.17940	139.79102	12.69062	0.1543284	2.7405757	9	1	6 days	0.16	Williams	1999 FX ₅
1999 FD ₆	16.3	0.15	19990303	319.70248	42.18135	143.33636	3.23539	0.0778899	2.2614028	9	1	6 days	0.21	Williams	1999 FD ₆
1999 FE ₆	15.4	0.15	19990303	46.19934	97.82961	332.71689	2.86119	0.2297739	2.5270417	9	1	6 days	0.12	Williams	1999 FE ₆
1999 FG ₆	17.2	0.15	19990303	340.20533	193.17937	336.90581	3.21350	0.1622816	2.2658006	9	1	6 days	0.34	Williams	1999 FG ₆
1999 FH ₆	15.3	0.15	19990303	55.44374	169.61028	309.03816	0.89592	0.1378748	2.3215052	14	1	4 days	0.61	E Williams	1999 FH ₆
1999 FU ₆	15.7	0.15	19990303	337.85286	23.57741	141.48178	3.28488	0.0709106	2.3650446	9	1	3 days	0.18	E Williams	1999 FU ₆
1999 FE ₇	17.3	0.15	19990303	327.89049	42.12281	172.01765	3.59935	0.1246787	2.2470360	8	1	4 days	1.30	E Williams	1999 FE ₇
1999 FO ₇	15.6	0.15	19990303	60.72462	97.93593	349.30308	17.15145	0.1875032	2.0632584	22	1	4 days	0.86	Williams	1999 FO ₇
1999 FT ₈	14.5	0.15	19990303	326.99202	61.54024	141.70924	2.65923	0.0997633	2.6978810	15	1	4 days	0.70	E Williams	1999 FT ₈
1999 FJ ₉	15.7	0.15	19990303	51.28264	344.40635	140.46749	5.55250	0.0432846	2.1776039	16	1	4 days	0.63	Williams	1999 FJ ₉
1999 FH ₁₀	14.6	0.15	19990323	245.23644	202.27265	86.77634	7.58222	0.0397216	2.4226018	13	1	2 days	0.54	E Williams	1999 FH ₁₀
1999 FJ ₁₀	13.5	0.15	19990323	234.46753	218.43175	100.97583	2.24326	0.1658608	3.1764345	7	1	6 days	0.13	Williams	1999 FJ ₁₀
1999 FM ₁₀	14.5	0.15	19990323	35.92146	293.64210	194.59832	7.90001	0.2081058	2.5350267	9	1	2 days	0.15	Williams	1999 FM ₁₀
1999 FP ₁₀	15.1	0.15	19990303	43.92301	348.40938	144.28828	4.24804	0.1247021	2.3392694	26	1	5 days	0.77	Williams	1999 FP ₁₀

1999 FQ ₁₀	23.6	0.15	19990303	6.25644	335.13709	163.45850	1.09163	0.4913919	1.9531204	19	1	4 days	1.03		Williams	1999 FQ ₁₀	
1999 FN ₁₄	14.2	0.15	19990303	69.94439	84.53932	15.61099	15.17762	0.1795169	2.5592298	16	1	4 days	0.50	E	Williams	1999 FN ₁₄	
1999 FJ ₁₇	15.2	0.15	19990303	351.30000	9.36241	192.62716	17.29605	0.2425741	2.6717049	15	1	5 days	0.41		Williams	1999 FJ ₁₇	
1999 FU ₁₇	13.2	0.15	19990303	117.58379	237.83567	195.86326	18.22942	0.0455356	3.1695311	14	1	5 days	0.67	E	Williams	1999 FU ₁₇	
1999 FH ₁₈	13.9	0.15	19990303	51.06151	137.55916	320.01992	6.52927	0.1620798	2.2669170	15	1	5 days	0.54	E	Williams	1999 FH ₁₈	
1999 FA ₁₉	15.2	0.15	19990303	299.30920	262.23230	5.84071	5.44654	0.2113606	2.5164315	16	1	5 days	0.50		Williams	1999 FA ₁₉	
1999 FK ₁₉	15.5	0.15	19990303	315.03660	150.29247	84.43353	2.67018	0.0580789	2.1409695	16	1	5 days	0.53	E	Williams	1999 FK ₁₉	
1999 FM ₁₉	13.7	0.15	19990303	14.64896	29.92921	140.15121	3.08170	0.1004496	2.8236564	16	1	5 days	0.48		Williams	1999 FM ₁₉	
1999 FN ₁₉	22.2	0.15	19990323	340.39983	35.05985	191.48840	2.32399	0.3910351	1.6465553	63	1	7 days	0.92		Nakano	1999 FN ₁₉	
1999 FO ₁₉	15.8	0.15	19990323	286.70088	343.56156	312.11190	3.59645	0.3452318	2.1041638	36	1	4 days	0.58		Marsden	1999 FO ₁₉	
1999 FP ₁₉	20.1	0.15	19990323	331.68682	273.54056	347.40303	15.15276	0.5160768	1.9358672	27	1	3 days	1.03		Williams	1999 FP ₁₉	
1999 FQ ₁₉	17.7	0.15	19990323	359.25495	256.93882	294.86257	8.36095	0.4548587	2.9701017	35	1	3 days	0.65		Williams	1999 FQ ₁₉	
1999 FR ₁₉	22.3	0.15	19990323	27.16049	106.77523	0.74095	20.87266	0.4783744	1.5488581	39	1	3 days	0.65		Williams	1999 FR ₁₉	
1999 FV ₁₉	14.5	0.15	19990303	355.16437	178.86575	1.98885	9.71441	0.0904545	2.7419858	7	1	6 days	1.85	E	Williams	1999 FV ₁₉	
1999 FE ₂₁	15.0	0.15	19990323	41.32359	124.58281	24.20907	13.73584	0.1692089	2.4240772	12	1	6 days	0.31		Williams	1999 FE ₂₁	
1999 FJ ₂₁	20.3	0.15	19990323	72.96060	67.50985	19.55983	21.92885	0.2739848	1.2733802	22	1	5 days	0.89		Marsden	1999 FJ ₂₁	
1999 FK ₂₁	18.8	0.15	19990323	260.15673	172.23475	180.67318	12.67829	0.7047873	0.7391842	59	1	3 days	0.51		Williams	1999 FK ₂₁	
1999 FP ₂₁	15.8	0.15	19990323	355.16474	25.10233	160.74592	6.01400	0.1139342	2.2722926	9	1	7 days	0.49		Williams	1999 FP ₂₁	
1999 FY ₃₀	15.3	0.15	19990323	353.59043	171.01498	30.36273	5.12252	0.1282200	2.2961455	15	1	9 days	0.62		Williams	1999 FY ₃₀	
1999 FM ₃₁	15.1	0.15	19990323	343.14899	59.79319	157.05255	2.66709	0.1402518	2.4430351	14	1	9 days	0.94		Williams	1999 FM ₃₁	
1999 FO ₃₁	13.2	0.15	19990323	140.08756	25.11688	21.74317	14.18681	0.1599051	2.5784018	16	1	9 days	0.63		Williams	1999 FO ₃₁	
1999 FK ₃₂	14.7	0.15	19990323	299.32936	263.93342	26.76092	12.29184	0.3005440	2.4399323	14	1	9 days	0.82		Williams	1999 FK ₃₂	
2020 P-L	14.7	0.15	19990122	102.67464	61.01305	342.80583	5.12037	0.2385708	2.5638656	34	4	1960–1999	0.65	M-v	2	Williams	31160 2020 P-L
2038 P-L	15.3	0.15	19990122	292.36813	268.10093	226.23493	5.95851	0.0573540	2.2782350	38	2	1960–1999	0.74	M-v	5	Williams	33784 2038 P-L
2042 P-L	14.9	0.15	19990122	4.97721	262.10075	231.35385	4.76914	0.0418337	2.3942125	33	3	1960–1999	0.69	M-v	4	Williams	34059 2042 P-L
2055 P-L	14.9	0.15	19990122	318.07528	245.72360	344.80741	8.81261	0.1380484	2.3663852	26	3	1960–1999	0.68	M-v	3	Williams	28319 2055 P-L
2061 P-L	14.5	0.15	19990122	321.78385	267.96742	320.73344	4.95609	0.1799753	2.3646969	17	4	1960–1999	0.66	M-v	2	Williams	27938 2061 P-L
2078 P-L	14.0	0.15	19990122	76.69611	82.26916	354.44241	7.02414	0.1402435	2.5599772	23	3	1960–1999	0.64	M-v	4	Williams	31267 2078 P-L
2503 P-L	13.5	0.15	19990122	97.46397	59.08822	7.72505	14.96829	0.1086039	2.5516031	25	4	1960–1999	0.60	M-v	3	Williams	27724 2503 P-L
2549 P-L	13.9	0.15	19990122	296.28423	283.34525	167.68312	2.13730	0.0350748	2.8340921	63	3	1960–1998	0.69	M-v	2	Williams	34059 2549 P-L
2647 P-L	15.0	0.15	19990122	97.26346	28.35712	16.97493	1.50674	0.1782613	2.3955116	13	3	1960–1999	0.69	M-v	4	Williams	16438 2647 P-L
2743 P-L	15.5	0.15	19990122	322.35485	59.33966	126.67084	0.78499	0.1605031	2.3879338	40	3	1960–1999	0.84	M-v	3	Williams	34059 2743 P-L
2767 P-L	13.0	0.15	19990122	246.78654	228.84145	87.93073	2.43104	0.1368066	3.2478293	19	4	1960–1999	0.46	M-v	2	Williams	33735 2767 P-L
2779 P-L	15.1	0.15	19990122	156.71978	303.40170	51.75304	2.21120	0.1804256	2.2430045	47	4	1960–1999	0.66	M-v	2	Williams	31294 2779 P-L
2827 P-L	15.1	0.15	19990122	306.96476	198.44036	27.95581	4.97419	0.1017307	2.3740880	33	4	1960–1999	0.74	M-v	2	Williams	31294 2827 P-L
3074 P-L	12.8	0.15	19990122	355.87588	318.24433	226.79397	9.45498	0.0513431	2.9717875	35	9	1960–1999	0.85	M-v	1	Williams	29668 3074 P-L
3086 P-L	12.9	0.15	19990122	203.52405	58.73044	246.11604	9.16669	0.0840832	2.9905105	52	5	1960–1999	0.72	M-v	1	Williams	34059 3086 P-L
4044 P-L	14.0	0.15	19990122	147.68760	38.16540	359.45860	9.29783	0.0746198	2.9726437	21	3	1960–1999	0.72	M-v	4	Williams	31824 4044 P-L
4050 P-L	13.6	0.15	19990122	82.92513	241.31546	203.40445	5.95366	0.0635471	2.9868362	18	4	1960–1999	0.60	M-v	1	Williams	21978 4050 P-L
4070 P-L	14.2	0.15	19990122	17.38588	190.43100	300.66503	3.03550	0.1208678	2.5585489	39	4	1960–1999	0.73	M-v	2	Williams	34060 4070 P-L
4088 P-L	15.4	0.15	19990122	20.47999	149.90205	312.62869	2.70000	0.1996854	2.5765380	36	2	1960–1999	0.60	M-v	4	Williams	34060 4088 P-L
4089 P-L	14.2	0.15	19990122	184.24424	161.91764	204.61296	8.60096	0.1785125	2.7277289	28	5	1960–1999	0.62	M-v	2	Williams	32091 4089 P-L
4098 P-L	14.3	0.15	19990122	326.08182	248.76668	208.36209	8.34580	0.1206765	2.8134389	42	3	1960–1998	0.80	M-v	3	Williams	33383 4098 P-L
4110 P-L	15.2	0.15	19990122	219.09820	119.18896	196.66456	3.01999	0.1161973	2.2314013	43	4	1960–1999	0.71	M-v	1	Williams	31161 4110 P-L
4157 P-L	15.2	0.15	19990122	311.38338	186.79235	304.91605	2.17966	0.1577217	2.2738237	29	3	1960–1998	0.84	M-v	5	Williams	33383 4157 P-L
4189 P-L	15.4	0.15	19990122	21.39339	183.76448	281.85728	4.14072	0.1866920	2.5726919	26	3	1960–1999	0.63	M-v	4	Williams	33996 4189 P-L
4204 P-L	13.7	0.15	19990122	164.90308	145.34219	206.78652	9.94240	0.0526175	2.9879300	25	4	1960–1999	0.69	M-v	1	Williams	34060 4204 P-L
4213 P-L	14.7	0.15	19990122	225.03343	301.62876	348.24917	8.20473	0.0724150	2.9835556	18	4	1960–1999	0.48	M-v	2	Williams	27938 4213 P-L
4269 P-L	14.4	0.15	19990122	97.44835	227.05340	205.44248	8.32524	0.0721868	2.9861825	21	4	1960–1999	0.48	M-v	3	Williams	31294 4269 P-L
4522 P-L	14.3	0.15	19990122	185.26678	342.56275	6.24709	5.14150	0.0690342	2.7355752	26	4	1960–1999	0.47	M-v	1	Williams	31294 4522 P-L
4555 P-L	15.4	0.15	19990122	116.86832	182.06740	168.08805	2.45257	0.2200644	2.4014119	13	3	1960–1999	0.42	M-v	3	Williams	32729 4555 P-L
4556 P-L	13.5	0.15	19990122	130.98513	330.02242	43.60058	3.14865	0.1328429	3.0012199	25	4	1960–1999	0.82	M-v	2	Williams	34060 4556 P-L
4595 P-L	15.9	0.15	19990122	143.75994	189.31006	176.64247	2.62988	0.1883215	2.3858606	38	5	1960–1999	0.72	M-v	2	Williams	31022 4595 P-L

4599 P-L	14.7	0.15	19990122	142.38551	33.10732	12.60689	5.57417	0.0985401	2.7315361	27	4	1960-1999	0.53	M-v	1	Marsden	28319	4599 P-L
4602 P-L	14.2	0.15	19990122	15.80210	249.57224	150.02056	0.92585	0.1824678	3.0761757	66	2	1960-1998	0.49	M-v	3	Williams	33588	4602 P-L
4642 P-L	15.8	0.15	19990122	239.39531	268.56530	43.04240	1.13338	0.2455009	2.3604001	16	3	1960-1999	0.59	M-v	5	Williams	24909	4642 P-L
4649 P-L	13.5	0.15	19990122	48.89355	256.11669	183.74211	10.84090	0.0264801	3.0092849	22	2	1960-1999	0.65	M-v	4	Williams	33996	4649 P-L
4659 P-L	14.7	0.15	19990122	24.98921	210.83386	183.22524	9.42220	0.1414657	3.0673555	20	2	1960-1998	0.65	M-v	4	Williams	33534	4659 P-L
4667 P-L	14.1	0.15	19990122	207.92352	301.70081	27.62361	7.01125	0.2086192	2.7274801	27	5	1960-1999	0.80	M-v	2	Williams	31294	4667 P-L
4792 P-L	14.7	0.15	19990122	320.27503	251.89000	14.94100	2.41089	0.0429918	2.9327834	26	3	1960-1998	0.57	M-v	2	Williams	33129	4792 P-L
4812 P-L	15.3	0.15	19990122	14.89196	349.80080	59.85566	0.85822	0.2125058	3.0758494	36	3	1960-1999	0.67	M-v	2	Williams	34060	4812 P-L
4865 P-L	15.5	0.15	19990122	191.62525	276.53670	37.55882	2.02057	0.0096586	2.1228476	34	4	1960-1999	0.67	M-v	2	Williams	34060	4865 P-L
6030 P-L	12.8	0.15	19990122	138.42929	219.63195	182.23647	3.30818	0.0156559	3.6540542	45	6	1960-1999	0.76	M-v	1	Williams	31294	6030 P-L
6058 P-L	15.1	0.15	19990122	246.48634	318.98633	343.92634	6.74302	0.1900577	2.5217976	22	4	1960-1999	0.87	M-v	3	Williams	27938	6058 P-L
6062 P-L	15.1	0.15	19990122	42.49916	105.07138	328.77897	2.06324	0.1449808	2.4056797	32	4	1949-1999	0.57	M-v	3	Williams	34060	6062 P-L
6097 P-L	15.3	0.15	19990122	220.91219	37.89260	276.15056	1.26623	0.2082135	2.3679550	18	3	1960-1999	0.95	M-v	4	Williams	27732	6097 P-L
6109 P-L	14.9	0.15	19990122	286.49880	282.87801	339.72011	3.32244	0.1040870	2.5256734	25	3	1960-1999	0.69	M-v	3	Williams	27926	6109 P-L
6180 P-L	15.4	0.15	19990122	197.09809	114.05879	210.85732	2.41845	0.1805525	2.7338884	29	4	1960-1999	0.44	M-v	2	Williams	31023	6180 P-L
6538 P-L	14.0	0.15	19990122	349.67656	321.41305	118.86002	1.83888	0.1903049	3.0771137	40	3	1960-1999	0.74	M-v	3	Williams	33996	6538 P-L
6618 P-L	15.5	0.15	19990122	141.62756	301.59086	75.41935	2.33085	0.2028845	2.3823258	20	3	1960-1999	0.51	M-v	4	Williams	31131	6618 P-L
6644 P-L	15.2	0.15	19990122	244.65330	140.67543	154.23078	5.32317	0.2088525	2.5252180	31	5	1960-1999	0.51	M-v	3	Williams	34060	6644 P-L
6667 P-L	14.6	0.15	19990122	187.57154	343.51119	3.44791	9.72940	0.0963255	2.9698890	20	3	1960-1999	0.65	M-v	4	Williams	32730	6667 P-L
6673 P-L	12.4	0.15	19990122	160.14168	213.43087	170.20429	21.99369	0.0211918	3.2607421	17	4	1960-1999	0.64	M-v	2	Williams	31436	6673 P-L
6691 P-L	15.3	0.15	19990122	337.46725	144.33049	15.25151	6.23191	0.0956162	2.3896608	28	2	1960-1999	0.70	M-v	4	Williams	34060	6691 P-L
6742 P-L	16.3	0.15	19990122	54.45998	344.21013	89.33971	2.39633	0.1506910	2.2562330	22	3	1960-1999	0.65	M-v	5	Williams	34060	6742 P-L
9535 P-L	14.3	0.15	19990122	156.39792	199.41969	167.92164	6.36819	0.0689821	2.7390450	37	5	1960-1999	0.75	M-v	1	Williams	29668	9535 P-L
9567 P-L	13.3	0.15	19990122	350.60824	252.45998	30.46414	9.47998	0.0456587	3.1715965	16	2	1960-1998	0.49	M-v	5	Williams	33997	9567 P-L
1102 T-1	15.0	0.15	19990122	242.75324	49.37637	214.28853	6.29640	0.0904756	2.3211794	40	4	1971-1999	0.69	M-v	1	Williams	34060	1102 T-1
1149 T-1	15.4	0.15	19990122	42.29414	18.67531	187.93225	5.02209	0.0993137	2.7282671	18	2	1971-1998	0.69	M-v	6	Williams	33997	1149 T-1
1176 T-1	13.1	0.15	19990122	302.42159	23.98129	188.70629	6.08800	0.1039711	3.1819390	31	2	1971-1999	0.82	M-v	4	Williams	33997	1176 T-1
1208 T-1	15.0	0.15	19990122	128.21992	169.12390	219.15745	4.36993	0.0569998	2.3097881	36	4	1971-1999	0.81	M-v	3	Williams	34060	1208 T-1
2209 T-1	13.1	0.15	19990122	142.56401	296.13521	76.64258	3.00130	0.1817365	3.1759790	32	9	1968-1999	0.71	M-v	1	Williams	31294	2209 T-1
2213 T-1	12.8	0.15	19990122	214.19945	310.26861	5.54083	8.52353	0.0939947	3.1724729	49	7	1953-1999	0.72	M-v	1	Williams	28088	2213 T-1
2234 T-1	14.0	0.15	19990122	33.29818	94.42136	14.21089	12.93170	0.1103699	2.5283189	34	3	1971-1999	0.90	M-v	3	Williams	34060	2234 T-1
2251 T-1	14.5	0.15	19990122	36.99995	109.57411	16.61517	3.61672	0.0433241	2.7958606	36	4	1971-1999	0.95	M-v	1	Williams	31161	2251 T-1
2281 T-1	13.6	0.15	19990122	132.90759	235.64001	163.58622	4.69366	0.0762120	2.7876547	30	5	1971-1999	0.97	M-v	2	Williams	29650	2281 T-1
3075 T-1	12.9	0.15	19990122	88.22392	96.79782	345.38901	0.90371	0.1555824	3.1321422	48	3	1971-1999	0.58	M-v	3	Williams	32291	3075 T-1
3222 T-1	14.7	0.15	19990122	242.84728	82.48254	231.08902	1.60122	0.2086543	2.1283582	25	3	1971-1999	0.96	M-v	5	Williams	28892	3222 T-1
3266 T-1	14.2	0.15	19990122	349.08050	176.28345	3.94082	0.83605	0.1218431	3.1606827	39	5	1971-1999	0.75	M-v	2	Williams	22432	3266 T-1
3277 T-1	13.0	0.15	19990122	215.93879	133.26802	175.93051	0.51163	0.1365969	3.1929649	33	5	1971-1999	0.86	M-v	2	Williams	34060	3277 T-1
3300 T-1	15.7	0.15	19990122	177.63957	344.54751	327.99106	2.33206	0.1937337	2.1574826	39	4	1971-1999	0.86	M-v	2	Williams	34060	3300 T-1
4109 T-1	12.6	0.15	19990122	246.81020	219.25752	79.77257	2.13596	0.1832885	3.1728940	21	3	1971-1999	0.93	M-v	4	Williams	28607	4109 T-1
4166 T-1	14.1	0.15	19990122	238.48719	298.72523	20.33666	10.65738	0.1005659	3.1430662	33	3	1971-1999	0.91	M-v	4	Williams	25436	4166 T-1
4290 T-1	12.2	0.15	19990122	124.40113	222.52877	24.00055	12.49362	0.1249312	3.3725945	48	3	1971-1998	0.72	M-v	3	Williams	34060	4290 T-1
4348 T-1	14.0	0.15	19990122	358.19358	125.03025	40.69952	6.86491	0.1427970	3.1592772	23	4	1971-1999	0.69	M-v	2	Williams	31001	4348 T-1
4406 T-1	14.5	0.15	19990122	214.78483	151.73512	18.76999	15.06299	0.0084525	2.6242352	33	3	1971-1998	0.94	M-v	4	Williams	33130	4406 T-1
4408 T-1	14.1	0.15	19990122	136.58155	310.51683	59.77829	4.59595	0.1969179	3.2165924	33	5	1971-1999	0.96	M-v	2	Williams	30914	4408 T-1
1107 T-2	14.3	0.15	19990122	237.41358	33.89893	276.92691	2.21114	0.1831531	2.7493915	26	4	1973-1999	0.98	M-v	3	Williams	31294	1107 T-2
1211 T-2	15.3	0.15	19990122	10.46263	166.11194	348.22534	6.66502	0.1027587	2.2652860	42	5	1973-1999	0.82	M-v	2	Williams	30797	1211 T-2
1227 T-2	14.9	0.15	19990122	62.45881	246.13923	171.62249	3.36868	0.1565213	2.2944015	34	2	1973-1999	0.71	M-v	5	Williams	33998	1227 T-2
1317 T-2	16.0	0.15	19990122	264.20173	261.74870	15.86753	6.57628	0.1286427	2.4678693	32	4	1973-1999	0.88	M-v	2	Williams	27939	1317 T-2
1353 T-2	15.0	0.15	19990122	51.26236	72.78988	7.91932	0.80852	0.1191045	2.5236582	66	5	1973-1999	0.82	M-v	2	Williams	34060	1353 T-2
2056 T-2	15.5	0.15	19990122	156.09620	5.94925	351.11500	4.66079	0.0750159	2.2685117	30	4	1973-1999	0.92	M-v	2	Williams	33535	2056 T-2
2112 T-2	14.4	0.15	19990122	152.40372	277.36356	71.02265	0.17884	0.1670645	3.2248851	35	3	1973-1999	0.60	M-v	5	Williams	34060	2112 T-2
2120 T-2	16.0	0.15	19990122	186.06828	322.35311	12.81112	5.25697	0.1653273	2.2596505	37	4	1973-1999	1.05	M-v	2	Williams	31023	2120 T-2
2204 T-2	14.3	0.15	19990122	55.43540	23.86662	38.71882	1.24655	0.1439428	2.8474616	32	2	1973-1999	0.76	M-v	5	Williams	33998	2204 T-2

2216 T-2	13.4	0.15	19990122	204.40966	275.13569	31.39917	0.84512	0.2187429	3.1922306	36	4	1973–1999	0.76	M-v	2	Williams	34060	2216 T-2
2225 T-2	14.6	0.15	19990122	348.96408	200.83637	16.57041	2.17150	0.1352299	2.4577164	37	5	1973–1999	0.90	M-v	2	Williams	31294	2225 T-2
2231 T-2	15.5	0.15	19990122	214.14970	301.12845	12.90919	9.24980	0.1624563	2.7728975	33	3	1973–1999	0.85	M-v	4	Williams	31576	2231 T-2
2281 T-2	14.3	0.15	19990122	242.97149	311.06956	347.12497	2.09150	0.0322725	2.7722090	17	4	1954–1999	0.81	M-v	2	Williams	21953	2281 T-2
3044 T-2	13.4	0.15	19990122	25.30411	341.13831	123.52133	2.74190	0.0929409	3.2380072	46	3	1973–1999	0.90	M-v	4	Williams	34060	3044 T-2
3161 T-2	15.1	0.15	19990122	58.92395	269.44030	75.01718	3.43694	0.1918623	2.5727954	42	3	1973–1998	0.72	M-v	4	Williams	33327	3161 T-2
3163 T-2	14.3	0.15	19990122	343.55790	110.68709	74.78584	3.54900	0.1340060	3.1782246	37	3	1973–1999	0.81	M-v	3	Williams	33785	3163 T-2
3175 T-2	16.1	0.15	19990122	230.20913	267.61024	30.44994	5.54153	0.1545093	2.2502322	26	4	1973–1999	0.98	M-v	2	Williams	31161	3175 T-2
3201 T-2	13.7	0.15	19990122	218.95732	191.60228	130.45046	4.17901	0.0973187	2.7630634	49	6	1973–1999	0.85	M-v	1	Williams	31161	3201 T-2
3211 T-2	13.3	0.15	19990122	318.03742	131.43697	72.75614	2.67177	0.1535823	3.1819045	39	3	1973–1999	0.68	M-v	4	Williams	34060	3211 T-2
3288 T-2	14.0	0.15	19990122	307.42453	159.93405	68.59639	2.06660	0.1411461	3.1612017	33	3	1973–1999	0.89	M-v	4	Williams	15729	3288 T-2
3327 T-2	13.7	0.15	19990122	121.39617	324.11516	81.17422	3.21416	0.1790098	3.1922652	28	6	1973–1999	0.65	M-v	2	Williams	31436	3327 T-2
4092 T-2	15.0	0.15	19990122	28.04106	348.72294	20.65562	8.93382	0.2921026	2.9108997	58	3	1973–1998	0.73	M-v	4	Williams	33327	4092 T-2
4093 T-2	15.9	0.15	19990122	31.66613	51.22251	49.35108	2.21590	0.1279866	2.5243553	26	2	1973–1999	0.89	M-v	6	Williams	33999	4093 T-2
4101 T-2	13.0	0.15	19990122	270.44476	175.13440	87.46761	1.85294	0.1416208	3.1625365	40	5	1973–1999	0.73	M-v	2	Williams	34061	4101 T-2
4234 T-2	12.8	0.15	19990122	224.60643	259.13903	29.92753	5.25714	0.1274463	3.1934019	49	7	1971–1999	0.79	M-v	1	Williams	34061	4234 T-2
4283 T-2	13.6	0.15	19990122	50.82756	11.20050	111.25864	2.49610	0.1570918	3.1998381	37	4	1973–1999	0.63	M-v	1	Williams	31436	4283 T-2
4311 T-2	15.6	0.15	19990122	259.86356	115.58106	139.12614	3.49890	0.0986725	2.2628787	54	3	1973–1999	0.63	M-v	2	Williams	34061	4311 T-2
5058 T-2	13.7	0.15	19990122	314.50127	295.97765	270.66684	7.16884	0.1196856	2.7860023	41	5	1973–1999	0.79	M-v	2	Williams	34061	5058 T-2
5211 T-2	13.0	0.15	19990122	355.47515	207.55743	228.67683	9.19014	0.2098060	2.9043569	73	3	1973–1999	0.69	M-v	3	Williams	34061	5211 T-2
1140 T-3	14.0	0.15	19990122	37.88981	108.63343	263.70096	6.89370	0.1335794	3.0025546	39	3	1977–1999	0.83	M-v	3	Williams	33785	1140 T-3
2157 T-3	14.5	0.15	19990122	32.15441	181.13049	240.54329	4.07736	0.1083344	2.2783778	45	4	1977–1999	0.76	M-v	4	Williams	33785	2157 T-3
2173 T-3	15.1	0.15	19990122	104.96142	188.16690	211.96508	8.38302	0.1376133	2.2426388	27	4	1977–1999	1.00	M-v	3	Williams	34061	2173 T-3
2193 T-3	14.9	0.15	19990122	27.04017	90.54789	359.60472	3.78853	0.2008412	2.5532907	40	3	1977–1999	0.76	M-v	3	Williams	34061	2193 T-3
2219 T-3	15.2	0.15	19990122	116.99971	54.32099	329.29483	2.79346	0.0546592	2.5147620	35	2	1977–1999	0.88	M-v	5	Williams	34061	2219 T-3
2369 T-3	15.3	0.15	19990122	296.54470	221.41736	276.06561	3.02569	0.0911273	2.2949840	27	3	1977–1998	0.95	M-v	5	Williams	33384	2369 T-3
2370 T-3	13.8	0.15	19990122	234.80603	91.36325	221.44114	8.20474	0.1505834	2.8156920	21	3	1977–1999	0.86	M-v	3	Williams	23686	2370 T-3
2494 T-3	15.0	0.15	19990122	350.31579	205.80175	320.87707	3.13221	0.0950342	2.2365786	38	3	1977–1999	0.81	M-v	4	Williams	33999	2494 T-3
3019 T-3	13.5	0.15	19990122	242.34077	129.16643	191.37724	8.65891	0.1557715	2.7999548	46	6	1977–1999	0.87	M-v	1	Williams	31295	3019 T-3
3101 T-3	14.9	0.15	19990122	79.91141	285.35668	39.65604	8.49658	0.0974599	2.3014661	67	3	1977–1998	0.88	M-v	4	Williams	33590	3101 T-3
4205 T-3	14.0	0.15	19990122	93.15088	218.34285	97.95305	3.56166	0.2107941	2.5780080	41	4	1977–1998	0.67	M-v	1	Williams	34061	4205 T-3
4217 T-3	14.8	0.15	19990122	54.26568	30.50812	52.43190	6.60234	0.0569210	2.2490125	31	2	1977–1999	0.75	M-v	5	Williams	33999	4217 T-3
5130 T-3	15.4	0.15	19990122	348.40943	356.25104	92.73591	8.31756	0.1225232	2.2940767	26	2	1977–1998	0.84	M-v	5	Williams	34000	5130 T-3

1996 TW₅₉ = 1996 TJ₆₆ (G. V. Williams, *MPC* 28813)
 1998 HH₇₇ = 1998 MK₁₄ (A. Doppler, *MPC* 34061)
 1998 QW₉₂ = 1998 VG₂₅ (A. Milani)
 1998 SR₂₁ = 1998 UD₃₇ (A. Doppler, *MPC* 34061)
 1998 SF₃₇ = 1998 SP₁₄₀ (G. V. Williams, *MPC* 33385)
 1998 SP₇₂ = 1998 UR₃₇ (G. V. Williams)
 1998 SU₁₆₃ = 1998 TQ₃₄ (G. V. Williams, *MPC* 33385)
 1998 TH₃₃ = 1998 VB₁₁ (A. Doppler, *MPC* 34061)
 1998 UP₁₆ = 1998 WE₃₂ (G. V. Williams)
 1998 UX₂₃ = 1998 UB₃₈ (A. Doppler, *MPC* 33785)
 1998 UW₃₄ = 1999 AT₁₀ (G. V. Williams, *MPC* 34061; A. Doppler, *ibid.*)
 1998 UV₃₆ = 1998 VP₈ (A. Doppler, *MPC* 34061)
 1998 UU₃₇ = 1998 VE₈ (G. V. Williams)
 1998 UC₃₈ = 1998 VA₈ (G. V. Williams)
 1998 UB₃₉ = 1998 VK₈ (A. Doppler, *MPC* 33785)
 1998 UB₄₀ = 1998 VO₈ (A. Doppler, *MPC* 33786)
 1998 UG₄₀ = 1998 VS₈ (A. Doppler, *MPC* 34061)
 1998 UC₄₁ = 1998 VC₉ (G. V. Williams)
 1998 VU = 1998 TK₃₃ (B. G. Marsden, *MPC* 33385)

1998 VJ₈ = 1998 UP₃₈ (A. Doppler, *MPC* 34061)
 1998 VN₂₄ = 1999 BM₃₃ = 1999 CH₂ (A. Doppler)
 1998 WV₁₈ = 1998 XR₉₆ (G. V. Williams)
 1998 XR₇₇ = 1999 CL₃₃ (A. Doppler)
 1998 YV₁₆ = 1999 CO₅₉ (A. Doppler)
 1999 AU₁₉ = 1999 CC₂₉ (A. Doppler)
 1999 AD₃₃ = 1999 BR₉ (G. V. Williams, *MPC* 34061)
 1999 BN₅ = 1998 QT₉₂ (G. V. Williams)
 1999 BJ₂₉ = 1999 CH₂₆ (A. Doppler)
 1999 CC₁₉ = 1999 BE₃ (G. V. Williams)

NEW NAMES OF MINOR PLANETS

(3908) Nyx = 1980 PA

Discovered 1980 Aug. 6 by H.-E. Schuster at the European Southern Observatory.

Named for the goddess and personification of the night. She was a daughter of Chaos and had many children by her brother Erebus, who personifies the subterranean darkness. The realm of Nyx was in the far West, beyond the land of Atlas.

(3958) Komendantov = 1953 TC

Discovered 1953 Oct. 10 by P. F. Shajn at Simeis.

Named in memory of Nikolaj Vasil'evich Komendantov (1895–1937), who was an active researcher of minor-planet motion. A staff member of the Astronomical Institute in Leningrad, he was arrested in 1936 on spurious charges, and the date of his death in prison is uncertain. Name suggested and citation prepared by Yu. V. Batrakov.

(4030) Archenhold = 1984 EO₁

Discovered 1984 Mar. 2 by H. Debehogne at the European Southern Observatory.

Named in memory of the German astronomer Friedrich Simon Archenhold (1861–1939). In 1896 he made it possible to build the world's longest refractor (focal length 21 meters), which is still in use at the Archenhold Observatory in Berlin—Europe's first public observatory. As its first director Archenhold had the aim of introducing astronomy to everyone. Name suggested by A. Gnädig and A. Doppler and endorsed by L. D. Schmadel.

(4165) Didkovskij = 1976 GS₃

Discovered 1976 Apr. 1 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named in honor of Leonid Vladimirovich Didkovskij (b.1948), astrophysicist and deputy director of the Crimean Astrophysical Observatory. He is known for his research on the brightness oscillations of the sun, for his development of scientific instrumentation for the Soviet space telescope “Astron” and for his work with the active main mirror on the 1.7-m Space Telescope “Spectrum UV”, an international project.

(4471) Graculus = 1978 VB

Discovered 1978 Nov. 8 by P. Wild at Zimmerwald.

Pyrrhocorax graculus is the Alpine species of choughs. In great flocks they are sometimes a bit of a nuisance, but to watch their masterly elegant flight, especially in turbulent air, is a great delight.

(4515) Khrennikov = 1973 SD₆

Discovered 1973 Sept. 28 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named in honor of well-known Soviet composer Tikhon Nikolaevich Khrennikov (b.1913), who wrote many operas, operettas, ballets, symphony scores, and music for theater and films. He is a professor at the Moscow Conservatory and led the Union of Soviet Composers for many years.

(4671) Drtikol = 1988 AK₁

Discovered 1988 Jan. 10 by A. Mrkos at Kleť.

Named in memory of František Drtikol (1883–1961), outstanding Czech photographer well-known for his black-and-white portraits in the Art Nouveau style and fine-art nude studies using geometric patterns of shadows and light. Name suggested by M. Tichý.

(4691) Toyen = 1983 TU

Discovered 1983 Oct. 7 by A. Mrkos at Kleť.

Named in memory of Toyen (1902–1980), Czech painter and graphic artist, born Marie Čermínová. She is known for her imaginative abstraction, called artificialism, resulting in a surrealist style. Name suggested by J. Tichá.

(4698) Jizera = 1986 RO₁

Discovered 1986 Sept. 4 by A. Mrkos at Kleť.

Named for a Czech river rising in the Jizerské hory mountains and continuing through the towns of Turnov and Mladá Boleslav to its confluence with the Labe river. Name proposed by Z. Moravec.

(4702) Berounka = 1987 HW

Discovered 1987 Apr. 23 by A. Mrkos at Kleť.

Named for a Czech river originating in Plzeň as a confluence of four rivers: Mže, Radbůza, Úhlava and Úslava. It continues through the town of Beroun to its confluence with the Vltava river near Prague. Name proposed by Z. Moravec.

(4761) Urrutia = 1981 QC

Discovered 1981 Aug. 27 by H.-E. Schuster at the European Southern Observatory.

Named in honor of Antonio Urrutia A., Chilean lawyer in Santiago and for three decades legal advisor to the European Southern Observatory. The discoverer appreciates Urrutia's friendship and recalls his fruitful work.

(4801) Ohře = 1989 UR₄

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

Named for a Czech river rising in Germany near the Czech border and continuing through the towns of Karlovy Vary, Žatec and Louny to its confluence with the Labe river. Name proposed by Z. Moravec.

(4838) Billmclaughlin = 1989 NJ

Discovered 1989 July 2 by E. F. Helin at Palomar.

Named in honor of William I. McLaughlin (b.1935) on the occasion of his retirement from the Jet Propulsion Laboratory, where he made innovative contributions to many projects, including Viking, Seasat, the Infrared Astronomical Satellite and Voyager (Uranus), and to the management of two technical sections. He also served as deputy manager of the astrophysics and fundamental physics program office. For 14 years McLaughlin wrote a column in *Spaceflight* called “Space at JPL”. He takes a special interest in philosophy, mathematics, astronomy and epistemology, as well as space exploration and has written numerous papers.

(4920) Gromov = 1978 PY₂

Discovered 1978 Aug. 8 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named in memory of Mikhail Mikhajlovich Gromov (1899–1985), well-known Russian pilot who set the world record for long-distance flight in 1934 when his aircraft flew more than 12 000 kilometers. In 1937, together with A. Yumashev and S. Danilin, he completed a nonstop flight from Moscow, over the North Pole, to the United States. He was the first Russian pilot to win the de Lawo medal of the Federation Aeronautique Internationale. Gromov also tested a great number of new aircraft. He was the founder of the State Research Center of Russia “Flying Research Institute”, now named for him.

(5043) Zadornov = 1974 SB₅

Discovered 1974 Sept. 19 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Named in honor of Mikhail Nikolaevich Zadornov (b.1948), Russian satirist widely known for his masterful readings of his own short stories.

(5089) Nádherná = 1979 SN

Discovered 1979 Sept. 25 by A. Mrkos at Kleť.

Named in memory of Sidonie Nádherná (1885–1950), baroness of Borutín and author of *The Chronicle of Vrchotovy Janovice*. She created a splendid park around her château of Vrchotovy Janovice in central Bohemia and became widely known as a friend of German poet Rainer Maria Rilke and Austrian writer Karl Kraus. She died a resident of Great Britain. Name suggested by J. Tichá.

(5302) Romanoserra = 1976 YF₅

Discovered 1976 Dec. 18 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named in honor of Romano Serra (b. 1954), enthusiastic president of the amateur observatory of San Giovanni in Persiceto near Bologna. A great specialist in meteorites, he has gathered the largest collection of meteorite specimens in Italy. He participated in two Tunguska expeditions, in 1991 and 1998, and built a planetarium, the third largest in Italy. Name suggested by M. di Martino and supported by the discoverer.

(5415) Lyanzuridi = 1978 TB₂

Discovered 1978 Oct. 3 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named in honor of Konstantin Petrovich Lyanzuridi (b. 1934), engineer in vacuum technology and optics who has worked at the Crimean Astrophysical Observatory for more than 30 years. A talented experimenter, he created a new method of ion etching of optical surfaces for making precision astronomical optics for ground-based and space telescopes.

(5445) Williwaw = 1991 PA₁₂

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

Named after a dramatic mountain on the skyline of Anchorage. A williwaw is a sudden seaward gust of cold air common along mountainous coasts at high latitudes. Mt. Williwaw was named by the Mountaineering Club of Alaska in 1963 and stands 5445 feet above sea level. It is the highest point in the Campbell Creek drainage. Name suggested by D. Hamilton.

(5682) Beresford = 1990 TB

Discovered 1990 Oct. 9 by R. H. McNaught at Siding Spring.

Named in honor of Anthony Charles Beresford (b. 1942), prominent Australian amateur astronomer. Amongst his wide ranging astronomical interests he is an active artificial satellite observer, having been part of Operation Moonwatch from 1960 to 1975. He plays an important role in the dissemination of astronomical information and discoveries in South Australia. Always knowledgeable about current events, Tony Beresford has been of considerable help to the discoverer on many occasions. Name suggested and citation endorsed by D. I. Steel.

(5879) Almeria = 1992 CH₁

Discovered 1992 Feb. 8 by K. Birkle and U. Hopp at Calar Alto.

Named for the Spanish city and province where the Calar Alto Observatory of the German-Spanish Astronomical Center is located. The observatory is operated jointly by the Max-Planck-Institut für Astronomie in Heidelberg and the Spanish National Commission for Astronomy. The naming acknowledges the great Spanish hospitality experienced by German astronomers at the observatory.

(5986) Xenophon = 1969 TA

Discovered 1969 Oct. 2 by P. Wild at Zimmerwald.

Named for the Athenian nobleman, pupil and interpreter of Socrates, historian, agriculturist, and military officer who lived from about 440 to 354 B.C. Because of his support of Spartan culture and politics he was exiled from Athens. He participated in

a military expedition against the Persian king Artaxerxes and, after his defeat near Babylon in 401 B.C., he prevailed to lead the army of 10 000 Greek mercenaries safely home through the mountains of Asia Minor, a great feat described in his famous book *Anabasis*.

(6060) Doudleby = 1980 DX

Discovered 1980 Feb. 19 by A. Mrkos at Kleť.

Named for a village in southern Bohemia, south of České Budějovice. It was first mentioned as a site of a Slavonic fortified settlement above the Malše river in 981. The Gothic church of St. Vincent was built on this site. The region of Doudleby is known for its lively traditional folk customs, including carnivals. Name suggested by J. Tichá and M. Tichý.

(6064) Holašovice = 1987 HE₁

Discovered 1987 Apr. 23 by A. Mrkos at Kleť.

Named for a village in southern Bohemia north of Kleť Mountain. Holašovice is an exceptionally intact and well-preserved example of traditional Central European village architecture, containing a number of vernacular buildings from the eighteenth and nineteenth centuries in a style known as the South Bohemian Folk Baroque. Since 1998 Holašovice has been listed on the UNESCO World Heritage roster of cultural and natural sites. Name proposed by J. Tichá.

(6108) Glebov = 1971 QN

Discovered 1971 Aug. 18 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Named in honor of academician Igor' Alekseevich Glebov (b. 1914), outstanding scientist in the field of electrical engineering and power engineering, since 1975 director of the Science Research Institute of Electric Machine Engineering in St. Petersburg. Glebov is renowned for his work in control systems for power turbo-generators and his application of superconductivity in electric machine engineering. Name suggested by the Institute of Applied Astronomy and the Institute of Problems of Electrophysics of RAS.

(6164) Gerhardmüller = 1977 RF₂

Discovered 1977 Sept. 9 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named in memory of academician Gerhard Friedrich Müller (Miller, according to traditional spelling in Russian; 1705–1783), first rector of St. Petersburg University and editor of the first Russian academic journal. He is considered the father of St. Petersburg's historical school, and his works were the foundation for research on the history, ethnography, archeology and geography of Russia and Siberia.

(6165) Frolova = 1978 PD₃

Discovered 1978 Aug. 8 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named in honor of Natalia Borisovna Frolova, assistant professor of astronomy at Ural State University in Ekaterinburg. She worked on a detailed catalogue of stars along the path of comet 1P/Halley, and this contributed to the success of the space missions Vega and Giotto. As a leader in educating local schoolchildren about astronomy, she takes an active part in organizing the annual Winter Astronomical Students' School at Kourovskaya Observatory.

(6167) Narmanskij = 1979 QB₁₀

Discovered 1979 Aug. 27 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named in honor of Vladimir Yakovlevich Narmanskij (b.1948), Crimean amateur astronomer and founder of the amateur laboratory “Heliorythm”, where research is conducted on the resonance structure of the solar system and on solar-terrestrial relations. He is also a poet, known for writing the text for *Mass for Chersones* by Crimean composer A. Karamanov.

(6180) Bystritskaya = 1986 PX₄

Discovered 1986 Aug. 8 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Named in honor of Ehlina Avraamovna Bystritskaya, distinguished Soviet actress. An actress with Moscow Malyj Theatre since 1958, she is especially popular for her brilliant roles in several films.

(6194) Denali = 1990 TN

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

Mt. Denali, rising 6194 meters above sea level, is the tallest peak in North America. The name Denali originates from the Tanana Indian language and translates into English as “The Great One”. The Tanana Indians are a subgroup of the Athabaskans; the Athabaskans were the original inhabitants of central and south central Alaska. Name proposed by D. Hamilton.

(6214) Mikhailgrinev = 1971 SN₂

Discovered 1971 Sept. 26 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Named in honor of Mikhail Vasil’evich Grinev (b.1929), outstanding Russian surgeon, director of St. Petersburg Djanelidze Research Institute of Emergency Medicine from 1984 to 1998, member of the board of directors of the European Association of Trauma and Emergency Surgery, professor of St. Petersburg Medical University and medical academy for postgraduate training. Grinev is internationally renowned for his classic research in the field of emergency surgery, polytrauma and shock. Name suggested by the Institute of Applied Astronomy and Djanelidze Research Institute of Emergency Medicine.

(6266) Letzel = 1986 TB₃

Discovered 1986 Oct. 4 by A. Mrkos at Kleť.

Named in memory of Jan Letzel (1880–1925), Czech architect inspired by the Art Nouveau style and who worked in Japan from 1907 to 1923. He designed the Hiroshima Prefectural Commercial Exhibition Hall in 1915. This building, the most elegant in the city, became world famous as the Genbaku Dome or A-bomb Dome, which was left in ruins as an eternal symbol of the tragedy of Hiroshima on 1945 Aug. 6. Name suggested by J. Tichá.

(6359) Dubinin = 1977 AZ₁

Discovered 1977 Jan. 13 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named in honor of Yuriy Vladimirovich Dubinin (b.1930), Russian diplomat, scientist, author and translator of several books from the French.

(6440) Ransome = 1988 RA₂

Discovered 1988 Sept. 8 by A. Mrkos at Kleť.

Named in memory of Arthur Ransome (1884–1967), one of the best loved of all children’s writers. His novels depict the adventures of boys and girls, *Swallows and Amazons*, who explore the lakes and mountains of England. They are enduringly popular all over the world. Name suggested by J. Tichá.

(6441) Milenajesenská = 1988 RR₂

Discovered 1988 Sept. 9 by A. Mrkos at Kleť.

Named in memory of Milena Jesenská (1896–1944), outstanding Czech journalist and mediator between the Czech and German cultures in Bohemia. She was detained for her political involvement and resistance in the concentration camp at Ravensbrück, where she died. She is widely known for her correspondence with Prague writer Franz Kafka (*Briefe an Milena*). Name suggested by J. Tichá.

(6916) Lewispearce = 1992 OJ

Discovered 1992 July 27 by R. H. McNaught at Siding Spring.

Named in memory of Lewis Percival Pearce, infant son of amateur astronomer and comet observer Andrew Pearce. Born in Nedlands, Western Australia, on 1999 Jan. 23, Lewis suffered oxygen deprivation during delivery and never gained consciousness. Before his death twelve days later, he shared some experiences with his parents, including “observing the stars” with his dad.

(6918) Manaslu = 1993 FV₃

Discovered 1993 Mar. 20 by M. Hirasawa and S. Suzuki at Nyukasa.

Named for an 8156-m mountain in the Himalayas. The summit was first reached by the Japanese party led by Aritsune Maki in 1956.

(7067) Kiyose = 1993 XE

Discovered 1993 Dec. 4 by M. Hirasawa and S. Suzuki at Nyukasa.

Named for Kiyose City, a western suburb of Tokyo. The city was once home to many sanatoria because of its clean air and good environment. This minor planet was observed at Kiyose station under heavy light pollution.

(7107) Peiser = 1980 PB₁

Discovered 1980 Aug. 15 by A. Mrkos at Kleť.

Named in honor of Benny Josef Peiser (b.1957), social anthropologist with a particular research interest in neocatastrophism and its implications for human, societal and cultural evolution. A senior lecturer at John Moores University in Liverpool, he launched and now moderates the Cambridge-Conference Network, a scholarly network of some 300 researchers from around the world. Name suggested by J. Tichá, M. Tichý and Z. Moravec, who observed this minor planet at Kleť at the 1994 and 1996 oppositions, prior to its numbering.

(7128) Misawa = 1991 SM₁

Discovered 1991 Sept. 30 by K. Endate and K. Watanabe at Kitami.

Named in memory of Katsue Misawa (1885–1937). Although he received only a limited education, through his own efforts he became a junior-high-school geography teacher. His unique teaching practices are highly appreciated in the history of Japanese education. In astronomy, he was the real pioneer of sunspot observation in Japan, systematically observing sunspots from 1921 until 1934, when failing eyesight prevented it. His data were invaluable because in those days foreign data arrived in Japan only after a long delay. Name proposed by the discoverers following a suggestion by K. Gomi, T. Sato, K. Fujimori and A. Fujii.

(7279) Hagfors = 1985 VD₁

Discovered 1985 Nov. 7 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of Tor Hagfors (b.1930), in celebration of his 68th birthday and his retirement as director of the Max-Planck-Institut für Aeronomie. In the 1960s, at the Massachusetts Institute of Technology’s Lincoln Laboratory, Hagfors conducted extensive radar investigations of the moon. The radar backscattering function now called the Hagfors Law, which he derived to support his analysis of lunar echoes,

remains the most widely applied model for interpreting quasispecular echoes from the moon, Mercury, Mars and Venus. Hagfors served as director of operations of the National Astronomy and Ionosphere Center's Arecibo Observatory from 1971 to 1973 and as director of NAIC during the time, 1982–1992, when Arecibo conducted 68 successful radar experiments on minor planets.

(7327) Crawford = 1983 RZ₁

Discovered 1983 Sept. 6 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of David L. Crawford (b. 1931), astronomer at the Kitt Peak National Observatory recognized for his fundamental contributions to protecting dark skies around observatories from light pollution through good outdoor lighting practices. In 1972 he was instrumental in establishing the first comprehensive lighting code, which regulated outdoor lighting in southern Arizona, and the code has become a model for such regulation throughout the world. Crawford was cofounder and executive director of the International Dark-Sky Association, a worldwide organization dedicated to the preservation of dark skies. He was also responsible for establishing the fundamental standards of the Strömgren photometric system. Name suggested and citation provided by D. R. Davis.

(7342) Uchinoura = 1992 FB₁

Discovered 1992 Mar. 23 by K. Endate and K. Watanabe at Kitami.

Named for the town in southern Kyushu where the Kagoshima Space Center of the Institute of Space and Astronautical Science (ISAS) is located. A small fishing village, the town entered the limelight in 1962, when it was selected as the launching site for ISAS (now ISAS Ministry of Education, Science, Sports and Culture). ISAS satellites are launched toward the Pacific Ocean from a plateau in the southeastern part of the town. The facilities are getting larger as the rockets also grow in size. The usual population of the town is about 10 000, but at the time of a launch staff and reporters typically cause a 20-percent increase.

(7353) Kazuya = 1995 AC₁

Discovered 1995 Jan. 6 by M. Hirasawa and S. Suzuki at Nyukasa.

Named in honor of Kazuya Yoshida (b. 1960). An authority in robot engineering at Tohoku University, Yoshida is now developing a robotic system to explore the minor planets. He is an excellent astrophotographer and a member of Mt. Nyukasa Station, where this minor planet was discovered.

(7392) Kowalski = 1984 EX

Discovered 1984 Mar. 6 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of Richard Kowalski (b. 1963) of Quail Hollow Observatory, near Tampa, Florida. Kowalski is engaged in follow-up and discovery work on minor planets and comets. In 1998 he founded and has energetically maintained the *Minor Planet Mailing List*, a web-based information service and chat group for amateur and professional observers. Kowalski has also been the main organizer of the 1999 Amateur-Professional Minor Planet Workshop at the Lowell Observatory. Citation written by the discoverer and P. G. Comba.

(7396) Brusin = 1986 EQ₂

Discovered 1986 Mar. 4 by W. Ferreri at the European Southern Observatory.

Named in honor of Silvia Rosa Brusin, head of one of the principal Italian scientific programs. She is strongly involved in popular astronomy and is in close contact with scientists around the world. Her programs on Italian television constitute a serious reference for interested people.

(7413) Galibina = 1990 SH₂₈

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

Named in honor of Irina Vladimirovna Galibina (b. 1929), a celestial mechanician known for her research on the motions of long-period comets, minor planets and meteor streams. In recent years, in coauthorship with her husband, G. N. Katterfeld, Galibina published a series of papers devoted to the principal problems in astronomical geology. Name proposed by G. R. Kastel'.

(7414) Bosch = 1990 TD₈

Discovered 1990 Oct. 13 by L. D. Schmadel and F. Börngen at Tautenburg.

Named in memory of Carl Bosch (1874–1940), outstanding German chemist, inventor of high-pressure ammonia synthesis, 1931 Nobel laureate in chemistry and enthusiastic amateur astronomer. During the 1920s he built a well-equipped private observatory on his estate at Heidelberg, where he carried out spectroscopic and photometric studies. He was an important patron of science, supporting especially the Heidelberg-Königstuhl Observatory, the Astronomische Gesellschaft and the Einstein Foundation. Name proposed by the first discoverer, endorsed by G. Klare and H. Mandel.

(7430) Kogure = 1993 BV₂

Discovered 1993 Jan. 23 by K. Endate and K. Watanabe at Kitami.

Named in honor of Tomokazu Kogure (b. 1925), professor emeritus of Kyoto University. His specialties include early-type peculiar stars, emission nebulae, interstellar medium, and nuclei of active galaxies. He served as president of the Astronomical Society of Japan and is currently director of Bisei Observatory in Okayama Prefecture. He is a frequent contributor to research and education on astronomy in Asian countries, especially Indonesia and Sri Lanka. Name proposed by the discoverers following a suggestion by K. Sakka and T. Sato.

(7435) Sagamihara = 1994 CZ₁

Discovered 1994 Feb. 8 by K. Endate and K. Watanabe at Kitami.

Named for a city of 571 000 located some 50 km west for Tokyo on the vast riverside plain of the River Sagami-gawa. In 1892 the Sagami Base Line for the nationwide triangulation was set up there. In recent years the city has grown into a large industrial center. In 1989 the campus of Institute of Space and Astronautical Science, which develops Japanese scientific satellites, moved to Sagamihara, where the satellites Yoko and Haruka were built.

(7436) Kuroiwa = 1994 CB₂

Discovered 1994 Feb. 8 by K. Endate and K. Watanabe at Kitami.

Named in memory of Goro Kuroiwa (1912–1990), Japanese astronomer and observer of variable stars. A student in the department of astronomy at the University of Tokyo on the occasion of the total solar eclipse on 1936 June 19, he independently discovered the nova CP Lac, along with Kazuaki Gomi. While serving with the Japanese army in 1942 he independently discovered the nova CP Pup. He represented Japan in the geodetic survey program using photoelectric observations of lunar occultations, carried out from 1950 to the 1960s by the U.S. Army Map Service Far East.

(7442) Inouehideo = 1995 SC₅

Discovered 1995 Sept. 20 by K. Endate and K. Watanabe at Kitami.

Named in honor of Hideo Inoue (b. 1917), Japanese astronomer. An astronomy enthusiast while still a child, he studied at the Tokyo College of Physics and at the Institute of Cosmical Physics in Kyoto. While participating in Kyoto University's expedition to the total solar eclipse on 1941 Sept. 21 he obtained color photographs

of the solar corona, the first in Japan. He later worked at the Peking Observatory, where he calculated the national ephemeris. After the war he taught at technical high schools in Japan. For the International Geophysical Year he led the Higasimatuyama Moonwatch Team. He is also an enthusiastic ham radio operator.

(7636) Comba = 1984 CM

Discovered 1984 Feb. 5 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of Paul G. Comba (b.1926), who gave up a career in celestial mechanics and astronomy for one in mathematics and computer science. After teaching at the University of Hawaii during the 1950s, he worked for three decades at IBM in New York and Massachusetts, where he carried out software research and development in many areas, including database management, geometric modeling, elasticity and cryptography. Following his formal retirement to Prescott, Arizona, he undertook a program of astrometry of minor planets in 1995. He has already been credited with the discovery of 20 numbered objects. Name proposed by the discoverer following a suggestion by B. G. Marsden, who prepared the citation.

(7688) Lothar = 2536 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in honor of Lothar Kurtze (b.1972), German amateur astronomer at the Starkenburg Observatory, Heppenheim, and a cofounder of the minor planet astrometry group in 1995. Kurtze played a major role in both the planning and the construction of the student observatory at the Werner Heisenberg senior high school in Weinheim. His lectures on astronomical topics inspired many young students. Name proposed by L. D. Schmadel.

(7689) Reinerstoss = 4036 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in honor of Reiner Stoss (b.1975), German amateur astronomer at the Starkenburg Observatory, Heppenheim. Stoss is an ardent observer who detected most of the minor planets found there. His main interests are the establishment of an NEO search program and to make follow-up observations of known NEOs. Name proposed by L. D. Schmadel.

(7739) Čech = 1982 CE

Discovered 1982 Feb. 14 by L. Brožek at Kleť.

Named in memory of Eduard Čech (1893–1960), Czech mathematician, professor at Charles University in Prague and Masaryk University in Brno. One of his papers, *On bicomcompact spaces*, introduced what today is called the Stone-Čech compactification of regular topological spaces. His research in topology is fundamental, but his work was also important in the development of functional analysis. Name proposed by J. Tichá and Z. Moravec following a number of suggestions from Charles University.

(7767) Tomatic = 1991 RB₅

Discovered 1991 Sept. 13 by L. D. Schmadel and F. Börngen at Tautenburg.

Named in honor of A. U. Tomatic (b.1997), collaborator at the Minor Planet Center. An ardent computer of orbits and distributor of observational data of minor planets and comets, Tomatic published his first contribution to this field on *MPEC* 1997-Y01 (1997 Dec. 16). Tomatic is a godchild of the *MPC* astronomers B. G. Marsden and G. V. Williams. Name proposed by the first discoverer in gratitude for Tomatic's indefatigable service.

(7799) Martinšolc = 1996 DW₁

Discovered 1996 Feb. 24 at Kleť.

Named in honor of Martin Šolc (b.1949), Czech astronomer and head of the Astronomical Institute of Charles University in Prague since 1987. His work deals with cosmic dust, dust in comets and isotopes. He participated in data evaluation from the Vega and Giotto missions to comet 1P/Halley in 1986–1987. At present he collaborates on the ISO project with the Institut für Kernphysik in Heidelberg. Much of his time is devoted to teaching. He is also working on a history of Czech astronomy, together with his wife Alena Šolcová (b.1950). Name proposed by discoverers J. Tichá, M. Tichý and Z. Moravec.

(7896) Švejk = 1995 EC

Discovered 1995 Mar. 1 by Z. Moravec at Kleť.

Named for a literary character created by Jaroslav Hašek, Czech writer and humorist (1883–1923). His “good soldier” Josef Švejk is devoted to the disintegrating Austrian-Hungarian monarchy regime, but by his simplicity (or perhaps his ingenuity) he helps to reveal its flaws.

(7919) Prime = 1981 EZ₂₇

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

Recognizing the importance that mathematics has played in science, this naming acknowledges that 7919 is the one-thousandth prime number. Name proposed by the discoverer following a suggestion by D. Hamilton.

(7967) Beny = 1996 DV₂

Discovered 1996 Feb. 28 by Z. Moravec at Kleť.

Named in memory of Michal ‘Beny’ Böhm (1968–1998), schoolmate, roommate at Charles University and great friend of the discoverer.

(8052) Novalis = 2093 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Friedrich Leopold Freiherr von Hardenberg, known under his pseudonym Novalis (1772–1801), is one of the greatest Romantic writers in German literature. The death of his fiancée and his pietistic thinking brought him to his romantic way of writing. In one of his novels he uses the image of a blue flower for the magical task poets have. Novalis had strong connections with the other Romantic writers of his time, such as Tieck and Schlegel.

(8053) Kleist = 4082 P-L

Discovered 1960 Sept. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Heinrich von Kleist (1777–1811) was a prolific writer who was not known during his lifetime. He traveled throughout Europe, living in Dresden and Königsberg, where he studied the philosophy of Kant. In 1811 he committed suicide together with his girlfriend. His plays, including *Das Käthchen von Heilbronn*, *Prinz von Homburg* and the popular *Der zerbrochene Krug*, are highly regarded nowadays, as are his novels and short stories.

(8054) Brentano = 4581 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the German Romantic poet Clemens Brentano (1778–1842), esteemed in his time by important German poets and writers. Together with his friend Achim

von Arnim he collected about 600 German folksongs in *Des Knaben Wunderhorn*. He also published famous fairy tales such as *Gockel, Hinkel und Gackeleia*.

(8055) Arnim = 5004 P-L

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Achim (Ludwig Joachim) von Arnim (1781–1831) is one of the well-known German Romantics. Although he studied law and natural sciences, he dedicated his life to literature, especially German literature. With his friend Brentano he published about 600 German folksongs in *Des Knaben Wunderhorn*. German poets from the “Heidelberger Romantik”, such as the brothers Grimm, Tieck and Runge, worked together with Arnim and Brentano.

(8056) Tieck = 6038 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Ludwig Tieck (1773–1853) was one of the great Romantic poets and writers. He became friends with Brentano, Fichte, Novalis, the brothers Grimm and many other poets of his time. He wrote the ironic fairy tales *Ritter Blaubart*, *Der gestiefelte Kater* and other sensitive and imaginative stories.

(8057) Hofmannsthal = 4034 T-1

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Hugo von Hofmannsthal (1874–1929) began writing poems at the age of 16. His lyrical and dramatic work reflects Austrian impressionism and symbolism. Together with Richard Strauss and Max Reinhardt, he founded the Salzburger Festspiele. His best-known play is *Jedermann*.

(8058) Zuckmayer = 3241 T-3

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for Jewish playwright Carl Zuckmayer (1896–1977). He wrote many comedies, his most famous play being *Der Hauptmann von Köpenik*. As a young soldier he took part in World War I. His plays were later banned in Germany, so he emigrated to Austria and in 1938 moved via Switzerland to the U.S. During 1940–1946 he earned his living on a farm. There he wrote the much-discussed drama *Des Teufels General*. Although he returned to Germany in 1947, he lived in Switzerland from 1958 onward.

(8121) Altdorfer = 2572 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Albrecht Altdorfer (c. 1480–1538) is one of the painters of the “Donauschool”. He created the first landscape paintings without figures. He was also an architect in the city of Regensburg and a member of the municipality. In addition to his paintings, many of his copper engravings and etchings have been preserved.

(8122) Holbein = 4038 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named after Hans Holbein Sr. (c. 1465–1524) and Hans Holbein Jr. (c. 1497–1543), German painters. Holbein Sr. created mostly religious paintings in the transition style from Gothic to Renaissance. Holbein Jr. is more famous, working in Basel, Switzerland and England. He became court painter to king Henry VIII and made well-known portraits of the English aristocracy and other famous people of the time.

(8123) Canaletto = 3138 T-1

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Canaletto, whose birth name was Giovanni Antonio Canal (1697–1768), developed the so-called Veduten style of painting, characterized by detailed and precise views of cities. Best known for his paintings of Venice, he also painted London and Dresden.

(8124) Guardi = 4370 T-1

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Painter Francesco Guardi (1712–1793) was influenced by Pietro Longhi and Canaletto. Guardi’s style is more impressionistic, however, and he plays with the colors of light in the Venetian atmosphere more than Canaletto. His paintings are typical of the Rococo style.

(8154) Stahl = 1988 CQ₇

Discovered 1988 Feb. 15 by E. W. Elst at the European Southern Observatory.

Named in memory of the German physician and chemist Georg Ernst Stahl (1660–1734), who developed the phlogiston theory of combustion, which dominated chemical thought for almost a century. Contrary to the view of his friend Friedrich Hoffmann at the University of Halle, who considered living organisms as machines to be explained by the laws of mechanics, Stahl insisted that neither mechanical nor chemical laws alone were sufficient to account for the phenomenon of life. Most likely influenced by his pietism, he insisted that life required a force for which he reserved the Latin word *anima*, which in turn gave rise to the theory of animism (vitalism).

(8164) Andreasdoppler = 1990 UO₃

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

Named in honor of Andreas Doppler (b. 1963), German amateur astronomer and identifier of minor planets. This name was independently proposed by F. Börngen and L. D. Schmadel.

(8165) Gnädig = 1990 WQ₃

Discovered 1990 Nov. 21 by E. W. Elst at the European Southern Observatory.

Named in honor of Arno Gnädig (b. 1956), German amateur astronomer and identifier of minor planets. This name was independently proposed by F. Börngen and L. D. Schmadel.

(8169) Mirabeau = 1991 PO₂

Discovered 1991 Aug. 2 by E. W. Elst at the European Southern Observatory.

Named in memory of French politician and orator Honoré-Gabriel Mirabeau (1749–1791), one of the greatest figures of the early French Revolution. In 1789 he was elected deputy at the States General to represent Marseille and Aix-en-Provence. From May to October 1789 he played a decisive part in the battle between the Third Estate (common people) and the privileged orders (clergy and nobility). This made him very popular in Paris, but his intrigues with the court and his Machiavellian game in general led him to political defeat, since he was too much a monarchist for the revolution and too revolutionary for the monarchy. However, he was given a magnificent funeral at the new church of Sainte-Geneviève, which, in honor of him, was converted into the Panthéon, for the burial of great men.

(8175) Boerhaave = 1991 VV₅

Discovered 1991 Nov. 2 by E. W. Elst at the European Southern Observatory.

Named in memory of the Dutch physician and professor of medicine Hermann Boerhaave (1668–1738). He was a brilliant teacher of botany, medicine and chemistry at the University of Leiden, where students came from all parts of Europe to hear him. Baron d'Holbach and de Lamettrie studied with him. He is credited with founding the modern system of teaching medical students at the patient's bedside. He is the author of *Institutiones Medicae* and *Aphorismi de Cognoscendis et Curandis Morbis*, two textbooks widely used during and after his lifetime.

(8190) Bouguer = 1993 ON₉

Discovered 1993 July 20 by E. W. Elst at the European Southern Observatory.

Named in memory of the French scientist Pierre Bouguer (1698–1758), the founder of astronomical photometry. In 1720 he made some of the earliest measurements in astronomical photometry by comparing the apparent brightness of celestial objects to the light of a candle. In 1735 he followed de la Condamine to measure an arc of the meridian near the equator in Peru. During his stay he investigated the absorption of light in the atmosphere, which led to the formulation of “Bouguer's absorption law”.

(8200) Souten = 1994 AY₁

Discovered 1994 Jan. 7 by M. Hirasawa and S. Suzuki at Nyukasa.

Named for the Waseda University Astronomy Association, nicknamed Souten. Established in 1959 by Hidetaka Tojo, Souten has produced an astronaut and many astrophotographers and observers. The discoverers of this minor planet were members of Souten.

(8203) Jogolehmann = 1994 CP₁₀

Discovered 1994 Feb. 7 by E. W. Elst at the European Southern Observatory.

Named in memory of the German geologist Johann Gottlob Lehmann (1719–1767), who made important contributions to stratigraphy, the study of order and sequence in bedded sedimentary rocks. Educated originally at the University of Wittenberg as a medical doctor, he soon discovered that his real field of interest was mines and mining. He successfully explained the origin of mineral deposits in mines and recognized that rocks do not fall in haphazard positions but form a historical sequence, thereby supplying a strong argument against the biblical diluvian theory.

(8222) Gellner = 1996 OX

Discovered 1996 July 22 by M. Tichý and Z. Moravec at Kleť.

Named in memory of Czech poet František Gellner (1881–1914), a Bohemian anarchist. His poetry depicted, sometimes in shocking ways, night life in a big city. He died in the front lines during World War I.

(8235) Fragonard = 2096 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Jean-Honoré Fragonard (1732–1806) was a student of Boucher. Both teacher and pupil painted the colorful world of the Rococo aristocracy. In his landscape paintings Fragonard shows the influence of the Venetian artists.

(8236) Gainsborough = 4040 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for Thomas Gainsborough (1727–1788), British portrait and landscape painter. He was strongly influenced by the Rococo style and Dutch landscape painting, and his work is characterized by luminous colors. His portraits often feature fine landscapes, and he is notable for painting not only the aristocracy of England but also its farmers.

(8237) Constable = 7581 P-L

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the English painter John Constable (1776–1837), known for his landscapes painted directly from nature. A forerunner of the Impressionists of the late nineteenth century, he is notable for his use of color. For some time he made portraits, but later he went back to landscape painting.

(8238) Courbet = 4232 T-1

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Gustave Courbet (1819–1877) was an autodidact who studied nature and the great paintings in the Louvre. Initially his paintings were not accepted in the salons of Paris; he then held his own exhibition, which was a great success. His harmonious colors influenced the French and German Impressionists.

(8239) Signac = 1153 T-2

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Paul Signac (1863–1935) worked together with Seurat to develop the technique of pointillism. For his pointillistic paintings Signac mostly chose water, ships and ports as subjects. After Seurat and Signac not many painters worked in this time-consuming method.

(8240) Matisse = 4172 T-2

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Henri Matisse (1869–1954) studied at the School of Fine Arts in Paris. After traveling through Europe and the Pacific islands, he initially developed an Impressionistic style of painting. Later he became the leader of a new school, Fauvism, characterized by bold use of color and distorted forms.

(8276) Shigei = 1991 FL

Discovered 1991 Mar. 17 by S. Otomo and O. Muramatsu at Kiyosato.

Named in honor of Mika Shigei (b.1968), lecturer and curator of the Gotoh Planetarium and Astronomical Museum in Tokyo, where she was in charge of an exhibition on meteorites.

(8307) Peltan = 1995 EN

Discovered 1995 Mar. 5 by J. Tichá at Kleť.

Named for the discoverer's family, including her mother Marie (nee Kosová) Peltanová (b.1930), her father Bohuslav Peltan (1927–1983), her brother Jiří Peltan (b.1953), her sister-in-law Adéla (b.1951) and her nephews Petr (b.1983) and Libor (b.1989).

(8319) Antiphanes = 3365 T-2

Discovered 1973 Sept. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named after the Greek comic poet Antiphanes (408–330 B.C.). Today 119 complete titles and about 300 fragments are known. He wrote parodies of Sophocles, Euripides and many different characters and professions.

(8336) Šafařík = 1984 SK₁

Discovered 1984 Sept. 27 by A. Mrkos at Kleť.

Named in memory of Vojtěch Šafařík (1829–1902), known for his work in inorganic chemistry, Czech chemical nomenclature and textbooks, as well as for his observations of variable stars. He obtained about 20 000 observations of variable stars. This minor planet also honors the memory of his wife and co-worker Paulína Šafaříková (1836–1920), who was interested in the history and popularization of astronomy. Name suggested by J. Tichá and M. Tichý.

(8395) Rembaut = 1993 TQ₂₃

Discovered 1993 Oct. 9 by E. W. Elst at the European Southern Observatory.

Named in memory of Peter Rembaut (1966–1997), industrial engineer at the electronic laboratory at the Royal Observatory at Uccle, who died tragically in 1997. Of great help to the discoverer for improving the software for the Zeiss comparator-measuring device, he was esteemed by everyone at the observatory for his kindness and ability.

(8440) Wigeon = 1017 T-3

Discovered 1977 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named after the bird *Anas penelope*; Wigeon is its English name. It belongs to the family of the Anatidae. It is on the Dutch Blue List of endangered birds. Although this bird does not breed in the Netherlands, it stays there during the winter.

(8489) Boulder = 1989 TA₃

Discovered 1989 Oct. 7 by E. W. Elst at the European Southern Observatory.

Named for the city of Boulder, Colorado, about 48 km northwest of Denver. Settled in 1859 by miners and named for the large stones in the area, the University of Colorado was founded there in 1876, making Boulder a center for scientific and environmental research. The water supply for the city is unique, coming from the Arapahoe glacier high in the Rocky Mountains. The discoverer and his wife spent a year there at the JILA institution during 1967–1968.

(8521) Boulainvilliers = 1992 GF₄

Discovered 1992 Apr. 4 by E. W. Elst at the European Southern Observatory.

Named in memory of Henri de Boulainvilliers (1658–1722), French historian and political writer who influenced intellectual developments in the French Enlightenment. Claiming that historical studies can supply the tools for analyzing the present state of society, he worked out a theory of comparative historical study which approached the later writings of Montesquieu. In 1683 he published his *L'Ideé d'un système général de la Nature*, which anticipated Holbach's *Système de la Nature* (1770). His *Histoire de la religion et de la philosophie ancienne* was published around 1700.

(8523) Bouillabaisse = 1992 PX

Discovered 1992 Aug. 8 by E. W. Elst at Caussols.

Named for the famous French fish soup, the glory of Provençal cooking. It contains fish, shellfish, olive oil, onions, tomatoes, garlic, parsley, saffron, fennel, thyme, bay leaf and orange peel (according to the Marseille recipe). All ingredients must be boiled together quickly.

(8524) Paoloruffini = 1992 RJ₃

Discovered 1992 Sept. 2 by E. W. Elst at the European Southern Observatory.

Named in memory of the famous Italian mathematician and physician Paolo Ruffini (1765–1822). In 1799 he published a book on the theory of equations, with the claim that the solution by radicals of a general equation of degree greater than four is impossible. Initially the mathematical community showed no interest in his work. However, in 1821 his work was acknowledged by Cauchy, who was influenced by his investigations and had generalized some of Ruffini's results. Due to political problems he had to leave his chair in mathematics at Modena and begin a career in medicine, tending to patients from the poorest to the richest.

(8525) Nielsabel = 1992 RZ₅

Discovered 1992 Sept. 2 by E. W. Elst at the European Southern Observatory.

Named in memory of the famous Norwegian mathematician Niels Henrik Abel (1802–1829). In 1824 he proved the impossibility of solving a general equation of the fifth degree by radicals. Through his friendship with the editor Crelle, who encouraged him in his work, he wrote his masterpiece *Recherches sur les fonctions elliptiques* (1827), from which he could prove that Jacobi's work on elliptic integrals were consequences of his own work. It is interesting to note that neither Gauss nor Cauchy showed interest in Abel's work.

(8643) Quercus = 1988 SC

Discovered 1988 Sept. 16 by E. W. Elst at Haute Provence.

Named for *Quercus*, a genus belonging to the family Fagaceae. The tree *Quercus robur* (English oak) reaches a height of 30–40 m and an age of more than a thousand years.

(8644) Betulapendula = 1988 SD

Discovered 1988 Sept. 16 by E. W. Elst at Haute Provence.

Named for *Betula pendula* (silver birch), a species in the genus *Betula* belonging to the family Betulaceae. It is a beautiful tree with an almost white bark. It grows fast and reaches a height of about 25 m and an age of 60–80 years.

(8647) Populus = 1989 RG

Discovered 1989 Sept. 2 by E. W. Elst at Haute Provence.

Named for *Populus*, a genus belonging to the family Salicaceae. *Populus nigra* (black poplar) is a fast-growing tree with a height of about 30 m, whereas *Populus tremula* (trembling aspen) is easily recognizable by its shimmering appearance.

(8648) Salix = 1989 RJ

Discovered 1989 Sept. 2 by E. W. Elst at Haute Provence.

Named for *Salix*, a genus belonging to the family Salicaceae. *Salix alba* (white willow) is a small tree with long, thin leaves. This fast-growing tree is used for windbreaks and screens. *Salix caprea* (goat or pussy willow) is a fast-growing small tree with striking catkins in early spring.

(8649) Juglans = 1989 SS₂

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

Named for *Juglans*, a genus belonging to the family Juglandaceae. *Juglans regia* (English walnut) produces a particularly delicious fruit.

(8652) Acacia = 1990 EA₅

Discovered 1990 Mar. 2 by E. W. Elst at the European Southern Observatory.

Named for *Acacia*, belonging to the family Mimosaceae. *Acacia mearnsii* (mimosa) is a shrub with feathery leaves composed of many small leaflets. The strongly scented tiny yellow flowers are grouped in loose, rounded clusters.

(8656) Cupressus = 1990 QY₈

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

Named for *Cupressus*, belonging to the family Cupressaceae. *Cupressus macrocarpa* (Monterrey cypress) produces a durable wood. *Cupressocyparis leylandii* (Leyland cypress), hybridized from the macrocarpia, has scale-like dark green leaves that are arranged at various angles to the shoot. These trees are typical of the landscape in Tuscany.

(8657) Cedrus = 1990 QE₉

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

Named for *Cedrus*, belonging to the family Pinaceae. *Cedrus libani* (cedar of Lebanon) has a fruit that is an ovoid upright cone.

(8691) Etsuko = 1992 UZ₁

Discovered 1992 Oct. 21 by Y. Kushida and O. Muramatsu at the Yatsugatake South Base Observatory.

Named in honor of Etsuko Kobayashi (b. 1926), the first female lecturer at the Gotoh Planetarium and Astronomical Museum in Tokyo, where she worked for 30 years until 1986. Famous for her lecturing style, which left many listeners spellbound, she has educated many young lecturers who are active in the field today. She also worked for the publisher of a science journal and is now a well-known author of astronomy books herself. Name proposed by the discoverers following a suggestion by S. Kimura.

(8734) Warner = 1997 AA

Discovered 1997 Jan. 1 by P. G. Comba at Prescott.

Named in honor of Brian D. Warner (b. 1952). For more than eight years he has published the *Minor Planet Observer*, a monthly newsletter with minor-planet finder charts and other news of interest to minor planet observers. In recent years he has taken up CCD imaging and contributed hundreds of astrometric observations.

(8761) Crane = 1163 T-1

Discovered 1971 Mar. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the bird *Grus grus*; Crane is its English name. It belongs to the family of the Gruidae and is an endangered species in Europe.

(8767) Commontern = 1335 T-2

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the bird *Sterna hirundo*; Common tern is its English name. It belongs to the family of the Sternidae.

(8768) Barnowl = 2080 T-2

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the bird *Tyto alba*; Barn Owl is its English name. It belongs to the family of the Tytonidae.

(8769) Arctictern = 2181 T-2

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the bird *Sterna paradisaea*; Arctic tern is its English name. It belongs to the family of the Sternidae.

(8812) Kravtsov = 1982 UY₆

Discovered 1982 Oct. 20 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Named for Ukrainian pilot and writer Yuriy Fedorovich Kravtsov (1924–1994). The author and the heroes in his books are examples of great human courage.

(8816) Gamow = 1984 YN₁

Discovered 1984 Dec. 17 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Named in memory of the scientist George (Georgij Antonovich) Gamow (1904–1968). His main scientific achievements include the creation of alpha and beta decay theory and the theory of the exploding Universe. Gamow was also the first to decipher the genetic code. He worked at institutions around the world, in Odessa, Leningrad, Göttingen, Copenhagen, Cambridge, as well as in the U.S. Through his popular lectures, articles and books he promoted public interest in science. In 1956 he received the Calling Prize awarded by UNESCO for the popularization of science. Name suggested by S. P. Kapitza and supported by the discoverer.

(8833) Acer = 1989 RW

Discovered 1989 Sept. 3 by E. W. Elst at Haute Provence.

Named for Aceraceae, the maple family, with two genera and more than 100 species. One well-known species is *Acer saccharum* (sugar maple), the sap of which is used for maple syrup and maple sugar.

(8834) Anacardium = 1989 SX₂

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

Named for Anacardiaceae, the cashew or mango family, with 80 genera and over 800 species of evergreen and deciduous trees, shrubs and climbing plants. *Anacardium occidentale* (western cashew) yields a delicious fruit.

(8835) Annona = 1989 SA₃

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

Named for Annonaceae, the custard apple family, with more than 2000 species. The trees are mainly tropical and include the species *Annona squamosa* (sweetsop), which has a sweet, pulpy fruit.

(8836) Aquifolium = 1989 SU₃

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

Named for Aquifoliaceae, the holly family, with 700 evergreens and deciduous species. *Ilex aquifolium* (English holly) belongs to this family, as does *Ilex paraguayensis* (Yerba maté), which makes a tasteful tea.

(8850) Bignonia = 1990 VQ₆

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

Named for Bignoniaceae, the catalpa family, with about 100 genera and 700 species with tubular flowers. Among them are *Bignonia capreolata* (trumpet flower) and *Crescentia cujete* (calabash).

(8852) Buxus = 1991 GG₆

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

Named for Buxaceae, the box family, with four or five genera and some 60 species of evergreen trees and shrubs. *Buxus sempervirens* (English boxwood) has very small leaves and is used for hedges and borders.

(8856) Celastrus = 1991 LH₁

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

Named for Celastraceae, the staff-tree family, with 100 genera and over 1000 species including many climbing plants. These include *Celastrus scandens* (bitter-sweet) and *Euonymus europaeus* (European spindle tree), the latter having pink fruit and orange seeds.

(8857) Cercidiphyllum = 1991 PA₇

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

Named for Cercidiphyllaceae, a family with only one member, *Cercidiphyllum japonicum* (katsura), regarded as a plant of primitive origin. It was originally classified as belonging to the magnolias, but it seems more related to the planes.

(8858) Cornus = 1991 PT₇

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

Named for Cornaceae, the dogwood family, with about 12 genera and 100 species of evergreens, deciduous trees and shrubs. Species include *Cornus sanguinea* (red dogwood) and *Cornus florida* (flowering dogwood).

(8872) Ebenum = 1992 GA₄

Discovered 1992 Apr. 4 by E. W. Elst at the European Southern Observatory.

Named for Ebenaceae, the ebony family, with only two genera and 500 species. Male and female flowers are usually borne on separate plants. The *Dispyros* genus dominates, the fruit of the *Diospyros virginiana* (persimmon) being good to eat. *Diospyros ebenum* (Macassar ebony) is a valuable wood.

(8886) Elaeagnus = 1994 EG₆

Discovered 1994 Mar. 9 by E. W. Elst at Caussols.

Named for Elaeagnaceae, the oleaster family with three genera and about 50 species. In many species the flowers develop into edible fruits. *Elaeagnus augustifolia* (Russian olive) has important commercial value for its fruits.

(8895) Nha = 1995 QN

Discovered 1995 Aug. 21 by K. Watanabe at Sapporo Science Center.

Named in honor of Nha Il-Seong (b.1932), professor emeritus at Yonsei University, Korea, on the occasion of the dedication of his Museum of Astronomy in Yecheon. Professor Nha's major works include photometry of close binary stars, the discovery of the apsidal motion in the CW Cep system and contributions to the history of Asian astronomy. He has served as president of the Korean Astronomical Society and director of Yonsei University Observatory. Name proposed by the discoverer following a suggestion by K. Hurukawa. Citation by I. Hasegawa.

(8978) Barbatus = 3109 T-3

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the bird *Gypaetus barbatus*, or lammergeier.

(8979) Clanga = 3476 T-3

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the bird *Aquila clanga*, or greater spotted eagle.

(8980) Heliaca = 4190 T-3

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the bird *Aquila heliaca*, or imperial eagle.

(9005) Sidorova = 1982 UU₅

Discovered 1982 Oct. 20 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Named in honor of Sophia Ivanovna Sidorova (b.1943), tireless worker on behalf of public education in Ukraine and leader of the Crimean Republic Committee for the education of workers. She is an educator of great ability, a brilliant organizer and a thoughtful wife and mother.

(9007) James Bond = 1983 TE₁

Discovered 1983 Oct. 5 by A. Mrkos at Kleť.

Named for British Secret Service agent James Bond (007), the creation of novelist Ian Fleming, a former British naval intelligence officer. Between 1952 and 1964, Fleming churned out twelve novels and two collections of short stories. Eighteen movies were based on the Bond legend, including *Dr. No*, *Goldeneye* and *Tomorrow Never Dies*, all with the compelling ingredients of action, seduction, humor and high technology. Two of the best-known Bond players are Sean Connery and Pierce Brosnan. Name suggested by J. Tichá, M. Tichý and Z. Moravec.

(9016) Henrymoore = 1986 AE

Discovered 1986 Jan. 10 by C. S. and E. M. Shoemaker at Palomar.

Named in memory of Henry J. Moore (1928–1998). A geologist with the U.S. Geological Survey since 1960, Moore took part in the fledgling astrogeology program helping to train the Apollo astronauts in impact geology prior to the moon landings. He participated in the analysis of the lunar samples they brought back and worked with the photographs of the moon's surface taken from orbit. His experience in the selection of lunar landing sites transferred to the Mars Viking project. Moore's work on the Mars Pathfinder mission and with its Mars rover, Sojourner, were among his last contributions.

(9019) Eucommia = 1987 QF₃

Discovered 1987 Aug. 28 by E. W. Elst at the European Southern Observatory.

Named for Eucommiaceae, a family with only one member, the elmlike *Eucommia ulmoides*, a vigorous and decorative plant. It is the only tree from temperate regions that produces latex—in small quantities.

(9020) Eucryphia = 1987 SG₂

Discovered 1987 Sept. 19 by E. W. Elst at Smolyan.

Named for Eucryphiaceae, a family with five species in a single genus. *Eucryphia cordifolia* (Chilean elm) may reach a height of 12 m. Hybrids between the different species are cultivated for the garden.

(9021) Fagus = 1988 CT₅

Discovered 1988 Feb. 14 by E. W. Elst at the European Southern Observatory.

Named for Fagaceae, the beech family, with eight genera and over 1000 species, including oaks and chestnuts. Well-known species are *Fagus grandifolia* (American beech) and *Fagus sylvatica* (European beech).

(9040) Flacourtia = 1991 BH₁

Discovered 1991 Jan. 18 by E. W. Elst at Haute Provence.

Named for Flacourtiaceae, the Indian plum family, with almost 90 genera and 900 species. *Flacourtia indica* (governor's plum) is one of the species, and the south-east Asian genus *Hydnocarpus* produces an oil that is used for treating some skin diseases.

(9044) Kaoru = 1991 KA

Discovered 1991 May 18 by S. Otomo and O. Muramatsu at Kiyosato.

Named in honor of Kaoru Kimura (b. 1964), lecturer and curator of the Gotoh Planetarium and Astronomical Museum in Tokyo, where she was in charge of an exhibition about the history of constellations. She traveled abroad several times to observe solar eclipses.

(9053) Hamamelis = 1991 VW₅

Discovered 1991 Nov. 2 by E. W. Elst at the European Southern Observatory.

Named for Hamamelidaceae, the witch hazel family, with about 25 genera and 100 species, typical in South America and Africa. *Hamamelis virginiana* (witch hazel) is not a true hazel, although the leaves are similar.

(9054) Hippocastanum = 1991 YO

Discovered 1991 Dec. 30 by E. W. Elst at Haute Provence.

Named for Hippocastanaceae, the horse-chestnut family, with only two genera and 15 species. *Aesculus hippocastanum* (common horse-chestnut) is known for its creamy yellow flowers, in large, conical, upright panicles.

(9087) Neff = 1995 SN₃

Discovered 1995 Sept. 29 at Kleť.

Named for Vladimír Neff and Ondřej Neff. Vladimír Neff (1909–1983) was an outstanding Czech writer, well-known for his five-part chronicle, spanning the mid-nineteenth to the mid-twentieth century, of the Prague entrepreneur family, the Borns and the Nedobyls. His last work was a great ironic novel *The Vesture of Mr. de Balzac*. Ondřej Neff (b. 1945) is a Czech writer of science fiction, a journalist and son of Vladimír Neff. In 1996 he founded the first Czech independent Internet daily newspaper called *Nevíditelný pes*, or “The Invisible Dog”. He continues this work today. Name proposed by discoverers J. Tichá, M. Tichý and Z. Moravec.

(9119) Georgpeuerbach = 1998 DT

Discovered 1998 Feb. 18 at Linz.

Named in memory of Georg Aunpekh von Peuerbach (1423–1461), professor at the University of Vienna, astronomer at the court of emperor Friedrich III, mathematician, poet, early humanist and teacher of Regiomontanus. He discovered the magnetic declination, introduced sines into trigonometry and invented the foldable sundial, the first trustworthy pocket timepiece. Named on the occasion of the unveiling of a memorial tablet on St. Stephan's cathedral in Vienna, where Peuerbach is buried.

(9132) Walteranderson = 2821 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in honor of Walter Anderson, chief executive officer of Entree International and long-time supporter of space exploration, most notably via the International Space University.

(9133) d'Arrest = 3107 P-L

Discovered 1960 Sept. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of Heinrich Louis d'Arrest (1822–1875), German astronomer. As an assistant astronomer at the Berlin Observatory, he, together with J. G. Galle, discovered the planet Neptune in 1846. From 1852 d'Arrest served as an astronomer at the Leipzig Observatory and was appointed professor of astronomy. In 1857 he went to Denmark as director of the Copenhagen Observatory, where he discovered (76) Freia. He detected several comets, among them a famous short-period comet, and he was a prolific observer of minor planets and nebulae.

(9134) Encke = 4822 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of Johann Franz Encke (1791–1865), eminent German astronomer. Beginning in 1816, Encke was assistant professor and director of the Seeberg Observatory, near Gotha. He computed the orbit of a short-period comet discovered by Pons and demonstrated that this object had been observed repeatedly. Later it was named comet 2P/Encke. In 1825 Encke was appointed director of the Berlin Observatory and member of the Berlin Academy of Sciences. Encke is most famous for editing the *Berliner Astronomisches Jahrbuch* from 1830 to 1866. This contained several very important papers on orbit determination and perturbation computations.

(9135) Lacaille = 7609 P-L

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of Nicolas-Louis de Lacaille (1713–1762), French astronomer known as the “father of southern astronomy” for his naming of southern constellations and his countless astrometric observations of planets and stars. In 1750, the abbé Lacaille went to an expedition to the Cape for trigonometric determinations of the lunar and solar parallax, his observations being partly supported by simultaneous measurements by Lalande in Berlin. Lacaille's observations of the southern heavens resulted in a famous catalogue of 9766 stars, a work that was eventually published in 1847 by Baily. Lacaille is also known as a precise observer of comet 1P/Halley in 1759.

(9136) Lalande = 4886 T-1

Discovered 1971 May 13 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of Joseph-Jérôme Lefrançois de Lalande (1732–1807), famous French astronomer who computed many useful tables for practical astronomical work and authored many papers and textbooks. After some years as an assistant to Delisle, Le Monnier and Lacaille, Lalande went to Berlin in order to prepare measurements for determining the lunar parallax. He was a member of the Berlin and Paris academies of science and was editor of many volumes of the almanac *Connaissance des temps* during 1760–1776 and 1794–1807. His monumental *Bibliographie astronomique* (1802) has lasted for two centuries.

(9138) Murdoch = 2280 T-2

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of Jean Iris Murdoch (1919–1999), prolific novelist and philosopher, whose 26 moralist-existentialist fictional works in 41 years earned her a place among the leading twentieth-century writers in the English language. Already

suffering from Alzheimer's disease when her last novel was published in 1995, Murdoch was lovingly cared for by her husband, the critic John Bayley, whose recent *Elegy for Iris* is a penetrating study of conflicting emotions.

(9139) Barrylasker = 4180 T-2

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of U.S. astronomer Barry M. Lasker (1939–1999), whose long-time association with the Space Telescope Science Institute includes the writing of the proposal to establish the Institute. Under his leadership the *Guide Star Catalogue* and the *Digitized Sky Survey* were created for Space Telescope operations. By leading the construction of these momentous enterprises, he provided tools of very broad astronomical use, including the astrometry of minor planets.

(9140) Deni = 4195 T-3

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named after the Department of Education for Northern Ireland for its support of the Armagh Observatory, where Ernst Öpik carried out seminal work on the collisional evolution and dynamics of small bodies. The DENI has promoted life-long learning and research across many disciplines, encompassing higher education, schools, museums, recreation and culture. It has sought for many years to advance knowledge and understanding of the natural world, and to provide the means by which as many people as possible may appreciate and continue to develop Northern Ireland's rich cultural heritage, its diversity and contributions to the scientific, intellectual and social life of the community.

(9197) Endo = 1992 WH₈

Discovered 1992 Nov. 24 by M. Hirasawa and S. Suzuki at Nyukasa.

Named in honor of Shu Endo (b.1953), one of Japan's leading astrophotographers. Endo's astrophotographs are famous for their beauty and detail. Many astrophotographers have been inspired by his ideas and advice. The films used to discover this minor planet were hypersensitized by him.

(9203) Myrtus = 1993 TM₁₆

Discovered 1993 Oct. 9 by E. W. Elst at the European Southern Observatory.

Named for Myrtaceae, the myrtle family of aromatic trees and shrubs, with more than 100 genera and nearly 4000 species. This family is typical of the Southern Hemisphere, where the Eucalyptus genus is prevalent. Myrtus communis (common myrtle) is a species native to the Mediterranean and is cultivated as far north as England.

(9242) Olea = 1998 CS₃

Discovered 1998 Feb. 6 by E. W. Elst at the European Southern Observatory.

Named for Oleaceae, the olive family, with about 25 genera and nearly 1000 species. Genera include ash, lilac, jasmine and forsythia. Olea europea (common olive) is profitable as a fruit and source of oil.

(9248) Sauer = 4593 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in honor of Carl G. Sauer, Jr., a principal flight mechanics engineer at NASA's Jet Propulsion Laboratory. Since 1952, when he began work at JPL, Carl has been a leader in the development of the analysis tools used for designing the ballistic and low-thrust spacecraft missions that explore the solar system. His work has included mission designs for advanced spacecraft propulsion systems, including solar

electric ion propulsion, nuclear propulsion and solar sailing. His database of potential spacecraft trajectories to hundreds of comets and minor planets is an invaluable resource for mission design work at JPL.

(9249) Yen = 4606 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in honor of Chen-wan L. Yen, a senior analyst within the Mission and Systems Architecture Section of NASA's Jet Propulsion Laboratory. Chen-wan has done seminal work in the development and application of optimization techniques to interplanetary trajectories. Using multiple-impulse and gravity-assist techniques, her optimized interplanetary trajectories have allowed significant payloads to be launched within current launch vehicle capabilities. Her work is evident in the interplanetary trajectories designed for the Galileo mission to Jupiter, the Magellan mission to Venus, the Cassini mission to Saturn, and the Stardust mission to return a dust sample from comet 81P/Wild 2.

(9250) Chamberlin = 4643 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in honor of Alan B. Chamberlin, a senior engineer within the Navigation and Flight Mechanics Section of NASA's Jet Propulsion Laboratory. Since joining the staff at JPL in 1996, Alan has shown his expertise in astronomical observing and celestial mechanics. His research work has centered on the search for gaseous emissions from suspected defunct comets and the uncertainties associated with the close approaches to the earth of the so-called potentially hazardous objects. For the New Millennium Deep Space One spacecraft that was launched on 1998 Oct. 25, Alan is responsible for the ephemeris development for both the mission targets and the two dozen well-observed minor planets that will be used by this spacecraft to navigate autonomously to its targets.

(9251) Harch = 4896 P-L

Discovered 1960 Sept. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in honor of the Cornell University scientist Ann P. Harch, an expert in the design and execution of spacecraft camera sequencing and pointing commands. Ann played a major role in obtaining the first spacecraft images of (951) Gaspra and (243) Ida during the Galileo spacecraft flybys in Oct. 1991 and Aug. 1993. During the latter encounter, she was the first to note evidence for Ida's moon, Dactyl. In addition, Ann was instrumental in the successful imaging of (253) Mathilde and (433) Eros during the NEAR spacecraft flybys in June 1997 and Dec. 1998.

(9252) Goddard = 9058 P-L

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of the American rocket pioneer Robert H. Goddard (1882–1945). Beginning in 1906, Goddard combined theory and practice in a long career of building and testing rockets. While he dedicated himself to the development of rockets, including the first test of a liquid fuel rocket in 1926, Goddard never lost sight of its ultimate purpose—the exploration of space.

(9253) Oberth = 1171 T-1

Discovered 1971 Mar. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of the German pioneer of space flight Hermann J. Oberth (1894–1945). In his 1923 work entitled *Die Rakete zu den Planetenräumen*, Oberth gave a thorough discussion of many phases of rocket travel, including the launching of payloads into earth orbit and the abnormal effects of pressure on the human body.

(9254) Shunkai = 2151 T-1

Discovered 1971 Mar. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of Shibukawa Shunkai (1639–1715), who was an expert on the calendar. Born into a family of “go” teachers in Kyoto, he studied the calendar system and astronomy and found that the lunisolar calendar, which had been used without any modification for more than 800 years after it was imported from China, did not match observations. He revised the calendar using observations of the sun and moon, and his calendar system was adopted by the Tokugawa government in 1684. He was then nominated as “The Astronomer”, which was a new title for him. The title was inherited by his family. The Tokugawa government also established the observatory with Shunkai as the director.

(9255) Inoutadataka = 3174 T-1

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of Inou Tadataka (1745–1818), a very able geographer and surveyor. He began to study astronomy and surveying methods after he retired from his official job at the age of 50. He began surveying in Hokkaido at his own expense. Since the map he made was found to be excellent, the Tokugawa government asked him to continue the survey on Honshu. He completed his survey of the Japanese coastal area by measuring astronomical latitudes at 1200 places, and he derived the length of the meridional arc of one degree to be 110.8 km. His map, smuggled to Europe on a Dutch ship, won wide respect there.

(9256) Tsukamoto = 1324 T-2

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of Tsukamoto Akitake (1833–1885), a geographer who worked for both the Tokugawa and Meiji governments. He recommended that the Japanese government adopt the Gregorian calendar to replace the lunisolar calendar. The government accepted his advice, and Japan adopted the Gregorian calendar on 1873 Jan. 1.

(9257) Kunisuke = 1552 T-2

Discovered 1973 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of Kunisuke Kinoshita (1901–1931), an astronomer at the Tokyo Astronomical Observatory from 1924 to his death. At the observatory he worked with Oikawa and discovered 1927 EB and 1927 FC. However, after he was sent to Malaysia in 1929 to observe the total eclipse, he became ill and stopped most of his work in 1930. He also wrote excellent articles on modern astronomy in the *Astronomical Herald*, the monthly journal of the Astronomical Society of Japan, for which he served as editor after 1929.

(9306) Pittosporum = 1987 CG

Discovered 1987 Feb. 2 by E. W. Elst at the European Southern Observatory.

Named for Pittosporaceae, the Australian laurel family, with nine genera and more than 200 species, mainly in tropical Africa and Pacific islands. Among the species is *Pittosporum eugenioides* (lemonwood).

(9309) Platanus = 1987 SS₉

Discovered 1987 Sept. 20 by E. W. Elst at Smolyan.

Named for Platanaceae, the plane family, with one genus and seven species. They grow wild mainly in the United States and Mexico, but they are also typical of southern France. *Platanus acerifolia* (London plane) reaches a height of almost 30 m and is widely planted in cities because of its resistance to air pollution. The brown, bristly fruits, hanging two to four together on a single stalk, persist over the winter.

(9313) Protea = 1988 CH₃

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

Named for Proteaceae, the firebush family, with some 75 genera and over 1000 species. They are native to the Southern Hemisphere, where they grow wild. Some species, such as *Protea mellifera* (honeyflower), extend also to the warm regions of the Northern Hemisphere. The family is best known for its ornamental plants, such as *Embothrium coccineum* (Chilean firebush), which are cultivated for their edible nuts.

(9316) Rhamnus = 1988 PX₂

Discovered 1988 Aug. 12 by E. W. Elst at Haute Provence.

Named for Rhamnaceae, the buckthorn family of deciduous and evergreen trees, shrubs and climbing plants, with 60 genera and around 900 species. They grow wild in all parts of the world. Some of the species yield dyes. The berrylike fruits appear in dense clusters. *Rhamnus purshina* (bearwood) produces a dry bark (cascara sagrada) that is used as a laxative.

(9326) Ruta = 1989 SP₂

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

Named for Rutaceae, the rue family, with over 150 genera and 1500 species, including citrus fruits. *Ruta graveolens* (common rue) is a perennial herb with a particularly strong scent. The family thrives in tropical and warm, temperate regions.

(9350) Waseda = 1991 TH₂

Discovered 1991 Oct. 13 by M. Hirasawa and S. Suzuki at Nyukasa.

Named for one of the most prestigious private universities in Japan. It was established in 1882 by Shigenobu Okuma, who later became the eighth and the seventeenth prime minister of Japan. One of the primary objectives of the university was to promote the independence of study and spirit of progress known as Waseda Spirits. Both discoverers of this minor planet graduated from Waseda.

(9364) Clusius = 1992 HZ₃

Discovered 1992 Apr. 23 by E. W. Elst at the European Southern Observatory.

Named for Carolus Clusius (Charles de l'Escluse; 1526–1609), a Flemish botanist well-known for his catalogue, published in Antwerp in 1576, of fine drawings of more than 200 plants he had studied in southern France, Portugal and Spain. His system of classification proposed the idea of natural families. The Clusiaceae, a family of plants and trees, was named after him. It is said that he introduced the tulip into Holland.

(9365) Chinesewilson = 1992 RU₃

Discovered 1992 Sept. 2 by E. W. Elst at the European Southern Observatory.

Named for Ernest “Chinese” Wilson (1876–1930) a prolific hunter of plants, who introduced more than 1000 new plants from China into Europe. Because of him

Europeans have the Azalea, Hortensia and Magnolia wilsonii. He lost his leg while hunting the lily Liliun regale.

(9368) Esashi = 1993 BS₃

Discovered 1993 Jan. 26 by M. Mukai and M. Takeishi at Kagoshima.

Named for a small town in northern Hokkaido, on the Sea of Okhotsk, not far from the home of the second discoverer. Known as “The Town of the Solar Eclipse”, it was visited by astronomers from all over the world during the total solar eclipses of 1896 Aug. 9 and 1936 June 19. After the former eclipse the American astronomer David P. Todd gave many books to the town, and these became the nucleus of the first public library to be established in Hokkaido.

(9376) Thionville = 1993 OU₇

Discovered 1993 July 20 by E. W. Elst at the European Southern Observatory.

Named for the French city in northeastern France, near the Luxembourg border. It lies in the center of an iron-mining district.

(9377) Metz = 1993 PJ₇

Discovered 1993 Aug. 15 by E. W. Elst at Caussols.

Named for the French city in the Lorraine region of France, at the confluence of the Moselle and Seille rivers. It derives its name from the Gallic tribe Mediomatrici. In 843 it became the capital of Lorraine. The Metz cathedral has remarkable stained glass windows from the thirteenth and fourteenth centuries.

(9378) Nancy-Lorraine = 1993 QF₃

Discovered 1993 Aug. 18 by E. W. Elst at Caussols.

Named for the French city Nancy, in the Lorraine region of France, near the left bank of the river Meuse. The city has a very handsome town hall.

(9379) Dijon = 1993 QH₃

Discovered 1993 Aug. 18 by E. W. Elst at Caussols.

Named for the capital of Côte d’Or, in east-central France. In the ninth century the city was known as Castrum Divionense. Dijon is a major communication center and offers many tourist attractions. It lies among beautiful, fertile vineyards. The city is famous for its strong mustard, vinegar and gingerbread.

(9380) Mâcon = 1993 QZ₅

Discovered 1993 Aug. 17 by E. W. Elst at Caussols.

Named for the French city Mâcon in the Bourgogne, on the right side of the river Saône. Although a very old city (Maticô), it has been ruined by several religious wars, and little of its original beauty is left.

(9381) Lyon = 1993 RT₁₉

Discovered 1993 Sept. 15 by H. Debehogne and E. W. Elst at the European Southern Observatory.

Named for the French city Lyon, capital of the Rhône department in east-central France, at the confluence of the Rhône and Saône rivers. Originally a Roman military colony (Lugdunum), it subsequently became the capital for the Gauls. As early as 1473 Lyon was the most active printing center in Europe.

(9383) Montélimar = 1993 TP₁₅

Discovered 1993 Oct. 9 by E. W. Elst at the European Southern Observatory.

Named for the city in southeastern France, near the confluence of the Roubion and Rhône rivers. The city was called Acunum by the Romans and Monteil d’Adhémar in medieval times. It was a papal possession from 1340 to 1470. The Château des Papes serves now as a prison. The city is famous for its candy.

(9384) Aransio = 1993 TP₂₆

Discovered 1993 Oct. 9 by E. W. Elst at the European Southern Observatory.

Named for the city of Orange in southeastern France in the department of Vaucluse. In early times the city was called Aransio and was a well-known Roman colony. In 406 and in 410 the city was pillaged, and during the seventeenth century it suffered from religious wars. In spite of this, some Roman architecture remains, such as the triumphal arch and the old theater.

(9385) Avignon = 1993 TJ₃₀

Discovered 1993 Oct. 9 by E. W. Elst at the European Southern Observatory.

Named for the city in southeastern France, at the east bank of the Rhône river. In 1309 it became the capital of the Roman Catholic papacy and harbored heretics and criminals. The city is well-known for its Saint-Bénézet bridge, which everyone knows from the song “Sur le pont d’Avignon”.

(9386) Hitomi = 1993 XD₁

Discovered 1993 Dec. 5 by M. Hirasawa and S. Suzuki at Nyukasa.

Named in honor of Hitomi Doi (b.1955), wife of Takao Doi, the first Japanese space walker. Hitomi is the author of many articles and essays, mostly about astronomy. She is also an enthusiastic amateur astronomer.

(9452) Rogerpeeters = 1998 DY₃₃

Discovered 1998 Feb. 27 by E. W. Elst at the European Southern Observatory.

Named in honor of Roger Peeters (b.1948), head of the mechanical workshop at the Royal Observatory at Uccle and responsible for maintaining all the telescopes. He was always available for keeping the Zeiss measuring instrument in good repair, and this was used in particular for measuring this minor planet.

(9468) Brewer = 1998 LT₂

Discovered 1998 June 1 by E. W. Elst at the European Southern Observatory.

Named in honor of James Brewer, ESO astronomer working on stellar populations and carbon stars. Using intermediate band photometry, he has identified C- and M-type stars in M31 and demonstrated that the ratio of these stars tracks the metallicity gradient in the disk. He is currently working on the globular clusters of the Fornax dwarf spheroidal galaxy. During 1998 he was of great help to the discoverer in obtaining observations with the ESO Schmidt.

(9478) Caldeyro = 2148 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of Roberto Caldeyro Barcia (1921–1996), Uruguayan physiologist who led a team of researchers, together with Hermógenes Alvarez, in a pioneering study of the physiological aspects of perinatology. Their investigations on uterine contractility were seminal for the development of procedures for the control of high-risk pregnancies and deliveries. Their unit system (“Montevideo Units”), introduced to measure the intensity of the uterine contractions, is used worldwide. During his term as president of the Program for the Development of Basic Science (1986–1996), Caldeyro Barcia played a fundamental role in restoring Uruguayan scientific research, which had been severely damaged during the previous period of military dictatorship.

(9480) Inti = 2553 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the sun god in Inca religion, also called Apu-Punchau, believed to be the ancestor of the Incas. Inti was at the head of the state cult. He was usually represented in human form, his face portrayed as a gold disk from which rays and flames extended. Inti's sister was the moon, Mama-Kilya, who was portrayed as a silver disk with human features.

(9481) Menchú = 2559 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in honor of Rigoberta Menchú Tum (b.1959), a Mayan Indian from Guatemala who has campaigned for human rights, especially for indigenous people. Menchú, whose parents and brother were killed by government troops, became a symbol of peace and reconciliation in a country devastated by civil war. She was awarded the Nobel Peace prize in 1992. According to Nobel Committee Chairman Sejersted, Menchú belongs to "...the shining individual examples of people who manage to preserve their humanity in brutal and violent surroundings. Such people give us hope that there are ways out of a vicious circle."

(9482) Rubéndarío = 4065 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of Rubén Darío (1867–1916), pseudonym of Félix Rubén García Sarmiento, Nicaraguan poet, journalist and diplomat who became a leader of the Spanish-American literary movement known as Modernism. Darío's poetry is notable for its remarkable musicality, grace and sonority, and he is indeed widely considered one of the greatest poets who ever wrote in Spanish.

(9483) Chagas = 4121 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in memory of Carlos Chagas (1879–1934), Brazilian epidemiologist who first described the agent, vectors and clinical signs of a new disease, the American Trypanosomiasis. Also known as Chagas' disease, this is an infection produced by the flagellate protozoan *Trypanosoma Cruzi* that is transmitted to humans by blood-sucking insects. It is endemic in most rural areas of Central and South America.

(9484) Wanambi = 4590 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the Australian Aborigines' best known spirit, the Rainbow Snake, which is the rainbow and the revealer of truth. Wanambi is one of the rainbow's names.

(9485) Uluru = 6108 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the Australian Aboriginal sacred place, the center or navel of the island continent. It is also known as Ayers Rock.

(9486) Utemorrah = 6130 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the Australian Aboriginal poet Daisy Utemorrah (b.1922), teller of Dreamtime stories in the Kimberley: "Words are my gun and my spear".

(9487) Kupe = 7633 P-L

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the legendary sailor and explorer whose discovery of the islands now known as New Zealand led to the coming there of the Maori people around the ninth century.

(9488) Huia = 9523 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the bird, extinct since 1907, with splendid green and black plumage and a long white-tipped tail (*Heteralocha acutirostris*). The tail feathers of the huia were highly prized by the Maori people as symbols of rank. Carved boxes, waka huia, were made to keep them in.

(9489) Tanemahuta = 1146 T-1

Discovered 1971 Mar. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named for the god of the forests of the Maori people in New Zealand and for the great kauri tree in the Waipoua forest that also bears this name.

(9551) Kazi = 1985 UJ

Discovered 1985 Oct. 20 by A. Mrkos at Kleť.

Named for the oldest daughter of prince Krok and wife of honorable hero Bivoj, known from Bohemian myths. Kazi was experienced in magic, herbs, formulas and signs. Name suggested by J. Tichá, M. Tichý and Z. Moravec.

(9574) Taku = 1988 XB₅

Discovered 1988 Dec. 5 by T. Nakamura at Kiso.

Named in memory of Hiroshi Nakamura (1891–1974), Japanese medical biochemist and researcher of old maps. He was often called Taku, since the Chinese character representing his first name can also be pronounced as Taku. He is well-known in the community of historical cartography as twice the winner of the Imago Mundi prize, awarded by the authoritative international journal on old maps. Taku was a long-time member of the editorial board of this journal. He wrote several important books and papers on far-east Asian maps of the sixteenth and seventeenth centuries. He showed that, contrary to Western understanding, European sea charts and maps of far-east Asia then being made were largely influenced by the knowledge of contemporary Japanese and Chinese sailors.

(9610) Vischer = 1992 RQ

Discovered 1992 Sept. 2 by F. Börngen and L. D. Schmadel at Tautenburg.

Named for Peter Vischer the Elder (c.1460–1529), the greatest German brass-caster master in the Middle Ages. Ledgers, tombs, artistic parcloes, baptismal fonts and statues made of bronze from his workshop in Nürnberg can be found throughout Germany. His father and sons also worked in this foundry. His masterpiece is the world-renowned Sebaldusgrab in St. Sebald church at Nürnberg, made during 1508–1519. Name proposed by the first discoverer.

(9645) Grünwald = 1995 AO₄

Discovered 1995 Jan. 5 by F. Börngen at Tautenburg.

Named for the German painter and watercolor artist Matthias Grünwald (c.1460–1528). His original name was Mathis Gothart Neithardt (or Niethart). His masterpiece is the Isenheimer altar in Colmar, one of the great works of Western art, featuring spiritual and realistic scenes juxtaposed and notable for the variety and

beauty of the colors. Paul Hindemith made Grünewald's life the subject of his opera and symphony *Mathis der Maler*.

(9662) Frankhubbard = 1996 GS

Discovered 1996 Apr. 12 by P. G. Comba at Prescott.

Named for the American harpsichord maker Frank Hubbard (1920–1976). After graduating from Harvard he traveled in Europe and gained a profound knowledge of early keyboard instruments, setting this down in his book *Three Centuries of Harpsichord Making*. In 1949, jointly with William Dowd, he set up a harpsichord workshop in Boston, which, through a process of fission, became the progenitor of several such workshops and led to the establishment of a tradition of harpsichord making in North America.

(9670) Magni = 1997 NJ₁₀

Discovered 1997 July 10 by A. Boattini at Campo Imperatore.

Named in honor of Gianfranco Magni (b.1943), who joined the Istituto di Astrofisica Spaziale in Rome in 1975. He has worked on the physics of stellar interiors, in particular on the equation of the state of gas at high pressure and temperature. Currently, his main field of interest is the origin of the solar system and of planetary systems in general, with special attention to the structure and evolution of circumstellar disks and the formation of giant planets. Involved also in the study of the origin and structure of comets, he is a team member of the cometary mission Rosetta. A lover of early music, he plays the recorder and belongs to two musical groups, “L’Amoroso Cantar” (Medieval music) and “Il Martellato” (Renaissance music).

(9694) Lycomedes = 6581 P-L

Discovered 1960 Sept. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Lycomedes was king of Scyros during the Trojan war. At his court Thetis hid her son Achilles, dressed in girl's clothes to save him from the Trojan war. He was found by Odysseus.

(9712) Nauplius = 1973 SO₁

Discovered 1973 Sept. 19 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Nauplius, a son of Poseidon and Amymone, was king of Euboea and father of Palamedes. After a false accusation by Odysseus caused the death of Palamedes, Nauplius sailed to Troy to seek vengeance. But this was denied by Agamemnon, so Nauplius returned to Greece, together with his surviving son Oeax. However, Nauplius earned his revenge. He misled the Greeks returning from Troy by placing lights on the cliffs of his land, so that many ships ran aground.

(9713) Oeax = 1973 SP₁

Discovered 1973 Sept. 19 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Oeax was the son of Nauplius of Euboea and brother of Palamedes. He traveled with his father from Troy to Greece.

(9737) Dударова = 1986 SC₂

Discovered 1986 Sept. 29 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Named in honor of Veronica Borisovna Dударова (b.1916), the only woman conductor in Russia. She is a People's Artist of the U.S.S.R. (1977) and the state prize laureate of Russia (1980). She was artistic director and principal conductor

of the Moscow State Symphony Orchestra from 1960 to 1989 and has been artistic director and principal conductor of the Veronica Dударова Orchestra since 1991. Her innovative interpretations of such large musical forms as symphonies and oratorios with choruses has defined her contribution to Russian art. Name suggested by G. V. Sviridov and S. P. Kapitzka and supported by the discoverer.

(9742) Worpswede = 1987 WT₁

Discovered 1987 Nov. 26 by F. Börngen at Tautenburg.

Named for the German colony of artists near the city of Bremen. Beginning in 1889, many painters settled in this lonely region, trying to live in harmony with nature. For their subjects they chose the heath and marshland, the farmhouses and the simple people. The poet R. M. Rilke also lived here for some time. The fame of Worpswede as a paradise for painters, unique in nineteenth-century Europe, continues to fascinate art lovers all over the world.

(9817) Thersander = 6540 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Thersander, a son of the Theban Polyneices, was wounded by Telephus and later was one of the heroes in the Wooden Horse.

(9818) Eurymachos = 6591 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Eurymachos was one of the heroes hidden in the Wooden Horse.

(9828) Antimachos = 1973 SS

Discovered 1973 Sept. 19 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Antimachos was one of the heroes hidden in the Wooden Horse.

(9829) Murillo = 1973 SJ₁

Discovered 1973 Sept. 19 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Bartolomé Estéban Murillo (1618–1682) created many religious paintings for churches. The painter from Seville is famous for his genre pictures of children that were poor but happy, and these are imitated even today.

(9844) Otani = 1989 WF₁

Discovered 1989 Nov. 23 by Y. Kushida and O. Muramatsu at the Yatsugatake South Base Observatory.

Named in honor of Toyokazu Otani (b.1928), first lecturer at the Gotoh Planetarium and Astronomical Museum in Tokyo, where he worked for 32 years until 1988. His deep knowledge of acoustics and classical music was instrumental in establishing the well-known BMG sound system, appreciated by planetarium audiences. Otani is also known as an eminent observer of the planets.

(9872) Solf = 1992 DJ₄

Discovered 1992 Feb. 27 by F. Börngen at Tautenburg.

Named in honor of Josef K. M. Solf (b.1934), professor of astronomy at Heidelberg and Jena, and since 1994 director of the Thüringer Landessternwarte Tautenburg. During 1969–1994 he served as staff member of the Max-Planck-Institut für Astronomie at Heidelberg and its Calar Alto Observatory. He is primarily interested in instrumentation for large optical telescopes. A pioneer in using high-resolution long-slit spectroscopic techniques, Solf made important contributions to the study of collimated mass outflows from both young and evolved stars, such as jets from

pre-main sequence stars, Herbig-Haro objects, protoplanetary nebulae, nova shells and jets from symbiotic stars and central stars of planetary nebulae.

(9902) Kirkpatrick = 1997 NY

Discovered 1997 July 3 by P. G. Comba at Prescott.

Named for Ralph Kirkpatrick (1911–1984), eminent American harpsichordist, clavichordist, musicologist and teacher. He traveled extensively in Europe, where he studied seventeenth-century and eighteenth-century performance practices in chamber music. He wrote a biography of Domenico Scarlatti and prepared a facsimile edition of his more than 500 sonatas. He gave many concerts, specializing in the performance of works by Scarlatti and J. S. Bach.

(9903) Leonhardt = 1997 NA₁

Discovered 1997 July 4 by P. G. Comba at Prescott.

Named for Gustav Leonhardt (b. 1928), eminent Dutch harpsichordist, conductor and pedagogue. As a harpsichordist, he has made many concert tours of Europe and North America and recorded a large number of baroque works.

(9905) Tiziano = 4611 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Tiziano Vecellio (Titian; c.1477 or 1490–1576) was a typical Renaissance painter. He loved colors, the contrast of light and dark, and gave the people in his paintings a personal expression. Titian painted portraits of Charles V, Phillip II, Franz I and pope Paul III.

(9906) Tintoretto = 6523 P-L

Discovered 1960 Sept. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named after Venetian painter Jacopo Robusti (1518–1594), called Tintoretto. He was influenced by Titian. His main work can be seen in the Scuola di S. Rocco and the palace of the Doge in Venice.

(9907) Oileus = 6541 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Oileus was the father of Ajax the Little. Next to Achilles, Ajax was the fastest-running Greek hero.

(9908) Aue = 2140 T-1

Discovered 1971 Mar. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Hartmann von Aue (c.1160–1210) was educated in a cloister and took part in the crusade of Barbarossa. He wrote epic works *Erec*, *Iwein* and *Der arma Heinrich* after the model of Chrèstien de Troyes. He also created minstrel songs.

(9909) Eschenbach = 4355 T-1

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Wolfram von Eschenbach (1168–1220) was, with von Aue and Gottfried von Strassburg, one of the greatest poets of medieval times. Beginning as a song writer, he later wrote three great epics: *Parzifal*, with the fragmentarian Gralsepos of Chrèstien de Troyes as a basis, and the two unfinished works *Titurel* and *Willehalm*.

(9910) Vogelweide = 3181 T-2

Discovered 1973 Sept. 30 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Walther von der Vogelweide (c.1170–1230) was probably born in Niederösterreich and died near Würzburg, Germany. A famous minstrel, his portrait appears in the *Manesse-Handschrift* from 1320. Quite a number of his songs with several verses have been preserved.

(9911) Quantz = 4129 T-2

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Johan Joachim Quantz (1697–1773), the son of a smith, became city piper of Merseburg, Germany, and later came to the court in Dresden as an oboe player. Thirty years later he took up the flute, studying throughout Europe and introducing new techniques for the flute. In 1741 he became the teacher and musical conductor for the Prussian king Friedrich II the Great. Quantz composed about 500 pieces for flute and published a book about playing the flute and on Baroque music in general.

(9912) Donizetti = 2078 T-3

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

The Italian composer Gaetano Donizetti (1797–1848) wrote symphonies, church and chamber music. After 1818 he composed 74 operas. He is still much esteemed today.

(9913) Humperdinck = 4071 T-3

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Engelbert Humperdinck (1854–1921) was first assistant to Richard Wagner. Later he traveled throughout Europe and Northern Africa and became a teacher in different conservatories and art academies. His greatest success was the opera *Hänsel und Gretel*, which remains a favorite today, with its folksong melodies.

(9999) Wiles = 4196 T-2

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in honor of Andrew J. Wiles (b.1953), British mathematician world-renowned for his 1993 proof of Fermat's Last Theorem, one of the most difficult mathematical problems, which had remained unsolved for more than 350 years. A gap in the proof was closed by Wiles in 1994. His achievement came too late for him to receive the Field Medal, because Wiles was then over the age limit of 40. The International Mathematical Union therefore gave him its most prestigious award, the Silver Plaque. Wiles' fields of research are number theory and arithmetic geometry. He is a professor at Princeton University.

EPHEMERIDES

1998 FH ₁₂		$a, e, i = 1.09, 0.54, 4$				Elements MPC 32063		
Date	TT	α_{2000}	δ_{2000}	Δ	r	Variation	V	
1999 04 02		05 35.47	+26 49.9	0.710	1.040	−5.13	−10.9	20.7
1999 04 07		06 08.54	+27 08.8	0.748	1.086	−4.91	−6.1	20.8
1999 04 12		06 38.68	+27 00.7	0.793	1.129	−4.60	−2.1	20.9
1999 04 17		07 05.93	+26 32.5	0.843	1.171	−4.24	+1.0	21.0
1999 04 22		07 30.53	+25 50.1	0.897	1.211	−3.87	+3.4	21.2
1999 04 27		07 52.75	+24 58.0	0.955	1.250	−3.51	+5.0	21.3
1999 05 02		08 12.92	+23 59.3	1.015	1.286	−3.18	+6.2	21.4
1999 05 07		08 31.34	+22 56.4	1.078	1.321	−2.88	+6.9	21.6
1999 05 12		08 48.30	+21 50.8	1.142	1.354	−2.62	+7.3	21.7

1999 APR. 2

M.P.C. 34357

1999 05 17	09 04.02	+20 43.5	1.207	1.385	-2.38	+7.5	21.8
1999 05 22	09 18.72	+19 35.2	1.273	1.415	-2.17	+7.6	22.0

D/1999 E1 (Li)			Elements					MPC 34126
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1 m_2
1999 04 02		06 33.70	+08 20.9	3.872	3.946	86.9	14.6	15.4
1999 04 12		06 40.27	+09 56.7	4.026	3.956	78.8	14.4	15.5
1999 04 22		06 48.00	+11 22.2	4.179	3.967	71.0	13.9	15.6
1999 05 02		06 56.71	+12 37.5	4.328	3.979	63.3	13.1	15.7
1999 05 12		07 06.24	+13 43.1	4.471	3.992	55.9	12.1	15.8
1999 05 22		07 16.48	+14 39.5	4.604	4.007	48.6	10.9	15.8
1999 06 01		07 27.26	+15 27.3	4.728	4.024	41.4	9.6	15.9
1999 06 11		07 38.49	+16 07.1	4.838	4.041	34.4	8.2	16.0

1999 CQ ₁₃₃			$a, e, i = 43.73, 0.00, 12$					Elements	MPC 34331
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1999 04 02		08 12.43	+19 41.3	43.392	43.730	109.1	1.2	23.4	
1999 04 12		08 12.33	+19 42.1	43.557	43.730	99.3	1.3	23.4	
1999 04 22		08 12.39	+19 42.4	43.727	43.730	89.5	1.3	23.4	
1999 05 02		08 12.61	+19 42.2	43.897	43.730	79.8	1.3	23.4	
1999 05 12		08 12.98	+19 41.6	44.061	43.730	70.2	1.2	23.4	
1999 05 22		08 13.49	+19 40.5	44.216	43.730	60.7	1.2	23.4	

1999 CO ₁₅₃			$a, e, i = 43.16, 0.05, 1$					Elements	MPC 34332
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1999 04 02		08 12.74	+19 36.1	40.589	40.929	109.2	1.3	23.6	
1999 04 12		08 12.64	+19 36.5	40.754	40.929	99.4	1.4	23.6	
1999 04 22		08 12.71	+19 36.4	40.924	40.929	89.6	1.4	23.6	
1999 05 02		08 12.94	+19 35.7	41.094	40.929	79.9	1.4	23.6	
1999 05 12		08 13.34	+19 34.5	41.258	40.929	70.3	1.3	23.6	
1999 05 22		08 13.89	+19 32.8	41.413	40.929	60.8	1.2	23.6	

1999 CF ₁₁₉			$a, e, i = 42.16, 0.00, 27$					Elements	MPC 34330
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1999 04 02		08 13.05	+20 20.2	41.826	42.164	109.1	1.3	23.5	
1999 04 12		08 12.91	+20 19.5	41.991	42.164	99.3	1.3	23.5	
1999 04 22		08 12.93	+20 18.3	42.161	42.164	89.5	1.4	23.5	
1999 05 02		08 13.13	+20 16.6	42.331	42.164	79.8	1.3	23.5	
1999 05 12		08 13.48	+20 14.4	42.496	42.164	70.2	1.3	23.5	
1999 05 22		08 13.98	+20 11.8	42.650	42.164	60.7	1.2	23.5	

1999 CG ₁₁₉			$a, e, i = 42.93, 0.00, 17$					Elements	MPC 34330
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1999 04 02		08 15.34	+20 16.4	42.587	42.934	109.7	1.3	23.8	
1999 04 12		08 15.21	+20 16.1	42.752	42.934	99.8	1.3	23.8	
1999 04 22		08 15.24	+20 15.3	42.922	42.934	90.0	1.3	23.8	
1999 05 02		08 15.43	+20 13.9	43.092	42.934	80.3	1.3	23.8	
1999 05 12		08 15.78	+20 12.1	43.257	42.934	70.7	1.3	23.8	
1999 05 22		08 16.28	+20 09.8	43.412	42.934	61.2	1.2	23.8	

1999 CR ₁₃₃			$a, e, i = 42.25, 0.00, 2$					Elements	MPC 34331
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1999 04 02		08 16.81	+19 21.6	41.894	42.250	110.2	1.3	24.5	
1999 04 12		08 16.69	+19 22.2	42.059	42.250	100.3	1.3	24.5	
1999 04 22		08 16.73	+19 22.2	42.228	42.250	90.6	1.4	24.5	
1999 05 02		08 16.94	+19 21.6	42.398	42.250	80.9	1.3	24.6	

1999 05 12	08 17.30	+19 20.6	42.563	42.250	71.3	1.3	24.6
1999 05 22	08 17.82	+19 19.1	42.719	42.250	61.8	1.2	24.6

1999 CH ₁₁₉			$a, e, i = 46.40, 0.00, 19$					Elements	MPC 34330
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1999 04 02		08 19.73	+20 04.1	46.038	46.401	110.7	1.2	24.1	
1999 04 12		08 19.61	+20 05.0	46.202	46.401	100.8	1.2	24.1	
1999 04 22		08 19.63	+20 05.4	46.372	46.401	91.1	1.2	24.1	
1999 05 02		08 19.81	+20 05.4	46.542	46.401	81.4	1.2	24.1	
1999 05 12		08 20.12	+20 04.8	46.707	46.401	71.8	1.2	24.2	
1999 05 22		08 20.58	+20 03.8	46.864	46.401	62.2	1.1	24.2	

1999 CS ₁₅₃			$a, e, i = 43.18, 0.00, 1$					Elements	MPC 34332
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1999 04 02		08 25.82	+19 51.3	42.791	43.178	112.2	1.2	24.6	
1999 04 12		08 25.67	+19 51.6	42.953	43.178	102.3	1.3	24.6	
1999 04 22		08 25.67	+19 51.4	43.122	43.178	92.5	1.3	24.6	
1999 05 02		08 25.84	+19 50.7	43.292	43.178	82.8	1.3	24.6	
1999 05 12		08 26.16	+19 49.4	43.459	43.178	73.2	1.3	24.6	
1999 05 22		08 26.62	+19 47.6	43.617	43.178	63.7	1.2	24.6	

1999 CJ ₁₁₉			$a, e, i = 42.70, 0.00, 3$					Elements	MPC 34330
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1999 04 02		08 29.22	+19 26.8	42.302	42.702	113.0	1.2	23.4	
1999 04 12		08 29.05	+19 27.2	42.463	42.702	103.2	1.3	23.4	
1999 04 22		08 29.04	+19 27.0	42.632	42.702	93.4	1.3	23.4	
1999 05 02		08 29.20	+19 26.2	42.802	42.702	83.7	1.3	23.4	
1999 05 12		08 29.50	+19 24.9	42.969	42.702	74.1	1.3	23.4	
1999 05 22		08 29.96	+19 23.1	43.128	42.702	64.5	1.2	23.4	

1999 CK ₁₁₉			$a, e, i = 42.08, 0.00, 12$					Elements	MPC 34330
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1999 04 02		08 29.81	+19 39.4	41.679	42.082	113.1	1.3	24.3	
1999 04 12		08 29.64	+19 40.3	41.841	42.082	103.2	1.3	24.3	
1999 04 22		08 29.64	+19 40.6	42.009	42.082	93.4	1.4	24.3	
1999 05 02		08 29.80	+19 40.3	42.179	42.082	83.8	1.4	24.3	
1999 05 12		08 30.12	+19 39.5	42.346	42.082	74.1	1.3	24.3	
1999 05 22		08 30.59	+19 38.1	42.505	42.082	64.6	1.2	24.3	

1999 CL ₁₁₉			$a, e, i = 46.75, 0.00, 23$					Elements	MPC 34330
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1999 04 02		08 32.24	+19 31.0	46.337	46.748	113.7	1.1	22.8	
1999 04 12		08 32.08	+19 32.2	46.498	46.748	103.8	1.2	22.9	
1999 04 22		08 32.06	+19 32.9	46.666	46.748	94.0	1.2	22.9	
1999 05 02		08 32.18	+19 33.1	46.836	46.748	84.3	1.2	22.9	
1999 05 12		08 32.45	+19 32.7	47.004	46.748	74.7	1.2	22.9	
1999 05 22		08 32.86	+19 31.9	47.164	46.748	65.2	1.1	22.9	

1999 CP ₁₅₃			$a, e, i = 47.09, 0.00, 3$					Elements	MPC 34332
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1999 04 02		08 34.39	+18 57.8	46.666	47.086	114.3	1.1	24.6	
1999 04 12		08 34.22	+18 58.5	46.826	47.086	104.4	1.2	24.6	
1999 04 22		08 34.19	+18 58.6	46.994	47.086	94.7	1.2	24.6	
1999 05 02		08 34.30	+18 58.3	47.164	47.086	85.0	1.2	24.6	
1999 05 12		08 34.56	+18 57.4	47.332	47.086	75.3	1.2	24.6	
1999 05 22		08 34.95	+18 56.0	47.492	47.086	65.8	1.1	24.6	

1999 CM ₁₁₉		$a, e, i = 42.27, 0.00, 3$				Elements <i>MPC</i> 34330		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		08 35.78	+19 05.5	41.840	42.266	114.6	1.2	23.8
1999 04 12		08 35.59	+19 06.2	42.000	42.266	104.7	1.3	23.8
1999 04 22		08 35.56	+19 06.3	42.168	42.266	94.9	1.4	23.8
1999 05 02		08 35.69	+19 05.8	42.338	42.266	85.2	1.4	23.9
1999 05 12		08 35.98	+19 04.7	42.505	42.266	75.6	1.3	23.9
1999 05 22		08 36.42	+19 03.1	42.666	42.266	66.1	1.3	23.9

1999 CG ₁₅₄		$a, e, i = 45.69, 0.00, 1$				Elements <i>MPC</i> 34332		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		08 41.16	+18 41.0	45.240	45.686	115.9	1.1	23.8
1999 04 12		08 40.96	+18 41.7	45.399	45.686	106.1	1.2	23.9
1999 04 22		08 40.90	+18 41.9	45.566	45.686	96.3	1.3	23.9
1999 05 02		08 41.00	+18 41.4	45.736	45.686	86.6	1.3	23.9
1999 05 12		08 41.24	+18 40.5	45.904	45.686	76.9	1.2	23.9
1999 05 22		08 41.62	+18 39.0	46.066	45.686	67.4	1.2	23.9

1999 CX ₁₃₁		$a, e, i = 42.70, 0.00, 9$				Elements <i>MPC</i> 34331		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		08 44.53	+18 24.7	42.240	42.700	116.8	1.2	23.3
1999 04 12		08 44.31	+18 25.8	42.398	42.700	106.9	1.3	23.3
1999 04 22		08 44.25	+18 26.3	42.564	42.700	97.1	1.3	23.3
1999 05 02		08 44.34	+18 26.2	42.734	42.700	87.4	1.4	23.3
1999 05 12		08 44.60	+18 25.5	42.902	42.700	77.8	1.3	23.3
1999 05 22		08 45.00	+18 24.3	43.065	42.700	68.2	1.3	23.3

1999 CN ₁₁₉		$a, e, i = 44.56, 0.00, 1$				Elements <i>MPC</i> 34330		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		08 46.35	+18 35.8	44.100	44.565	117.2	1.1	24.6
1999 04 12		08 46.13	+18 36.5	44.257	44.565	107.3	1.2	24.7
1999 04 22		08 46.05	+18 36.7	44.423	44.565	97.5	1.3	24.7
1999 05 02		08 46.13	+18 36.2	44.593	44.565	87.8	1.3	24.7
1999 05 12		08 46.36	+18 35.1	44.762	44.565	78.1	1.3	24.7
1999 05 22		08 46.73	+18 33.5	44.925	44.565	68.6	1.2	24.7

1999 CU ₁₅₃		$a, e, i = 42.58, 0.00, 3$				Elements <i>MPC</i> 34332		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		08 46.64	+17 31.1	42.111	42.582	117.5	1.2	23.6
1999 04 12		08 46.41	+17 32.2	42.268	42.582	107.6	1.3	23.7
1999 04 22		08 46.34	+17 32.6	42.433	42.582	97.8	1.3	23.7
1999 05 02		08 46.42	+17 32.5	42.603	42.582	88.1	1.4	23.7
1999 05 12		08 46.66	+17 31.8	42.772	42.582	78.5	1.3	23.7
1999 05 22		08 47.06	+17 30.4	42.935	42.582	68.9	1.3	23.7

1999 CH ₁₅₄		$a, e, i = 42.95, 0.00, 1$				Elements <i>MPC</i> 34332		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		08 49.26	+17 17.2	42.471	42.951	118.2	1.2	24.0
1999 04 12		08 49.02	+17 18.3	42.627	42.951	108.3	1.3	24.0
1999 04 22		08 48.94	+17 18.8	42.792	42.951	98.5	1.3	24.0
1999 05 02		08 49.01	+17 18.6	42.961	42.951	88.8	1.3	24.0
1999 05 12		08 49.24	+17 17.9	43.130	42.951	79.1	1.3	24.0
1999 05 22		08 49.62	+17 16.5	43.294	42.951	69.6	1.3	24.0
1999 06 01		08 50.13	+17 14.5	43.448	42.951	60.1	1.2	24.0

1999 DA		$a, e, i = 45.92, 0.00, 3$				Elements <i>MPC</i> 34333		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		09 30.01	+17 45.5	45.309	45.921	127.3	1.0	24.6
1999 04 12		09 29.65	+17 46.6	45.452	45.921	117.4	1.1	24.7
1999 04 22		09 29.42	+17 47.1	45.608	45.921	107.5	1.2	24.7
1999 05 02		09 29.34	+17 46.9	45.774	45.921	97.8	1.2	24.7
1999 05 12		09 29.39	+17 46.0	45.943	45.921	88.2	1.3	24.7
1999 05 22		09 29.59	+17 44.4	46.111	45.921	78.6	1.2	24.7
1999 06 01		09 29.93	+17 42.2	46.274	45.921	69.1	1.2	24.7

1999 DA		$a, e, i = 46.07, 0.00, 3$				Elements <i>MPC</i> 34333		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		09 30.02	+17 45.6	45.459	46.071	127.3	1.0	24.7
1999 04 12		09 29.66	+17 46.8	45.602	46.071	117.4	1.1	24.7
1999 04 22		09 29.44	+17 47.3	45.758	46.071	107.5	1.2	24.7
1999 05 02		09 29.35	+17 47.2	45.923	46.071	97.8	1.2	24.7
1999 05 12		09 29.41	+17 46.3	46.092	46.071	88.2	1.3	24.7
1999 05 22		09 29.61	+17 44.7	46.261	46.071	78.6	1.2	24.7
1999 06 01		09 29.95	+17 42.6	46.423	46.071	69.1	1.2	24.7

1999 EO ₃		$a, e, i = 2.66, 0.60, 24$				Elements <i>MPC</i> 34334		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		09 32.46	+28 44.8	0.573	1.398	123.2	36.7	20.1
1999 04 07		09 47.79	+29 33.2	0.635	1.436	121.1	36.7	20.4
1999 04 12		10 01.84	+29 57.1	0.700	1.474	118.9	36.6	20.7
1999 04 17		10 14.83	+30 02.0	0.768	1.513	116.6	36.4	20.9
1999 04 22		10 26.92	+29 52.1	0.839	1.552	114.3	36.2	21.1
1999 04 27		10 38.28	+29 30.7	0.911	1.591	112.1	35.9	21.4
1999 05 02		10 49.00	+29 00.1	0.986	1.631	109.8	35.5	21.6
1999 05 07		10 59.19	+28 22.3	1.062	1.671	107.5	35.2	21.8
1999 05 12		11 08.93	+27 38.7	1.140	1.710	105.2	34.7	22.0

1999 EE ₅		$a, e, i = 1.67, 0.28, 31$				Elements <i>MPC</i> 34334		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		09 33.56	−08 23.5	0.271	1.199	132.7	37.8	17.1
1999 04 07		09 21.18	−15 00.6	0.299	1.199	125.3	42.9	17.4
1999 04 12		09 12.38	−20 20.6	0.332	1.200	119.2	46.8	17.8
1999 04 17		09 06.62	−24 38.7	0.368	1.202	114.2	49.6	18.1
1999 04 22		09 03.43	−28 09.9	0.406	1.206	110.1	51.5	18.4
1999 04 27		09 02.37	−31 06.5	0.444	1.211	106.8	52.7	18.6
1999 05 02		09 03.10	−33 37.5	0.482	1.218	104.1	53.4	18.8
1999 05 07		09 05.39	−35 49.6	0.519	1.226	101.9	53.7	19.0
1999 05 12		09 09.08	−37 47.5	0.556	1.235	100.0	53.7	19.1
1999 05 17		09 14.07	−39 35.1	0.592	1.245	98.5	53.4	19.3
1999 05 22		09 20.27	−41 15.2	0.628	1.257	97.3	53.0	19.4
1999 05 27		09 27.61	−42 49.8	0.662	1.269	96.3	52.5	19.6
1999 06 01		09 36.06	−44 20.3	0.694	1.283	95.5	51.9	19.7
1999 06 06		09 45.63	−45 47.5	0.726	1.297	94.9	51.2	19.8
1999 06 11		09 56.34	−47 11.9	0.757	1.312	94.4	50.5	19.9
1999 06 16		10 08.24	−48 34.1	0.787	1.328	94.0	49.7	19.9
1999 06 21		10 21.36	−49 54.2	0.816	1.345	93.8	49.0	20.0
1999 06 26		10 35.75	−51 12.0	0.845	1.362	93.6	48.2	20.1
1999 07 01		10 51.44	−52 26.8	0.873	1.379	93.4	47.4	20.2
1999 07 06		11 08.49	−53 37.9	0.901	1.397	93.3	46.6	20.3

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1999 07 11	11 26.94	-54 44.4	0.930	1.416	93.3	45.8	20.3
1999 07 16	11 46.82	-55 45.2	0.958	1.435	93.2	45.0	20.4
1999 07 21	12 08.09	-56 39.1	0.987	1.454	93.0	44.3	20.5
1999 07 26	12 30.66	-57 24.9	1.017	1.473	92.9	43.5	20.6
1999 07 31	12 54.38	-58 01.2	1.048	1.492	92.7	42.8	20.6
1999 08 05	13 19.06	-58 26.6	1.080	1.512	92.3	42.1	20.7
1999 08 10	13 44.44	-58 40.4	1.114	1.531	91.9	41.4	20.8
1999 08 15	14 10.23	-58 41.9	1.149	1.551	91.4	40.8	20.9
1999 08 20	14 36.08	-58 31.2	1.186	1.571	90.8	40.1	20.9
1999 08 25	15 01.65	-58 08.4	1.225	1.590	90.1	39.5	21.0
1999 08 30	15 26.66	-57 34.0	1.267	1.609	89.2	38.9	21.1
1999 09 04	15 50.88	-56 49.0	1.310	1.629	88.3	38.2	21.2
1999 09 09	16 14.15	-55 54.5	1.355	1.648	87.1	37.6	21.3
1999 09 14	16 36.37	-54 51.8	1.402	1.667	85.9	37.0	21.3
1999 09 19	16 57.49	-53 42.2	1.452	1.685	84.6	36.4	21.4
1999 09 24	17 17.51	-52 26.9	1.503	1.704	83.1	35.8	21.5
1999 09 29	17 36.46	-51 07.1	1.556	1.722	81.5	35.1	21.6
1999 10 04	17 54.41	-49 43.6	1.611	1.740	79.8	34.5	21.7
1999 10 09	18 11.42	-48 17.3	1.667	1.758	78.1	33.8	21.7
1999 10 14	18 27.57	-46 49.0	1.725	1.775	76.2	33.1	21.8
1999 10 19	18 42.94	-45 19.4	1.784	1.792	74.3	32.3	21.9
1999 10 24	18 57.60	-43 48.8	1.844	1.809	72.2	31.6	22.0

1999 CM₁₅₃							
<i>a, e, i = 42.84, 0.03, 0</i>							
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02	09 57.99		+12 35.3	40.865	41.582	135.4	1.0
1999 04 12	09 57.53		+12 37.8	40.993	41.582	125.4	1.1
1999 04 22	09 57.19		+12 39.5	41.139	41.582	115.6	1.2
1999 05 02	09 57.00		+12 40.5	41.297	41.582	105.8	1.3
1999 05 12	09 56.96		+12 40.7	41.463	41.582	96.1	1.4
1999 05 22	09 57.07		+12 40.1	41.632	41.582	86.5	1.4
1999 06 01	09 57.33		+12 38.6	41.799	41.582	77.0	1.4
1999 06 11	09 57.74		+12 36.4	41.960	41.582	67.5	1.3

1999 CY₁₃₁							
<i>a, e, i = 43.92, 0.13, 25</i>							
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02	09 58.95		+12 28.7	37.274	37.995	135.7	1.1
1999 04 12	09 58.46		+12 32.5	37.401	37.995	125.7	1.2
1999 04 22	09 58.11		+12 35.6	37.546	37.995	115.8	1.4
1999 05 02	09 57.93		+12 37.8	37.704	37.995	106.0	1.5
1999 05 12	09 57.90		+12 39.1	37.870	37.995	96.3	1.5
1999 05 22	09 58.05		+12 39.4	38.039	37.995	86.7	1.5
1999 06 01	09 58.35		+12 38.9	38.207	37.995	77.2	1.5
1999 06 11	09 58.82		+12 37.6	38.368	37.995	67.7	1.4

1999 CZ₁₃₁							
<i>a, e, i = 44.41, 0.03, 2</i>							
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02	10 12.11		+11 07.7	42.207	42.968	139.2	0.9
1999 04 12	10 11.62		+11 10.5	42.327	42.968	129.2	1.0
1999 04 22	10 11.25		+11 12.6	42.467	42.968	119.3	1.2
1999 05 02	10 11.01		+11 14.0	42.621	42.968	109.5	1.3
1999 05 12	10 10.92		+11 14.7	42.784	42.968	99.8	1.3
1999 05 22	10 10.97		+11 14.5	42.953	42.968	90.2	1.3
1999 06 01	10 11.17		+11 13.4	43.121	42.968	80.6	1.3

1999 06 11	10 11.51	+11 11.7	43.285	42.968	71.1	1.3	24.6
1999 06 21	10 11.98	+11 09.1	43.440	42.968	61.7	1.2	24.6

1999 CN₁₅₃							
<i>a, e, i = 43.20, 0.00, 7</i>							
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02	10 15.05		+10 47.4	42.433	43.203	139.9	0.9
1999 04 12	10 14.55		+10 50.5	42.552	43.203	130.0	1.0
1999 04 22	10 14.18		+10 52.9	42.690	43.203	120.1	1.2
1999 05 02	10 13.94		+10 54.6	42.843	43.203	110.3	1.3
1999 05 12	10 13.83		+10 55.5	43.006	43.203	100.6	1.3
1999 05 22	10 13.87		+10 55.5	43.174	43.203	91.0	1.3
1999 06 01	10 14.06		+10 54.8	43.343	43.203	81.4	1.3
1999 06 11	10 14.39		+10 53.2	43.507	43.203	71.9	1.3
1999 06 21	10 14.85		+10 51.0	43.663	43.203	62.5	1.2

1999 CA₁₃₂							
<i>a, e, i = 43.76, 0.09, 12</i>							
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02	10 26.52		+09 55.6	38.965	39.766	142.9	0.9
1999 04 12	10 25.97		+09 59.3	39.077	39.766	132.9	1.1
1999 04 22	10 25.55		+10 02.4	39.210	39.766	123.0	1.2
1999 05 02	10 25.26		+10 04.6	39.359	39.766	113.2	1.3
1999 05 12	10 25.11		+10 05.9	39.519	39.766	103.5	1.4
1999 05 22	10 25.13		+10 06.4	39.686	39.766	93.8	1.5
1999 06 01	10 25.30		+10 05.9	39.855	39.766	84.3	1.5
1999 06 11	10 25.62		+10 04.5	40.021	39.766	74.8	1.4
1999 06 21	10 26.09		+10 02.3	40.179	39.766	65.4	1.3

1999 FP₁₉							
<i>a, e, i = 1.94, 0.52, 15</i>							
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02	10 31.77		-15 50.7	0.279	1.240	145.8	26.9
1999 04 12	09 44.93		-23 21.3	0.253	1.171	126.5	43.5
1999 04 22	08 54.19		-30 42.2	0.243	1.105	108.2	59.7
1999 05 02	08 01.42		-37 09.0	0.243	1.047	92.6	74.0
1999 05 12	07 05.08		-42 06.4	0.248	0.999	80.3	85.6
1999 05 22	06 04.14		-44 49.8	0.256	0.962	71.6	93.8
1999 06 01	05 02.34		-44 33.2	0.266	0.942	66.8	98.1
1999 06 11	04 08.49		-41 12.4	0.280	0.937	66.1	98.1
1999 06 21	03 27.88		-35 45.5	0.295	0.951	68.9	94.3
1999 07 01	02 59.07		-29 22.3	0.310	0.980	74.4	87.9
1999 07 11	02 37.82		-22 53.1	0.322	1.023	82.0	79.8
1999 07 21	02 19.38		-16 43.9	0.332	1.077	91.4	70.6
1999 07 31	02 00.02		-11 02.8	0.340	1.139	102.6	60.4
1999 08 10	01 37.15		-05 54.6	0.348	1.207	115.8	49.2
1999 08 20	01 09.64		-01 27.2	0.363	1.278	130.6	37.0
1999 08 30	00 38.95		+02 07.9	0.390	1.352	146.4	24.4
1999 09 09	00 08.57		+04 40.3	0.434	1.426	161.8	12.8
1999 09 19	23 42.46		+06 13.0	0.499	1.501	172.0	5.3
1999 09 29	23 23.12		+07 02.3	0.585	1.574	165.0	9.5
1999 10 09	23 10.87		+07 27.5	0.690	1.647	153.8	15.5
1999 10 19	23 04.95		+07 43.9	0.812	1.718	143.3	20.3

1999 CP₁₃₃							
<i>a, e, i = 39.38, 0.19, 3</i>							
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02	10 33.03		+08 55.0	30.943	31.764	144.8	1.0
1999 04 12	10 32.34		+08 58.9	31.051	31.764	134.7	1.3

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1999 04 22	10 31.79	+09 02.0	31.180	31.764	124.8	1.5	22.7
1999 05 02	10 31.42	+09 04.1	31.326	31.764	115.0	1.6	22.7
1999 05 12	10 31.22	+09 05.1	31.484	31.764	105.2	1.8	22.7
1999 05 22	10 31.22	+09 04.9	31.649	31.764	95.6	1.8	22.7
1999 06 01	10 31.42	+09 03.7	31.818	31.764	86.1	1.8	22.7
1999 06 11	10 31.80	+09 01.3	31.985	31.764	76.6	1.8	22.8
1999 06 21	10 32.37	+08 57.8	32.145	31.764	67.2	1.7	22.8

1999 CQ₁₅₃ $a, e, i = 44.33, 0.00, 0$ Elements *MPC* 34332

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		10 33.77	+08 57.6	43.509	44.330	144.9	0.7	24.2
1999 04 12		10 33.24	+09 00.7	43.617	44.330	134.9	0.9	24.2
1999 04 22		10 32.81	+09 03.3	43.746	44.330	125.0	1.1	24.2
1999 05 02		10 32.51	+09 05.1	43.891	44.330	115.2	1.2	24.2
1999 05 12		10 32.33	+09 06.1	44.050	44.330	105.5	1.3	24.2
1999 05 22		10 32.30	+09 06.4	44.216	44.330	95.8	1.3	24.2
1999 06 01		10 32.40	+09 05.8	44.384	44.330	86.3	1.3	24.3
1999 06 11		10 32.64	+09 04.4	44.552	44.330	76.8	1.3	24.3
1999 06 21		10 33.01	+09 02.3	44.712	44.330	67.3	1.2	24.3

1999 FQ₅ $a, e, i = 1.50, 0.16, 26$ Elements *MPC* 34336

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		10 44.99	+12 20.0	0.810	1.732	146.0	18.8	19.4
1999 04 07		10 42.64	+14 19.1	0.846	1.734	139.7	21.9	19.6
1999 04 12		10 41.35	+16 00.8	0.886	1.737	133.7	24.6	19.8
1999 04 17		10 41.13	+17 25.7	0.929	1.739	128.2	27.0	20.0
1999 04 22		10 41.94	+18 34.8	0.975	1.740	123.0	29.0	20.1
1999 04 27		10 43.73	+19 29.5	1.024	1.741	118.2	30.6	20.3
1999 05 02		10 46.41	+20 11.2	1.074	1.742	113.6	32.0	20.4
1999 05 07		10 49.90	+20 41.3	1.125	1.743	109.4	33.1	20.5
1999 05 12		10 54.12	+21 01.1	1.177	1.743	105.4	34.0	20.7
1999 05 17		10 59.00	+21 11.7	1.229	1.742	101.7	34.6	20.8
1999 05 22		11 04.49	+21 14.1	1.281	1.741	98.1	35.1	20.9
1999 05 27		11 10.50	+21 09.3	1.333	1.740	94.8	35.5	21.0
1999 06 01		11 16.97	+20 58.0	1.384	1.739	91.6	35.7	21.1
1999 06 06		11 23.85	+20 40.8	1.435	1.737	88.6	35.7	21.1
1999 06 11		11 31.11	+20 18.5	1.485	1.734	85.7	35.7	21.2
1999 06 16		11 38.71	+19 51.4	1.534	1.732	82.9	35.6	21.3
1999 06 21		11 46.61	+19 20.0	1.581	1.728	80.2	35.4	21.3
1999 06 26		11 54.78	+18 44.8	1.627	1.725	77.7	35.2	21.4
1999 07 01		12 03.20	+18 06.2	1.672	1.721	75.2	34.8	21.4
1999 07 06		12 11.85	+17 24.4	1.715	1.717	72.9	34.5	21.5
1999 07 11		12 20.72	+16 39.7	1.756	1.712	70.6	34.1	21.5
1999 07 16		12 29.79	+15 52.5	1.796	1.707	68.4	33.6	21.5
1999 07 21		12 39.06	+15 02.9	1.834	1.702	66.2	33.1	21.6
1999 07 26		12 48.52	+14 11.2	1.871	1.696	64.2	32.6	21.6
1999 07 31		12 58.15	+13 17.7	1.905	1.690	62.2	32.1	21.6
1999 08 05		13 07.97	+12 22.5	1.938	1.683	60.3	31.6	21.6
1999 08 10		13 17.96	+11 25.9	1.969	1.676	58.4	31.0	21.6

1999 CT₁₅₃ $a, e, i = 45.11, 0.09, 5$ Elements *MPC* 34332

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		10 46.87	+07 33.5	40.085	40.940	148.4	0.7	24.3
1999 04 12		10 46.28	+07 37.3	40.185	40.940	138.4	0.9	24.3

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1999 04 22	10 45.80	+07 40.5	40.307	40.940	128.5	1.1	24.4
1999 05 02	10 45.44	+07 42.9	40.447	40.940	118.7	1.2	24.4
1999 05 12	10 45.22	+07 44.5	40.601	40.940	109.0	1.3	24.4
1999 05 22	10 45.14	+07 45.2	40.765	40.940	99.3	1.4	24.4
1999 06 01	10 45.21	+07 45.0	40.933	40.940	89.7	1.4	24.4
1999 06 11	10 45.44	+07 43.9	41.101	40.940	80.2	1.4	24.4
1999 06 21	10 45.80	+07 41.9	41.264	40.940	70.7	1.3	24.4
1999 07 01	10 46.31	+07 39.1	41.418	40.940	61.3	1.2	24.4

1999 CR₁₅₃ $a, e, i = 43.12, 0.05, 1$ Elements *MPC* 34332

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		11 05.10	+05 17.3	40.009	40.906	153.5	0.6	24.4
1999 04 12		11 04.46	+05 21.3	40.096	40.906	143.5	0.8	24.4
1999 04 22		11 03.92	+05 24.7	40.207	40.906	133.5	1.0	24.4
1999 05 02		11 03.50	+05 27.4	40.338	40.906	123.7	1.2	24.5
1999 05 12		11 03.20	+05 29.3	40.486	40.906	113.9	1.3	24.5
1999 05 22		11 03.04	+05 30.4	40.645	40.906	104.3	1.4	24.5
1999 06 01		11 03.04	+05 30.5	40.811	40.906	94.7	1.4	24.5
1999 06 11		11 03.18	+05 29.7	40.980	40.906	85.1	1.4	24.5
1999 06 21		11 03.46	+05 28.0	41.146	40.906	75.6	1.4	24.5
1999 07 01		11 03.89	+05 25.5	41.305	40.906	66.2	1.3	24.5

1999 CB₁₁₉ $a, e, i = 41.46, 0.00, 10$ Elements *MPC* 34330

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		11 07.77	+05 19.5	40.558	41.459	154.1	0.6	23.1
1999 04 12		11 07.14	+05 23.9	40.643	41.459	144.1	0.8	23.2
1999 04 22		11 06.60	+05 27.7	40.753	41.459	134.1	1.0	23.2
1999 05 02		11 06.18	+05 30.8	40.883	41.459	124.3	1.2	23.2
1999 05 12		11 05.88	+05 33.2	41.029	41.459	114.5	1.3	23.2
1999 05 22		11 05.72	+05 34.6	41.188	41.459	104.8	1.4	23.2
1999 06 01		11 05.71	+05 35.2	41.354	41.459	95.2	1.4	23.3
1999 06 11		11 05.84	+05 34.8	41.523	41.459	85.7	1.4	23.3
1999 06 21		11 06.12	+05 33.6	41.689	41.459	76.2	1.4	23.3
1999 07 01		11 06.53	+05 31.4	41.849	41.459	66.8	1.3	23.3

1999 CA₁₁₉ $a, e, i = 45.42, 0.00, 0$ Elements *MPC* 34058

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		11 08.67	+05 41.8	44.520	45.421	154.2	0.5	24.3
1999 04 12		11 08.08	+05 45.4	44.605	45.421	144.2	0.7	24.4
1999 04 22		11 07.58	+05 48.6	44.715	45.421	134.2	0.9	24.4
1999 05 02		11 07.18	+05 51.1	44.845	45.421	124.4	1.0	24.4
1999 05 12		11 06.89	+05 52.8	44.991	45.421	114.6	1.2	24.4
1999 05 22		11 06.73	+05 53.8	45.150	45.421	105.0	1.2	24.4
1999 06 01		11 06.70	+05 54.0	45.316	45.421	95.3	1.3	24.4
1999 06 11		11 06.80	+05 53.3	45.484	45.421	85.8	1.3	24.5
1999 06 21		11 07.04	+05 51.8	45.651	45.421	76.3	1.2	24.5
1999 07 01		11 07.41	+05 49.5	45.811	45.421	66.9	1.2	24.5

1999 CC₁₁₉ $a, e, i = 44.44, 0.00, 1$ Elements *MPC* 34330

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		11 11.41	+05 01.0	43.531	44.439	155.0	0.5	23.3
1999 04 12		11 10.80	+05 04.8	43.614	44.439	145.0	0.7	23.4
1999 04 22		11 10.28	+05 08.2	43.721	44.439	135.1	0.9	23.4
1999 05 02		11 09.87	+05 10.9	43.850	44.439	125.3	1.1	23.4
1999 05 12		11 09.57	+05 12.8	43.995	44.439	115.5	1.2	23.4

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1999 05 22	11 09.39	+05 13.9	44.152	44.439	105.8	1.3	23.4
1999 06 01	11 09.36	+05 14.3	44.318	44.439	96.2	1.3	23.5
1999 06 11	11 09.45	+05 13.7	44.487	44.439	86.7	1.3	23.5
1999 06 21	11 09.69	+05 12.3	44.654	44.439	77.2	1.3	23.5
1999 07 01	11 10.05	+05 10.1	44.814	44.439	67.7	1.2	23.5

1999 CD₁₁₉		$a, e, i = 45.02, 0.00, 2$			Elements <i>MPC</i> 34330		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02	11 23.28		+04 08.5	44.086	45.015	158.1	0.5
1999 04 12	11 22.67		+04 12.5	44.161	45.015	148.1	0.7
1999 04 22	11 22.13		+04 16.0	44.261	45.015	138.2	0.9
1999 05 02	11 21.69		+04 18.9	44.383	45.015	128.3	1.0
1999 05 12	11 21.35		+04 21.1	44.524	45.015	118.6	1.1
1999 05 22	11 21.14		+04 22.4	44.678	45.015	108.9	1.2
1999 06 01	11 21.06		+04 23.0	44.841	45.015	99.2	1.3
1999 06 11	11 21.12		+04 22.7	45.010	45.015	89.7	1.3
1999 06 21	11 21.30		+04 21.5	45.178	45.015	80.2	1.3
1999 07 01	11 21.62		+04 19.5	45.341	45.015	70.7	1.2
1999 07 11	11 22.06		+04 16.8	45.495	45.015	61.3	1.1

1999 CE₁₁₉		$a, e, i = 39.35, 0.24, 1$			Elements <i>MPC</i> 34330		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02	11 31.76		+03 05.3	28.799	29.743	160.5	0.6
1999 04 12	11 30.87		+03 11.2	28.868	29.743	150.4	1.0
1999 04 22	11 30.09		+03 16.3	28.962	29.743	140.4	1.2
1999 05 02	11 29.45		+03 20.5	29.079	29.743	130.5	1.5
1999 05 12	11 28.97		+03 23.7	29.215	29.743	120.7	1.7
1999 05 22	11 28.68		+03 25.6	29.366	29.743	111.0	1.8
1999 06 01	11 28.59		+03 26.3	29.528	29.743	101.3	1.9
1999 06 11	11 28.69		+03 25.7	29.695	29.744	91.8	2.0
1999 06 21	11 29.00		+03 23.9	29.863	29.744	82.3	1.9
1999 07 01	11 29.50		+03 20.7	30.027	29.744	72.9	1.9
1999 07 11	11 30.19		+03 16.4	30.183	29.744	63.6	1.8

1999 FN₁₉		$a, e, i = 1.65, 0.39, 2$			Elements <i>MPC</i> 34337		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02	11 38.80		+01 47.6	0.062	1.059	162.6	16.4
1999 04 07	12 10.13		+03 43.1	0.044	1.043	163.5	15.8
1999 04 12	13 20.50		+07 21.2	0.029	1.030	164.2	15.4
1999 04 17	16 03.56		+12 11.0	0.021	1.019	137.6	41.6
1999 04 22	18 58.31		+10 39.5	0.027	1.011	101.9	76.6
1999 04 27	20 18.00		+07 44.5	0.041	1.006	87.7	90.0
1999 05 02	20 54.70		+06 03.1	0.057	1.003	83.7	93.1
1999 05 07	21 15.34		+05 04.3	0.074	1.003	83.5	92.3
1999 05 12	21 28.70		+04 27.5	0.091	1.006	85.1	89.8
1999 05 17	21 38.06		+04 02.2	0.107	1.012	87.6	86.4
1999 05 22	21 44.89		+03 42.5	0.122	1.021	90.7	82.4
1999 05 27	21 49.91		+03 25.1	0.137	1.032	94.3	78.2
1999 06 01	21 53.46		+03 07.6	0.151	1.046	98.2	73.6
1999 06 06	21 55.64		+02 48.1	0.164	1.062	102.4	68.9
1999 06 11	21 56.44		+02 24.4	0.176	1.080	107.0	64.0
1999 06 16	21 55.80		+01 54.6	0.187	1.100	112.0	58.9
1999 06 21	21 53.75		+01 17.1	0.198	1.121	117.4	53.6
1999 06 26	21 50.36		+00 31.3	0.209	1.144	123.1	48.1

1999 07 01	21 45.72	−00 23.1	0.221	1.168	129.1	42.5	20.9
1999 07 06	21 39.94	−01 26.0	0.233	1.194	135.5	36.7	20.9
1999 07 11	21 33.20	−02 36.5	0.246	1.220	142.1	30.8	20.9
1999 07 16	21 25.78	−03 53.1	0.261	1.247	148.8	25.0	20.9
1999 07 21	21 18.08	−05 13.2	0.278	1.274	155.5	19.3	20.9
1999 07 26	21 10.47	−06 33.9	0.297	1.302	162.0	13.9	20.9
1999 07 31	21 03.29	−07 52.7	0.320	1.330	167.9	9.2	21.0
1999 08 05	20 56.81	−09 07.2	0.346	1.358	172.0	6.0	21.0
1999 08 10	20 51.26	−10 15.7	0.376	1.387	171.5	6.2	21.3
1999 08 15	20 46.79	−11 17.0	0.409	1.415	167.5	8.9	21.6
1999 08 20	20 43.52	−12 10.5	0.446	1.444	162.5	12.2	22.0

1999 FB		$a, e, i = 1.18, 0.61, 13$			Elements <i>MPC</i> 34335		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02	11 44.72		+24 53.6	0.499	1.444	147.2	22.0
1999 04 07	11 32.58		+23 13.5	0.552	1.480	143.1	24.0
1999 04 12	11 23.65		+21 35.7	0.609	1.514	138.5	26.0
1999 04 17	11 17.36		+20 01.7	0.670	1.546	133.9	27.9
1999 04 22	11 13.26		+18 32.1	0.734	1.576	129.4	29.5
1999 04 27	11 10.93		+17 06.9	0.801	1.605	124.9	30.9
1999 05 02	11 10.05		+15 45.7	0.870	1.633	120.7	32.0
1999 05 07	11 10.36		+14 28.1	0.941	1.659	116.6	32.9
1999 05 12	11 11.65		+13 13.7	1.013	1.683	112.7	33.6
1999 05 17	11 13.78		+12 01.8	1.086	1.706	108.9	34.1
1999 05 22	11 16.61		+10 52.1	1.160	1.728	105.2	34.4
1999 05 27	11 20.04		+09 44.2	1.235	1.748	101.6	34.6
1999 06 01	11 23.97		+08 37.8	1.310	1.767	98.2	34.6
1999 06 06	11 28.33		+07 32.6	1.385	1.785	94.9	34.5
1999 06 11	11 33.07		+06 28.5	1.459	1.801	91.6	34.3
1999 06 16	11 38.14		+05 25.2	1.534	1.815	88.4	34.0
1999 06 21	11 43.52		+04 22.5	1.607	1.829	85.3	33.6
1999 06 26	11 49.15		+03 20.4	1.679	1.841	82.2	33.2
1999 07 01	11 55.02		+02 18.6	1.750	1.852	79.2	32.6
1999 07 06	12 01.11		+01 17.3	1.820	1.861	76.2	32.0
1999 07 11	12 07.39		+00 16.2	1.888	1.870	73.3	31.4
1999 07 16	12 13.87		−00 44.7	1.955	1.877	70.4	30.7
1999 07 21	12 20.52		−01 45.5	2.019	1.882	67.6	29.9
1999 07 26	12 27.34		−02 46.0	2.081	1.887	64.8	29.1
1999 07 31	12 34.32		−03 46.4	2.141	1.890	62.0	28.3

1999 EF₅		$a, e, i = 2.24, 0.43, 31$			Elements <i>MPC</i> 34334		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02	11 57.39		−10 52.2	0.284	1.277	167.0	10.1
1999 04 07	11 37.04		−18 12.5	0.300	1.281	156.3	18.3
1999 04 12	11 18.91		−24 22.8	0.325	1.287	147.0	25.1
1999 04 17	11 03.71		−29 19.7	0.356	1.294	139.2	30.5
1999 04 22	10 51.73		−33 12.9	0.392	1.303	132.7	34.5
1999 04 27	10 42.92		−36 16.0	0.432	1.314	127.4	37.4
1999 05 02	10 37.04		−38 41.7	0.474	1.327	123.1	39.5
1999 05 07	10 33.79		−40 40.0	0.517	1.341	119.5	40.9
1999 05 12	10 32.89		−42 18.2	0.562	1.357	116.5	41.8
1999 05 17	10 34.08		−43 42.0	0.607	1.374	113.9	42.3
1999 05 22	10 37.14		−44 55.7	0.652	1.393	111.8	42.5
1999 05 27	10 41.85		−46 01.9	0.698	1.412	109.9	42.4

1999 06 01	10 48.03	-47 02.7	0.744	1.433	108.2	42.2	20.8
1999 06 06	10 55.55	-47 59.2	0.790	1.455	106.8	41.9	20.9
1999 06 11	11 04.30	-48 52.2	0.836	1.477	105.4	41.5	21.1
1999 06 16	11 14.21	-49 42.4	0.882	1.501	104.2	41.0	21.2
1999 06 21	11 25.21	-50 30.2	0.929	1.525	103.1	40.5	21.4
1999 06 26	11 37.20	-51 15.7	0.976	1.549	102.1	39.9	21.5
1999 07 01	11 50.12	-51 58.7	1.023	1.575	101.1	39.3	21.6
1999 07 06	12 03.91	-52 39.0	1.071	1.600	100.1	38.7	21.7
1999 07 11	12 18.53	-53 16.3	1.119	1.626	99.1	38.1	21.8
1999 07 16	12 33.93	-53 50.3	1.169	1.653	98.1	37.5	21.9
1999 07 21	12 50.03	-54 20.9	1.219	1.680	97.0	36.9	22.1

1999 FQ₁₉

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		12 42.31	−27 20.7	0.652	1.620	157.3	13.8	18.6
1999 04 12		12 38.48	−27 21.0	0.651	1.626	158.7	12.9	18.6
1999 04 22		12 36.27	−26 44.1	0.667	1.636	155.9	14.5	18.7
1999 05 02		12 37.05	−25 44.6	0.699	1.652	150.5	17.5	18.9
1999 05 12		12 41.31	−24 37.9	0.746	1.672	144.0	20.8	19.2
1999 05 22		12 49.04	−23 36.1	0.808	1.697	137.3	23.9	19.5
1999 06 01		12 59.82	−22 47.0	0.883	1.725	130.8	26.4	19.8
1999 06 11		13 13.04	−22 13.5	0.970	1.757	124.6	28.4	20.1
1999 06 21		13 28.21	−21 55.7	1.068	1.793	118.7	29.8	20.4
1999 07 01		13 44.85	−21 52.0	1.176	1.831	113.0	30.7	20.7
1999 07 11		14 02.56	−21 59.4	1.294	1.872	107.6	31.2	21.0
1999 07 21		14 21.09	−22 15.4	1.420	1.915	102.4	31.2	21.2
1999 07 31		14 40.22	−22 36.9	1.553	1.960	97.2	30.9	21.4
1999 08 10		14 59.78	−23 01.5	1.694	2.006	92.1	30.3	21.7
1999 08 20		15 19.68	−23 26.8	1.839	2.054	87.1	29.5	21.9

1999 FA

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02	13 08.97	+57 37.8	0.107	1.053	117.5	57.3	18.0	
1999 04 07	13 14.31	+56 37.2	0.127	1.064	116.7	57.1	18.4	
1999 04 12	13 17.73	+55 27.1	0.147	1.075	116.1	56.8	18.8	
1999 04 17	13 20.15	+54 07.2	0.167	1.086	115.5	56.5	19.0	
1999 04 22	13 22.21	+52 37.7	0.186	1.097	115.0	56.2	19.3	
1999 04 27	13 24.28	+50 59.6	0.206	1.107	114.4	55.9	19.5	
1999 05 02	13 26.52	+49 13.9	0.225	1.117	113.8	55.6	19.7	
1999 05 07	13 29.02	+47 21.1	0.244	1.127	113.2	55.3	19.9	
1999 05 12	13 31.85	+45 21.4	0.262	1.137	112.6	55.1	20.1	
1999 05 17	13 35.12	+43 15.1	0.281	1.146	111.9	54.9	20.2	
1999 05 22	13 38.89	+41 03.1	0.300	1.155	111.2	54.8	20.4	
1999 05 27	13 43.15	+38 46.2	0.318	1.163	110.5	54.7	20.5	
1999 06 01	13 47.89	+36 25.5	0.336	1.171	109.7	54.6	20.7	
1999 06 06	13 53.07	+34 01.3	0.355	1.178	108.9	54.6	20.8	
1999 06 11	13 58.69	+31 34.2	0.373	1.185	108.0	54.6	20.9	
1999 06 16	14 04.76	+29 04.6	0.392	1.191	107.0	54.6	21.0	
1999 06 21	14 11.28	+26 33.3	0.410	1.197	106.1	54.7	21.1	
1999 06 26	14 18.23	+24 01.0	0.429	1.202	105.1	54.8	21.3	
1999 07 01	14 25.58	+21 28.5	0.448	1.206	104.0	54.9	21.4	
1999 07 06	14 33.32	+18 56.1	0.466	1.210	103.0	55.0	21.5	
1999 07 11	14 41.44	+16 24.3	0.485	1.213	101.8	55.1	21.6	
1999 07 16	14 49.96	+13 53.4	0.504	1.216	100.7	55.3	21.6	

1999 07 21	14 58.88	+11 24.2	0.524	1.217	99.5	55.4	21.7
1999 07 26	15 08.19	+08 57.2	0.543	1.219	98.3	55.6	21.8
1999 07 31	15 17.87	+06 32.9	0.562	1.219	97.0	55.7	21.9

1999 ED₅

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02	13 19.87	-22 25.9	0.315	1.300	160.2	15.1	18.6	
1999 04 07	13 05.59	-27 53.1	0.280	1.266	158.7	16.7	18.3	
1999 04 12	12 45.54	-34 14.4	0.252	1.232	153.0	21.7	18.2	
1999 04 17	12 17.62	-41 15.1	0.232	1.199	144.2	29.3	18.2	
1999 04 22	11 39.17	-48 19.8	0.219	1.167	133.7	38.5	18.3	
1999 04 27	10 47.64	-54 33.9	0.213	1.135	122.6	48.3	18.4	
1999 05 02	09 43.18	-58 57.9	0.215	1.105	111.7	57.9	18.7	
1999 05 07	08 32.27	-60 56.3	0.221	1.076	101.9	66.5	18.9	
1999 05 12	07 25.87	-60 40.0	0.232	1.049	93.3	73.9	19.2	
1999 05 17	06 31.11	-58 52.1	0.245	1.024	86.1	80.0	19.5	
1999 05 22	05 48.57	-56 14.4	0.260	1.002	80.3	84.9	19.8	
1999 05 27	05 15.84	-53 11.9	0.276	0.982	75.6	88.6	20.0	
1999 06 01	04 50.48	-49 56.7	0.292	0.965	72.0	91.2	20.2	
1999 06 06	04 30.66	-46 34.2	0.309	0.951	69.4	92.9	20.3	
1999 06 11	04 15.13	-43 07.2	0.325	0.941	67.6	93.8	20.5	
1999 06 16	04 02.98	-39 37.5	0.341	0.934	66.6	93.9	20.6	
1999 06 21	03 53.53	-36 06.2	0.356	0.932	66.3	93.3	20.6	

1999 07 01	03 40.89	-29 03.1	0.384	0.939	67.4	90.4	20.7
1999 07 11	03 34.25	-22 08.2	0.408	0.961	70.5	85.9	20.7
1999 07 21	03 30.99	-15 30.4	0.426	0.996	75.2	80.4	20.6
1999 07 31	03 28.87	-09 11.8	0.437	1.043	81.3	74.2	20.6
1999 08 10	03 25.87	-03 11.7	0.441	1.098	88.9	67.4	20.5
1999 08 20	03 19.83	+02 32.7	0.440	1.159	98.1	59.9	20.4
1999 08 30	03 08.82	+08 03.2	0.437	1.224	108.9	51.3	20.2
1999 09 09	02 51.20	+13 13.5	0.437	1.291	121.5	41.7	20.1
1999 09 19	02 26.41	+17 44.9	0.446	1.359	135.5	31.2	19.9
1999 09 29	01 56.43	+21 10.7	0.470	1.428	149.8	20.7	19.9
1999 10 09	01 25.67	+23 12.3	0.514	1.496	161.4	12.3	19.9
1999 10 19	00 59.16	+23 57.2	0.581	1.562	163.6	10.4	20.2
1999 10 29	00 39.94	+23 53.8	0.669	1.627	155.9	14.4	20.7
1999 11 08	00 28.40	+23 30.4	0.776	1.691	145.9	19.2	21.3
1999 11 18	00 23.60	+23 06.7	0.900	1.752	136.2	23.0	21.8

1999 FR₅

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 02		13 43.50	−25 18.5	0.094	1.085	154.8	23.0	19.5
1999 04 07		13 43.83	−25 43.3	0.119	1.112	158.4	19.4	20.0
1999 04 12		13 43.37	−25 44.1	0.145	1.141	161.8	15.9	20.4
1999 04 17		13 42.66	−25 30.4	0.172	1.171	164.7	13.1	20.7
1999 04 22		13 42.11	−25 08.2	0.202	1.202	166.4	11.4	21.0
1999 04 27		13 41.96	−24 41.9	0.233	1.234	166.3	11.1	21.4
1999 05 02		13 42.33	−24 14.1	0.267	1.267	164.7	12.1	21.8
1999 05 07		13 43.25	−23 46.8	0.303	1.301	161.9	13.9	22.2
1999 05 12		13 44.76	−23 21.2	0.342	1.334	158.5	16.1	22.6

1999 FJ ₂₁		$a, e, i = 1.27, 0.27, 22$				Elements <i>MPC</i> 34337	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02		14 24.75	-12 09.8	0.333	1.306	153.9	19.7
1999 04 12		13 43.01	-17 52.8	0.349	1.346	169.0	8.1
1999 04 22		13 04.34	-21 52.2	0.390	1.384	164.0	11.6
1999 05 02		12 35.60	-24 12.3	0.452	1.419	150.6	20.4
1999 05 12		12 18.20	-25 31.4	0.531	1.452	138.7	27.3
1999 05 22		12 10.50	-26 23.4	0.620	1.482	128.8	32.1
1999 06 01		12 10.21	-27 08.8	0.716	1.509	120.5	35.4

1983 QC		$a, e, i = 2.60, 0.43, 7$				Elements <i>MPC</i> 23512	
Date	TT	α_{2000}	δ_{2000}	Δ	r	Variation	V
1999 04 02		14 37.61	-07 24.9	2.299	3.212	-0.80	+2.9
1999 04 12		14 30.59	-06 25.6	2.211	3.181	-0.82	+3.0
1999 04 22		14 22.20	-05 23.6	2.152	3.148	-0.83	+3.0
1999 05 02		14 13.16	-04 23.9	2.122	3.115	-0.83	+3.0
1999 05 12		14 04.30	-03 31.4	2.122	3.081	-0.81	+2.9
1999 05 22		13 56.40	-02 50.6	2.149	3.045	-0.78	+2.7
1999 06 01		13 50.12	-02 24.2	2.199	3.009	-0.74	+2.6
1999 06 11		13 45.86	-02 13.6	2.267	2.971	-0.70	+2.4
1999 06 21		13 43.84	-02 18.5	2.349	2.933	-0.66	+2.3
1999 07 01		13 44.07	-02 37.7	2.441	2.894	-0.62	+2.2
1999 07 11		13 46.45	-03 09.6	2.537	2.853	-0.60	+2.1
1999 07 21		13 50.85	-03 52.3	2.635	2.812	-0.58	+2.1
1999 07 31		13 57.10	-04 43.9	2.730	2.770	-0.56	+2.1
1999 08 10		14 05.02	-05 42.8	2.822	2.727	-0.56	+2.1

1992 NA		$a, e, i = 2.39, 0.56, 10$				Elements <i>MPC</i> 29136	
Date	TT	α_{2000}	δ_{2000}	Δ	r	Variation	V
1999 04 02		14 49.13	-26 52.4	2.045	2.904	-0.97	+5.6
1999 04 12		14 40.31	-27 00.5	1.924	2.856	-1.02	+6.2
1999 04 22		14 29.09	-26 51.3	1.829	2.806	-1.04	+6.9
1999 05 02		14 16.36	-26 23.5	1.761	2.755	-1.02	+7.5
1999 05 12		14 03.30	-25 39.0	1.723	2.702	-0.98	+7.9
1999 05 22		13 51.23	-24 42.7	1.714	2.648	-0.91	+8.1
1999 06 01		13 41.27	-23 42.5	1.729	2.592	-0.83	+7.9
1999 06 11		13 34.14	-22 45.8	1.764	2.534	-0.75	+7.6
1999 06 21		13 30.20	-21 59.1	1.815	2.475	-0.69	+7.2
1999 07 01		13 29.47	-21 26.4	1.876	2.414	-0.63	+6.7
1999 07 11		13 31.78	-21 09.3	1.942	2.351	-0.60	+6.3
1999 07 21		13 36.92	-21 08.0	2.008	2.287	-0.58	+5.8
1999 07 31		13 44.62	-21 21.5	2.072	2.221	-0.58	+5.5
1999 08 10		13 54.67	-21 48.2	2.131	2.154	-0.59	+5.1
1999 08 20		14 06.92	-22 26.1	2.183	2.085	-0.61	+4.9
1999 08 30		14 21.25	-23 13.1	2.226	2.015	-0.65	+4.6

1995 LE		$a, e, i = 2.58, 0.57, 4$				Elements <i>MPC</i> 27328	
Date	TT	α_{2000}	δ_{2000}	Δ	r	Variation	V
1999 04 02		15 58.94	-24 21.3	1.417	2.189	-2.13	+4.2
1999 04 12		15 59.85	-24 26.8	1.260	2.119	-2.44	+4.8
1999 04 22		15 57.23	-24 19.2	1.119	2.047	-2.78	+5.8
1999 05 02		15 50.78	-23 54.7	0.997	1.975	-3.11	+7.0
1999 05 12		15 40.60	-23 09.7	0.896	1.901	-3.39	+8.6
1999 05 22		15 27.49	-22 02.1	0.818	1.827	-3.55	+10.0

1999 06 01	15 13.19	-20 34.9	0.762	1.753	-3.55	+10.8	18.8
1999 06 11	14 59.88	-18 57.3	0.728	1.678	-3.39	+10.7	18.9
1999 06 21	14 49.71	-17 22.6	0.710	1.604	-3.12	+9.5	19.0
1999 07 01	14 44.20	-16 03.3	0.703	1.531	-2.83	+7.5	19.0
1999 07 11	14 44.00	-15 07.1	0.703	1.459	-2.56	+5.2	19.1
1999 07 21	14 49.30	-14 36.2	0.704	1.390	-2.36	+2.8	19.2
1999 07 31	14 59.93	-14 29.0	0.703	1.325	-2.24	+0.6	19.2
1999 08 10	15 15.67	-14 40.8	0.699	1.266	-2.20	-1.5	19.2
1999 08 20	15 36.44	-15 05.9	0.689	1.213	-2.24	-3.6	19.2
1999 08 30	16 02.22	-15 37.0	0.674	1.169	-2.38	-5.8	19.1
1999 09 09	16 33.08	-16 05.9	0.656	1.135	-2.61	-8.1	19.1
1999 09 19	17 09.23	-16 22.8	0.636	1.114	-2.96	-10.8	19.0
1999 09 29	17 50.60	-16 16.4	0.619	1.106	-3.40	-14.1	18.9
1999 10 09	18 36.72	-15 35.3	0.608	1.111	-3.90	-18.0	18.9
1999 10 19	19 26.44	-14 10.6	0.608	1.130	-4.37	-22.3	18.9
1999 10 29	20 17.69	-12 00.8	0.624	1.162	-4.69	-26.2	18.9
1999 11 08	21 08.05	-09 14.5	0.658	1.204	-4.77	-28.7	19.0
1999 11 18	21 55.53	-06 07.2	0.713	1.255	-4.62	-29.1	19.2
1999 11 28	22 38.91	-02 55.1	0.788	1.314	-4.30	-27.5	19.4
1999 12 08	23 17.94	+00 10.0	0.883	1.378	-3.89	-24.7	19.7
1999 12 18	23 53.02	+03 02.5	0.994	1.446	-3.47	-21.4	19.9
1999 12 28	00 24.72	+05 40.2	1.120	1.518	-3.07	-18.1	20.2
2000 01 07	00 53.70	+08 03.3	1.259	1.591	-2.71	-15.1	20.5
2000 01 17	01 20.56	+10 12.9	1.409	1.665	-2.40	-12.4	20.8
2000 01 27	01 45.76	+12 09.9	1.567	1.739	-2.13	-10.2	21.1
2000 02 06	02 09.69	+13 55.3	1.732	1.814	-1.90	-8.2	21.3
2000 02 16	02 32.63	+15 29.8	1.902	1.888	-1.70	-6.6	21.6
2000 02 26	02 54.79	+16 53.9	2.075	1.962	-1.53	-5.2	21.8
2000 03 07	03 16.32	+18 07.9	2.248	2.034	-1.39	-4.1	22.0

1999 DB ₇		$a, e, i = 1.21, 0.20, 11$				Elements <i>MPC</i> 34333	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02		19 36.94	+28 33.0	0.156	0.974	76.0	95.0
1999 04 07		19 45.81	+29 20.4	0.173	0.977	77.2	92.9
1999 04 12		19 53.98	+29 58.1	0.189	0.982	78.5	90.7
1999 04 17		20 01.56	+30 29.2	0.204	0.989	79.9	88.4
1999 04 22		20 08.57	+30 55.3	0.217	0.996	81.5	86.1
1999 04 27		20 15.06	+31 17.2	0.229	1.005	83.2	83.7
1999 05 02		20 21.04	+31 35.8	0.240	1.015	85.0	81.4
1999 05 07		20 26.45	+31 51.6	0.249	1.026	87.0	79.0
1999 05 12		20 31.17	+32 04.5	0.256	1.038	89.1	76.6
1999 05 17		20 35.10	+32 13.7	0.262	1.051	91.5	74.1
1999 05 22		20 38.11	+32 17.7	0.266	1.065	94.1	71.5
1999 05 27		20 40.16	+32 15.2	0.268	1.079	96.9	68.8
1999 06 01		20 41.15	+32 04.6	0.270	1.093	99.9	66.0
1999 06 06		20 40.97	+31 44.3	0.269	1.108	103.3	63.0
1999 06 11		20 39.49	+31 11.3	0.268	1.123	107.0	59.8

1998 KR ₆₅		$a, e, i = 44.07, 0.06, 1$				Elements <i>MPC</i> 32755	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 04 02		20 31.65	-19 20.7	44.782	44.391	66.4	1.2
1999 04 12		20 32.10	-19 19.3	44.622	44.393	76.1	1.3
1999 04 22		20 32.39	-19 18.3	44.456	44.394	85.8	1.3
1999 05 02		20 32.53	-19 18.0	44.287	44.396	95.5	1.3

1999 05 12	20 32.52	-19 18.2	44.121	44.397	105.2	1.3	23.6
1999 05 22	20 32.36	-19 18.9	43.963	44.398	114.9	1.2	23.6
1999 06 01	20 32.06	-19 20.1	43.817	44.400	124.6	1.1	23.6
1999 06 11	20 31.62	-19 21.8	43.687	44.401	134.2	0.9	23.6
1999 06 21	20 31.08	-19 23.8	43.577	44.403	143.9	0.8	23.6
1999 07 01	20 30.44	-19 26.2	43.491	44.404	153.6	0.6	23.5
1999 07 11	20 29.72	-19 28.8	43.431	44.405	163.3	0.4	23.5
1999 07 21	20 28.96	-19 31.5	43.398	44.407	173.0	0.2	23.5
1999 07 31	20 28.19	-19 34.3	43.394	44.408	177.2	0.1	23.5
1999 08 10	20 27.41	-19 37.0	43.420	44.410	167.4	0.3	23.5
1999 08 20	20 26.68	-19 39.6	43.473	44.411	157.6	0.5	23.5
1999 08 30	20 26.00	-19 41.9	43.554	44.412	147.8	0.7	23.6
1999 09 09	20 25.41	-19 43.9	43.660	44.414	138.0	0.9	23.6
1999 09 19	20 24.93	-19 45.5	43.787	44.415	128.2	1.0	23.6
1999 09 29	20 24.57	-19 46.7	43.933	44.417	118.3	1.1	23.6
1999 10 09	20 24.36	-19 47.3	44.093	44.418	108.4	1.2	23.6
1999 10 19	20 24.29	-19 47.5	44.262	44.420	98.5	1.3	23.6
1999 10 29	20 24.39	-19 47.1	44.435	44.421	88.5	1.3	23.7
1999 11 08	20 24.64	-19 46.1	44.608	44.422	78.6	1.3	23.7
1999 11 18	20 25.04	-19 44.7	44.774	44.424	68.6	1.2	23.7

1998 KS ₆₅		$a, e, i = 44.11, 0.07, 1$				Elements <i>MPC</i> 32523	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ V
1999 04 02		20 32.26	-19 17.6	42.645	42.253	66.2	1.2 24.0
1999 04 12		20 32.73	-19 16.1	42.483	42.251	76.0	1.3 24.0
1999 04 22		20 33.05	-19 15.1	42.314	42.250	85.7	1.4 23.9
1999 05 02		20 33.21	-19 14.7	42.142	42.248	95.4	1.4 23.9
1999 05 12		20 33.21	-19 14.8	41.973	42.247	105.0	1.3 23.9
1999 05 22		20 33.05	-19 15.6	41.812	42.245	114.7	1.2 23.9
1999 06 01		20 32.74	-19 16.8	41.663	42.244	124.4	1.1 23.9
1999 06 11		20 32.30	-19 18.5	41.530	42.242	134.1	1.0 23.9
1999 06 21		20 31.73	-19 20.7	41.417	42.241	143.8	0.8 23.9
1999 07 01		20 31.07	-19 23.1	41.327	42.239	153.5	0.6 23.8
1999 07 11		20 30.33	-19 25.9	41.263	42.238	163.2	0.4 23.8
1999 07 21		20 29.54	-19 28.7	41.228	42.236	172.9	0.2 23.8
1999 07 31		20 28.72	-19 31.6	41.221	42.235	177.3	0.1 23.7
1999 08 10		20 27.92	-19 34.5	41.243	42.233	167.6	0.3 23.8
1999 08 20		20 27.15	-19 37.1	41.293	42.232	157.8	0.5 23.8
1999 08 30		20 26.45	-19 39.6	41.371	42.230	148.0	0.7 23.8
1999 09 09		20 25.83	-19 41.7	41.473	42.229	138.1	0.9 23.9
1999 09 19		20 25.33	-19 43.3	41.598	42.227	128.3	1.1 23.9
1999 09 29		20 24.96	-19 44.5	41.740	42.226	118.4	1.2 23.9
1999 10 09		20 24.74	-19 45.2	41.897	42.224	108.5	1.3 23.9
1999 10 19		20 24.68	-19 45.4	42.063	42.223	98.6	1.3 23.9
1999 10 29		20 24.78	-19 44.9	42.233	42.221	88.6	1.3 23.9
1999 11 08		20 25.05	-19 44.0	42.403	42.220	78.7	1.3 23.9
1999 11 18		20 25.49	-19 42.4	42.567	42.218	68.7	1.3 24.0

1998 KY ₆₁		$a, e, i = 46.10, 0.00, 2$				Elements <i>MPC</i> 32336	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ V
1999 04 02		20 32.68	-18 53.1	46.499	46.102	66.0	1.1 24.3
1999 04 12		20 33.11	-18 51.6	46.338	46.102	75.8	1.2 24.3
1999 04 22		20 33.39	-18 50.7	46.170	46.102	85.5	1.2 24.3
1999 05 02		20 33.53	-18 50.3	46.000	46.102	95.2	1.2 24.3

1999 05 12	20 33.52	-18 50.4	45.832	46.102	104.9	1.2	24.3
1999 05 22	20 33.37	-18 51.0	45.672	46.102	114.6	1.1	24.3
1999 06 01	20 33.08	-18 52.2	45.524	46.102	124.2	1.0	24.3
1999 06 11	20 32.67	-18 53.7	45.392	46.102	133.9	0.9	24.2
1999 06 21	20 32.14	-18 55.7	45.280	46.102	143.6	0.7	24.2
1999 07 01	20 31.53	-18 58.0	45.192	46.102	153.3	0.6	24.2
1999 07 11	20 30.85	-19 00.5	45.129	46.102	163.0	0.4	24.2
1999 07 21	20 30.12	-19 03.1	45.094	46.102	172.7	0.2	24.1
1999 07 31	20 29.37	-19 05.8	45.088	46.102	177.6	0.1	24.1
1999 08 10	20 28.63	-19 08.5	45.110	46.102	167.8	0.3	24.2
1999 08 20	20 27.92	-19 11.1	45.162	46.102	158.0	0.5	24.2
1999 08 30	20 27.26	-19 13.4	45.240	46.102	148.3	0.7	24.2
1999 09 09	20 26.69	-19 15.4	45.343	46.102	138.4	0.8	24.2
1999 09 19	20 26.23	-19 17.1	45.469	46.102	128.6	1.0	24.3
1999 09 29	20 25.88	-19 18.4	45.612	46.102	118.7	1.1	24.3
1999 10 09	20 25.67	-19 19.2	45.770	46.102	108.8	1.2	24.3
1999 10 19	20 25.60	-19 19.4	45.938	46.102	98.9	1.2	24.3
1999 10 29	20 25.68	-19 19.2	46.109	46.102	88.9	1.2	24.3
1999 11 08	20 25.92	-19 18.4	46.281	46.102	79.0	1.2	24.3
1999 11 18	20 26.30	-19 17.2	46.447	46.102	69.0	1.1	24.3

1998 KG ₆₂		$a, e, i = 44.22, 0.07, 1$				Elements <i>MPC</i> 33078	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ V
1999 04 02		20 32.76	-19 14.9	45.629	45.234	66.1	1.2 23.2
1999 04 12		20 33.20	-19 13.4	45.470	45.235	75.8	1.2 23.2
1999 04 22		20 33.49	-19 12.4	45.304	45.237	85.6	1.3 23.2
1999 05 02		20 33.63	-19 12.0	45.135	45.239	95.3	1.3 23.2
1999 05 12		20 33.62	-19 12.1	44.970	45.240	104.9	1.2 23.2
1999 05 22		20 33.46	-19 12.7	44.811	45.242	114.6	1.2 23.2
1999 06 01		20 33.16	-19 13.9	44.665	45.244	124.3	1.1 23.2
1999 06 11		20 32.74	-19 15.4	44.535	45.245	134.0	0.9 23.2
1999 06 21		20 32.20	-19 17.4	44.425	45.247	143.7	0.8 23.1
1999 07 01		20 31.57	-19 19.7	44.338	45.249	153.3	0.6 23.1
1999 07 11		20 30.87	-19 22.2	44.277	45.250	163.0	0.4 23.1
1999 07 21		20 30.13	-19 24.8	44.244	45.252	172.8	0.2 23.1
1999 07 31		20 29.36	-19 27.5	44.240	45.254	177.5	0.1 23.0
1999 08 10		20 28.60	-19 30.1	44.264	45.255	167.7	0.3 23.1
1999 08 20		20 27.87	-19 32.6	44.318	45.257	157.9	0.5 23.1
1999 08 30		20 27.20	-19 34.9	44.398	45.259	148.1	0.7 23.1
1999 09 09		20 26.62	-19 36.8	44.503	45.260	138.3	0.8 23.2
1999 09 19		20 26.14	-19 38.4	44.630	45.262	128.5	1.0 23.2
1999 09 29		20 25.78	-19 39.5	44.776	45.264	118.6	1.1 23.2
1999 10 09		20 25.56	-19 40.1	44.935	45.265	108.7	1.2 23.2
1999 10 19		20 25.49	-19 40.2	45.104	45.267	98.8	1.2 23.2
1999 10 29		20 25.58	-19 39.8	45.278	45.269	88.8	1.3 23.2
1999 11 08		20 25.82	-19 38.9	45.451	45.270	78.9	1.2 23.2
1999 11 18		20 26.21	-19 37.4	45.618	45.272	68.9	1.2 23.2

P/1988 V1 (Ge-Wang)						Elements <i>MPC</i> 27081	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ m_1 m_2
1999 04 02		22 42.69	-03 26.0	3.383	2.581	31.2	11.6 17.3
1999 04 12		23 00.50	-01 58.4	3.300	2.563	36.3	13.4 17.2
1999 04 22		23 18.12	-00 30.5	3.212	2.546	41.4	15.1 17.1
1999 05 02		23 35.48	+00 56.2	3.118	2.532	46.5	16.8 17.0

1999 05 12	23 52.57	+02 20.4	3.019	2.520	51.7	18.3	16.9
1999 05 22	00 09.31	+03 40.6	2.915	2.511	56.9	19.7	16.8
1999 06 01	00 25.63	+04 55.3	2.808	2.503	62.3	21.0	16.7
1999 06 11	00 41.46	+06 03.0	2.699	2.499	67.8	22.1	16.6
1999 06 21	00 56.66	+07 02.3	2.587	2.496	73.5	23.0	16.5
1999 07 01	01 11.09	+07 51.6	2.474	2.496	79.4	23.6	16.4
1999 07 11	01 24.58	+08 29.3	2.361	2.498	85.6	23.9	16.3
1999 07 21	01 36.91	+08 54.1	2.249	2.502	92.1	23.9	16.2
1999 07 31	01 47.84	+09 04.5	2.140	2.509	99.1	23.5	16.1
1999 08 10	01 57.11	+08 59.3	2.035	2.519	106.5	22.7	16.1
1999 08 20	02 04.42	+08 37.5	1.936	2.530	114.5	21.3	16.0
1999 08 30	02 09.54	+07 58.8	1.847	2.544	123.1	19.4	15.9
1999 09 09	02 12.29	+07 03.8	1.770	2.560	132.3	16.9	15.9
1999 09 19	02 12.58	+05 54.3	1.710	2.578	142.1	13.8	15.8
1999 09 29	02 10.63	+04 34.3	1.669	2.598	152.3	10.3	15.8
1999 10 09	02 06.81	+03 09.4	1.650	2.619	162.2	6.7	15.9
1999 10 19	02 01.81	+01 46.9	1.658	2.643	169.3	4.0	15.9
1999 10 29	01 56.49	+00 34.4	1.692	2.669	166.8	4.9	16.0
1999 11 08	01 51.68	−00 22.1	1.752	2.696	157.8	8.0	16.2
1999 11 18	01 48.13	−00 58.7	1.838	2.725	147.7	11.2	16.4
1999 11 28	01 46.33	−01 14.2	1.945	2.755	137.6	14.0	16.5
1999 12 08	01 46.51	−01 10.0	2.071	2.787	127.9	16.2	16.8
1999 12 18	01 48.72	−00 48.2	2.212	2.820	118.7	17.8	17.0
1999 12 28	01 52.87	−00 12.1	2.365	2.854	110.0	18.9	17.2
2000 01 07	01 58.75	+00 35.4	2.526	2.890	101.6	19.5	17.4
2000 01 17	02 06.18	+01 31.3	2.693	2.926	93.7	19.6	17.6
2000 01 27	02 14.93	+02 33.0	2.863	2.964	86.1	19.4	17.9
2000 02 06	02 24.81	+03 38.3	3.034	3.002	78.8	18.8	18.1
2000 02 16	02 35.64	+04 45.3	3.202	3.041	71.7	18.0	18.3
2000 02 26	02 47.25	+05 52.3	3.367	3.081	64.9	16.9	18.5
2000 03 07	02 59.53	+06 58.0	3.527	3.122	58.3	15.7	18.7
2000 03 17	03 12.34	+08 01.1	3.680	3.163	51.8	14.3	18.8
2000 03 27	03 25.58	+09 00.8	3.824	3.204	45.5	12.8	19.0
2000 04 06	03 39.15	+09 56.1	3.959	3.247	39.3	11.3	19.2
2000 04 16	03 52.98	+10 46.4	4.082	3.289	33.3	9.6	19.3

1990 OL		$a, e, i = 2.69, 0.45, 15$			Elements MPC 22082			
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 04 12	21 20.02	−05 29.6	1.707	1.511	61.4	35.6	19.5	
1999 04 22	21 49.88	−03 47.6	1.642	1.493	63.4	37.0	19.4	
1999 05 02	22 19.43	−02 04.0	1.582	1.481	65.5	38.2	19.4	
1999 05 12	22 48.56	−00 22.8	1.526	1.475	67.6	39.3	19.3	
1999 05 22	23 17.13	+01 11.8	1.474	1.475	70.0	40.1	19.3	
1999 06 01	23 44.97	+02 36.0	1.426	1.481	72.6	40.8	19.2	
1999 06 11	00 11.92	+03 46.2	1.379	1.493	75.5	41.2	19.2	
1999 06 21	00 37.73	+04 39.1	1.334	1.511	78.7	41.3	19.1	
1999 07 01	01 02.16	+05 11.8	1.291	1.534	82.5	41.1	19.1	
1999 07 11	01 24.92	+05 22.1	1.247	1.563	86.7	40.5	19.0	
1999 07 21	01 45.62	+05 08.0	1.204	1.595	91.5	39.5	19.0	
1999 07 31	02 03.90	+04 28.3	1.161	1.632	96.9	38.1	18.9	
1999 08 10	02 19.33	+03 22.3	1.120	1.672	103.1	36.2	18.8	
1999 08 20	02 31.42	+01 50.4	1.082	1.715	110.0	33.7	18.7	
1999 08 30	02 39.77	−00 05.2	1.048	1.761	117.7	30.5	18.6	

1999 09 09	02 44.02	−02 20.4	1.022	1.808	126.1	26.8	18.5
1999 09 19	02 44.03	−04 47.1	1.006	1.858	135.0	22.5	18.4
1999 09 29	02 40.06	−07 13.5	1.006	1.908	143.8	18.1	18.4
1999 10 09	02 32.84	−09 25.5	1.024	1.960	151.4	14.1	18.3
1999 10 19	02 23.63	−11 08.7	1.062	2.012	155.7	11.8	18.4
1999 10 29	02 14.01	−12 13.5	1.124	2.065	154.5	11.9	18.6
1999 11 08	02 05.42	−12 37.0	1.207	2.118	148.9	14.0	18.8
1999 11 18	01 58.96	−12 22.4	1.311	2.171	141.2	16.6	19.2
1999 11 28	01 55.22	−11 36.6	1.433	2.224	132.8	19.0	19.5
1999 12 08	01 54.27	−10 27.5	1.571	2.277	124.4	20.9	19.8
1999 12 18	01 55.99	−09 02.3	1.721	2.330	116.2	22.3	20.1
1999 12 28	02 00.05	−07 26.8	1.882	2.382	108.3	23.1	20.4
2000 01 07	02 06.11	−05 45.4	2.050	2.433	100.8	23.4	20.6
2000 01 17	02 13.85	−04 01.4	2.222	2.484	93.5	23.3	20.8
2000 01 27	02 22.99	−02 17.4	2.397	2.535	86.4	22.8	21.0
2000 02 06	02 33.28	−00 35.2	2.573	2.584	79.6	22.0	21.2
2000 02 16	02 44.52	+01 03.9	2.747	2.633	73.0	21.0	21.3
2000 02 26	02 56.54	+02 38.7	2.917	2.681	66.5	19.8	21.5
2000 03 07	03 09.19	+04 08.4	3.082	2.728	60.2	18.4	21.6

116P/Wild 4

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 05 02	00 32.60	+02 20.3	5.513	4.698	32.8	6.7	21.1		
1999 05 12	00 40.22	+03 10.5	5.431	4.707	40.4	8.0	21.1		
1999 05 22	00 47.39	+03 57.3	5.331	4.716	48.1	9.2	21.1		
1999 06 01	00 54.01	+04 40.1	5.217	4.724	55.9	10.2	21.1		
1999 06 11	00 59.98	+05 18.5	5.091	4.731	63.8	11.1	21.1		
1999 06 21	01 05.19	+05 51.7	4.953	4.738	72.0	11.8	21.1		
1999 07 01	01 09.53	+06 19.3	4.809	4.745	80.3	12.2	21.0		
1999 07 11	01 12.88	+06 40.7	4.659	4.751	89.0	12.4	21.0		
1999 07 21	01 15.11	+06 55.3	4.509	4.756	97.9	12.2	20.9		
1999 07 31	01 16.12	+07 02.5	4.362	4.762	107.2	11.8	20.8		
1999 08 10	01 15.82	+07 02.1	4.222	4.766	116.8	10.9	20.7		
1999 08 20	01 14.17	+06 53.8	4.094	4.770	126.8	9.8	20.6		
1999 08 30	01 11.20	+06 37.7	3.982	4.774	137.3	8.3	20.5		
1999 09 09	01 07.00	+06 14.4	3.892	4.777	148.1	6.4	20.3		
1999 09 19	01 01.78	+05 45.1	3.827	4.779	159.2	4.3	20.2		
1999 09 29	00 55.85	+05 11.6	3.790	4.781	170.5	2.0	20.0		
1999 10 09	00 49.59	+04 36.0	3.784	4.783	177.8	0.5	19.9		
1999 10 19	00 43.42	+04 01.1	3.810	4.784	166.4	2.8	20.1		
1999 10 29	00 37.77	+03 29.5	3.866	4.784	154.9	5.1	20.3		
1999 11 08	00 32.99	+03 03.3	3.950	4.784	143.6	7.1	20.4		
1999 11 18	00 29.35	+02 44.4	4.058	4.783	132.6	8.7	20.5		
1999 11 28	00 27.03	+02 33.8	4.187	4.782	121.9	10.1	20.7		
1999 12 08	00 26.09	+02 31.9	4.330	4.781	111.5	11.0	20.8		
1999 12 18	00 26.54	+02 38.7	4.484	4.779	101.5	11.6	20.9		
1999 12 28	00 28.29	+02 53.7	4.642	4.776	91.8	11.9	20.9		
2000 01 07	00 31.26	+03 16.2	4.801	4.773	82.5	11.8	21.0		
2000 01 17	00 35.33	+03 45.4	4.956	4.770	73.4	11.4	21.1		
2000 01 27	00 40.36	+04 20.5	5.104	4.766	64.6	10.8	21.1		
2000 02 06	00 46.22	+05 00.6	5.241	4.761	56.1	9.9	21.1		
2000 02 16	00 52.81	+05 44.7	5.364	4.756	47.8	8.8	21.1		

Elements MPC 30064

2000 02 26	00 59.99	+06 32.1	5.471	4.751	39.6	7.6	21.1
2000 03 07	01 07.67	+07 22.0	5.560	4.745	31.7	6.3	21.1

31P/Schwassmann-Wachmann 2

Date	TT	α_{2000}	δ_{2000}	Δ	r	Elements		MPC	18256
						ϵ	ϕ	m_1	m_2
1999 05 02	00 38.68	+00 22.0	5.533	4.712	32.3	6.6		22.1	
1999 05 12	00 47.02	+01 09.9	5.432	4.699	39.7	7.9		22.1	
1999 05 22	00 55.01	+01 54.4	5.314	4.686	47.2	9.1	22.0	22.1	
1999 06 01	01 02.55	+02 34.7	5.183	4.673	54.8	10.2	22.0	22.1	
1999 06 11	01 09.55	+03 10.3	5.040	4.659	62.5	11.1	21.9	22.0	
1999 06 21	01 15.92	+03 40.6	4.887	4.645	70.4	11.9	21.8	22.0	
1999 07 01	01 21.52	+04 05.0	4.727	4.631	78.4	12.4	21.7	21.9	
1999 07 11	01 26.25	+04 23.0	4.562	4.617	86.7	12.7	21.6	21.9	
1999 07 21	01 29.96	+04 33.9	4.396	4.603	95.3	12.7	21.5	21.8	
1999 07 31	01 32.54	+04 37.3	4.232	4.588	104.2	12.4	21.4	21.7	
1999 08 10	01 33.87	+04 33.0	4.074	4.574	113.5	11.7	21.3	21.6	
1999 08 20	01 33.87	+04 20.8	3.927	4.559	123.1	10.7	21.1	21.4	
1999 08 30	01 32.49	+04 00.9	3.793	4.544	133.1	9.3	21.0	21.3	
1999 09 09	01 29.77	+03 34.1	3.679	4.528	143.5	7.6	20.9	21.2	
1999 09 19	01 25.84	+03 01.7	3.588	4.513	154.1	5.6	20.9	21.0	
1999 09 29	01 20.93	+02 25.6	3.523	4.498	164.8	3.4	20.8	20.8	
1999 10 09	01 15.39	+01 48.3	3.488	4.482	173.6	1.4		20.7	
1999 10 19	01 09.62	+01 12.6	3.483	4.466	169.6	2.3	20.7	20.7	
1999 10 29	01 04.09	+00 41.4	3.508	4.450	159.1	4.6	20.7	20.9	
1999 11 08	00 59.22	+00 17.0	3.562	4.434	148.2	6.8	20.7	21.0	
1999 11 18	00 55.36	+00 01.4	3.641	4.418	137.3	8.7	20.7	21.1	
1999 11 28	00 52.79	−00 04.5	3.741	4.402	126.6	10.4	20.7	21.2	
1999 12 08	00 51.63	−00 00.4	3.859	4.385	116.3	11.6	20.8	21.4	
1999 12 18	00 51.95	+00 13.5	3.988	4.369	106.4	12.5	20.8	21.4	
1999 12 28	00 53.71	+00 36.4	4.125	4.352	96.8	13.0	20.9	21.5	
2000 01 07	00 56.83	+01 07.4	4.265	4.336	87.5	13.1	20.9	21.6	
2000 01 17	01 01.21	+01 45.5	4.404	4.319	78.6	12.9	20.9	21.7	
2000 01 27	01 06.71	+02 29.5	4.537	4.302	70.0	12.4	21.0	21.7	
2000 02 06	01 13.22	+03 18.4	4.663	4.285	61.7	11.7	21.0	21.7	
2000 02 16	01 20.61	+04 11.2	4.778	4.268	53.7	10.7	21.0	21.7	
2000 02 26	01 28.75	+05 06.9	4.881	4.251	45.9	9.6	21.0	21.7	
2000 03 07	01 37.55	+06 04.7	4.968	4.234	38.2	8.3	21.0	21.7	
2000 03 17	01 46.91	+07 03.6	5.040	4.216	30.8	6.9	21.0	21.7	

32P/Comas Solá

Date	TT	α_{2000}	δ_{2000}	Δ	r	Elements		MPC	26143
						ϵ	ϕ	m_1	m_2
1999 05 12	18 02.04	−29 28.3	5.315	6.124	140.0	6.1		22.5	
1999 05 22	17 57.31	−29 40.9	5.244	6.145	150.5	4.7		22.4	
1999 06 01	17 51.76	−29 51.1	5.199	6.165	160.8	3.1		22.3	
1999 06 11	17 45.67	−29 58.5	5.182	6.186	170.3	1.6		22.2	
1999 06 21	17 39.39	−30 02.5	5.197	6.205	172.4	1.2		22.2	
1999 07 01	17 33.27	−30 03.3	5.241	6.225	164.0	2.6		22.3	
1999 07 11	17 27.66	−30 01.3	5.315	6.243	153.8	4.1		22.5	

P/1993 X1 (Kushida-Muramatsu)

Date	TT	α_{2000}	δ_{2000}	Δ	r	Elements		MPC	31663
						ϵ	ϕ	m_1	m_2
1999 05 12	22 12.63	−12 47.0	4.219	4.171	80.4	13.8	21.0	22.5	
1999 05 22	22 18.00	−12 22.8	4.049	4.150	88.6	14.1	20.9	22.4	
1999 06 01	22 22.22	−12 05.3	3.878	4.129	97.1	14.1	20.8	22.3	

1999 06 11	22 25.17	−11 55.2	3.710	4.107	106.0	13.7	20.6	22.2	
1999 06 21	22 26.71	−11 53.5	3.548	4.085	115.2	13.0	20.5	22.1	
1999 07 01	22 26.75	−12 00.7	3.398	4.064	124.7	11.9	20.3	21.9	
1999 07 11	22 25.24	−12 16.8	3.261	4.041	134.7	10.3	20.2	21.8	
1999 07 21	22 22.18	−12 41.3	3.144	4.019	145.0	8.3	20.1	21.6	
1999 07 31	22 17.71	−13 12.8	3.049	3.996	155.8	6.0	20.0	21.4	
1999 08 10	22 12.10	−13 49.4	2.980	3.973	166.7	3.4	19.9	21.2	
1999 08 20	22 05.73	−14 28.0	2.939	3.950	176.9	0.8	19.8	21.0	
1999 08 30	21 59.11	−15 05.6	2.928	3.927	170.1	2.5	19.7	21.1	
1999 09 09	21 52.79	−15 39.1	2.946	3.903	159.0	5.3	19.7	21.2	
1999 09 19	21 47.30	−16 06.1	2.992	3.880	147.9	7.9	19.7	21.4	
1999 09 29	21 43.10	−16 24.7	3.061	3.856	137.1	10.2	19.7	21.5	
1999 10 09	21 40.48	−16 34.2	3.151	3.832	126.6	12.1	19.7	21.6	
1999 10 19	21 39.62	−16 34.2	3.257	3.808	116.5	13.5	19.7	21.7	
1999 10 29	21 40.55	−16 25.0	3.374	3.783	106.8	14.6	19.7	21.8	
1999 11 08	21 43.22	−16 07.1	3.498	3.759	97.5	15.2	19.7	21.9	
1999 11 18	21 47.51	−15 40.8	3.625	3.734	88.6	15.3	19.7	22.0	
1999 11 28	21 53.26	−15 06.9	3.751	3.709	80.0	15.2	19.8	22.1	
1999 12 08	22 00.29	−14 25.9	3.873	3.684	71.7	14.7	19.8	22.1	
1999 12 18	22 08.45	−13 38.2	3.988	3.659	63.7	13.9	19.8	22.1	
1999 12 28	22 17.56	−12 44.5	4.093	3.634	55.9	12.9	19.8	22.1	
2000 01 07	22 27.47	−11 45.3	4.187	3.609	48.3	11.7	19.8	22.1	
2000 01 17	22 38.06	−10 41.0	4.268	3.583	40.9	10.4	19.7	22.1	
2000 01 27	22 49.20	−09 32.3	4.334	3.558	33.8	8.8	19.7	22.0	

110P/Hartley 3

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 05 12	22 33.07	−01 43.9	4.279	4.077	71.7	13.6	22.5	22.5	
1999 05 22	22 38.71	−00 43.3	4.112	4.054	79.6	14.2	22.3	22.4	
1999 06 01	22 43.31	+00 13.8	3.941	4.030	87.7	14.6	22.1	22.3	
1999 06 11	22 46.75	+01 06.5	3.769	4.006	96.1	14.6	22.0	22.2	
1999 06 21	22 48.87	+01 53.6	3.601	3.982	104.7	14.3	21.8	22.1	
1999 07 01	22 49.55	+02 33.8	3.438	3.957	113.7	13.6	21.6	22.0	
1999 07 11	22 48.69	+03 05.8	3.285	3.932	123.0	12.5	21.4	21.8	
1999 07 21	22 46.24	+03 28.2	3.147	3.907	132.6	11.0	21.2	21.6	
1999 07 31	22 42.27	+03 39.9	3.027	3.882	142.5	9.2	21.1	21.5	
1999 08 10	22 36.93	+03 40.2	2.929	3.856	152.4	7.0	20.9	21.3	
1999 08 20	22 30.52	+03 29.3	2.856	3.830	161.6	4.8	20.8	21.1	
1999 08 30	22 23.51	+03 08.1	2.811	3.803	167.5	3.3	20.6	21.0	
1999 09 09	22 16.43	+02 38.8	2.795	3.776	164.7	4.0	20.5	21.0	
1999 09 19	22 09.87	+02 04.4	2.808	3.749	156.2	6.2	20.5	21.1	
1999 09 29	22 04.36	+01 28.4	2.848	3.722	146.1	8.6	20.4	21.2	
1999 10 09	22 00.31	+00 54.1	2.911	3.694	135.8	10.9	20.3	21.3	
1999 10 19	21 58.00	+00 24.6	2.995	3.666	125.7	12.8	20.3	21.5	
1999 10 29	21 57.54	+00 02.2	3.094	3.638	115.8	14.2	20.3	21.6	
1999 11 08	21 58.93	−00 11.5	3.204	3.610	106.3	15.3	20.3	21.7	
1999 11 18	22 02.10	−00 15.7	3.321	3.581	97.2	15.9	20.2	21.7	
1999 11 28	22 06.89	−00 09.9	3.440	3.552	88.4	16.1	20.2	21.8	
1999 12 08	22 13.14	+00 05.8	3.559	3.523	80.0	16.0	20.2	21.9	
1999 12 18	22 20.68	+00 31.3	3.673	3.494	71.9	15.5	20.1	21.9	
1999 12 28	22 29.34	+01 06.1	3.780	3.465	64.1	14.8	20.1	21.9	
2000 01 07	22 38.96	+01 49.6	3.878	3.435	56.5	13.8	20.0	21.9	
2000 01 17	22 49.40	+02 41.2	3.965	3.406	49.3	12.6	20.0	21.9	

1999 APR. 2

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2000 01 27	23 00.55	+03 40.3	4.039	3.376	42.2	11.3	19.9	21.9
2000 02 06	23 12.29	+04 46.0	4.100	3.346	35.5	9.8	19.8	21.8

50P/Arend

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2	Elements	MPC	27082
1999 05 22	01 34.34	+13 58.9	2.790	2.028	33.7	16.1	16.3	21.6				
1999 06 01	01 55.56	+17 02.4	2.707	2.001	37.5	18.0	16.2	21.6				
1999 06 11	02 17.51	+20 03.8	2.624	1.977	41.2	19.8	16.0	21.6				
1999 06 21	02 40.24	+23 01.6	2.541	1.957	44.9	21.5	15.9	21.5				
1999 07 01	03 03.79	+25 53.6	2.459	1.941	48.5	23.1	15.8	21.5				
1999 07 11	03 28.19	+28 38.1	2.379	1.929	52.1	24.6	15.7	21.5				
1999 07 21	03 53.39	+31 13.1	2.300	1.921	55.7	25.9	15.6	21.4				
1999 07 31	04 19.32	+33 36.5	2.223	1.917	59.4	27.1	15.5	21.4				
1999 08 10	04 45.84	+35 47.0	2.149	1.918	63.1	28.1	15.4	21.3				
1999 08 20	05 12.67	+37 43.6	2.076	1.922	67.0	29.0	15.3	21.3				
1999 08 30	05 39.51	+39 25.8	2.005	1.931	71.1	29.7	15.3	21.2				
1999 09 09	06 05.97	+40 54.3	1.936	1.944	75.4	30.1	15.3	21.2				
1999 09 19	06 31.56	+42 10.7	1.867	1.961	80.0	30.3	15.2	21.1				
1999 09 29	06 55.79	+43 17.3	1.801	1.982	85.0	30.2	15.2	21.1				
1999 10 09	07 18.11	+44 17.4	1.735	2.007	90.3	29.9	15.2	21.0				
1999 10 19	07 37.94	+45 14.4	1.672	2.035	96.1	29.1	15.2	20.9				
1999 10 29	07 54.71	+46 11.5	1.611	2.066	102.4	28.0	15.3	20.9				
1999 11 08	08 07.80	+47 11.6	1.554	2.100	109.2	26.5	15.3	20.8				
1999 11 18	08 16.55	+48 15.5	1.504	2.136	116.5	24.5	15.3	20.7				
1999 11 28	08 20.41	+49 21.1	1.462	2.175	124.2	22.0	15.4	20.6				
1999 12 08	08 18.98	+50 23.2	1.432	2.217	132.1	19.3	15.5	20.5				
1999 12 18	08 12.33	+51 12.6	1.417	2.260	139.7	16.3	15.6	20.4				
1999 12 28	08 01.38	+51 38.3	1.422	2.305	146.2	13.7	15.7	20.4				
2000 01 07	07 47.88	+51 31.3	1.447	2.351	150.0	12.1	15.9	20.4				
2000 01 17	07 34.22	+50 47.8	1.496	2.399	149.9	11.9	16.1	20.5				
2000 01 27	07 22.65	+49 32.0	1.569	2.448	145.9	13.0	16.3	20.7				
2000 02 06	07 14.54	+47 52.9	1.664	2.497	139.5	14.9	16.6	20.9				
2000 02 16	07 10.44	+46 00.5	1.781	2.548	131.8	16.8	16.8	21.2				
2000 02 26	07 10.17	+44 03.3	1.915	2.599	123.9	18.4	17.1	21.4				
2000 03 07	07 13.20	+42 06.9	2.064	2.651	115.9	19.7	17.4	21.7				
2000 03 17	07 18.95	+40 14.1	2.224	2.704	108.1	20.5	17.7	21.9				
2000 03 27	07 26.84	+38 26.0	2.394	2.756	100.5	20.9	18.0	22.1				
2000 04 06	07 36.35	+36 42.4	2.570	2.809	93.2	20.8	18.3	22.3				
2000 04 16	07 47.10	+35 02.7	2.750	2.863	86.1	20.5	18.5	22.5				

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Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2	Elements	MPC	31894
1999 05 22	01 49.81	+04 29.3	3.816	3.029	33.9	10.8	18.7	21.0				
1999 06 01	02 04.21	+05 31.9	3.745	3.035	39.7	12.3	18.7	21.0				
1999 06 11	02 18.28	+06 28.0	3.665	3.042	45.6	13.8	18.7	21.0				
1999 06 21	02 31.92	+07 16.9	3.576	3.051	51.6	15.1	18.6	21.0				
1999 07 01	02 45.02	+07 58.2	3.478	3.060	57.8	16.3	18.6	21.0				
1999 07 11	02 57.48	+08 31.4	3.374	3.069	64.1	17.3	18.5	21.0				
1999 07 21	03 09.14	+08 56.2	3.263	3.080	70.7	18.1	18.5	20.9				
1999 07 31	03 19.84	+09 12.4	3.147	3.092	77.5	18.7	18.4	20.9				
1999 08 10	03 29.41	+09 19.7	3.029	3.104	84.7	19.0	18.3	20.8				
1999 08 20	03 37.62	+09 18.2	2.909	3.117	92.2	18.9	18.3	20.8				
1999 08 30	03 44.28	+09 08.2	2.791	3.131	100.1	18.5	18.2	20.7				
1999 09 09	03 49.17	+08 50.1	2.677	3.145	108.5	17.7	18.1	20.6				

1999 09 19	03 52.09	+08 24.6	2.570	3.160	117.3	16.4	18.0	20.4
1999 09 29	03 52.90	+07 53.2	2.474	3.176	126.7	14.7	18.0	20.3
1999 10 09	03 51.58	+07 17.7	2.394	3.193	136.5	12.4	17.9	20.2
1999 10 19	03 48.21	+06 40.4	2.332	3.210	146.5	9.9	17.9	20.0
1999 10 29	03 43.13	+06 04.6	2.293	3.228	156.3	7.1	17.9	19.9
1999 11 08	03 36.83	+05 33.5	2.281	3.246	164.4	4.7	17.9	19.8
1999 11 18	03 29.98	+05 10.5	2.297	3.265	166.1	4.2	17.9	19.8
1999 11 28	03 23.35	+04 58.2	2.341	3.284	159.7	6.0	18.0	19.9
1999 12 08	03 17.59	+04 58.0	2.413	3.304	150.2	8.5	18.1	20.1
1999 12 18	03 13.27	+05 10.3	2.510	3.325	140.1	11.0	18.2	20.3
1999 12 28	03 10.74	+05 34.4	2.628	3.346	130.0	13.0	18.3	20.5
2000 01 07	03 10.14	+06 08.6	2.763	3.367	120.2	14.6	18.5	20.7
2000 01 17	03 11.49	+06 51.1	2.912	3.388	110.8	15.7	18.6	20.8
2000 01 27	03 14.67	+07 39.8	3.070	3.410	101.8	16.4	18.8	21.0
2000 02 06	03 19.54	+08 32.9	3.233	3.433	93.2	16.7	18.9	21.1
2000 02 16	03 25.90	+09 28.6	3.399	3.455	85.0	16.5	19.0	21.2
2000 02 26	03 33.58	+10 25.4	3.563	3.478	77.1	16.1	19.2	21.3
2000 03 07	03 42.39	+11 21.9	3.724	3.502	69.5	15.4	19.3	21.4
2000 03 17	03 52.17	+12 17.0	3.879	3.525	62.1	14.4	19.4	21.5
2000 03 27	04 02.77	+13 09.7	4.026	3.549	55.0	13.3	19.5	21.5
2000 04 06	04 14.05	+13 59.2	4.164	3.573	48.0	12.0	19.6	21.6
2000 04 16	04 25.90	+14 44.9	4.290	3.597	41.3	10.6	19.7	21.6
2000 04 26	04 38.19	+15 26.1	4.404	3.621	34.7	9.1	19.8	21.6

OPPOSITION DATA

Planet	Opposition	α_{2000}	δ_{2000}	V	$\dot{\alpha}$	$\dot{\delta}$	ϕ_{MIN}	MPC
1996 HU	1999 03 02.0	10 49.86	+05 29.8	18.3	-0.90	+ 7.1	0.6/02.6	34294
(10254)	1999 03 02.0	10 49.94	+07 23.9	16.9	-0.95	+ 7.8	0.0/02.0	33919
1999 CO ₅₄	1999 03 02.0	10 49.96	+10 39.7	18.1	-0.74	+ 6.9	0.9/29.0	34246
(10334)	1999 03 02.0	10 50.04	+06 02.9	18.2	-0.80	+ 5.0	0.4/02.5	34144
1997 VP ₆	1999 03 02.0	10 50.05	+05 52.6	17.8	-0.90	+ 5.6	0.5/02.5	34299
1981 DM	1999 03 02.0	10 50.06	-04 56.5	17.7	-0.97	+ 4.5	4.9/05.7	34281
(10409)	1999 03 02.0	10 50.09	+11 27.2	17.9	-0.76	+ 4.7	1.1/28.8	34162
1999 CY ₅₃	1999 03 02.1	10 50.23	+11 26.6	17.4	-0.78	+ 5.1	1.3/28.8	34246
1056 T-2	1999 03 02.1	10 50.48	+08 51.3	19.1	-0.86	+ 4.1	0.4/01.7	23131
1993 OO ₃	1999 03 02.1	10 50.58	+05 49.4	19.2	-0.96	+ 5.5	0.5/02.7	30897
1991 VT ₁	1999 03 02.2	10 50.58	+01 48.6	16.7	-1.04	+ 6.1	2.2/03.9	34287
1996 TX ₁₆	1999 03 02.2	10 50.66	-03 36.6	18.6	-0.75	+ 5.6	3.1/05.8	28598
1988 RW ₁₂	1999 03 02.3	10 50.95	+02 51.0	19.1	-0.90	+ 5.0	1.4/03.7	27727
1999 CO ₈	1999 03 02.3	10 50.98	+14 09.9	17.2	-1.00	+ 7.2	3.0/28.2	34236
1978 VU ₆	1999 03 02.3	10 51.07	+04 35.5	18.5	-0.95	+ 5.6	1.0/03.2	34002
1981 EW ₄₀	1999 03 02.3	10 51.07	+11 16.9	19.6	-1.06	+ 3.0	1.3/01.3	26922
1989 JB	1999 03 02.3	10 51.09	+55 27.0	17.8	-1.29	+ 7.2	19.3/15.0	34284
(10345)	1999 03 02.3	10 51.14	+08 18.7	17.2	-0.92	+ 7.9	0.4/02.0	34147
1992 EO ₅	1999 03 02.4	10 51.26	+14 58.5	18.4	-0.96	+ 8.3	2.7/27.9	33933
1999 DS ₂	1999 03 02.4	10 51.49	+08 10.3	16.5	-0.99	+ 0.7	0.4/02.2	34333
1997 UQ ₁₀	1999 03 02.4	10 51.50	+09 21.3	19.7	-0.86	+ 6.5	0.6/01.8	33960
1998 WD ₂₄	1999 03 02.4	10 51.72	+08 57.3	15.7	-0.95	+ 2.0	0.6/02.0	34311
(10338)	1999 03 02.5	10 51.73	+07 23.3	17.6	-0.75	+ 5.0	0.0/02.5	34145
1989 TL ₁₅	1999 03 02.6	10 52.09	+06 24.1	17.3	-0.93	+ 5.2	0.3/02.9	34284
1991 PC ₇	1999 03 02.6	10 52.26	+11 39.4	17.6	-0.81	+ 5.4	1.3/01.2	34287
1994 UU ₆	1999 03 02.6	10 52.31	+11 18.6	18.1	-1.11	+ 4.5	1.7/01.5	33941

1990 QU ₉	1999 03 02.7	10 52.38 +12 29.3 17.3	-0.90 + 1.4	1.5/01.2	34285	(10293)	1999 03 04.2	10 58.37 -05 48.0 16.4	-0.81 + 3.3	3.7/08.0	34134
1990 OM ₂	1999 03 02.7	10 52.40 +08 58.0 17.9	-1.08 + 4.2	0.6/02.2	34285	1992 RC ₄	1999 03 04.3	10 58.38 +04 04.4 17.8	-0.85 + 5.5	0.8/05.1	34288
1999 CT ₅₄	1999 03 02.7	10 52.58 +09 47.1 16.5	-1.01 + 2.9	1.0/02.0	34247	1997 WX	1999 03 04.3	10 58.51 +13 21.7 17.3	-1.08 + 3.0	2.6/02.5	34299
1978 UG	1999 03 02.7	10 52.73 +12 05.0 18.2	-0.95 + 5.3	1.6/01.3	34002	4204 P-L	1999 03 04.3	10 58.63 -03 45.5 18.2	-0.73 + 6.4	3.0/07.8	34337
1978 NX ₇	1999 03 02.8	10 53.00 +13 49.2 18.1	-0.73 + 4.9	1.7/28.7	34280	4249 T-2	1999 03 04.4	10 58.74 +16 10.7 19.4	-1.10 + 3.8	3.5/01.7	34273
1992 DL ₄	1999 03 02.8	10 53.15 +12 44.4 17.6	-1.08 + 4.0	2.0/01.3	34288	1999 CB ₅₇	1999 03 04.4	10 58.81 +10 22.1 17.3	-0.76 + 5.7	1.3/03.2	34247
1986 XR ₅	1999 03 02.9	10 53.23 +11 52.2 18.0	-0.77 + 4.1	1.2/01.4	34283	1997 TT ₃	1999 03 04.4	10 58.96 -07 55.2 17.4	-0.74 + 9.5	5.3/09.8	34297
1996 GB ₇	1999 03 02.9	10 53.25 +14 26.5 17.3	-1.07 + 4.3	3.3/28.8	34293	1997 UW ₁₇	1999 03 04.4	10 58.99 +21 13.0 17.9	-0.97 + 4.4	5.3/27.9	34298
(10264)	1999 03 02.9	10 53.45 +06 35.1 17.7	-0.74 + 4.5	0.1/03.1	34127	1999 CN ₅₇	1999 03 04.4	10 59.13 +08 14.8 16.9	-0.91 + 6.1	0.6/03.9	34247
1999 CB ₅₅	1999 03 03.0	10 53.64 +16 33.9 17.6	-0.94 + 6.9	3.7/27.9	34247	(10276)	1999 03 04.5	10 59.33 +04 33.5 18.4	-0.93 + 6.8	0.6/05.1	34130
1989 SX	1999 03 03.0	10 53.69 +15 06.1 18.8	-0.97 + 4.3	2.5/28.7	34005	1997 SH ₁₁	1999 03 04.5	10 59.38 +11 49.1 20.7	-0.92 + 4.6	1.6/03.0	31011
1999 DY ₁	1999 03 03.0	10 53.81 +17 00.2 18.3	-1.08 + 4.6	3.9/28.2	34259	1997 UB ₂₅	1999 03 04.6	10 59.48 -00 27.5 17.3	-1.01 + 5.9	2.4/06.7	34298
(10306)	1999 03 03.1	10 53.92 -00 03.7 17.0	-0.75 + 6.2	2.0/05.4	34137	1997 XU ₉	1999 03 04.6	10 59.68 +14 28.4 17.9	-1.01 + 5.5	2.6/02.2	31283
(10436)	1999 03 03.1	10 54.08 +07 07.3 17.3	-0.89 + 4.0	0.0/03.1	34168	(8282)	1999 03 04.6	10 59.86 +06 40.7 17.5	-0.77 + 4.9	0.1/04.6	31215
4133 P-L	1999 03 03.1	10 54.18 +09 08.9 19.4	-1.03 + 3.8	0.7/02.6	30914	1998 WW ₂₃	1999 03 04.6	10 59.90 +32 48.4 15.8	-0.83 + 7.2	10.0/22.1	34311
2748 P-L	1999 03 03.2	10 54.55 +05 16.2 18.9	-0.85 + 8.0	0.6/03.8	23985	1997 WD ₃₆	1999 03 04.7	10 59.96 +06 27.7 17.4	-0.82 + 4.6	0.0/04.7	34299
1997 VE ₅	1999 03 03.2	10 54.67 +12 02.7 17.9	-0.96 + 5.8	1.7/01.7	34298	1997 WO ₅₁	1999 03 04.7	11 00.12 +16 33.6 17.2	-0.77 + 5.6	3.4/01.4	34299
1999 CX ₅₄	1999 03 03.2	10 54.68 +14 05.1 16.6	-0.96 + 2.6	2.4/01.3	34247	(8326)	1999 03 04.8	11 00.32 +07 25.9 17.8	-0.98 + 5.3	0.4/04.5	31349
1989 CD ₆	1999 03 03.3	10 54.82 +09 29.0 17.3	-0.80 + 5.8	0.8/02.5	34284	1991 GZ ₅	1999 03 04.8	11 00.67 +03 58.1 17.8	-0.90 + 5.4	0.8/05.6	34181
(10267)	1999 03 03.3	10 54.85 +12 03.3 17.8	-0.83 + 5.1	1.6/01.7	34128	1989 VP ₁	1999 03 04.9	11 00.64 -04 38.9 17.0	-0.77 +11.1	4.1/09.0	34285
1997 SP ₁₇	1999 03 03.3	10 54.95 +00 37.2 19.4	-0.84 + 6.7	1.8/05.4	31590	3777 T-3	1999 03 04.9	11 00.70 +07 52.5 19.3	-0.94 + 5.7	0.5/04.5	25337
4556 P-L	1999 03 03.3	10 54.99 +11 13.4 18.1	-0.79 + 4.4	1.2/02.0	34337	(10337)	1999 03 05.0	11 01.31 +03 45.8 17.7	-0.78 + 3.7	0.6/05.8	34145
1995 BZ ₁	1999 03 03.4	10 55.19 +15 25.1 18.2	-0.98 + 6.2	3.1/28.8	34292	1993 TP ₂₇	1999 03 05.0	11 01.34 +12 38.0 17.0	-0.86 + 6.2	2.7/03.0	34191
1997 WY ₃₅	1999 03 03.4	10 55.23 +23 56.2 18.2	-0.87 + 3.5	4.8/26.1	31282	1988 DD ₂	1999 03 05.0	11 01.37 +14 11.2 17.5	-0.87 +10.2	3.2/02.3	34175
1997 QV ₂	1999 03 03.4	10 55.26 +00 31.7 19.0	-1.02 + 5.1	2.2/05.3	34202	1987 SE ₇	1999 03 05.0	11 01.40 +00 00.9 18.5	-1.03 + 5.1	2.2/06.9	34283
1994 XW	1999 03 03.5	10 55.41 +18 51.6 17.5	-1.03 + 6.6	4.4/27.8	34292	(8220)	1999 03 05.1	11 01.49 +06 06.9 17.7	-0.96 + 7.8	0.0/05.2	31091
(8271)	1999 03 03.5	10 55.67 +12 50.4 17.6	-0.89 + 8.3	1.9/01.6	31212	1981 EK ₁₁	1999 03 05.1	11 01.64 -05 59.9 18.2	-0.92 + 8.2	4.3/09.3	34281
1991 RX ₄	1999 03 03.5	10 55.68 -01 32.5 17.8	-0.73 + 6.1	2.4/06.4	34287	1994 YR ₁	1999 03 05.1	11 01.70 +21 05.5 17.8	-0.99 + 5.8	5.8/28.5	34292
(10309)	1999 03 03.5	10 55.81 +08 00.9 17.6	-1.00 + 6.2	0.4/03.2	34138	(10427)	1999 03 05.2	11 01.72 +02 21.2 18.0	-1.01 + 6.1	1.3/06.4	34166
1998 WY ₂₃	1999 03 03.6	10 55.77 +31 06.7 16.2	-0.91 + 6.1	8.9/22.8	34311	(10318)	1999 03 05.2	11 01.92 +13 39.9 17.8	-0.99 + 5.9	2.4/03.0	34140
(10383)	1999 03 03.6	10 55.87 +03 08.4 17.1	-0.89 + 4.9	1.2/04.7	34156	1994 UY ₁₁	1999 03 05.2	11 01.95 +36 46.5 16.8	-1.70 -10.8	15.1/01.8	34291
1993 QZ	1999 03 03.6	10 56.13 +05 56.6 17.6	-0.85 +12.8	0.3/04.0	34289	1981 EA ₅	1999 03 05.2	11 02.16 -08 23.3 18.6	-0.85 + 5.0	4.8/10.0	34281
6180 P-L	1999 03 03.6	10 56.17 +04 00.0 19.8	-0.82 + 5.4	0.8/04.6	34338	1988 CA ₂	1999 03 05.3	11 02.32 +14 36.0 17.1	-0.91 + 8.6	3.3/02.5	34283
1981 EP ₃₂	1999 03 03.7	10 56.14 +07 35.2 18.8	-1.13 + 2.5	0.3/03.5	26921	1981 EV ₂₅	1999 03 05.3	11 02.36 +03 59.0 18.4	-0.78 + 7.2	0.6/06.1	34173
3277 T-1	1999 03 03.7	10 56.14 +06 37.5 17.8	-0.73 + 4.6	0.0/03.8	34338	1992 ED ₂₂	1999 03 05.3	11 02.37 +13 11.5 17.5	-0.95 + 8.3	2.8/03.0	34288
1996 HV ₂₁	1999 03 03.7	10 56.27 +14 31.6 17.3	-1.08 + 4.9	3.4/01.5	34294	1981 EL ₁₀	1999 03 05.3	11 02.46 +00 39.8 17.8	-0.86 + 4.1	1.7/07.0	34281
(8224)	1999 03 03.8	10 56.64 +12 12.6 18.7	-0.81 + 5.5	1.5/02.1	31092	1992 EO ₄	1999 03 05.4	11 02.54 +13 48.5 17.4	-0.96 + 7.8	2.9/02.9	34184
1995 CB ₁	1999 03 03.9	10 57.11 +17 00.0 18.2	-0.94 + 6.8	3.5/28.7	34292	1993 TC	1999 03 05.4	11 02.55 +33 15.9 18.1	-1.24 + 1.7	8.0/25.3	34290
1981 SC ₇	1999 03 03.9	10 57.12 +19 09.7 17.9	-1.00 + 4.0	4.0/28.3	34282	(10432)	1999 03 05.4	11 02.64 +10 20.8 16.5	-1.05 + 3.9	1.9/04.2	34167
1999 CA ₅₅	1999 03 03.9	10 57.15 +13 53.8 18.1	-1.03 + 3.9	2.9/01.9	34247	1999 CB ₁₄₇	1999 03 05.4	11 02.69 +04 15.5 19.1	-1.13 + 2.9	0.8/05.9	34259
1997 YR ₂	1999 03 04.0	10 57.36 +12 17.2 17.7	-0.93 + 5.8	1.8/02.3	34300	1997 US ₃	1999 03 05.4	11 02.72 -12 03.5 17.8	-0.81 + 6.4	5.5/11.7	31280
1999 CD ₂	1999 03 04.0	10 57.38 +15 32.3 17.7	-1.00 + 6.8	3.1/01.3	34319	1994 GD ₂	1999 03 05.4	11 02.80 +07 22.4 20.4	-0.73 + 5.9	0.3/05.1	23678
1997 SS ₃	1999 03 04.0	10 57.38 +15 54.2 18.9	-0.98 + 4.8	3.0/01.3	31011	(8172)	1999 03 05.4	11 02.82 +08 11.1 16.9	-0.78 + 4.7	0.6/04.8	31080
(8214)	1999 03 04.0	10 57.68 -17 48.6 16.7	-0.87 + 4.1	8.4/12.0	31090	1997 UU ₄	1999 03 05.5	11 03.16 +15 10.5 19.2	-0.98 + 5.0	2.8/02.8	31147
1993 NU ₁	1999 03 04.1	10 57.75 +07 33.1 18.1	-0.94 + 6.7	0.3/03.8	34289	(10229)	1999 03 05.6	11 03.59 +17 16.5 17.1	-1.02 + 5.0	4.0/02.3	33913
(10422)	1999 03 04.1	10 57.84 +35 02.7 16.5	-0.97 + 4.3	8.3/22.0	34165	1999 EA	1999 03 05.7	11 03.60 +09 14.9 18.0	-1.08 + 2.3	1.1/04.8	34262
1981 EH ₁₂	1999 03 04.1	10 57.94 -01 32.1 18.6	-0.97 + 5.2	3.3/06.6	26917	1994 AT ₂	1999 03 05.7	11 03.81 -01 46.6 17.9	-0.83 + 5.1	2.4/08.2	34290
(10136)	1999 03 04.1	10 58.00 +15 18.0 16.3	-0.93 + 9.3	3.8/01.2	33890	(10088)	1999 03 05.8	11 04.11 +12 57.8 15.8	-0.93 + 6.2	3.2/03.6	33879
1979 MB ₅	1999 03 04.2	10 58.10 +03 11.5 19.3	-0.84 + 5.9	1.0/05.3	30778	(10411)	1999 03 05.8	11 04.14 -04 59.4 18.0	-0.98 + 5.5	4.0/09.1	34162
(8137)	1999 03 04.2	10 58.17 +09 22.5 18.6	-1.01 + 4.6	0.9/03.4	31072	(10299)	1999 03 05.8	11 04.38 -09 40.0 18.0	-0.82 + 5.1	4.3/11.0	34136
(8202)	1999 03 04.2	10 58.28 +10 11.4 16.5	-0.80 + 5.8	1.2/03.1	31087	1997 SJ ₁₁	1999 03 05.9	11 04.33 +09 12.6 19.6	-0.95 + 5.3	1.0/04.9	34297

1997 WQ ₅₄	1999 03 05.9	11 04.41 +08 57.1	17.4	-0.76	+	5.4	0.9/04.9	31424	1997 SF ₂₅	1999 03 07.1	11 09.09 +12 15.6	18.0	-1.02	+	3.9	2.4/05.2	34297
1999 CL ₁₃₅	1999 03 05.9	11 04.59 +04 50.1	19.4	-0.99	+	6.5	0.4/06.3	34258	(8073)	1999 03 07.1	11 09.14 -12 12.4	16.8	-0.98	+	2.8	5.9/12.5	30961
1951 RX	1999 03 05.9	11 04.66 +04 45.4	17.8	-1.08	+	4.5	0.4/06.3	34280	1997 WK ₂₁	1999 03 07.2	11 09.49 +01 37.8	17.3	-0.80	+	6.4	1.2/08.5	34299
1996 NW	1999 03 05.9	11 04.72 +01 30.8	18.7	-0.84	+	5.1	1.4/07.4	34294	1991 FK	1999 03 07.3	11 09.53 +17 45.1	15.8	-1.77	-	8.1	6.5/05.6	34286
1974 OU ₁	1999 03 06.0	11 04.70 +10 50.1	16.4	-0.89	+	2.2	1.5/04.6	34280	(10154)	1999 03 07.3	11 09.75 +08 37.2	16.8	-0.98	+	6.9	1.3/06.3	33894
1997 VY	1999 03 06.0	11 04.85 +01 14.3	19.9	-0.90	+	5.7	1.3/07.5	31148	1997 UL ₇	1999 03 07.3	11 09.75 +11 41.6	16.6	-0.92	+	6.8	2.5/05.3	34298
1986 QM ₁	1999 03 06.0	11 04.87 +09 27.6	19.0	-0.99	+	6.3	1.2/04.9	29655	1989 UA	1999 03 07.3	11 09.86 +22 10.9	16.7	-1.01	+	3.2	5.9/02.4	34284
1997 SV ₃	1999 03 06.0	11 04.88 +09 02.5	19.6	-0.90	+	3.8	0.9/05.1	31145	2026 T-2	1999 03 07.4	11 09.88 -01 23.6	18.3	-0.91	+	8.8	2.7/09.7	27927
1988 RX ₂	1999 03 06.0	11 05.01 +06 12.6	17.2	-0.85	+	5.5	0.1/06.0	34284	1990 QT ₇	1999 03 07.4	11 10.12 +04 16.6	17.9	-0.73	+	4.7	0.3/07.8	34178
1992 EV ₅	1999 03 06.1	11 05.07 +13 30.1	16.8	-0.92	+	9.2	3.1/03.5	34184	2167 T-2	1999 03 07.5	11 10.28 +01 03.9	19.5	-0.97	+	8.2	1.6/08.9	27564
1981 EQ ₁₇	1999 03 06.1	11 05.11 +03 01.8	17.6	-0.91	+	6.3	1.2/07.0	26918	(10408)	1999 03 07.5	11 10.43 +05 08.9	18.2	-0.76	+	5.0	0.0/07.6	34162
4101 T-2	1999 03 06.1	11 05.12 +08 43.3	17.3	-0.76	+	4.9	0.8/05.2	34339	1996 WV ₁	1999 03 07.5	11 10.53 -03 27.7	18.1	-0.60	+	4.7	2.0/10.6	34295
1991 QG	1999 03 06.1	11 05.29 +00 04.2	19.7	-0.70	+	5.2	1.3/08.1	30896	(10221)	1999 03 07.5	11 10.69 +17 45.3	17.0	-1.01	+	3.9	4.9/03.9	33911
(10315)	1999 03 06.1	11 05.35 -10 46.5	17.0	-0.84	+	17.3	6.3/13.0	34140	1981 EM ₄₅	1999 03 07.6	11 10.68 +00 18.9	19.0	-0.92	+	2.6	1.5/09.0	34282
1104 T-2	1999 03 06.1	11 05.35 +08 55.1	16.9	-1.04	+	4.7	1.3/05.3	34270	1992 QR	1999 03 07.6	11 11.04 +17 15.0	16.8	-0.99	+	20.6	4.9/02.9	34288
1999 DP ₁	1999 03 06.1	11 05.52 +31 38.7	17.0	-1.06	+	3.4	9.4/25.5	34333	(10283)	1999 03 07.7	11 11.20 +10 14.8	17.4	-0.97	+	5.9	1.7/06.2	34132
(8108)	1999 03 06.2	11 05.47 -00 24.0	17.4	-1.01	+	3.9	2.2/08.0	30968	1997 UV ₂	1999 03 07.7	11 11.31 +02 56.2	17.1	-0.85	+	5.2	0.9/08.5	34298
1997 VD ₅	1999 03 06.3	11 05.80 +03 58.6	19.3	-0.90	+	6.9	0.6/07.0	34298	1997 VW	1999 03 07.7	11 11.41 -14 43.9	15.7	-0.85	+	4.3	7.5/14.3	31423
1980 UF ₁	1999 03 06.3	11 06.25 +11 25.2	19.5	-1.08	+	3.7	2.0/04.8	31780	1999 DD ₇	1999 03 07.8	11 11.39 +11 03.2	18.0	-0.92	+	1.9	1.8/06.1	34261
1996 HC ₂	1999 03 06.4	11 06.24 +13 31.6	17.9	-1.03	+	8.2	3.0/03.9	34294	(8397)	1999 03 07.8	11 11.67 -15 36.0	16.6	-0.88	+	5.4	6.4/14.9	31365
4070 P-L	1999 03 06.4	11 06.40 +01 35.4	16.8	-0.91	+	4.4	1.7/07.7	34337	(10437)	1999 03 07.8	11 11.72 +03 39.0	19.1	-0.94	+	6.4	0.5/08.4	34168
6783 P-L	1999 03 06.4	11 06.54 +11 22.6	19.8	-0.87	+	4.2	1.7/04.8	21600	1998 EG ₉	1999 03 07.9	11 11.73 +11 07.4	16.7	-0.90	+	6.9	2.0/06.0	34301
1990 QB ₉	1999 03 06.4	11 06.61 +09 27.9	19.3	-0.94	+	8.4	1.3/05.3	23859	1981 EA ₂₂	1999 03 07.9	11 11.98 +03 54.1	17.8	-0.76	+	9.4	0.4/08.4	34281
(10392)	1999 03 06.5	11 06.55 -01 50.9	17.5	-0.93	+	5.5	2.5/08.8	34158	1995 FQ ₄	1999 03 07.9	11 12.02 +09 09.8	17.3	-0.91	+	5.5	1.3/06.7	34293
(10285)	1999 03 06.5	11 06.55 +12 41.1	16.9	-0.92	+	8.6	2.5/04.2	34132	1984 SR ₅	1999 03 07.9	11 12.08 +09 28.9	18.0	-0.75	+	3.7	1.1/06.6	28084
1996 VN ₅	1999 03 06.5	11 06.76 +08 53.1	17.9	-0.70	+	4.8	0.8/05.5	34295	(10323)	1999 03 07.9	11 12.12 +11 53.1	17.9	-0.99	+	6.5	2.3/05.9	34142
1999 CQ ₅₆	1999 03 06.5	11 06.85 +15 22.1	17.3	-0.79	+	8.1	4.2/03.2	34325	1999 CT ₁₀₁	1999 03 08.0	11 12.10 +14 44.4	17.0	-1.06	+	1.8	3.2/05.4	34255
1990 VF ₆	1999 03 06.5	11 06.86 +18 08.6	19.1	-0.95	+	7.3	4.2/02.5	27308	1988 BN ₄	1999 03 08.0	11 12.17 -08 40.0	16.7	-0.80	+	3.8	4.3/12.4	34283
1996 HN ₂₃	1999 03 06.6	11 06.92 +12 25.9	18.5	-1.01	+	6.7	2.5/04.5	30984	1979 MW ₁	1999 03 08.0	11 12.34 -02 06.6	18.4	-0.84	+	5.5	2.1/10.4	34281
2235 T-2	1999 03 06.6	11 06.98 +05 11.8	20.0	-0.70	+	4.8	0.1/06.8	34060	1997 WR ₁₁	1999 03 08.0	11 12.34 -02 07.9	17.5	-0.83	+	6.6	2.9/10.4	34299
1993 OA ₃	1999 03 06.6	11 07.15 -30 17.6	17.5	-1.12	+	1.0	11.1/17.4	31276	1997 VR ₃	1999 03 08.0	11 12.35 +03 50.8	18.5	-0.86	+	5.5	0.4/08.5	34210
1986 QO ₁	1999 03 06.6	11 07.23 +10 53.4	17.6	-0.79	+	5.7	1.5/05.0	19674	1996 TZ ₇	1999 03 08.0	11 12.43 +07 34.1	18.9	-0.77	+	4.3	0.7/07.3	34295
(10280)	1999 03 06.6	11 07.37 +04 54.8	18.8	-0.99	+	5.6	9.5/27.0	34131	1997 WU ₁₆	1999 03 08.1	11 12.58 -09 49.4	19.0	-0.91	+	6.0	4.4/13.0	31282
1988 RB ₆	1999 03 06.7	11 07.40 +06 35.6	18.6	-0.82	+	8.4	0.3/06.4	34284	(10327)	1999 03 08.1	11 12.76 +03 55.1	18.2	-0.92	+	7.5	0.4/08.5	34143
1978 SC ₅	1999 03 06.7	11 07.48 +09 15.6	18.9	-0.94	+	5.7	1.2/05.6	34280	1989 UW ₅	1999 03 08.1	11 12.78 +12 40.3	17.9	-0.95	+	5.1	2.6/05.9	34284
(10447)	1999 03 06.7	11 07.49 +07 19.8	17.0	-0.83	+	4.6	0.5/06.2	34171	(8067)	1999 03 08.2	11 13.01 +03 50.5	16.5	-1.03	+	1.6	0.4/08.6	30959
1997 YJ ₅	1999 03 06.8	11 07.70 -09 15.8	17.0	-0.76	+	2.3	3.8/11.4	34019	1981 EV ₄₂	1999 03 08.2	11 13.17 +08 23.7	19.6	-1.08	+	3.2	1.3/07.3	26922
1997 SQ ₃₂	1999 03 06.8	11 07.78 +06 18.2	18.2	-0.97	+	5.4	0.2/06.6	34297	1991 PT ₁₆	1999 03 08.2	11 13.18 +05 59.0	16.9	-0.78	+	5.6	0.3/08.0	34287
1989 WH ₃	1999 03 06.8	11 07.81 +07 08.5	17.7	-0.90	+	5.4	0.5/06.4	34285	(10443)	1999 03 08.2	11 13.26 -02 05.7	17.0	-0.92	+	8.5	2.5/10.7	34170
1997 VX ₈	1999 03 06.8	11 07.84 +27 50.6	17.1	-0.96	+	4.1	6.6/27.7	34210	1989 WJ	1999 03 08.2	11 13.26 +31 26.6	17.4	-1.02	+	3.1	9.4/27.8	34177
1981 ES ₁₇	1999 03 06.8	11 07.93 +02 16.8	18.6	-0.83	+	5.2	1.0/07.9	26918	(10380)	1999 03 08.3	11 13.24 +08 05.8	17.6	-0.80	+	5.8	1.0/07.3	34155
1996 GO ₁₈	1999 03 06.8	11 08.05 +00 59.1	18.2	-0.95	+	7.4	1.6/08.3	34293	(10260)	1999 03 08.3	11 13.48 -15 23.5	17.2	-0.88	+	5.8	6.5/15.3	34127
1996 PN	1999 03 06.9	11 08.13 +08 52.6	17.7	-1.47	-	3.3	1.4/06.3	34198	(10428)	1999 03 08.4	11 13.80 +01 03.7	17.7	-0.86	+	6.7	1.6/09.7	34166
1997 WL	1999 03 06.9	11 08.19 +18 19.3	17.7	-0.88	+	4.5	4.2/02.9	34299	1992 SB ₁₀	1999 03 08.5	11 14.25 +02 53.3	19.3	-0.80	+	7.0	0.7/09.2	34288
2234 T-1	1999 03 06.9	11 08.28 +18 13.5	17.0	-1.12	+	0.2	5.1/03.7	34338	(10051)	1999 03 08.6	11 14.37 +10 01.1	18.1	-0.95	+	14.4	1.8/06.8	33870
(10413)	1999 03 07.0	11 08.52 -03 58.5	17.2	-0.83	+	3.0	2.8/09.9	34163	1992 EL ₁₇	1999 03 08.6	11 14.41 +12 01.1	18.9	-0.97	+	7.1	2.7/06.3	24106
(10440)	1999 03 07.0	11 08.54 +13 00.9	17.9	-1.05	+	5.9	2.9/04.7	34169	1997 VV ₄	1999 03 08.6	11 14.43 +02 50.8	19.5	-0.86	+	6.0	0.6/09.3	31423
1997 WL ₂₃	1999 03 07.0	11 08.59 +09 44.4	18.8	-0.86	+	5.1	1.2/05.7	31282	(10367)	1999 03 08.7	11 14.69 +09 21.0	17.4	-0.99	+	5.6	1.7/07.3	34152
1997 RV ₂	1999 03 07.0	11 08.69 +03 10.7	17.1	-0.83	+	12.0	0.9/07.9	34296	1998 DZ ₂	1999 03 08.7	11 14.80 +29 54.1	16.6	-0.95	+	5.2	7.6/28.1	34217
1994 CV ₁₆	1999 03 07.1	11 08.89 +09 48.1	17.3	-0.80	+	5.5	1.4/05.7	34291	1995 DF ₈	1999 03 08.7	11 14.86 +06 06.2	19.2	-0.88	+	6.9	0.4/08.3	34012
1978 UX ₅	1999 03 07.1	11 08.95 -01 34.9	18.4	-0.99	+	7.4	2.8/09.4	34002	(10322)	1999 03 08.7	11 15.01 +03 03.3	17.8	-0.95	+	6.6	0.6/09.3	34141

(8189)	1999 03 08.7	11 15.12 +06 54.2 15.7	-0.75 + 5.3	0.7/08.1	31084
1994 XJ	1999 03 08.8	11 15.15 +18 22.4 16.6	-1.01 + 4.9	5.6/04.6	34292
(10329)	1999 03 08.8	11 15.26 +25 41.7 16.3	-1.10 + 0.0	8.5/03.1	34143
(10313)	1999 03 08.8	11 15.31 -02 08.1 17.7	-1.00 + 5.4	2.3/10.9	34139
(10226)	1999 03 08.9	11 15.62 -06 17.5 15.9	-0.93 + 4.7	4.2/12.0	33912
1997 UE ₉	1999 03 08.9	11 15.83 -04 01.4 17.9	-1.03 + 4.6	3.1/11.6	30990
1997 WR ₃₈	1999 03 08.9	11 15.86 -00 46.2 18.1	-1.01 + 5.3	2.0/10.6	34299
2056 T-2	1999 03 09.0	11 15.92 +05 13.2 18.3	-1.04 + 4.4	0.2/08.9	34338
1990 QX ₇	1999 03 09.0	11 16.11 +03 44.8 19.1	-0.72 + 4.2	0.2/09.4	34285
1981 ER ₂₆	1999 03 09.1	11 16.48 +09 08.2 17.0	-1.07 + 2.6	1.8/07.9	34173
(10316)	1999 03 09.1	11 16.48 +11 00.9 17.6	-0.76 + 4.0	1.6/07.1	34140
(10274)	1999 03 09.2	11 16.56 +05 52.3 17.2	-1.01 + 1.0	0.4/08.9	34130
2537 P-L	1999 03 09.3	11 16.94 +10 14.8 18.9	-0.98 + 4.8	1.8/07.6	31160
1997 XN ₁₂	1999 03 09.3	11 16.94 -02 08.3 18.9	-0.95 + 6.4	2.2/11.4	34019
(10282)	1999 03 09.4	11 17.33 +03 51.7 18.8	-0.85 + 4.7	0.2/09.6	34132
1990 VX ₄	1999 03 09.4	11 17.41 +26 57.2 17.4	-1.04 + 4.9	7.9/02.4	34286
1990 RQ ₈	1999 03 09.4	11 17.52 +05 14.0 19.0	-0.73 + 4.4	0.2/09.2	34006
1999 CL ₅	1999 03 09.5	11 17.91 +09 42.0 17.2	-1.04 + 1.5	1.7/08.2	34319
1985 RG ₃	1999 03 09.6	11 18.22 +12 33.5 18.6	-0.91 + 6.2	2.6/07.1	34282
2185 T-2	1999 03 09.6	11 18.22 +06 12.3 17.6	-0.76 + 4.4	0.5/09.1	31161
1976 UY	1999 03 09.6	11 18.27 -11 50.9 18.4	-0.84 + 6.1	4.8/15.2	34280
1999 BQ ₁₃	1999 03 09.6	11 18.38 +01 14.4 16.8	-1.09 + 3.6	1.4/10.6	34318
1996 OQ	1999 03 09.7	11 18.56 +02 09.8 18.1	-0.95 + 5.5	0.8/10.4	34294
(10407)	1999 03 09.7	11 18.69 +11 29.8 17.5	-0.99 + 7.0	2.5/07.5	34161
(8161)	1999 03 09.8	11 18.98 +07 57.7 18.5	-0.72 + 4.7	0.9/08.7	31078
1995 GQ ₂	1999 03 09.8	11 19.00 +09 57.0 20.1	-0.86 + 6.0	1.8/08.1	33248
1995 EU	1999 03 09.9	11 19.51 +08 45.4 17.3	-0.85 + 7.6	1.6/08.5	34195
2231 T-2	1999 03 10.0	11 19.49 +10 46.6 19.9	-0.90 + 3.4	1.9/08.1	34339
1997 TM ₁₉	1999 03 10.0	11 19.59 -00 32.8 19.0	-1.01 + 1.8	1.7/11.4	31146
(10398)	1999 03 10.0	11 19.69 +08 38.8 17.1	-1.04 + 6.5	1.6/08.7	34159
1997 WQ ₃₄	1999 03 10.0	11 19.77 +14 53.3 17.7	-0.95 + 6.3	3.6/06.6	34299
1999 CV ₅	1999 03 10.2	11 20.25 +11 40.0 16.5	-1.06 + 1.4	2.5/08.2	34236
1992 PN ₁	1999 03 10.2	11 20.53 -07 33.5 18.1	-0.92 + 3.1	3.5/13.8	34288
3175 T-2	1999 03 10.3	11 20.73 +11 07.4 19.1	-1.07 + 4.9	2.6/08.3	34339
4595 P-L	1999 03 10.3	11 20.74 +03 40.4 19.5	-0.91 + 6.7	0.2/10.5	34337
1997 WP ₃₂	1999 03 10.3	11 21.02 +05 26.9 17.0	-0.76 + 5.5	0.4/10.0	34212
(10261)	1999 03 10.4	11 20.97 -00 34.0 17.1	-0.98 + 3.7	1.5/11.8	34127
2779 P-L	1999 03 10.4	11 21.00 +07 38.1 18.5	-1.01 + 6.0	1.2/09.4	34337
(8410)	1999 03 10.4	11 21.00 +08 03.3 17.4	-0.72 + 4.7	1.0/09.1	31368
(10384)	1999 03 10.4	11 21.06 +13 09.7 17.6	-0.72 + 6.5	2.4/07.3	34156
(10396)	1999 03 10.5	11 21.47 +10 20.9 16.9	-0.80 + 3.9	1.9/08.6	34159
1999 CP ₅	1999 03 10.5	11 21.47 +10 26.3 18.1	-0.96 + 3.3	2.0/08.7	34235
1978 OP	1999 03 10.5	11 21.62 +23 59.5 18.4	-0.85 + 7.1	5.9/03.4	23245
(8380)	1999 03 10.5	11 21.66 -17 12.3 16.7	-0.87 + 3.4	6.1/17.4	31361
4371 T-1	1999 03 10.6	11 21.74 +05 47.3 18.1	-0.88 + 7.7	0.8/10.1	34270
(10399)	1999 03 10.6	11 21.81 -00 53.6 16.8	-0.91 + 6.8	1.8/12.2	34160
(10333)	1999 03 10.7	11 22.15 +09 29.5 17.3	-0.79 + 5.7	1.6/08.9	34144
(8437)	1999 03 10.7	11 22.21 +00 16.6 18.0	-0.88 + 6.1	1.4/11.9	31373
1990 SU ₈	1999 03 10.7	11 22.25 +07 05.6 17.6	-0.98 + 9.3	1.1/09.7	34285
2173 T-3	1999 03 10.7	11 22.26 -05 52.2 18.2	-0.94 + 8.8	3.7/14.1	34339
(8185)	1999 03 10.7	11 22.42 +09 05.3 16.6	-0.82 + 5.0	1.6/09.2	31083

(10197)	1999 03 10.7	11 22.49 +05 17.8 17.2	-0.82 + 4.7	0.4/10.4	33904
1981 EU ₃₃	1999 03 10.8	11 22.46 -04 40.8 18.1	-0.92 + 6.6	3.0/13.6	34281
1997 WD ₂	1999 03 10.8	11 22.53 +14 02.3 18.2	-0.95 + 6.1	3.0/07.6	34299
1998 YN ₉	1999 03 10.8	11 22.71 +01 22.5 16.0	-1.02 + 1.2	1.1/11.6	34313
1999 AY ₂₂	1999 03 10.8	11 22.78 -01 22.1 16.0	-0.96 + 4.9	2.4/12.5	34315
(8237)	1999 03 10.8	11 22.89 +11 21.5 18.0	-1.05 + 4.9	2.7/08.7	31094
1999 AH ₁₀	1999 03 11.0	11 23.37 +06 16.9 17.5	-0.78 + 5.8	0.7/10.3	34315
1997 WS ₁	1999 03 11.0	11 23.44 +07 30.9 20.6	-0.89 + 5.2	1.1/09.9	31019
1996 RO ₆	1999 03 11.0	11 23.51 +03 23.4 19.4	-0.78 + 4.7	0.2/11.3	34199
(10335)	1999 03 11.1	11 23.55 +00 50.6 18.0	-0.77 + 7.3	0.9/12.0	34145
(8223)	1999 03 11.1	11 23.57 +15 07.9 18.5	-0.80 + 6.2	3.0/07.3	31092
1989 TK ₁₆	1999 03 11.1	11 23.65 +03 35.0 17.8	-0.94 + 6.8	0.1/11.2	34284
1987 KG ₅	1999 03 11.1	11 23.85 +14 39.0 17.4	-0.82 + 9.9	3.4/07.2	34283
1993 OD ₅	1999 03 11.1	11 23.97 +04 09.9 18.5	-1.01 + 6.0	0.1/11.1	27311
1997 WO ₃₇	1999 03 11.2	11 24.00 +08 36.7 18.9	-0.91 + 6.2	1.5/09.7	31282
1993 TS ₃₆	1999 03 11.3	11 24.68 +28 26.2 17.1	-1.04 + 2.9	8.7/03.9	34290
1981 ET ₉	1999 03 11.5	11 25.16 -03 01.6 18.8	-0.98 + 4.5	2.9/13.6	22270
1996 GD ₂₁	1999 03 11.5	11 25.24 +02 54.6 17.9	-0.96 + 8.1	10.7/20.0	34293
1981 EO ₁₁	1999 03 11.6	11 25.43 +00 07.0 16.9	-0.90 + 5.0	1.7/12.7	34281
(9993)	1999 03 11.6	11 25.46 +04 54.7 16.4	-0.81 + 9.5	0.4/11.2	33669
6644 P-L	1999 03 11.6	11 25.54 +06 11.2 18.7	-0.88 + 7.5	0.8/10.8	34338
(10266)	1999 03 11.6	11 25.81 +03 03.9 18.0	-0.86 + 3.7	7.1/32.0	34128
(8105)	1999 03 11.7	11 25.94 +06 01.6 16.3	-0.92 + 8.9	1.0/10.9	30968
1997 WE ₃	1999 03 11.7	11 25.98 +02 25.0 18.5	-0.81 + 5.0	0.4/12.2	34211
1996 JF ₃	1999 03 11.7	11 26.14 +16 17.9 17.9	-1.01 + 5.4	4.4/07.8	34294
1994 BM ₄	1999 03 11.8	11 26.19 -08 36.7 16.9	-0.83 + 5.5	4.4/15.9	34291
(10297)	1999 03 11.8	11 26.21 +23 22.8 17.4	-1.05 + 2.1	6.8/05.9	34135
1997 WK ₃₇	1999 03 11.8	11 26.51 +04 42.3 19.2	-0.92 + 6.7	0.3/11.5	31121
2120 T-2	1999 03 11.9	11 26.60 +07 10.9 19.3	-1.04 + 4.8	1.3/10.9	34338
1992 RV	1999 03 11.9	11 26.60 +09 54.0 17.9	-0.89 + 3.5	1.9/10.0	30782
1997 VM ₇	1999 03 12.0	11 27.09 +11 43.4 17.5	-1.02 + 5.4	3.1/09.5	34299
1993 TT ₁₂	1999 03 12.1	11 27.37 +10 43.9 18.0	-0.98 + 6.0	2.5/09.9	34290
1999 BK ₁₃	1999 03 12.1	11 27.43 +05 35.6 17.3	-0.67 + 8.3	0.6/11.4	34231
(10139)	1999 03 12.1	11 27.49 +05 15.4 17.5	-0.96 + 5.9	0.7/11.6	33890
(8261)	1999 03 12.1	11 27.56 +03 49.9 17.7	-0.76 + 4.6	0.1/12.1	31210
6097 P-L	1999 03 12.1	11 27.64 +01 23.3 18.8	-0.95 + 5.9	0.7/12.8	34338
(8260)	1999 03 12.2	11 27.76 +07 56.7 16.7	-1.04 + 7.6	1.8/10.8	31210
1994 UO ₁	1999 03 12.2	11 27.81 +01 53.7 17.8	-1.01 + 7.1	0.6/12.7	34291
1997 VJ ₃	1999 03 12.2	11 27.98 -01 19.7 17.3	-0.83 + 6.0	1.5/13.9	31281
4409 T-1	1999 03 12.2	11 28.04 +08 04.1 17.4	-0.90 + 8.3	1.9/10.7	29668
1996 PN ₅	1999 03 12.2	11 28.04 +07 40.2 18.7	-0.83 + 5.3	1.3/10.9	34295
1999 BK ₁₅	1999 03 12.3	11 28.19 -00 44.0 16.6	-1.05 - 0.1	1.7/13.4	34318
1986 TB ₇	1999 03 12.4	11 28.46 -10 56.8 17.9	-0.75 + 5.0	3.8/17.3	21970
2127 T-1	1999 03 12.5	11 28.70 +05 51.4 17.2	-1.03 + 6.9	1.0/11.7	34268
1989 SR ₄	1999 03 12.5	11 28.80 +09 58.7 19.2	-0.94 + 4.8	2.2/10.5	24582
1993 RB ₇	1999 03 12.6	11 29.08 +00 10.6 17.6	-0.91 + 8.0	1.1/13.7	34290
6132 P-L	1999 03 12.6	11 29.38 +01 23.6 20.4	-0.93 + 5.9	0.6/13.3	30914
(8218)	1999 03 12.6	11 29.38 -00 35.2 17.8	-0.94 + 6.9	1.3/13.9	31090
1994 GT	1999 03 12.7	11 29.43 +09 24.1 16.2	-0.79 + 4.7	2.2/10.7	34291
1990 ST ₂	1999 03 12.7	11 29.64 +05 55.4 18.4	-0.99 + 5.9	0.9/11.9	34285
1997 WT ₃₇	1999 03 12.8	11 29.87 +03 12.0 17.1	-0.96 + 5.2	0.0/12.8	34299

4408 T-1	1999 03 12.8	11 30.00 +10 36.7 17.8	-0.99 + 5.6	2.5/10.6	34338	1995 FQ ₁₄	1999 03 14.5	11 36.29 +02 26.4 20.5	-0.79 + 8.4	0.0/14.6	34195
1997 SC ₃₄	1999 03 12.8	11 30.11 +24 19.5 18.1	-0.90 + 2.1	6.2/06.3	31012	1992 FK ₁	1999 03 14.5	11 36.34 -47 05.6 16.8	-1.07 - 2.5	23.0/06.0	21580
1992 DF ₁₀	1999 03 12.8	11 30.13 -02 39.5 17.6	-0.95 + 7.7	2.1/14.8	34288	(8142)	1999 03 14.5	11 36.36 +06 38.9 18.0	-0.94 + 5.5	1.3/13.3	31073
1997 VJ	1999 03 12.8	11 30.18 +38 39.3 18.4	-1.27 + 1.4	10.9/01.2	34209	1997 SU ₁₅	1999 03 14.5	11 36.37 +00 56.8 18.7	-0.92 + 5.6	0.5/15.1	31145
(8117)	1999 03 12.9	11 30.26 +11 57.2 17.4	-0.84 + 3.0	2.4/10.2	30970	4107 T-1	1999 03 14.6	11 36.42 +07 28.3 17.3	-0.83 + 2.6	1.5/13.1	31268
1996 UC ₃	1999 03 12.9	11 30.29 -01 28.5 19.0	-0.61 + 3.5	1.0/14.5	32055	1999 DF ₂	1999 03 14.7	11 36.79 -02 20.9 17.8	-0.81 + 6.4	1.5/16.3	34259
1997 VD ₆	1999 03 12.9	11 30.32 +20 39.7 17.0	-0.81 + 4.6	5.4/07.0	34298	1997 VF ₇	1999 03 14.8	11 37.17 -09 20.5 18.6	-0.77 + 6.2	3.7/18.9	31281
(10364)	1999 03 12.9	11 30.36 +00 41.5 17.5	-1.02 + 6.0	1.0/13.7	34151	(10308)	1999 03 14.9	11 37.53 +03 34.4 18.3	-0.95 + 7.4	0.4/14.5	34138
1988 BJ	1999 03 12.9	11 30.45 -37 08.3 17.0	-1.74 -10.1	20.5/20.3	34283	2209 T-1	1999 03 14.9	11 37.60 +06 51.9 18.3	-0.72 + 4.5	1.1/13.4	34338
1990 SB ₂	1999 03 12.9	11 30.49 +13 28.8 17.1	-0.92 +14.3	3.8/09.2	34285	1992 BM	1999 03 14.9	11 37.66 +01 31.4 17.0	-1.09 + 3.9	0.4/15.2	34288
1999 DK ₂	1999 03 12.9	11 30.64 +27 32.2 16.3	-1.10 + 0.6	9.2/05.8	34260	(10000)	1999 03 14.9	11 37.74 +04 31.8 19.8	-0.79 + 9.6	0.6/14.2	33858
1992 DA ₁₂	1999 03 13.0	11 30.79 +02 52.8 17.0	-0.93 + 6.2	0.1/13.1	34183	(10273)	1999 03 14.9	11 37.79 -01 02.8 17.4	-0.99 + 3.9	1.5/16.0	34130
(10439)	1999 03 13.0	11 30.94 +02 54.6 17.3	-0.80 + 4.7	0.1/13.2	34169	1999 CW ₄	1999 03 15.0	11 37.88 +01 42.5 16.5	-0.86 + 6.0	0.3/15.2	34235
1998 XN ₁₂	1999 03 13.1	11 30.94 +30 23.8 16.4	-0.97 + 3.3	10.3/03.7	34312	1985 CM ₁	1999 03 15.0	11 37.92 +08 49.2 16.1	-0.89 + 8.5	2.7/12.8	34282
2494 T-3	1999 03 13.1	11 31.04 -00 24.8 16.8	-1.01 + 4.3	1.6/14.2	34339	(8087)	1999 03 15.0	11 38.02 +29 16.6 16.7	-0.99 + 3.5	8.5/06.1	30964
1997 VA ₃	1999 03 13.2	11 31.63 -02 18.2 17.1	-0.99 + 5.9	2.1/14.9	34298	1999 CQ ₁₄₉	1999 03 15.0	11 38.12 +02 30.8 18.4	-0.77 + 5.8	0.0/15.0	34332
1989 GV ₁	1999 03 13.4	11 32.17 +01 36.2 17.4	-1.06 + 4.3	0.5/13.8	34284	(10330)	1999 03 15.0	11 38.19 +00 40.3 17.0	-0.89 + 5.8	0.6/15.6	34143
(9120)	1999 03 13.5	11 32.41 -05 49.4 17.4	-0.96 + 6.5	2.9/16.3	34280	2647 P-L	1999 03 15.1	11 38.25 +03 23.7 18.2	-0.96 + 5.6	0.4/14.8	34337
(8706)	1999 03 13.5	11 32.54 +12 52.3 17.0	-0.89 + 3.1	3.2/10.5	31688	1997 SC ₂	1999 03 15.1	11 38.53 -00 31.3 18.5	-0.90 + 6.9	1.0/16.1	34297
1997 UE ₁	1999 03 13.6	11 32.77 +09 15.6 19.5	-0.91 + 4.6	1.8/11.7	31146	(10305)	1999 03 15.1	11 38.55 +08 59.8 17.5	-0.85 + 6.7	2.1/12.9	34137
1992 TJ ₁	1999 03 13.6	11 32.78 +11 08.5 17.7	-0.79 + 8.7	2.4/10.7	34186	1979 MZ ₇	1999 03 15.1	11 38.64 +03 31.3 20.4	-0.94 + 7.2	0.4/14.8	30779
1997 WU ₂	1999 03 13.7	11 33.19 +39 09.1 17.7	-0.90 + 2.8	10.5/27.8	34211	(10037)	1999 03 15.1	11 38.68 +15 41.4 15.8	-1.01 + 3.7	5.5/11.1	33866
1996 OE ₂	1999 03 13.8	11 33.54 -18 02.7 17.7	-0.97 + 1.8	7.3/19.9	34294	1997 VT ₆	1999 03 15.2	11 38.72 +14 32.1 18.3	-0.70 +11.9	3.8/10.4	34210
1997 XL ₁₀	1999 03 13.8	11 33.67 +20 55.2 17.7	-0.83 + 4.0	5.2/07.9	34214	1981 EA ₃₄	1999 03 15.2	11 38.83 -06 00.1 18.7	-0.79 + 7.7	2.7/18.2	34281
1991 TF ₁	1999 03 13.9	11 34.05 +03 46.5 17.3	-0.67 + 9.5	0.3/13.6	34182	1996 TL ₁₅	1999 03 15.2	11 38.92 -14 36.8 16.7	-0.67 + 8.8	4.7/21.7	34295
1999 BN ₁₃	1999 03 13.9	11 34.10 +03 17.1 16.6	-0.87 + 7.2	0.2/13.8	34232	1986 TB	1999 03 15.3	11 39.04 +05 40.3 17.6	-1.09 + 2.5	1.1/14.4	34283
(8132)	1999 03 13.9	11 34.23 +28 02.2 15.7	-0.97 + 4.2	9.0/05.1	31071	1981 EU ₁₆	1999 03 15.3	11 39.30 -02 23.2 19.2	-1.02 + 3.9	2.0/17.0	26918
1996 QL	1999 03 13.9	11 34.24 -03 19.1 16.1	-0.90 + 3.0	2.6/15.8	34295	1997 UO ₇	1999 03 15.4	11 39.35 +02 37.6 19.0	-0.88 + 7.3	0.1/15.3	34298
1984 AJ ₁	1999 03 14.0	11 34.24 +01 21.4 16.0	-1.05 + 1.5	0.7/14.4	34174	1986 QG ₁	1999 03 15.4	11 39.39 +09 54.4 17.3	-0.93 + 7.2	3.0/12.9	34283
1993 RC ₂	1999 03 14.0	11 34.34 +07 33.8 18.5	-1.05 + 2.4	1.6/12.7	34290	1981 EK ₄₀	1999 03 15.4	11 39.54 +00 32.8 18.1	-0.80 + 6.5	0.5/16.0	34281
1997 VN	1999 03 14.1	11 34.59 +04 41.3 19.7	-0.81 + 6.2	0.6/13.5	31148	1978 SA ₈	1999 03 15.4	11 39.56 -00 25.1 18.1	-0.90 + 6.5	0.8/16.3	34280
3288 T-2	1999 03 14.1	11 34.78 +06 04.1 17.8	-0.77 + 4.8	1.1/13.0	34339	1994 TM ₂	1999 03 15.4	11 39.61 +07 30.2 16.6	-1.00 + 7.6	2.2/13.7	34291
2213 T-1	1999 03 14.1	11 34.94 +05 44.0 17.5	-0.79 + 3.1	0.8/13.2	34338	1996 PJ ₂	1999 03 15.4	11 39.62 -09 46.0 21.2	-0.95 + 2.7	3.7/19.0	30785
1991 FX ₂	1999 03 14.1	11 35.03 +13 00.0 17.2	-1.00 + 2.5	3.2/11.2	34286	1995 AJ	1999 03 15.4	11 39.66 -08 28.3 17.2	-1.03 + 5.1	3.8/18.7	34292
(10372)	1999 03 14.2	11 35.33 +12 25.4 16.5	-0.91 + 4.5	3.3/11.2	34153	1989 UN ₁	1999 03 15.5	11 39.78 -02 40.1 18.6	-0.87 + 6.8	1.5/17.1	34284
1981 EF ₂₂	1999 03 14.2	11 35.35 +00 38.5 18.1	-0.85 + 7.8	0.9/15.0	26919	1999 BM ₁₅	1999 03 15.5	11 40.10 +08 17.3 17.4	-0.77 +12.1	2.3/13.3	34232
1979 MC ₅	1999 03 14.2	11 35.37 +02 09.3 20.0	-0.93 + 7.5	0.2/14.5	34173	1997 QJ	1999 03 15.5	11 40.12 +03 36.4 19.6	-0.95 + 6.5	0.5/15.1	34296
(10412)	1999 03 14.3	11 35.44 +20 50.1 16.7	-0.85 + 3.5	5.8/08.4	34163	1997 BB ₁	1999 03 15.6	11 40.13 -15 33.1 16.3	-0.74 + 4.6	5.2/21.6	34296
1986 RJ ₄	1999 03 14.3	11 35.61 -16 57.5 17.8	-1.28 - 0.6	6.7/19.3	34283	1981 EK ₄₅	1999 03 15.6	11 40.21 -02 17.0 18.9	-1.01 + 4.0	1.6/16.9	34282
1997 PD ₃	1999 03 14.3	11 35.64 +04 58.3 18.2	-1.01 + 7.7	0.9/13.6	34202	1997 WK	1999 03 15.6	11 40.25 -01 01.1 16.6	-0.86 + 5.6	1.1/16.7	34299
1997 RS ₅	1999 03 14.4	11 35.69 +01 53.1 18.3	-0.97 + 7.1	0.3/14.6	34296	(10445)	1999 03 15.6	11 40.29 +08 55.0 17.9	-0.91 + 6.7	2.6/13.4	34170
(10401)	1999 03 14.4	11 35.76 +02 58.3 17.5	-0.84 + 5.6	0.1/14.3	34160	1994 LA ₁	1999 03 15.6	11 40.45 +23 37.3 18.2	-0.72 +12.2	6.5/06.6	34291
1988 XH ₁	1999 03 14.4	11 35.83 +24 40.7 17.1	-0.90 + 4.7	6.3/06.8	34284	1997 TX ₁₆	1999 03 15.7	11 40.49 +19 30.4 17.8	-1.02 + 2.7	6.5/10.4	31146
1990 QQ ₈	1999 03 14.4	11 35.86 +05 24.7 19.1	-0.73 + 4.4	0.7/13.5	30686	1997 WU ₂₁	1999 03 15.7	11 40.78 +17 10.5 17.3	-0.78 + 4.7	4.2/10.6	34299
1999 DM ₂	1999 03 14.4	11 35.93 +25 40.2 16.9	-0.92 + 2.8	7.0/07.1	34260	1990 SX ₅	1999 03 15.8	11 41.04 +05 36.9 18.8	-0.99 + 5.8	1.3/14.7	34285
1999 DP ₂	1999 03 14.4	11 35.95 +11 32.7 18.1	-1.03 + 6.6	3.3/11.7	34260	1998 DU ₂₀	1999 03 15.8	11 41.17 +02 49.7 18.7	-0.93 + 6.9	0.3/15.6	32315
1208 T-1	1999 03 14.4	11 36.09 -03 04.2 17.9	-0.93 + 7.4	2.1/16.3	34338	1997 WD ₃	1999 03 15.8	11 41.21 +07 24.4 16.9	-0.82 + 5.2	1.7/14.1	34299
1999 CM ₈	1999 03 14.5	11 36.12 +23 04.6 16.3	-1.04 + 2.2	6.4/08.4	34236	1988 CZ ₂	1999 03 15.9	11 41.30 +08 29.6 17.7	-0.82 + 7.7	3.0/13.7	34283
1999 DN ₂	1999 03 14.5	11 36.16 +12 49.6 17.1	-0.87 + 1.4	3.0/11.5	34333	(10374)	1999 03 15.9	11 41.38 -01 23.1 16.5	-0.99 + 8.1	1.3/17.0	34153
1997 WR ₄₁	1999 03 14.5	11 36.19 +00 45.4 18.9	-0.90 + 6.2	0.6/15.1	34299	1997 VX ₄	1999 03 15.9	11 41.47 +04 00.8 18.7	-0.80 + 5.1	0.6/15.3	31149
1993 RN ₉	1999 03 14.5	11 36.28 +00 57.4 18.9	-0.92 + 5.6	0.5/15.1	34190	1996 KN ₁	1999 03 15.9	11 41.50 +16 29.0 17.7	-1.00 + 6.2	5.7/11.2	34294

1989 TN	1999 03 16.0	11 41.56 +07 45.6 18.3	-0.93 + 6.3	1.9/14.1	24582	1999 BF ₆	1999 03 17.6	11 47.74 +02 54.8 18.6	-0.78 + 6.0	0.5/17.1	34317
1986 RQ	1999 03 16.0	11 41.62 -07 03.3 17.2	-0.91 + 8.4	3.1/19.1	34283	1997 WK ₃₅	1999 03 17.7	11 47.77 +00 46.9 17.1	-0.74 + 5.6	0.2/17.9	34299
1999 CD ₁₅₀	1999 03 16.0	11 41.72 +03 35.5 18.1	-0.93 + 6.9	0.5/15.5	34259	1997 UT ₂₄	1999 03 17.7	11 48.11 -02 17.9 19.8	-0.94 + 5.9	1.1/18.9	31148
1997 UO ₈	1999 03 16.0	11 41.72 +23 01.0 16.7	-1.08 + 1.0	7.6/10.0	34207	1992 RC ₆	1999 03 17.8	11 48.32 +04 11.6 18.6	-0.89 + 6.2	1.0/16.9	28615
1992 CJ ₃	1999 03 16.0	11 41.99 +02 06.4 17.4	-0.95 + 8.6	0.1/16.0	34288	1973 SP ₄	1999 03 17.8	11 48.38 +00 29.2 17.5	-0.97 + 3.5	0.2/18.1	34280
1988 DK	1999 03 16.1	11 42.13 -08 37.1 17.1	-0.71 + 7.4	3.6/20.0	34283	1999 BN ₁₅	1999 03 17.8	11 48.47 +07 15.7 16.6	-0.78 +12.2	2.6/15.6	34318
(8065)	1999 03 16.1	11 42.19 +06 31.6 16.2	-0.93 + 7.7	2.0/14.6	30959	1991 RJ ₄	1999 03 18.0	11 49.04 +00 20.4 18.4	-0.84 + 2.9	0.3/18.3	34287
1997 ST ₂₀	1999 03 16.1	11 42.25 +13 41.3 19.8	-1.04 + 0.9	4.4/13.0	31012	1997 SL ₃	1999 03 18.1	11 49.31 +00 09.5 19.7	-1.06 + 4.5	0.4/18.4	34297
(10307)	1999 03 16.2	11 42.36 +03 13.6 17.7	-0.99 + 6.2	0.5/15.8	34138	1997 YS ₃	1999 03 18.2	11 49.69 -08 44.4 17.6	-0.89 + 5.7	3.1/21.5	31255
1981 EA ₉	1999 03 16.2	11 42.48 -02 37.2 19.4	-0.99 + 4.4	1.4/17.6	34281	(8210)	1999 03 18.2	11 49.88 +05 17.4 15.8	-1.02 + 2.7	1.7/17.1	31089
(8472)	1999 03 16.2	11 42.54 -12 31.5 17.6	-0.80 + 6.4	4.0/21.2	31489	1999 BP ₅	1999 03 18.3	11 50.15 +00 16.4 16.6	-0.85 + 9.0	0.3/18.6	34317
1990 UY ₄	1999 03 16.3	11 42.65 +12 30.0 20.2	-0.97 + 6.1	3.5/12.9	33225	1997 XV	1999 03 18.3	11 50.21 +00 15.2 17.3	-0.85 + 3.7	0.3/18.6	34300
1986 RG ₃	1999 03 16.3	11 42.76 +04 29.0 18.1	-0.93 + 9.0	0.9/15.4	34283	1997 WO ₂₁	1999 03 18.4	11 50.35 -22 26.7 17.1	-0.76 + 5.7	6.6/27.2	30999
1997 YX ₁₅	1999 03 16.3	11 43.00 -19 19.3 17.2	-0.85 + 2.2	6.3/23.0	34300	1992 UO ₆	1999 03 18.4	11 50.44 +14 03.2 18.4	-0.80 + 5.2	3.5/14.1	31103
1992 GM ₄	1999 03 16.3	11 43.08 -04 00.1 17.6	-0.89 + 7.3	2.0/18.3	34288	1984 YY ₁	1999 03 18.4	11 50.47 +02 20.6 18.6	-1.03 + 5.6	0.5/18.0	34282
1996 UC	1999 03 16.4	11 43.16 +06 08.8 18.7	-0.71 + 4.6	1.0/15.0	34295	1997 VD ₂	1999 03 18.4	11 50.48 -00 28.2 18.3	-0.91 + 5.0	0.5/18.9	31281
1992 UW ₄	1999 03 16.4	11 43.18 -31 55.1 18.2	-1.08 +10.7	13.9/29.8	31232	1990 UH ₁	1999 03 18.4	11 50.49 +17 16.4 17.6	-0.98 + 5.7	5.5/13.2	34286
(8160)	1999 03 16.4	11 43.22 +08 27.5 17.0	-1.03 + 6.9	2.5/14.3	34279	4109 T-1	1999 03 18.4	11 50.50 +04 17.8 17.3	-0.74 + 4.8	0.9/17.4	34338
(8385)	1999 03 16.4	11 43.41 +05 56.4 16.9	-0.76 + 5.2	1.3/15.1	31362	1990 BA ₁	1999 03 18.4	11 50.65 +04 07.8 17.0	-1.03 + 1.1	1.1/17.6	34177
(8140)	1999 03 16.4	11 43.43 -06 04.2 17.7	-0.80 + 6.7	2.5/19.2	31073	(10268)	1999 03 18.4	11 50.71 +00 16.3 16.1	-0.98 + 6.3	0.3/18.7	34128
1990 MC	1999 03 16.6	11 43.91 -04 32.2 17.5	-0.76 + 7.8	1.7/18.8	34285	(10303)	1999 03 18.5	11 50.70 +01 50.7 18.0	-0.91 + 6.8	0.3/18.2	34137
1981 EA ₂₉	1999 03 16.6	11 44.13 -02 24.6 18.8	-0.79 + 7.3	1.2/18.1	22697	1997 TE	1999 03 18.5	11 50.86 +09 33.7 17.5	-0.98 + 3.0	2.9/16.0	34205
1992 OW	1999 03 16.7	11 44.18 +19 22.8 20.0	-0.92 + 3.5	4.8/11.1	30782	1997 WC ₃₁	1999 03 18.5	11 50.87 -00 18.3 19.2	-0.99 + 7.3	0.4/19.0	34019
1983 RG ₂	1999 03 16.7	11 44.30 +12 15.2 18.0	-0.99 + 5.6	3.5/13.4	34282	1990 SQ ₅	1999 03 18.5	11 51.08 +07 52.7 17.7	-0.90 + 7.7	2.9/16.3	32923
1999 AF ₂₅	1999 03 16.7	11 44.31 +01 47.5 17.1	-1.06 + 4.7	9.3/25.0	34316	1997 WE ₁₁	1999 03 18.6	11 51.11 +03 50.7 21.1	-0.95 + 5.6	0.9/17.7	31021
1978 UK ₇	1999 03 16.7	11 44.36 +00 27.2 18.1	-0.91 + 6.5	0.4/17.2	34280	1999 AA ₂₅	1999 03 18.6	11 51.17 +06 02.5 17.3	-0.89 + 9.7	2.2/16.8	34316
1997 UK ₁	1999 03 16.7	11 44.49 +07 52.8 18.6	-0.94 + 3.8	2.2/14.9	34298	(10312)	1999 03 18.6	11 51.22 +03 34.2 17.3	-1.00 + 7.1	1.1/17.8	34139
1999 CX ₁₄	1999 03 16.8	11 44.58 +00 34.9 16.6	-1.02 + 4.7	0.4/17.1	34238	9535 P-L	1999 03 18.7	11 51.59 +02 37.3 18.2	-0.78 + 7.2	0.5/18.2	34338
(10360)	1999 03 16.8	11 44.64 +01 42.2 17.8	-0.91 + 6.5	8.0/25.0	34150	1988 RM ₅	1999 03 18.7	11 51.74 +08 03.8 17.5	-0.78 +10.1	2.3/16.1	34284
1990 RG ₂	1999 03 16.8	11 44.76 -00 55.6 17.8	-0.67 + 6.1	0.6/17.8	23671	1989 SM ₈	1999 03 18.8	11 52.08 +02 31.6 18.3	-0.93 + 5.5	0.5/18.3	20505
1990 SZ ₄	1999 03 17.0	11 45.20 +04 40.6 18.7	-0.75 + 4.6	0.8/16.0	25529	1990 RO ₂	1999 03 18.8	11 52.16 -04 49.5 17.4	-1.05 + 4.9	2.4/20.6	34285
1996 OB ₁	1999 03 17.0	11 45.28 +04 02.7 20.1	-0.94 + 7.2	0.9/16.2	34294	1997 VW ₄	1999 03 18.9	11 52.17 +23 35.9 16.8	-1.06 + 0.7	9.1/12.1	34298
1999 CY ₁₄	1999 03 17.0	11 45.35 +04 46.1 17.7	-0.79 + 6.6	1.1/16.0	34238	1997 VA	1999 03 18.9	11 52.20 -04 16.7 19.1	-0.89 + 6.3	1.6/20.6	34298
1997 VY ₆	1999 03 17.0	11 45.36 -00 01.0 19.5	-0.83 + 5.5	0.5/17.6	34299	1997 VG ₄	1999 03 18.9	11 52.51 +03 07.5 16.8	-0.73 + 5.4	0.8/18.2	34298
(8088)	1999 03 17.0	11 45.37 +02 17.3 17.2	-0.94 + 7.5	0.2/16.8	30964	1999 CV ₁₄	1999 03 18.9	11 52.55 +03 50.8 17.3	-0.67 +10.1	0.9/17.8	34238
1997 VP ₁	1999 03 17.1	11 45.63 +03 01.4 17.7	-0.87 + 5.7	0.5/16.6	34209	1979 MT ₁	1999 03 19.0	11 52.71 +06 41.2 18.8	-0.94 + 7.2	2.0/17.1	31375
1979 MG ₃	1999 03 17.1	11 45.96 -11 46.3 18.2	-0.77 + 4.3	3.7/21.6	30778	1989 TP ₁₁	1999 03 19.1	11 52.98 -00 34.0 17.4	-0.89 + 7.0	0.4/19.6	34284
6196 P-L	1999 03 17.2	11 45.97 -02 38.6 18.1	-0.72 + 7.5	1.2/18.7	28312	(8235)	1999 03 19.1	11 53.27 -01 14.7 17.8	-0.91 + 7.1	0.7/19.8	34279
1990 WH ₄	1999 03 17.2	11 45.99 +25 03.5 17.2	-0.95 + 3.7	10.4/09.1	34180	1981 EE ₂₁	1999 03 19.2	11 53.24 -00 18.9 18.7	-0.77 + 8.3	0.3/19.6	26919
1990 FM	1999 03 17.2	11 46.23 +35 24.0 16.3	-0.98 + 4.9	12.8/02.8	34178	3163 T-2	1999 03 19.2	11 53.48 +06 37.6 18.0	-0.76 + 4.6	2.0/17.3	34339
(10430)	1999 03 17.3	11 46.47 -02 35.3 17.8	-0.83 + 5.0	1.2/18.6	34167	1990 SZ ₅	1999 03 19.2	11 53.51 +04 53.5 17.6	-0.67 + 8.8	1.2/17.7	34179
1997 TY ₁₁	1999 03 17.4	11 46.74 +04 09.8 18.1	-0.99 + 7.2	0.9/16.5	34297	1999 CH ₁₀	1999 03 19.3	11 53.75 +08 11.5 17.3	-0.94 + 5.8	2.7/16.9	34237
(10425)	1999 03 17.4	11 46.86 +03 03.7 17.3	-0.86 + 6.7	0.6/16.9	34166	1997 WS ₂₀	1999 03 19.4	11 54.09 +10 13.6 19.0	-0.99 + 6.0	3.3/16.4	31119
1990 RJ ₃	1999 03 17.4	11 46.93 +00 30.9 17.8	-1.08 + 3.7	0.4/17.7	34285	1994 CV	1999 03 19.4	11 54.16 +00 03.0 18.3	-0.85 + 6.8	0.2/19.6	34291
1992 SV ₂₄	1999 03 17.4	11 47.08 -06 16.3 18.8	-0.79 + 6.1	2.1/20.1	34186	1992 RM ₂	1999 03 19.5	11 54.72 -07 14.5 18.1	-1.01 + 2.1	2.5/21.8	34288
1996 HU ₂₄	1999 03 17.5	11 47.32 +13 56.4 17.3	-1.05 + 4.2	5.0/13.8	31009	1992 GN ₃	1999 03 19.6	11 54.72 +01 09.3 18.2	-1.01 + 5.6	0.2/19.4	34288
1979 QD ₂	1999 03 17.6	11 47.42 +02 22.6 20.0	-0.73 + 4.6	0.3/17.3	34281	4667 P-L	1999 03 19.6	11 54.88 +06 13.0 18.6	-0.87 + 4.1	1.6/17.9	34338
(10271)	1999 03 17.6	11 47.55 +03 24.4 17.9	-1.06 + 4.5	0.7/17.0	34129	1997 UA ₂₂	1999 03 19.8	11 55.48 +09 44.5 17.8	-0.95 + 6.7	3.0/16.8	31796
1984 SY ₅	1999 03 17.6	11 47.56 +04 22.1 18.2	-0.69 + 4.7	0.7/16.6	34282	1997 TL ₁₇	1999 03 19.8	11 55.76 -15 08.5 18.6	-0.86 + 7.6	5.1/25.4	34297
1997 RA ₉	1999 03 17.6	11 47.64 +00 51.9 17.8	-0.92 + 8.6	0.2/17.8	34296	1985 VL	1999 03 19.9	11 55.86 -10 28.5 16.7	-0.68 + 7.9	3.1/23.9	34282
1981 EZ ₂₀	1999 03 17.6	11 47.68 +00 04.9 18.6	-0.83 + 5.7	0.4/18.1	26919	1981 EG ₄	1999 03 19.9	11 56.00 -09 55.3 18.9	-0.97 + 5.4	3.7/23.2	26915

4137 T-3	1999 03 20.0	11 56.17 +06 36.6 19.7	-0.78 + 5.3	1.7/17.9	33062	1993 OG ₉	1999 03 21.2	12 00.93 +14 38.8 17.6	-0.92 + 8.0	5.5/16.3	24913
1990 QW ₄	1999 03 20.0	11 56.30 +13 23.0 16.8	-0.93 + 7.9	5.0/15.6	34178	1988 VS ₆	1999 03 21.3	12 01.28 -03 26.3 19.0	-0.60 + 4.6	0.7/22.5	34284
1992 RK ₇	1999 03 20.0	11 56.31 +07 51.3 17.5	-0.84 + 6.3	2.6/17.5	34288	(10353)	1999 03 21.4	12 01.38 +05 03.7 16.4	-0.79 + 4.9	1.6/19.7	34149
1979 ME ₄	1999 03 20.0	11 56.46 +20 05.6 18.5	-0.84 + 6.7	5.7/13.1	30778	1993 OJ ₇	1999 03 21.5	12 01.65 -09 58.3 17.5	-1.01 + 5.0	3.7/24.5	34289
4348 T-1	1999 03 20.0	11 56.59 +08 32.9 17.7	-0.81 + 3.0	2.8/17.5	34338	(10281)	1999 03 21.5	12 01.78 +03 36.7 17.4	-0.96 + 2.1	1.3/20.4	34132
3266 T-1	1999 03 20.1	11 56.74 +00 28.5 17.7	-0.76 + 4.6	0.0/20.1	34338	1978 SP ₅	1999 03 21.6	12 02.13 -00 52.3 17.5	-0.79 + 6.3	0.2/21.8	34280
1997 WC ₂₁	1999 03 20.1	11 56.93 -06 16.9 18.7	-0.90 + 5.0	2.0/22.3	31282	1999 ES ₄	1999 03 21.6	12 02.22 -03 44.8 16.7	-0.96 + 2.6	1.1/22.7	34262
1979 MB ₉	1999 03 20.2	11 56.92 +00 40.8 18.3	-0.74 + 5.2	0.1/20.1	34281	1997 VE ₇	1999 03 21.6	12 02.37 -10 02.6 16.5	-0.87 + 6.3	4.2/25.0	34299
1997 SX ₂₁	1999 03 20.2	11 56.94 -00 14.4 18.2	-0.97 + 7.1	0.2/20.4	34297	(8353)	1999 03 21.7	12 02.38 -02 05.0 17.0	-0.79 + 5.1	0.6/22.3	31355
1997 VF ₃	1999 03 20.2	11 57.05 +09 35.0 19.2	-0.99 + 5.8	3.1/17.3	31149	1993 OY ₃	1999 03 21.7	12 02.46 +03 43.7 18.0	-0.94 + 7.2	1.6/20.4	34189
1999 DU ₃	1999 03 20.2	11 57.07 +04 17.9 17.8	-0.74 + 5.2	1.4/18.9	34261	1990 TO	1999 03 21.7	12 02.53 +08 55.3 17.7	-0.99 + 5.6	3.1/18.8	34286
1997 WP ₇	1999 03 20.2	11 57.11 -00 14.4 18.5	-1.02 + 6.4	0.2/20.4	34212	1997 CT ₁	1999 03 21.9	12 03.13 -04 06.2 19.3	-0.55 + 3.6	0.7/23.2	31423
1996 HJ ₂₃	1999 03 20.2	11 57.14 +03 17.8 18.5	-0.92 + 6.7	0.9/19.3	28088	1996 QQ ₁	1999 03 21.9	12 03.18 +02 40.4 18.5	-0.71 + 4.8	0.7/20.9	34295
1997 XH ₁	1999 03 20.3	11 57.62 +00 54.6 20.1	-0.93 + 5.3	0.2/20.2	31124	2020 P-L	1999 03 21.9	12 03.25 -03 04.6 18.6	-0.93 + 4.5	0.9/22.8	34337
1998 AU ₃	1999 03 20.3	11 57.66 +04 28.2 18.1	-0.71 + 4.7	1.1/19.0	34300	1993 RR	1999 03 22.0	12 03.70 +00 16.8 20.1	-0.95 + 4.2	0.2/21.8	30897
1996 PH ₁	1999 03 20.4	11 57.63 +04 08.2 19.2	-0.87 + 6.5	1.4/19.1	34198	(10344)	1999 03 22.1	12 04.07 +05 00.4 17.1	-0.92 + 7.9	2.2/20.3	34147
1991 AQ ₂	1999 03 20.4	11 57.72 +00 07.3 17.6	-0.92 + 6.0	0.1/20.5	34286	1989 SY ₃	1999 03 22.1	12 04.08 +05 12.5 19.3	-0.94 + 6.6	2.0/20.3	27710
1997 WD ₂₁	1999 03 20.4	11 57.72 -18 32.4 19.0	-0.83 + 6.5	5.6/27.1	31282	4627 P-L	1999 03 22.1	12 04.12 +01 40.6 20.2	-0.94 + 5.6	0.7/21.5	24909
1980 WE ₅	1999 03 20.4	11 57.72 -15 52.4 17.1	-0.71 + 6.5	4.4/26.3	34281	(10444)	1999 03 22.2	12 04.61 +04 50.0 17.9	-0.78 + 3.4	1.6/20.6	34170
1999 CN ₈	1999 03 20.4	11 57.85 +26 31.2 17.0	-0.89 + 5.3	9.5/11.0	34236	(10111)	1999 03 22.3	12 04.85 +16 21.1 16.2	-0.80 + 9.6	5.9/16.0	33884
1997 VS	1999 03 20.4	11 57.85 +05 52.5 18.8	-0.93 + 5.9	1.8/18.7	34298	1997 UX ₇	1999 03 22.3	12 04.89 -08 49.4 17.4	-0.81 + 7.2	2.7/25.3	34298
1997 UY ₇	1999 03 20.4	11 58.02 -01 26.0 19.7	-0.94 + 6.0	0.5/21.0	31015	1997 RK ₉	1999 03 22.3	12 04.89 -03 57.6 17.6	-1.03 + 3.3	1.4/23.4	34203
1996 SK ₆	1999 03 20.5	11 57.98 -02 35.0 19.5	-0.67 + 5.3	0.6/21.5	31278	1220 T-2	1999 03 22.3	12 04.93 -00 58.0 19.3	-0.72 + 4.7	0.1/22.5	30285
1987 QG ₁₀	1999 03 20.5	11 58.04 +06 38.4 17.2	-0.99 + 7.3	2.3/18.4	34283	1997 QN	1999 03 22.4	12 04.96 -09 15.7 18.2	-0.96 + 6.6	3.2/25.2	31280
1997 VZ ₁	1999 03 20.5	11 58.15 -09 24.9 18.3	-0.89 + 6.4	3.2/23.7	31281	1991 YY	1999 03 22.4	12 05.03 -03 27.6 17.5	-0.97 + 8.1	1.2/23.4	27308
1996 RW ₁₀	1999 03 20.5	11 58.17 +01 28.4 21.4	-0.90 + 5.3	0.4/20.1	32953	1997 YR ₃	1999 03 22.4	12 05.09 -26 22.6 17.0	-0.81 + 6.6	8.1/01.5	34300
(8124)	1999 03 20.5	11 58.30 +05 20.1 18.9	-1.02 + 7.0	2.1/18.9	30972	1993 VS	1999 03 22.5	12 05.39 +01 29.5 18.8	-0.88 + 6.0	0.7/21.9	34290
1986 TZ ₃	1999 03 20.5	11 58.35 +06 27.5 17.2	-1.03 + 6.0	2.4/18.6	34283	(8077)	1999 03 22.5	12 05.67 +22 51.1 15.4	-0.65 +12.0	9.5/12.3	30962
(10326)	1999 03 20.6	11 58.35 +02 31.9 16.9	-0.93 + 7.1	0.9/19.8	34142	1995 SO ₃	1999 03 22.5	12 05.70 -19 34.6 17.3	-0.90 + 2.3	6.4/28.3	25966
1981 EE ₁₄	1999 03 20.6	11 58.40 -05 54.9 18.2	-0.90 + 8.1	2.2/22.7	34281	1997 UT ₂₀	1999 03 22.6	12 05.69 +10 53.3 17.0	-1.01 + 3.0	4.5/19.2	31281
1999 BG ₆	1999 03 20.6	11 58.53 +08 50.6 17.7	-0.76 +12.1	3.5/17.3	34231	1990 WV ₁	1999 03 22.6	12 05.77 +06 59.7 17.6	-0.89 + 7.7	3.0/20.0	34286
(10234)	1999 03 20.6	11 58.61 +11 53.9 16.7	-0.73 + 6.7	3.3/16.5	33914	1981 EL ₂₂	1999 03 22.6	12 05.83 -02 41.6 19.6	-1.00 + 2.0	1.0/23.2	26919
1999 BO ₆	1999 03 20.6	11 58.63 +00 23.4 18.7	-1.05 + 4.3	0.1/20.6	34317	(10368)	1999 03 22.6	12 05.93 -04 06.0 17.3	-1.05 + 2.7	1.2/23.6	34152
1996 VO ₂₇	1999 03 20.6	11 58.67 +00 53.3 20.4	-0.72 + 4.9	0.2/20.4	33255	1981 EF ₄	1999 03 22.6	12 05.94 -13 12.4 17.2	-0.88 + 6.7	5.6/26.9	26915
(8131)	1999 03 20.6	11 58.68 -03 05.9 17.1	-0.92 + 3.9	1.0/21.7	31071	(10366)	1999 03 22.6	12 06.06 +01 55.7 16.6	-0.95 + 8.4	1.0/21.8	34152
1996 KG	1999 03 20.7	11 58.73 -01 07.7 17.1	-0.93 + 7.8	0.5/21.1	34197	1997 WT ₂₁	1999 03 22.7	12 06.05 +03 43.7 18.1	-0.81 + 4.8	1.3/21.3	34299
1997 YY ₅	1999 03 20.7	11 58.75 -11 25.9 16.0	-0.82 + 3.2	3.3/24.3	34300	1995 FB ₁₄	1999 03 22.7	12 06.09 -01 08.3 19.6	-0.86 + 5.7	0.1/22.9	25334
4899 P-L	1999 03 20.7	11 59.03 +00 24.2 20.8	-0.80 + 6.1	0.1/20.7	34266	(10300)	1999 03 22.7	12 06.16 +03 42.4 16.5	-0.85 + 9.6	1.9/21.2	34136
1993 RZ ₃	1999 03 20.8	11 59.13 -02 05.8 16.9	-1.02 + 3.9	1.0/21.5	34290	1997 UE	1999 03 22.7	12 06.16 -00 43.8 18.6	-0.93 + 6.3	0.0/22.8	34297
1982 YR ₁	1999 03 20.8	11 59.16 +01 28.2 18.1	-0.99 + 4.2	0.5/20.4	34282	1992 YL ₂	1999 03 22.7	12 06.37 +17 53.3 17.1	-0.79 + 4.7	5.7/16.4	34289
2251 T-1	1999 03 20.8	11 59.17 +01 56.6 18.0	-0.85 + 4.2	0.6/20.2	34338	1997 SX ₁	1999 03 22.7	12 06.40 -04 15.7 17.3	-0.83 + 7.2	1.3/24.0	34297
(10301)	1999 03 20.8	11 59.38 +05 47.1 16.7	-0.96 + 6.1	2.5/19.0	34136	4285 P-L	1999 03 22.8	12 06.49 -04 03.0 19.8	-0.84 + 2.9	1.0/23.9	33324
(10388)	1999 03 20.8	11 59.42 +24 32.2 16.8	-0.81 + 2.8	6.3/12.4	34157	(10386)	1999 03 22.8	12 06.57 +21 02.3 17.2	-0.90 + 0.8	5.7/16.1	34156
1997 WT ₃₉	1999 03 20.9	11 59.45 +10 33.1 18.8	-0.77 + 5.0	3.1/17.4	31122	(10350)	1999 03 22.8	12 06.68 +05 59.7 17.6	-0.83 + 6.5	2.2/20.6	34148
1992 PC ₂	1999 03 20.9	11 59.55 -07 32.3 17.5	-0.85 + 7.6	2.6/23.5	34186	1997 YF ₂	1999 03 22.9	12 07.02 +14 32.8 17.9	-0.74 + 5.3	4.1/17.6	31254
1988 RB ₁₂	1999 03 20.9	11 59.76 -01 23.9 18.7	-0.91 + 4.5	0.4/21.4	34284	(8180)	1999 03 22.9	12 07.16 -24 35.9 15.9	-0.95 + 3.5	7.7/30.9	31082
1998 BB ₁₉	1999 03 21.0	11 59.81 +01 44.7 17.3	-0.77 + 3.1	0.4/20.5	34216	1993 BE ₂	1999 03 23.0	12 07.36 +17 24.2 17.1	-0.77 + 4.8	4.9/16.7	34289
1981 SN	1999 03 21.0	12 00.03 -04 57.4 18.1	-0.86 + 6.9	1.6/22.7	34282	1997 YW ₁₆	1999 03 23.0	12 07.40 +22 25.2 19.4	-0.74 + 4.6	5.5/14.8	34215
1993 TD	1999 03 21.0	12 00.04 +01 35.3 18.4	-1.01 + 2.9	0.5/20.6	34290	1997 UA ₉	1999 03 23.1	12 07.47 +16 40.8 16.1	-0.97 + 3.0	6.4/17.7	34298
(8181)	1999 03 21.1	12 00.41 -08 25.1 16.6	-0.84 + 5.0	2.6/23.9	31082	1999 DQ ₃	1999 03 23.2	12 07.88 +23 06.7 16.4	-0.87 + 5.1	9.1/14.6	34260
1999 EA ₃	1999 03 21.1	12 00.57 +02 59.0 17.1	-0.88 + 1.1	0.9/20.3	34262	1997 WQ ₂₁	1999 03 23.2	12 08.03 -22 45.4 16.4	-0.98 + 3.9	8.1/30.1	31119

4110 P-L	1999 03 23.2	12 08.07	-02 15.4	17.9	-0.96	+	7.7	0.5/23.7	34337	1990 ST ₆	1999 03 25.0	12 14.76	+05 15.0	18.8	-0.73	+	5.0	1.8/22.8	31417
(8135)	1999 03 23.2	12 08.12	+05 57.0	17.2	-0.92	+	5.7	2.4/21.1	31072	2370 T-3	1999 03 25.1	12 14.82	-09 20.6	18.0	-0.78	+	6.7	2.3/27.8	34339
1978 XU	1999 03 23.3	12 08.23	-07 09.4	17.8	-0.87	+	7.5	2.0/25.4	34280	1981 EL ₂₁	1999 03 25.1	12 14.94	-03 10.6	17.5	-0.81	+	5.9	0.5/25.7	34281
1107 T-2	1999 03 23.3	12 08.28	-04 30.2	18.4	-0.83	+	5.3	1.1/24.5	34338	1996 SK ₇	1999 03 25.1	12 14.98	+07 42.2	18.8	-1.00	+	2.2	2.8/22.4	28864
1996 NS ₃	1999 03 23.3	12 08.52	+02 12.6	18.2	-0.87	+	6.4	1.1/22.3	34294	1981 EK ₁₆	1999 03 25.2	12 15.11	-07 08.2	19.0	-1.04	+	2.8	2.3/26.8	26918
(10382)	1999 03 23.4	12 08.63	+00 23.6	17.6	-1.00	+	4.3	0.5/23.0	34155	1992 JF ₃	1999 03 25.2	12 15.43	-02 34.7	14.9	-0.99	+	4.9	0.4/25.5	34288
1997 WM ₂₄	1999 03 23.4	12 08.75	+04 41.3	18.4	-1.02	+	4.6	2.0/21.8	34212	1997 RA ₁₀	1999 03 25.3	12 15.70	+03 06.2	17.6	-0.90	+	6.7	1.7/23.8	30771
1992 DK ₈	1999 03 23.4	12 08.85	-06 06.1	17.9	-0.95	+	7.6	1.8/25.2	27308	1997 XS ₁₀	1999 03 25.3	12 15.72	+00 34.4	19.3	-0.96	+	4.9	0.7/24.7	31283
1981 EU ₃₀	1999 03 23.4	12 08.93	-05 20.3	19.4	-1.01	+	4.0	1.5/24.8	26920	1997 SH ₂₅	1999 03 25.4	12 15.85	+02 47.2	18.1	-0.94	+	5.8	1.6/24.0	30881
1997 UM ₂₁	1999 03 23.4	12 09.00	+03 53.3	17.8	-1.06	+	3.2	2.2/22.1	34208	1992 DF ₁	1999 03 25.4	12 15.87	+17 52.8	18.5	-0.94	+	11.7	6.9/18.2	34288
1981 EJ ₂₃	1999 03 23.5	12 09.16	-02 50.9	17.7	-0.88	+	4.1	0.6/24.1	34281	1990 SX	1999 03 25.4	12 15.88	-10 16.7	17.8	-0.78	+	2.9	2.2/28.1	34285
1981 RQ ₁	1999 03 23.5	12 09.28	+00 52.6	17.9	-0.77	+	5.6	0.5/22.9	34282	(10286)	1999 03 25.4	12 15.90	-01 15.6	17.2	-1.00	+	3.8	0.2/25.3	34133
1997 UV ₃	1999 03 23.5	12 09.35	+00 49.6	18.1	-0.93	+	5.2	0.6/23.0	34298	1995 EO ₈	1999 03 25.4	12 15.91	+00 58.4	16.7	-1.00	+	2.1	1.1/24.7	34195
3003 T-2	1999 03 23.6	12 09.65	+00 49.0	18.6	-0.76	+	7.6	0.5/23.0	28313	1997 TB ₁₀	1999 03 25.4	12 15.93	-02 32.0	18.8	-0.79	+	5.4	0.2/25.7	34297
1991 RY ₁₅	1999 03 23.6	12 09.69	+02 43.7	16.2	-0.78	+	5.6	1.1/22.4	31101	1999 EG ₃	1999 03 25.4	12 16.13	-02 37.9	17.5	-0.75	+	5.0	0.3/25.8	34262
1979 MQ ₄	1999 03 23.7	12 09.81	-14 52.2	17.4	-0.76	+	5.1	4.1/28.5	30778	1996 HW ₂₅	1999 03 25.4	12 16.15	+08 29.7	17.9	-0.97	+	5.5	3.3/22.2	31108
1999 DS ₃	1999 03 23.7	12 09.81	+19 36.5	16.4	-0.92	+	2.8	8.3/16.9	34261	(10298)	1999 03 25.4	12 16.24	+02 31.9	17.4	-0.85	+	6.1	1.5/24.1	34135
1990 SF ₃	1999 03 23.8	12 10.02	+05 09.5	16.7	-0.94	+	6.9	2.4/21.8	34285	1997 SB ₃	1999 03 25.6	12 16.63	-03 58.5	18.3	-0.93	+	8.1	0.8/26.3	34297
1978 QE ₂	1999 03 23.8	12 10.14	-00 20.1	18.3	-0.94	+	5.4	0.2/23.6	34280	1986 QS ₁	1999 03 25.8	12 17.36	+05 27.4	17.7	-0.92	+	7.3	2.5/23.4	34283
1981 WO	1999 03 23.8	12 10.16	+06 05.3	16.8	-0.87	+	2.4	2.2/21.7	34282	1987 RO ₅	1999 03 25.8	12 17.44	+02 01.7	18.6	-0.55	+	4.2	0.7/24.4	34283
1979 MK ₄	1999 03 23.8	12 10.27	+04 28.6	19.3	-0.95	+	7.8	2.2/22.0	30778	1981 EY ₇	1999 03 25.8	12 17.55	-09 30.0	18.8	-0.80	+	8.7	3.4/28.6	26916
1997 SU	1999 03 23.9	12 10.50	-05 34.7	17.4	-0.89	+	7.6	1.5/25.4	34297	1992 EL ₃₅	1999 03 25.8	12 17.60	-00 20.9	17.5	-0.92	+	9.0	0.6/25.3	27935
1988 RE ₁₀	1999 03 23.9	12 10.54	+00 28.5	19.6	-0.85	+	6.3	0.5/23.4	29656	1994 LT	1999 03 25.9	12 17.73	+43 11.1	18.2	-1.37	+	1.6	18.0/08.1	24409
4033 P-L	1999 03 23.9	12 10.65	-03 08.4	19.0	-0.95	+	5.8	0.7/24.6	31160	(8116)	1999 03 25.9	12 17.73	+04 59.1	17.2	-1.02	+	5.0	2.4/23.8	30970
6058 P-L	1999 03 23.9	12 10.73	-05 10.4	18.6	-0.98	+	3.7	1.4/25.2	34338	1997 SA ₁₆	1999 03 25.9	12 17.90	-03 10.1	19.2	-0.90	+	5.4	0.4/26.3	31012
1996 GB ₁₈	1999 03 24.0	12 10.99	+04 56.9	17.4	-1.07	+	4.4	2.5/22.3	34293	1996 VP ₂	1999 03 25.9	12 17.93	-01 40.5	19.8	-0.73	+	4.8	0.1/25.9	28867
6618 P-L	1999 03 24.0	12 11.16	+02 32.4	19.3	-0.93	+	5.8	1.2/22.9	34338	(8278)	1999 03 25.9	12 18.08	+21 37.5	15.0	-1.01	+	1.9	9.0/18.4	34279
1997 UA ₄	1999 03 24.1	12 11.11	-07 55.8	17.0	-0.93	+	6.5	2.8/26.3	34298	1998 YP ₁₀	1999 03 26.0	12 18.19	-04 01.9	17.7	-0.92	+	4.3	0.7/26.7	34313
6667 P-L	1999 03 24.1	12 11.26	-01 06.3	18.9	-0.84	+	2.9	0.0/24.1	34338	1986 VM ₆	1999 03 26.1	12 18.42	+02 20.8	18.6	-0.95	+	5.2	1.4/24.8	34283
1998 BN ₁₀	1999 03 24.2	12 11.53	+14 43.7	18.4	-0.77	+	5.2	4.4/18.6	34216	1996 KY ₄	1999 03 26.1	12 18.45	+04 06.4	18.3	-0.94	+	5.8	1.9/24.2	34294
2827 P-L	1999 03 24.2	12 11.75	+03 03.1	17.4	-1.00	+	3.6	1.8/23.0	34337	1994 YO	1999 03 26.1	12 18.79	+04 37.2	18.8	-0.97	+	6.6	2.3/24.1	34292
1997 VR	1999 03 24.2	12 11.77	-00 22.6	18.8	-0.95	+	7.2	0.3/24.0	34298	1992 WN ₁	1999 03 26.1	12 18.82	+05 02.0	18.2	-0.78	+	6.0	2.2/23.8	34289
1988 EC	1999 03 24.4	12 12.24	-19 38.0	16.8	-1.55	-	2.4	8.2/28.3	34283	(8312)	1999 03 26.3	12 19.24	+07 27.8	17.2	-0.81	+	3.0	2.7/23.3	34279
1981 EW ₁₈	1999 03 24.4	12 12.39	-04 23.6	18.5	-1.02	+	3.9	1.1/25.3	34281	(8153)	1999 03 26.4	12 19.53	-01 30.3	18.1	-0.94	+	5.4	0.2/26.2	34279
4642 P-L	1999 03 24.4	12 12.40	-00 03.7	19.0	-0.98	+	6.1	0.4/24.0	34338	1993 YR	1999 03 26.4	12 19.86	-11 11.2	19.3	-0.84	+	8.1	2.7/29.7	34290
1317 T-2	1999 03 24.4	12 12.61	+01 23.1	18.9	-1.00	+	3.4	1.0/23.7	34338	1997 UF ₁	1999 03 26.5	12 19.89	-06 10.0	18.3	-0.92	+	7.4	1.4/27.8	31280
2078 P-L	1999 03 24.5	12 12.56	-03 24.3	17.3	-0.97	+	3.4	0.7/25.1	34337	1992 HH ₅	1999 03 26.5	12 20.24	-04 33.5	16.8	-1.02	+	4.3	1.0/27.0	34185
1990 QA	1999 03 24.5	12 12.71	+12 31.1	17.2	-0.84	+	1.8	3.4/20.3	34285	(10317)	1999 03 26.6	12 20.23	-09 36.5	17.3	-0.96	+	6.9	2.7/29.0	34140
1997 TV ₂₆	1999 03 24.5	12 12.82	+02 21.7	16.9	-0.89	+	5.2	1.6/23.4	34297	4522 P-L	1999 03 26.6	12 20.55	-02 07.1	18.1	-0.87	+	3.9	0.0/26.6	34337
(10265)	1999 03 24.5	12 12.97	-09 42.1	17.0	-0.80	+	2.8	2.4/27.2	34128	(8226)	1999 03 26.6	12 20.60	-03 13.4	16.3	-0.70	+	7.1	0.3/27.0	34279
1981 ED ₃₁	1999 03 24.6	12 13.17	+01 04.7	18.9	-0.92	+	7.3	0.9/23.8	26920	1989 SZ ₉	1999 03 26.7	12 20.68	-03 47.4	14.9	-1.19	-	2.3	0.7/27.0	34177
(10325)	1999 03 24.6	12 13.36	+13 11.6	16.3	-0.85	+	6.7	6.5/19.6	34142	1981 EQ ₃₅	1999 03 26.7	12 20.75	-00 34.2	20.0	-0.81	+	5.8	0.7/26.2	26921
1125 T-2	1999 03 24.7	12 13.28	-01 39.7	19.1	-0.70	+	4.7	0.1/24.8	32092	1997 WL ₇	1999 03 26.7	12 20.76	-07 46.0	17.0	-0.85	+	6.0	1.9/28.6	34299
1993 DR ₂	1999 03 24.7	12 13.43	-10 15.0	17.9	-0.81	+	3.2	2.4/27.5	34289	1998 AC ₈	1999 03 26.7	12 20.76	-02 25.6	17.4	-0.73	+	4.8	6.8/07.0	34300
1981 DA ₁	1999 03 24.7	12 13.52	-16 31.2	17.5	-0.79	+	7.4	5.2/30.1	34281	1994 CF ₁	1999 03 26.9	12 21.33	-20 11.9	17.5	-0.91	+	3.9	5.4/01.7	34291
1993 UD ₁	1999 03 24.7	12 13.52	+08 46.3	18.4	-0.99	+	5.5	3.7/21.5	34290	1989 SH ₃	1999 03 26.9	12 21.39	+00 47.1	18.7	-0.89	+	5.8	0.9/25.9	34284
1996 PS ₈	1999 03 24.7	12 13.60	-05 22.8	17.6	-0.90	+	4.2	1.6/26.0	34198	1995 GF ₆	1999 03 26.9	12 21.46	+02 40.1	18.8	-0.84	+	6.8	1.6/25.3	32945
1991 AS ₂	1999 03 24.8	12 13.72	-09 13.8	18.4	-0.94	+	5.3	2.6/27.3	34286	1992 PJ ₂	1999 03 26.9	12 21.64	-06 46.7	17.5	-0.95	+	8.2	1.7/28.4	34288
(8304)	1999 03 24.9	12 14.14	-04 32.5	16.3	-0.93	+	5.2	1.2/25.9	34279	1996 PT ₉	1999 03 27.0	12 21.72	-04 23.9	18.6	-0.78	+	6.2	0.6/27.7	28304
(8415)	1999 03 25.0	12 14.46	-00 49.7	17.2	-0.69	+	4.8	0.2/24.8	31369	1994 AY ₂	1999 03 27.0	12 21.84	-12 44.8	16.9	-0.88	+	4.6	3.7/30.4	34291
1996 VD ₁	1999 03 25.0	12 14.68	+17 23.4	18.4	-0.87	+	1.7	5.3/19.1	34295	1996 SP ₇	1999 03 27.0	12 22.00	-12 47.0	21.1	-0.79	+	5.5	2.7/30.6	28597

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2165 T-3	1999 03 27.1	12 22.44 -03 51.1 19.3	-0.83 + 4.0	0.4/27.6	27928
1997 SL ₁₇	1999 03 27.2	12 22.41 -07 31.1 18.5	-1.08 + 2.9	1.9/28.6	34204
(8266)	1999 03 27.2	12 22.52 -05 19.7 18.1	-1.01 + 4.4	1.0/28.1	31211
1993 OV ₁₀	1999 03 27.2	12 22.61 -05 12.7 19.7	-0.58 + 3.8	0.5/28.2	22959
4050 P-L	1999 03 27.2	12 22.63 -06 48.9 17.7	-0.72 + 7.5	1.3/28.8	34337
(10365)	1999 03 27.2	12 22.66 -09 33.4 16.6	-0.94 + 6.1	3.2/29.5	34151
1990 OB ₂	1999 03 27.2	12 22.67 -07 45.3 19.0	-0.78 + 3.1	1.2/28.9	18633
1990 QG ₃	1999 03 27.2	12 22.79 -01 14.0 20.3	-0.98 + 5.9	0.4/26.9	31273
(8097)	1999 03 27.3	12 22.79 -05 14.3 17.5	-0.91 + 6.1	0.9/28.2	30966
1978 VK ₈	1999 03 27.3	12 22.94 +01 01.3 18.2	-0.81 + 5.1	1.0/26.2	34280
6133 P-L	1999 03 27.4	12 23.18 -06 27.2 19.4	-0.91 + 6.3	1.2/28.7	31161
1978 NU ₃	1999 03 27.4	12 23.25 +05 14.6 18.3	-0.92 + 7.5	2.6/24.8	34280
(10290)	1999 03 27.4	12 23.55 +00 27.2 16.9	-0.98 + 5.3	1.1/26.6	34134
1995 CX	1999 03 27.5	12 23.64 +15 51.1 16.9	-0.91 + 7.6	5.8/21.0	34292
1996 TT ₉	1999 03 27.5	12 23.69 -02 26.3 18.5	-0.81 + 2.9	0.0/27.5	34295
1985 CS ₂	1999 03 27.5	12 23.79 -10 22.4 16.2	-0.97 + 4.9	3.4/30.0	34282
1996 TM ₃₆	1999 03 27.6	12 23.97 -11 45.3 17.2	-1.15 + 0.2	3.7/29.9	34295
1996 OM ₂	1999 03 27.7	12 24.40 -14 18.8 19.2	-0.81 + 5.4	3.2/31.7	34294
1997 YU	1999 03 27.8	12 24.87 +00 06.8 18.3	-0.73 + 4.8	0.7/26.9	31283
1997 SV	1999 03 27.8	12 24.93 +03 06.3 17.4	-1.00 + 3.9	2.0/26.2	31011
1991 PV ₁₆	1999 03 27.8	12 24.95 +02 05.4 17.7	-0.77 + 5.0	1.3/26.3	34287
1990 SK	1999 03 27.8	12 25.02 +30 48.3 18.9	-1.26 - 0.1	10.6/18.3	30895
1996 KR ₁	1999 03 27.9	12 25.04 +03 35.7 18.6	-0.57 + 3.6	1.2/25.7	34295
1996 HK ₁	1999 03 27.9	12 25.35 +04 35.6 18.3	-1.06 + 4.0	2.8/25.9	34294
(10448)	1999 03 28.0	12 25.37 +02 12.5 17.0	-0.79 + 5.6	1.6/26.4	34171
(8322)	1999 03 28.0	12 25.64 -01 08.0 18.0	-0.69 + 4.8	0.4/27.5	31348
1993 OH ₆	1999 03 28.0	12 25.67 +05 28.3 18.1	-0.94 + 6.9	3.0/25.4	24110
1981 ED ₂₈	1999 03 28.0	12 25.68 -00 11.5 18.2	-0.81 + 6.2	0.8/27.2	34281
3459 T-3	1999 03 28.1	12 25.66 -03 33.7 19.6	-0.98 + 7.0	0.3/28.4	30798
1996 NU ₄	1999 03 28.1	12 25.74 -14 23.6 17.6	-0.93 + 3.8	3.9/31.7	34294
1999 FF ₇	1999 03 28.1	12 25.74 -04 37.5 17.6	-1.07 + 3.7	0.9/28.6	34263
1991 VP ₂	1999 03 28.2	12 26.03 -02 18.4 18.4	-1.03 + 6.6	0.2/28.0	34287
1996 HH ₁₀	1999 03 28.2	12 26.07 -04 05.7 18.1	-0.98 + 8.1	0.5/28.6	34294
(10284)	1999 03 28.2	12 26.29 +00 58.5 17.1	-0.78 + 5.7	1.2/27.0	34132
1990 SA ₂	1999 03 28.2	12 26.38 -03 11.9 17.4	-0.98 + 5.7	0.1/28.4	34285
(10395)	1999 03 28.4	12 26.92 -04 00.5 17.3	-0.89 + 6.9	0.4/28.8	34159
(10349)	1999 03 28.4	12 27.02 +11 28.8 16.0	-0.94 + 5.2	5.8/23.8	34148
(8157)	1999 03 28.4	12 27.05 -14 22.9 17.2	-0.84 + 5.8	3.7/01.4	31077
1997 WQ ₇	1999 03 28.4	12 27.07 -05 43.8 17.4	-1.00 + 6.6	1.1/29.3	31151
1997 WZ ₃₆	1999 03 28.4	12 27.07 -02 08.2 19.1	-0.90 + 6.8	0.3/28.2	32683
1985 RP ₄	1999 03 28.5	12 27.31 +01 42.8 19.0	-0.89 + 6.5	1.4/27.0	25973
1992 UH ₄	1999 03 28.5	12 27.38 +17 41.4 17.3	-0.89 + 3.8	5.9/21.7	34289
1997 WT ₃₃	1999 03 28.5	12 27.44 -01 06.2 17.6	-0.92 + 5.3	0.6/28.0	31121
1996 VJ ₄	1999 03 28.6	12 27.52 -18 29.3 17.8	-0.70 + 6.2	4.2/03.2	31112
1997 XF ₁₀	1999 03 28.6	12 27.56 +00 35.1 18.4	-1.06 + 3.2	1.3/27.6	34214
1996 SF ₆	1999 03 28.6	12 27.60 -03 52.2 17.6	-0.82 + 9.3	0.3/28.9	34199
1996 UL ₁	1999 03 28.6	12 27.61 -08 25.9 18.2	-0.70 + 7.4	1.5/30.6	34295
1988 CE ₂	1999 03 28.6	12 27.86 -13 02.3 17.4	-1.01 + 4.8	3.5/31.7	34283
(8216)	1999 03 28.7	12 28.19 +03 27.3 19.1	-0.87 + 5.2	1.9/26.7	31090
1992 AU ₁	1999 03 28.7	12 28.28 +50 39.2 16.3	-1.13 - 6.6	25.7/12.0	34288
1996 UP ₁	1999 03 28.8	12 28.30 -15 03.8 17.1	-0.80 +10.3	4.2/02.2	34295

1980 PY ₂	1999 03 28.8	12 28.48 +11 43.1 17.6	-1.02 + 1.8	4.8/24.6	34281
1996 RT ₃	1999 03 28.9	12 28.64 -08 04.2 18.0	-1.06 + 0.3	1.8/30.2	34199
(8660)	1999 03 28.9	12 28.77 +06 59.6 15.7	-0.72 + 4.3	2.7/25.5	31677
(10400)	1999 03 28.9	12 28.84 +03 19.7 16.6	-1.03 + 3.6	2.3/27.1	34160
(10340)	1999 03 28.9	12 28.86 -01 27.0 17.2	-0.81 + 4.5	0.5/28.4	34146
1999 FJ	1999 03 29.0	12 29.00 -04 35.8 16.6	-0.81 + 5.9	0.5/29.5	34263
1991 RC ₅	1999 03 29.0	12 29.18 -05 34.3 17.3	-0.86 + 2.3	0.7/29.8	34287
1997 VE ₆	1999 03 29.0	12 29.31 -04 57.1 18.6	-0.94 + 6.1	0.6/29.7	34298
1996 PW ₂	1999 03 29.1	12 29.35 +00 33.1 19.7	-0.95 + 6.0	1.3/27.9	30785
(8079)	1999 03 29.1	12 29.56 -07 25.6 17.8	-0.94 + 5.8	1.4/30.5	30962
1986 RK	1999 03 29.1	12 29.60 -12 49.9 17.3	-0.95 + 7.6	3.4/32.0	34283
1997 YN ₈	1999 03 29.1	12 29.67 -02 35.4 16.3	-1.03 + 4.9	0.3/29.0	34300
(8162)	1999 03 29.2	12 29.80 -07 33.0 17.3	-0.98 + 6.3	1.6/30.6	31078
1993 XN	1999 03 29.2	12 29.92 -25 25.5 15.8	-0.86 + 5.1	8.6/06.1	34290
1991 AL	1999 03 29.2	12 29.99 +06 45.1 16.9	-0.93 + 5.9	3.8/26.1	34286
1997 WP ₂₂	1999 03 29.2	12 29.99 +00 05.9 18.2	-0.71 + 4.7	0.8/28.2	34299
(10387)	1999 03 29.2	12 30.02 -06 05.5 17.7	-0.96 + 2.2	0.9/30.1	34156
(8279)	1999 03 29.3	12 30.13 +00 10.4 16.6	-0.82 + 4.6	1.1/28.2	31214
1997 XA ₁₂	1999 03 29.3	12 30.33 -00 46.2 18.1	-1.02 + 5.1	0.9/28.6	34300
1987 SU ₁	1999 03 29.4	12 30.54 -13 05.2 17.9	-0.99 + 7.0	3.6/01.6	34283
1994 YV ₃	1999 03 29.4	12 30.58 -08 54.6 18.2	-0.99 + 6.0	2.0/31.2	34292
1999 EG	1999 03 29.4	12 30.64 -06 49.0 18.3	-0.93 + 5.8	1.4/30.6	34262
(10357)	1999 03 29.5	12 30.78 +04 44.1 16.3	-1.41 - 2.0	3.2/27.8	34150
3201 T-2	1999 03 29.5	12 30.97 +02 23.8 17.7	-0.80 + 5.9	1.8/27.6	34339
1996 RJ ₄	1999 03 29.5	12 31.04 -00 10.3 18.2	-0.83 + 6.3	1.2/28.5	34295
(10328)	1999 03 29.6	12 31.20 +00 16.1 16.2	-1.17 - 2.1	1.6/28.8	34143
1991 PF ₁₁	1999 03 29.6	12 31.20 -17 50.7 16.9	-0.88 + 4.1	5.0/03.2	34287
4197 T-2	1999 03 29.6	12 31.31 +00 56.6 18.1	-1.00 + 5.5	1.6/28.3	30914
1978 PS ₂	1999 03 29.7	12 31.54 -04 53.8 17.1	-0.91 + 6.8	0.6/30.2	34280
1994 GF ₁₀	1999 03 29.7	12 31.74 -01 09.8 17.3	-0.79 + 5.2	0.8/29.0	34193
1999 CH ₁₄	1999 03 29.8	12 31.98 -05 29.5 16.9	-1.05 + 4.3	0.8/30.4	34237
1981 EO ₂₀	1999 03 29.8	12 32.16 -01 43.1 17.5	-0.94 + 7.7	0.7/29.3	34281
1993 VA ₅	1999 03 29.8	12 32.28 +06 11.0 18.2	-0.94 + 3.9	3.4/27.0	34290
1993 BH ₁₃	1999 03 29.9	12 32.46 -00 08.8 17.6	-0.76 + 5.2	1.1/28.8	34289
2316 T-3	1999 03 29.9	12 32.47 -01 37.4 20.4	-1.06 + 4.0	0.7/29.4	31023
1983 RP ₂	1999 03 30.0	12 32.57 +00 52.0 17.7	-0.94 + 7.3	1.5/28.6	34282
(8206)	1999 03 30.0	12 32.88 -06 21.4 16.8	-1.01 + 6.3	1.1/30.9	34279
1997 XJ ₂	1999 03 30.1	12 33.12 -04 38.9 18.6	-0.87 + 5.2	0.3/30.5	31124
1996 JR ₁	1999 03 30.1	12 33.21 +33 27.0 18.8	-1.21 + 1.6	12.2/17.1	34294
1996 TU ₉	1999 03 30.1	12 33.28 -02 46.2 19.4	-0.69 + 6.5	0.2/29.9	31245
1981 EY ₂₈	1999 03 30.3	12 33.68 -17 45.5 18.7	-0.94 + 2.5	4.0/03.5	31271
1997 WV ₂₁	1999 03 30.3	12 33.80 -03 12.5 17.5	-0.79 + 4.5	0.1/30.2	30999
1991 GS ₅	1999 03 30.4	12 34.04 -09 29.1 18.8	-0.84 + 7.7	2.3/32.0	32924
1996 NX ₄	1999 03 30.4	12 34.07 +03 36.9 17.7	-0.81 + 6.7	2.5/27.9	34294
1996 XA ₂₇	1999 03 30.4	12 34.20 -23 58.6 17.9	-0.80 + 2.8	4.8/06.1	34295
1996 VB ₉	1999 03 30.5	12 34.51 -00 43.9 17.9	-0.58 + 4.3	0.6/29.5	34295
1990 QM ₅	1999 03 30.5	12 34.61 +00 02.6 18.9	-0.71 + 4.9	0.9/29.3	31378
1996 QG ₁	1999 03 30.6	12 34.83 -02 36.2 18.5	-0.91 + 6.2	0.4/30.2	28078
1996 TF ₁₅	1999 03 30.6	12 34.98 -02 47.5 18.5	-0.71 + 4.3	0.2/30.3	34295
1993 UD ₃	1999 03 30.6	12 35.01 -12 00.3 16.9	-0.92 + 6.3	2.7/02.3	34290
1998 BR ₄	1999 03 30.6	12 35.02 -09 08.0 19.2	-0.71 + 4.6	1.3/01.5	31264

1994 VO ₇	1999 03 30.6	12 35.06	-06 13.8	17.2	-0.98	+	7.3	1.0/31.5	34292	1996 TJ ₁₄	1999 04 01.4	12 41.53	-12 40.7	18.2	-0.83	+	3.0	2.3/04.0	34295
(8558)	1999 03 30.7	12 35.27	-03 35.7	19.9	-0.72	+	4.6	0.1/30.7	31509	1996 PY ₄	1999 04 01.4	12 41.54	+27 50.3	16.7	-0.50	+	21.3	13.4/17.0	34295
4269 P-L	1999 03 30.7	12 35.35	-07 17.1	18.6	-0.73	+	7.0	1.0/01.0	34337	1990 TG ₅	1999 04 01.4	12 41.65	-10 50.7	17.9	-1.00	+	5.8	2.2/03.4	34286
(8089)	1999 03 30.7	12 35.48	+01 09.9	18.9	-1.02	+	4.2	1.8/29.3	30964	(10304)	1999 04 01.4	12 41.69	+01 42.7	17.0	-1.05	+	2.0	2.1/30.8	34137
1995 AM	1999 03 30.8	12 35.58	+03 53.5	20.6	-0.99	+	6.6	2.4/28.4	31008	1990 SV ₁₂	1999 04 01.4	12 41.71	-01 47.3	18.1	-0.71	+	4.3	0.7/31.6	31784
(10438)	1999 03 30.8	12 35.86	-02 09.0	16.2	-1.04	+	3.0	0.8/30.4	34169	1978 UE ₅	1999 04 01.5	12 41.77	-07 34.8	19.4	-0.92	+	5.7	1.0/02.5	34172
(9036)	1999 03 30.9	12 36.00	-11 16.5	17.9	-0.73	+	4.2	1.8/02.4	32182	1997 WL ₁₃	1999 04 01.5	12 41.92	-14 35.4	18.6	-0.83	+	6.0	3.0/05.0	31281
(8159)	1999 03 30.9	12 36.05	+13 13.8	17.9	-0.84	+	6.1	5.0/25.2	31077	1997 YR ₁₃	1999 04 01.5	12 41.93	-04 34.6	17.9	-0.71	+	4.5	0.0/01.6	34300
1981 EV ₄₁	1999 03 30.9	12 36.15	-06 59.3	18.2	-0.86	+	4.7	1.1/31.9	34282	(10269)	1999 04 01.5	12 41.99	-00 50.4	17.8	-0.72	+	4.5	0.9/31.4	34129
1211 T-2	1999 03 30.9	12 36.23	-09 19.2	17.3	-1.08	+	2.1	2.5/01.5	34338	1997 UP ₃	1999 04 01.5	12 42.00	-09 13.1	16.6	-0.93	+	5.8	1.8/03.1	34298
1993 TN	1999 03 31.0	12 36.53	+02 16.9	16.9	-0.94	+	5.8	2.2/29.1	34290	1992 WB	1999 04 01.5	12 42.06	-01 13.2	16.8	-0.92	+	2.8	1.0/31.6	34187
(8177)	1999 03 31.0	12 36.63	-02 11.2	15.4	-1.04	+	3.1	0.8/30.6	31081	1995 OY ₃	1999 04 01.5	12 42.10	-03 25.1	20.7	-0.78	+	5.2	0.3/01.2	25645
1999 DW ₆	1999 03 31.1	12 36.78	-11 51.2	17.2	-1.08	+	3.3	2.9/02.4	34261	1998 BK ₁₁	1999 04 01.5	12 42.12	-04 46.3	17.5	-0.82	+	5.0	0.1/01.7	34300
(8129)	1999 03 31.1	12 36.88	-04 38.0	16.3	-0.96	+	4.6	0.3/31.4	34279	(8336)	1999 04 01.6	12 42.19	-08 50.0	17.5	-0.82	+	3.7	1.2/03.0	31351
1998 CV ₁	1999 03 31.2	12 37.02	+07 22.0	18.5	-0.59	+	3.9	2.3/27.3	34301	1990 RW ₇	1999 04 01.7	12 42.61	-02 12.4	18.6	-0.70	+	5.1	0.6/31.9	34285
1997 TU ₁₈	1999 03 31.2	12 37.15	-01 39.5	17.5	-0.95	+	9.0	0.9/30.5	34297	1997 YA ₅	1999 04 01.7	12 42.84	-30 14.7	17.7	-0.89	+	5.5	8.0/11.2	34214
1990 WR ₁	1999 03 31.2	12 37.18	+05 11.4	18.9	-0.93	+	7.2	3.2/28.2	34180	1997 UB ₁₅	1999 04 01.8	12 42.91	-02 37.1	17.6	-0.95	+	5.5	0.8/01.2	34208
1997 SP ₁	1999 03 31.2	12 37.24	-03 23.4	18.7	-0.97	+	6.3	0.2/31.1	31011	1990 UR ₄	1999 04 01.8	12 43.04	+07 25.0	17.7	-0.97	+	4.4	5.1/29.2	34286
(8550)	1999 03 31.2	12 37.28	-03 04.4	18.5	-0.57	+	3.3	0.2/31.0	31507	(8374)	1999 04 01.9	12 43.20	-00 18.7	17.2	-0.70	+	4.4	1.1/31.5	31360
1993 XN ₁	1999 03 31.2	12 37.38	+24 46.3	16.3	-0.93	+	4.6	9.9/20.6	34290	1990 TP	1999 04 01.9	12 43.24	+01 26.2	17.8	-0.95	+	6.9	2.2/31.0	31099
1994 VO ₁	1999 03 31.2	12 37.39	-05 55.0	18.2	-1.00	+	6.8	0.7/01.0	34292	(8273)	1999 04 01.9	12 43.28	-13 52.4	16.8	-0.93	+	5.5	3.5/04.9	31213
(8069)	1999 03 31.3	12 37.44	+01 17.7	16.7	-0.86	+	8.8	2.1/29.5	30960	1993 OD ₈	1999 04 01.9	12 43.46	-09 38.0	18.9	-1.00	+	6.1	1.7/03.5	31139
1998 BK ₁₀	1999 03 31.3	12 37.45	+04 25.9	18.8	-0.90	+	4.5	2.6/28.7	34300	1993 WQ	1999 04 01.9	12 43.56	+00 19.8	17.6	-0.91	+	4.5	1.6/31.5	34290
1990 SB ₁₃	1999 03 31.3	12 37.49	-03 53.4	18.5	-0.72	+	4.8	0.0/31.3	34179	(8362)	1999 04 02.0	12 43.54	-02 04.4	18.2	-0.70	+	4.8	0.6/01.1	31357
1999 DB ₃	1999 03 31.4	12 37.72	+11 55.7	17.1	-0.80	+	10.1	5.6/25.3	34260	1997 YW ₃	1999 04 02.0	12 43.57	-11 29.1	17.6	-0.88	+	3.7	2.0/04.1	34300
1994 VC	1999 03 31.4	12 38.00	-05 11.3	18.0	-1.04	+	6.0	0.4/31.8	34291	1993 TA ₃	1999 04 02.0	12 43.59	+00 22.9	17.3	-0.94	+	7.5	1.9/31.3	34190
1990 VB ₆	1999 03 31.4	12 38.00	+07 16.6	17.5	-0.90	+	7.5	4.2/27.6	34286	1987 SG ₁₃	1999 04 02.0	12 43.76	-03 01.9	17.1	-1.05	+	4.4	0.6/01.6	34283
1990 UN ₁	1999 03 31.5	12 38.12	-00 43.4	17.5	-0.92	+	7.9	1.2/30.4	34180	1992 DC ₁	1999 04 02.0	12 43.79	+08 21.8	16.8	-0.91	+	6.3	5.7/28.8	34183
(8098)	1999 03 31.6	12 38.71	-05 34.5	18.2	-0.95	+	4.9	0.5/01.1	30966	1991 GV	1999 04 02.0	12 43.80	+08 38.2	16.2	-0.97	+	4.1	4.7/28.9	34286
(8318)	1999 03 31.7	12 38.85	-03 25.2	18.3	-0.72	+	4.6	0.2/31.5	31222	1988 CY ₂	1999 04 02.1	12 43.86	-09 40.4	17.1	-1.00	+	4.7	2.0/03.6	34283
1992 OJ ₉	1999 03 31.8	12 39.21	-05 47.3	15.6	-0.97	+	4.0	0.6/01.3	33231	1997 TD ₁₇	1999 04 02.1	12 43.91	+04 02.0	18.1	-0.94	+	6.7	3.1/30.3	34206
1991 VD ₂	1999 03 31.9	12 39.76	+00 16.9	17.5	-0.73	+	4.7	1.2/30.5	34287	1997 WQ ₂₈	1999 04 02.1	12 43.98	-05 56.1	16.4	-1.01	+	1.6	0.4/02.5	34212
4637 P-L	1999 03 31.9	12 39.82	+00 01.5	19.3	-0.94	+	7.9	1.5/30.5	31022	1996 HQ ₂₃	1999 04 02.1	12 44.28	-03 10.2	17.9	-0.99	+	6.6	0.6/01.7	30902
1994 AT ₁	1999 04 01.0	12 40.09	+12 14.4	17.0	-0.91	+	3.0	4.8/27.0	34290	1979 MF ₂	1999 04 02.2	12 44.37	-04 13.9	18.5	-0.99	+	6.8	0.2/02.1	34281
3269 T-2	1999 04 01.0	12 40.09	+00 54.3	19.8	-0.75	+	6.5	1.4/30.3	16439	1994 CW	1999 04 02.2	12 44.66	+07 04.2	17.9	-0.79	+	8.2	3.5/29.1	34291
(10277)	1999 04 01.0	12 40.11	-02 14.2	18.1	-0.82	+	5.5	0.6/31.4	34131	(8496)	1999 04 02.3	12 44.62	-10 13.1	16.9	-0.82	+	2.5	1.5/03.9	31495
1992 UX ₄	1999 04 01.0	12 40.29	-21 35.1	18.0	-0.80	+	6.8	4.5/07.3	34289	2281 T-1	1999 04 02.3	12 44.84	-01 14.8	17.6	-0.78	+	6.3	1.1/01.2	34338
1990 SH ₃	1999 04 01.1	12 40.32	+03 49.3	19.3	-0.74	+	4.5	2.0/29.4	32922	1996 QZ	1999 04 02.3	12 44.88	+03 08.8	19.6	-0.78	+	6.5	2.4/30.6	31142
1990 SN ₃	1999 04 01.1	12 40.32	-00 16.4	17.0	-1.09	+	4.8	1.6/30.9	34285	1997 XA	1999 04 02.3	12 44.89	-16 35.0	18.1	-0.82	+	6.8	3.8/06.5	34299
1992 WT ₁	1999 04 01.1	12 40.38	+06 48.5	17.9	-0.80	+	4.6	2.9/28.5	34289	2281 T-2	1999 04 02.3	12 45.01	-06 21.4	17.9	-0.84	+	4.6	0.5/02.9	34339
1996 TS ₃₂	1999 04 01.1	12 40.59	-11 18.7	16.6	-0.73	+	11.0	2.6/03.8	34199	1986 RN ₅	1999 04 02.3	12 45.04	-07 25.7	18.0	-1.04	+	4.2	0.9/03.1	34283
1990 RD ₁	1999 04 01.2	12 40.61	+00 44.9	17.2	-0.68	+	6.6	1.4/30.4	34285	1999 CG ₁₄	1999 04 02.4	12 45.06	-00 50.4	16.9	-0.71	+	7.7	1.2/32.0	34237
1981 ER ₁₅	1999 04 01.2	12 40.92	-11 55.5	18.0	-0.91	+	6.4	3.2/03.7	34281	1996 XY ₅	1999 04 02.4	12 45.10	+03 49.9	19.0	-0.58	+	3.4	1.7/30.5	32056
1999 BZ	1999 04 01.2	12 40.98	+33 33.9	17.3	-1.07	-	0.4	13.2/19.3	34316	1997 UF ₂₁	1999 04 02.4	12 45.13	-05 34.5	19.5	-0.95	+	7.5	0.3/02.7	31148
2503 P-L	1999 04 01.3	12 41.01	-06 11.8	16.9	-1.07	+	1.0	0.6/01.8	34337	1993 SK ₁₆	1999 04 02.4	12 45.25	-18 18.4	15.4	-0.98	+	6.5	5.4/06.8	34290
(8238)	1999 04 01.3	12 41.23	-03 17.9	16.5	-0.94	+	1.9	0.4/01.0	34279	1997 TF ₉	1999 04 02.4	12 45.30	-08 22.7	18.7	-0.90	+	6.4	1.4/03.6	30882
6030 P-L	1999 04 01.3	12 41.29	-03 41.5	17.9	-0.64	+	4.7	0.2/01.1	34338	1996 MS	1999 04 02.5	12 45.39	+04 28.9	21.9	-0.83	+	5.9	2.5/30.4	28319
(8400)	1999 04 01.3	12 41.33	+14 37.1	16.3	-0.82	+	6.3	5.5/25.7	31365	1981 EX ₁₇	1999 04 02.6	12 45.72	-06 50.0	17.7	-0.95	+	3.8	0.9/03.2	26918
1998 BM	1999 04 01.4	12 41.36	-10 04.8	17.9	-0.81	+	2.8	1.6/03.1	34215	(8319)	1999 04 02.6	12 46.02	-02 35.2	18.7	-0.73	+	4.2	0.6/01.9	31222
4186 P-L	1999 04 01.4	12 41.37	-05 43.9	19.1	-0.88	+	6.2	0.4/01.8	28892	1997 YK ₁₂	1999 04 02.6	12 46.03	-14 00.4	18.1	-0.76	+	4.4	2.6/05.7	31285
(8475)	1999 04 01.4	12 41.38	+02 15.9	18.3	-0.71	+	4.8	1.6/30.2	31490	1052 T-2	1999 04 02.6	12 46.10	-05 08.9	18.5	-0.76	+	4.6	0.1/02.8	31436

1999 CC ₁₀	1999 04 02.7	12 46.15 +12 20.1 15.9	-0.80 + 8.6	7.8/27.3	34237
(8295)	1999 04 02.7	12 46.47 +10 26.7 17.0	-0.84 + 3.8	4.5/28.9	31217
1997 XK ₁₀	1999 04 02.8	12 46.46 -26 04.3 17.9	-0.89 + 6.4	6.4/10.3	31424
1991 RZ ₁₄	1999 04 02.8	12 46.72 -05 09.6 17.2	-0.78 + 5.4	0.0/02.9	34287
1055 T-2	1999 04 02.8	12 46.74 -06 22.9 19.0	-0.84 + 4.6	0.4/03.3	28320
1995 OE	1999 04 02.9	12 46.92 -17 28.8 17.3	-0.76 + 5.6	3.7/07.2	34293
1997 VP ₂	1999 04 02.9	12 46.96 -10 35.0 18.3	-0.78 +11.8	2.0/05.0	34210
1997 VT ₂	1999 04 02.9	12 46.99 -05 18.8 17.0	-0.97 + 4.1	0.1/03.0	34210
1981 EP ₁₅	1999 04 03.0	12 47.25 -13 16.0 19.0	-0.97 + 5.7	2.8/05.6	22270
1981 EK ₁₃	1999 04 03.0	12 47.33 -12 22.9 18.9	-0.92 + 7.2	2.6/05.4	26917
1990 QN ₉	1999 04 03.0	12 47.34 +02 19.7 16.7	-0.95 + 6.9	3.0/31.7	34285
1997 XN	1999 04 03.1	12 47.59 -16 48.3 17.3	-0.86 + 4.4	3.8/06.9	34299
3327 T-2	1999 04 03.2	12 47.94 -00 38.3 18.8	-0.72 + 4.3	1.1/01.7	34339
1991 LY	1999 04 03.2	12 47.97 +19 43.7 17.3	-0.86 + 6.5	8.0/24.9	34286
1409 T-2	1999 04 03.2	12 48.06 -04 44.3 21.4	-0.71 + 4.6	0.1/03.1	32733
1996 TZ ₉	1999 04 03.2	12 48.08 -06 56.3 18.9	-0.72 + 6.7	0.5/03.9	28307
1996 TD ₁₈	1999 04 03.2	12 48.20 -08 20.4 19.5	-0.71 + 5.1	0.9/04.3	31246
1996 RJ ₅	1999 04 03.3	12 48.29 -10 35.6 19.2	-0.85 + 3.9	1.5/05.0	28319
1990 VU ₄	1999 04 03.3	12 48.48 +04 10.8 19.5	-0.94 + 6.6	3.3/31.3	33226
1995 UQ ₅	1999 04 03.3	12 48.50 -19 55.4 17.1	-0.87 + 2.6	4.5/07.8	34293
1999 DO ₃	1999 04 03.3	12 48.68 -08 24.3 16.8	-0.98 + 2.7	1.6/04.3	34260
4086 T-3	1999 04 03.4	12 48.71 +01 38.2 19.4	-1.01 + 6.9	2.6/01.2	27458
1997 YK ₁₄	1999 04 03.4	12 48.77 -17 01.2 18.2	-0.79 + 3.2	3.3/07.2	31425
1991 CM ₁	1999 04 03.4	12 48.89 -10 45.2 17.5	-0.94 + 5.6	2.1/05.2	31100
1996 TS	1999 04 03.6	12 49.35 -05 56.4 17.4	-0.79 + 5.5	0.2/03.8	34295
1990 TQ ₁	1999 04 03.6	12 49.68 +04 14.2 18.6	-0.95 + 6.7	3.3/31.6	27325
1990 SM ₆	1999 04 03.7	12 49.72 -02 39.8 16.2	-1.03 + 4.0	1.1/02.9	34285
(8196)	1999 04 03.7	12 49.74 -12 29.1 16.7	-0.92 + 7.3	2.6/06.1	31085
1994 YH ₁	1999 04 03.7	12 49.79 -11 06.2 17.2	-0.99 + 6.5	2.4/05.5	34292
(10195)	1999 04 03.7	12 50.09 -04 41.3 16.8	-0.87 + 2.2	0.2/03.6	33904
(8365)	1999 04 03.8	12 50.19 -06 12.7 17.0	-0.96 + 6.7	0.3/04.1	31358
1510 T-2	1999 04 03.9	12 50.68 -03 45.4 18.1	-0.71 + 6.3	0.6/03.4	34271
1990 SU ₉	1999 04 03.9	12 50.81 +00 20.7 17.1	-1.01 + 4.1	2.4/02.3	34285
1981 DO ₁	1999 04 03.9	12 50.85 -19 17.5 17.2	-0.86 + 4.8	6.7/08.6	26914
1972 RF ₂	1999 04 03.9	12 50.86 -04 42.5 18.3	-0.95 + 7.4	0.3/03.8	28610
4128 P-L	1999 04 04.0	12 51.08 -04 31.9 17.3	-0.71 + 8.2	0.3/03.7	34265
1989 UB ₃	1999 04 04.1	12 51.19 +01 41.4 17.7	-0.95 + 4.3	2.5/02.0	34284
1987 QO ₅	1999 04 04.1	12 51.45 -10 17.9 17.5	-1.05 + 5.1	1.8/05.6	34283
1997 UK ₂₄	1999 04 04.1	12 51.59 -13 40.1 16.5	-1.04 + 5.5	3.1/06.7	34298
1997 VL ₈	1999 04 04.1	12 51.60 -04 31.9 19.1	-0.89 + 4.4	0.3/03.9	31150
1993 SJ ₁	1999 04 04.2	12 51.65 -01 45.6 17.4	-0.95 + 8.7	1.4/03.0	34290
1988 FM ₁	1999 04 04.2	12 51.66 -17 25.0 16.7	-0.83 + 3.1	3.3/07.9	34283
1990 TQ ₁₂	1999 04 04.2	12 51.83 -12 44.3 17.3	-0.96 + 6.9	2.6/06.6	17965
(8330)	1999 04 04.2	12 51.91 -05 49.4 15.8	-0.80 + 3.1	0.1/04.4	31350
3074 P-L	1999 04 04.4	12 52.39 -13 43.6 16.7	-0.74 + 7.3	2.6/07.3	34337
1979 KJ	1999 04 04.4	12 52.47 +10 15.8 17.0	-0.73 + 6.3	5.0/29.8	34281
1997 UY ₃	1999 04 04.4	12 52.64 -08 41.9 17.5	-0.87 + 6.2	1.0/05.5	34298
1997 UH ₁	1999 04 04.4	12 52.65 +00 59.8 17.1	-1.02 + 3.3	2.5/02.6	34298
1997 SX ₂	1999 04 04.4	12 52.69 -09 46.9 16.5	-1.01 + 4.0	1.9/06.0	34297
(8369)	1999 04 04.5	12 52.89 -02 59.4 15.4	-1.03 + 1.4	0.9/03.8	31358
1996 RM	1999 04 04.6	12 52.99 -15 38.6 18.5	-0.93 + 1.3	2.9/07.4	31278

1997 SA ₃₄	1999 04 04.6	12 53.05 +01 04.3 17.6	-0.89 + 2.5	2.2/02.7	34205
1997 UG ₂₂	1999 04 04.6	12 53.07 +04 40.5 18.1	-1.00 + 3.5	4.0/01.6	34209
1981 ER ₃₀	1999 04 04.6	12 53.14 -06 52.3 19.3	-0.82 + 5.8	0.4/05.0	26920
1993 VS ₄	1999 04 04.6	12 53.15 +10 56.4 17.4	-0.94 + 3.8	5.4/30.5	34290
1996 YZ ₂	1999 04 04.6	12 53.27 -10 04.2 18.3	-0.70 + 6.7	1.2/06.2	34296
1990 WQ ₄	1999 04 04.6	12 53.37 +00 25.5 17.0	-0.99 + 7.3	2.4/02.7	34286
(10262)	1999 04 04.7	12 53.74 +02 46.1 16.8	-0.96 + 2.5	2.7/02.3	34127
1996 MR	1999 04 04.8	12 53.77 +00 23.6 20.3	-0.96 + 6.9	2.0/02.8	31278
1989 UY ₂	1999 04 04.8	12 53.78 -01 13.1 17.3	-0.94 + 5.2	1.5/03.4	34177
1998 BN ₄₄	1999 04 04.8	12 53.95 -18 57.9 18.3	-0.79 + 4.1	3.7/09.2	31739
1996 VV ₈	1999 04 04.8	12 54.08 +15 00.8 17.6	-0.82 + 1.8	5.5/29.3	34295
1996 TV ₁₄	1999 04 04.9	12 54.20 -07 10.0 17.4	-0.81 + 4.6	0.4/05.4	31246
1989 VQ	1999 04 04.9	12 54.27 -02 22.7 17.7	-0.92 + 5.3	1.1/03.9	34285
1998 BP ₆	1999 04 04.9	12 54.30 +13 02.5 17.5	-0.79 + 3.8	5.4/29.9	34215
1982 QK ₃	1999 04 05.0	12 54.48 -09 01.9 17.4	-0.97 + 5.3	1.1/06.0	34282
1996 TN ₄₁	1999 04 05.0	12 54.76 -01 01.4 18.2	-0.80 + 4.8	1.5/03.5	33496
2212 T-2	1999 04 05.1	12 54.85 -05 00.9 18.4	-0.84 + 4.5	0.3/04.8	28608
2218 T-3	1999 04 05.1	12 55.01 -08 35.6 17.8	-1.09 + 3.9	1.1/06.0	23867
1996 UG ₃	1999 04 05.1	12 55.03 -00 17.7 16.8	-0.99 + 2.0	1.8/03.6	34295
1994 YV ₁	1999 04 05.1	12 55.05 +06 48.9 16.7	-1.00 + 3.8	5.2/01.4	34292
1996 RA ₅	1999 04 05.1	12 55.24 -16 20.9 18.3	-0.82 + 3.4	2.9/08.5	31244
1988 CD ₂	1999 04 05.2	12 55.32 -03 03.8 17.9	-0.95 + 6.5	1.1/04.3	25339
1993 XQ ₂	1999 04 05.2	12 55.35 +14 24.7 16.8	-0.82 + 6.3	6.7/29.2	34290
(10371)	1999 04 05.3	12 55.57 -05 43.3 17.4	-0.88 + 5.2	0.1/05.2	34153
1998 BA ₂	1999 04 05.4	12 56.24 -02 12.2 18.1	-0.89 + 4.6	1.2/04.3	34300
1996 WZ ₁	1999 04 05.5	12 56.55 +10 25.7 16.3	-0.73 + 4.0	4.6/31.1	31589
1346 T-2	1999 04 05.5	12 56.56 -04 03.3 17.1	-0.76 + 4.2	0.7/04.9	34271
1996 RK ₃	1999 04 05.5	12 56.69 +04 02.6 17.8	-0.99 + 6.4	4.2/02.3	34198
1996 TO ₁₃	1999 04 05.6	12 56.86 -08 24.4 18.9	-0.72 + 7.2	0.7/06.5	31278
1991 NM ₆	1999 04 05.6	12 56.95 +00 41.7 17.2	-0.79 + 6.3	2.1/03.4	34287
1995 EM	1999 04 05.6	12 57.00 -04 42.3 17.4	-1.01 + 3.1	0.5/05.3	34292
1994 UY ₁	1999 04 05.7	12 57.12 -07 21.3 18.0	-0.98 + 8.0	0.5/06.1	34291
1998 BG ₄₂	1999 04 05.7	12 57.21 -09 22.9 17.0	-1.06 + 4.9	1.2/06.7	34216
1996 NF ₃	1999 04 05.7	12 57.23 +06 59.9 17.0	-0.79 + 7.0	4.3/01.2	34294
1981 ED ₃₆	1999 04 05.8	12 57.59 -14 41.3 19.0	-1.04 + 3.7	3.3/08.3	26921
(10259)	1999 04 05.8	12 57.62 -14 15.2 16.0	-0.71 +10.2	2.7/08.9	34126
1985 UF	1999 04 05.8	12 57.73 -03 15.8 17.3	-1.02 + 3.1	1.0/05.1	34282
1997 UT	1999 04 05.8	12 57.82 -10 16.8 18.2	-0.93 + 8.7	1.6/07.3	34297
1992 SP ₁₆	1999 04 05.9	12 58.12 -08 17.4 20.3	-0.87 + 4.7	0.6/06.6	32745
1998 BA ₂₁	1999 04 06.0	12 58.39 -01 14.8 19.2	-0.79 + 5.1	1.5/04.4	31266
6109 P-L	1999 04 06.1	12 58.55 -09 58.4 17.7	-0.93 + 4.2	1.4/07.2	34338
1997 WX ₂₁	1999 04 06.2	12 58.87 -16 04.2 15.8	-1.05 - 0.4	3.9/08.7	34299
1995 DR	1999 04 06.2	12 59.01 +02 17.4 17.1	-0.81 + 8.9	3.5/03.2	34292
1993 DU ₂	1999 04 06.2	12 59.07 -11 20.2 17.7	-0.81 + 3.4	1.7/07.8	34188
1977 FN	1999 04 06.3	12 59.56 -26 47.8 16.4	-0.87 + 5.5	7.5/13.3	34280
1997 YY	1999 04 06.4	12 59.72 -12 57.5 18.4	-0.99 + 6.4	2.3/08.5	31283
1981 EO ₂₈	1999 04 06.4	12 59.75 -09 36.9 18.7	-0.90 + 3.5	1.1/07.4	26920
1991 RG ₂₅	1999 04 06.4	12 59.96 +08 05.0 17.4	-0.84 + 4.7	4.4/01.7	31230
2070 T-2	1999 04 06.5	12 59.99 -16 01.4 17.7	-1.00 - 0.9	3.2/08.9	34271
1997 UG ₉	1999 04 06.6	13 00.71 -02 23.9 20.1	-0.90 + 3.9	1.1/05.5	31423
1983 VQ ₁	1999 04 06.7	13 00.78 +27 48.9 18.9	-1.25 - 1.3	11.3/28.9	34282

1997 ST ₁₀	1999 04 06.8	13 01.28	-03 09.2	17.5	-1.02	+	3.9	1.2/05.9	34204
(8300)	1999 04 06.9	13 01.43	-24 15.5	19.2	-0.96	+	3.9	5.5/12.5	31218
1988 BZ ₃	1999 04 06.9	13 01.53	-15 16.4	16.5	-0.98	+	6.7	3.5/09.7	34175
1991 PO ₈	1999 04 06.9	13 01.67	-14 45.5	19.9	-0.85	+	3.8	2.2/09.5	22083
1997 YW ₁₁	1999 04 06.9	13 01.74	+00 54.2	17.6	-0.81	+	4.8	2.3/04.6	34214
1985 RR ₃	1999 04 07.0	13 01.86	+00 40.0	17.4	-0.71	+	7.3	2.1/04.5	34282
6199 P-L	1999 04 07.0	13 01.99	-07 50.8	19.2	-0.97	+	7.0	0.4/07.4	31294
1990 SA ₇	1999 04 07.0	13 02.21	-00 02.2	17.6	-1.08	+	2.1	3.0/05.3	31379
1981 EA ₃₁	1999 04 07.1	13 02.16	-10 46.4	18.9	-0.93	+	5.0	1.9/08.4	26920
1981 EB ₁₀	1999 04 07.1	13 02.16	-07 46.2	17.1	-0.85	+	8.5	0.5/07.5	34281
1993 RF ₂	1999 04 07.1	13 02.47	-10 15.1	17.2	-1.07	+	4.2	1.4/08.2	34290
1992 BD ₂	1999 04 07.2	13 02.65	+05 10.8	18.5	-0.67	+	5.3	2.8/03.2	31786
1998 BM ₉	1999 04 07.2	13 02.71	-07 59.3	19.5	-0.80	+	4.9	0.4/07.7	31265
(8227)	1999 04 07.2	13 02.72	-03 58.1	17.5	-0.74	+	4.4	0.8/06.4	31092
1981 EP ₄₆	1999 04 07.2	13 02.92	-10 59.1	19.5	-0.89	+	4.0	1.2/08.6	26923
1997 TW ₂₅	1999 04 07.3	13 02.86	+01 01.9	17.9	-0.94	+	6.6	3.2/04.9	34297
3222 T-1	1999 04 07.3	13 02.94	-08 26.5	17.1	-1.06	+	7.1	0.7/07.9	34338
1988 CT ₄	1999 04 07.3	13 03.11	-07 04.3	16.7	-0.71	+	7.6	0.1/07.5	34283
1996 OP ₂	1999 04 07.4	13 03.28	+01 08.8	17.9	-0.86	+	10.1	2.6/04.6	34294
1997 YT	1999 04 07.4	13 03.66	-13 10.1	17.7	-0.87	+	5.4	2.2/09.5	34300
1979 MK ₅	1999 04 07.5	13 03.71	-08 46.5	17.7	-0.84	+	6.4	0.8/08.2	34281
1998 BA ₉	1999 04 07.6	13 04.19	-19 05.2	18.1	-0.76	+	4.3	3.3/11.7	34300
1991 VN ₄	1999 04 07.7	13 04.46	+10 51.5	16.8	-0.77	+	3.8	4.9/01.9	34287
1998 BF ₁₁	1999 04 07.7	13 04.67	+11 26.0	18.8	-0.75	+	4.3	5.2/01.7	32683
1995 SU ₃₂	1999 04 07.7	13 04.74	+04 13.8	18.6	-0.66	+	7.4	3.1/03.8	25967
(10446)	1999 04 07.8	13 04.74	-03 31.3	16.9	-1.07	+	3.7	1.3/06.9	34170
1997 TR ₂₅	1999 04 07.8	13 04.97	-03 30.1	17.0	-0.92	+	3.9	1.0/06.9	34206
1995 JC	1999 04 07.8	13 05.04	-02 27.7	17.3	-0.94	+	3.4	1.9/06.6	34293
1981 EN ₄₁	1999 04 07.8	13 05.12	-03 33.7	18.9	-0.81	+	5.7	1.3/06.8	26922
(8354)	1999 04 07.9	13 05.21	-08 19.8	17.2	-0.72	+	5.4	0.4/08.4	31355
1984 SN ₆	1999 04 07.9	13 05.22	-02 30.4	16.1	-0.90	+	4.2	1.8/06.6	34282
1979 MJ ₄	1999 04 07.9	13 05.33	+13 04.6	18.6	-0.85	+	6.5	6.4/31.9	30778
1996 TC ₁₂	1999 04 07.9	13 05.35	-06 07.9	20.4	-0.81	+	5.0	0.3/07.7	34199
(8126)	1999 04 07.9	13 05.41	-19 16.9	16.2	-0.89	+	4.4	4.5/11.9	31070
(10431)	1999 04 08.0	13 05.44	-06 43.6	18.3	-0.80	+	6.3	0.1/07.9	34167
1978 NY	1999 04 08.0	13 05.53	-17 01.8	18.0	-1.00	+	5.0	3.5/11.1	34280
1993 SH ₁	1999 04 08.0	13 05.59	-02 30.1	17.1	-0.91	+	8.4	1.6/06.5	34290
1997 CE ₁₈	1999 04 08.0	13 05.82	+01 02.0	20.1	-0.55	+	4.2	1.5/05.3	29928
1978 VO ₄	1999 04 08.1	13 06.20	-00 29.5	17.3	-0.95	+	5.5	2.6/06.2	34280
(8429)	1999 04 08.2	13 06.22	-08 10.7	16.6	-0.82	+	3.2	0.3/08.6	31371
1993 VT ₂	1999 04 08.2	13 06.40	+28 15.4	18.8	-1.00	+	2.5	10.1/27.5	23342
1996 SC ₆	1999 04 08.2	13 06.48	-05 00.4	17.1	-0.77	+	6.9	0.7/07.6	34199
(8207)	1999 04 08.2	13 06.51	+03 01.3	18.3	-1.03	+	4.9	3.6/05.3	31088
1998 AC ₄	1999 04 08.2	13 06.54	-00 49.8	18.1	-0.93	+	5.7	2.2/06.3	34215
1990 SN ₇	1999 04 08.3	13 06.74	-02 57.8	17.7	-1.07	+	5.1	1.6/07.1	34285
1998 ED ₆	1999 04 08.3	13 06.93	-27 13.2	16.8	-0.81	+	3.5	5.2/14.9	31803
1990 TO ₉	1999 04 08.4	13 07.05	-12 43.9	18.3	-0.98	+	6.1	2.0/10.2	31005
(8392)	1999 04 08.4	13 07.08	-45 47.6	17.9	-1.24	+	3.3	12.3/22.0	31364
1995 DX ₈	1999 04 08.4	13 07.10	-04 08.4	19.2	-0.92	+	6.0	1.0/07.5	25341
1991 RD ₁₂	1999 04 08.4	13 07.19	-02 07.3	17.8	-0.79	+	5.2	1.5/06.9	34287
1988 GZ	1999 04 08.4	13 07.25	-05 11.4	16.5	-0.80	+	3.3	0.6/07.9	34283

1997 WB ₃₈	1999 04 08.4	13 07.26	-02 04.1	16.3	-1.00	+	6.2	2.3/06.9	34299
(8191)	1999 04 08.5	13 07.39	-12 10.2	17.4	-1.00	+	5.7	1.9/10.0	31084
1998 AJ	1999 04 08.5	13 07.50	-01 01.8	17.6	-0.73	+	4.7	1.7/06.6	34300
1993 QY ₉	1999 04 08.5	13 07.54	+01 06.0	18.1	-0.95	+	7.7	3.4/05.8	29944
1936 UD	1999 04 08.6	13 07.83	-05 06.6	18.1	-0.73	+	4.9	0.5/08.0	34280
1996 LK ₁	1999 04 08.6	13 08.06	+05 43.7	19.2	-1.02	+	4.4	4.9/04.8	33255
(8305)	1999 04 08.7	13 08.25	+02 28.7	17.8	-0.91	+	5.7	3.4/05.7	31219
1981 EW ₃₃	1999 04 08.8	13 08.42	-10 47.2	19.0	-0.83	+	5.5	1.1/09.9	28581
1979 SC	1999 04 08.8	13 08.66	-04 43.0	16.3	-1.03	+	3.3	1.1/08.1	34281
1978 RM ₇	1999 04 08.9	13 08.85	-09 14.5	17.0	-0.91	+	6.3	0.9/09.5	34280
1997 UG ₁₅	1999 04 08.9	13 08.89	-03 10.5	18.0	-0.91	+	6.0	1.4/07.6	31423
1997 UA ₁₅	1999 04 09.1	13 09.53	-04 25.8	19.4	-1.01	+	5.2	1.0/08.2	31147
(8430)	1999 04 09.1	13 09.77	-01 38.1	17.3	-0.83	+	4.2	2.1/07.4	34280
1991 VH ₄	1999 04 09.2	13 10.10	+01 43.2	17.6	-0.76	+	4.5	2.5/06.3	34287
1996 PO ₈	1999 04 09.2	13 10.12	+05 45.1	18.0	-0.83	+	8.6	5.0/04.6	30279
1991 RY ₁₆	1999 04 09.2	13 10.16	+01 35.7	16.5	-0.86	+	3.1	3.2/06.6	34287
1990 TX ₄	1999 04 09.3	13 10.45	-10 34.1	17.1	-0.75	+	6.9	0.9/10.4	31228
1997 SV ₂₃	1999 04 09.3	13 10.47	-07 36.3	18.6	-0.96	+	4.6	0.0/09.4	34204
1991 CW ₂	1999 04 09.3	13 10.51	-08 53.7	17.1	-1.02	+	2.6	0.5/09.8	34286
1990 TK ₄	1999 04 09.4	13 10.83	-10 15.2	17.7	-0.94	+	7.2	1.1/10.3	34286
1989 MH	1999 04 09.4	13 10.95	+12 02.4	15.4	-0.84	+	3.0	7.2/03.0	28613
1189 T-3	1999 04 09.5	13 11.17	-14 50.5	19.1	-0.97	+	5.2	2.8/11.7	31161
1990 UK ₁	1999 04 09.5	13 11.21	-13 31.3	18.3	-0.98	+	6.6	2.1/11.4	34286
6604 P-L	1999 04 09.5	13 11.25	-03 19.2	18.8	-0.87	+	5.8	1.4/08.2	31268
1997 YP ₇	1999 04 09.5	13 11.28	-03 33.7	17.3	-0.77	+	3.5	1.1/08.3	34300
1997 YQ	1999 04 09.5	13 11.34	-07 31.6	18.6	-0.91	+	6.3	0.0/09.6	34300
1989 UK ₁	1999 04 09.6	13 11.36	-13 27.8	17.8	-0.87	+	9.3	2.0/11.7	34284
(10331)	1999 04 09.6	13 11.44	-01 10.6	17.7	-0.58	+	3.6	1.3/07.5	34144
1994 AW	1999 04 09.6	13 11.51	-06 34.9	17.9	-0.86	+	5.6	0.3/09.3	34290
6673 P-L	1999 04 09.6	13 11.59	+07 24.0	17.3	-0.65	+	8.6	4.0/04.0	34338
1981 ET ₇	1999 04 09.7	13 11.74	-15 18.6	17.9	-0.99	+	5.6	3.0/12.1	34281
1997 XA ₁₀	1999 04 09.7	13 12.03	-03 02.7	16.8	-0.86	+	4.1	1.8/08.4	34300
(8143)	1999 04 09.8	13 12.09	-04 42.3	17.2	-0.96	+	4.8	1.0/08.9	31074
(8256)	1999 04 09.8	13 12.15	-02 36.1	17.0	-1.10	+	3.9	1.9/08.5	31209
1997 YU ₁	1999 04 09.8	13 12.26	-39 55.6	20.4	-1.16	+	3.7	9.2/20.3	31424
(8194)	1999 04 09.8	13 12.43	-13 15.1	15.8	-1.04	+	3.0	2.3/11.4	31085
1991 RB ₁	1999 04 09.9	13 12.46	-15 20.0	17.9	-0.80	+	5.5	2.2/12.4	34287
1991 NE ₃	1999 04 09.9	13 12.54	-00 05.0	16.5	-0.78	+	6.7	2.4/07.4	20023
1996 TE	1999 04 09.9	13 12.69	-04 56.6	18.6	-0.82	+	4.3	0.8/09.1	34295
1997 UN ₃	1999 04 09.9	13 12.79	-10 52.2	19.7	-0.87	+	6.5	1.0/11.0	31146
1998 BW ₂	1999 04 10.0	13 12.82	+05 25.7	17.8	-0.74	+	4.4	3.6/05.7	34300
1999 FL ₁₉	1999 04 10.0	13 12.91	-02 31.4	17.2	-0.77	+	4.6	1.7/08.4	34263
1996 TW ₅₉	1999 04 10.1	13 13.14	-20 30.7	18.6	-0.93	+	2.5	3.9/13.8	34295
1991 GZ ₁	1999 04 10.1	13 13.24	+24 00.3	16.5	-1.74	+	-10.6	16.4/05.8	27120
1994 WY ₂	1999 04 10.1	13 13.30	-15 45.5	17.3	-1.04	+	6.5	3.1/12.6	34292
1989 ST ₉	1999 04 10.1	13 13.35	-07 47.4	19.2	-0.99	+	5.2	0.0/10.2	34176
1996 HH ₂₄	1999 04 10.1	13 13.49	-01 29.3	18.0	-1.06	+	5.5	2.4/08.3	34294
1993 FZ ₄	1999 04 10.2	13 13.49	-03 55.5	18.7	-0.72	+	4.6	1.1/09.0	34289
1993 RL ₅	1999 04 10.2	13 13.64	-12 17.0	17.5	-0.97	+	5.4	1.7/11.6	34290
1997 YV ₁₃	1999 04 10.2	13 13.74	-14 37.7	18.5	-0.85	+	5.4	1.8/12.4	33706
1981 EH ₁₀	1999 04 10.3	13 13.88	-17 02.5	18.9	-1.02	+	4.5	3.3/13.0	26916

(8175)	1999 04 10.3	13 13.92	+09 10.2	16.8	-0.79	+	3.5	5.1/04.8	31081
1998 BV ₁₂	1999 04 10.3	13 14.05	-09 16.6	16.5	-0.82	+	4.6	0.5/10.8	34300
1981 EA ₄₇	1999 04 10.4	13 14.37	-13 12.8	20.0	-1.03	+	4.0	1.9/12.0	26923
1997 YQ ₁₆	1999 04 10.4	13 14.55	-04 42.1	18.5	-0.85	+	4.6	0.9/09.5	31130
1998 CM ₂	1999 04 10.4	13 14.57	-03 04.9	17.3	-0.91	+	6.0	1.7/09.0	34301
1978 SJ ₅	1999 04 10.5	13 14.88	-05 58.4	18.5	-0.97	+	4.2	0.6/10.0	34280
1981 ET ₄₁	1999 04 10.6	13 15.15	-01 49.3	18.2	-0.89	+	8.3	2.1/08.6	34282
1998 BB ₂	1999 04 10.6	13 15.21	+20 50.1	16.8	-0.79	+	3.4	8.8/31.3	34300
1997 YH ₄	1999 04 10.6	13 15.28	-04 56.2	18.1	-0.82	+	4.3	0.9/09.7	34300
1997 XL ₅	1999 04 10.7	13 15.34	+00 27.0	17.7	-0.84	+	5.8	2.8/08.0	34300
1998 DV ₁	1999 04 10.7	13 15.35	-26 19.2	17.1	-0.96	+	3.6	5.4/16.3	31432
1997 YY ₁	1999 04 10.7	13 15.46	-02 18.6	17.8	-0.81	+	4.5	1.7/09.0	34300
1997 YC ₁	1999 04 10.7	13 15.57	-03 06.2	18.0	-0.95	+	5.1	1.6/09.3	34300
1981 EQ ₃₂	1999 04 10.7	13 15.64	-13 28.0	18.2	-0.85	+	6.7	1.7/12.5	28839
6099 P-L	1999 04 10.7	13 15.76	-12 33.8	19.4	-0.94	+	3.9	1.5/12.1	29649
1990 QK ₈	1999 04 10.8	13 15.72	-04 26.0	17.4	-0.77	+	4.9	1.1/09.7	34285
1993 QD ₄	1999 04 10.8	13 15.72	-10 36.8	18.1	-1.00	+	5.0	1.0/11.6	23791
1981 QD	1999 04 10.8	13 15.98	-11 41.5	17.8	-0.96	+	5.0	1.3/12.0	34282
1996 TK ₁₅	1999 04 10.9	13 16.18	-06 21.2	17.6	-0.80	+	9.3	0.5/10.3	34295
1988 RM ₄	1999 04 11.0	13 16.44	-06 08.6	17.5	-0.90	+	6.8	0.7/10.4	34284
1986 RD	1999 04 11.0	13 16.70	-10 23.5	17.3	-0.81	+	6.9	0.7/11.8	34283
3075 T-1	1999 04 11.0	13 16.71	-08 55.2	17.4	-0.76	+	4.4	0.2/11.3	34338
1981 EH ₉	1999 04 11.1	13 16.84	-14 40.5	17.3	-0.91	+	6.7	3.0/13.2	34281
1990 RH ₇	1999 04 11.1	13 17.00	-05 15.4	19.2	-0.72	+	4.1	0.7/10.2	23671
2055 P-L	1999 04 11.2	13 17.36	-19 37.1	17.1	-1.09	+	0.2	5.3/14.1	34337
1976 SQ ₇	1999 04 11.2	13 17.45	-07 38.7	16.5	-0.96	+	7.9	0.2/11.1	34280
4166 T-1	1999 04 11.2	13 17.60	-08 23.6	18.5	-0.83	+	2.2	0.1/11.4	34338
1991 PT ₁₂	1999 04 11.3	13 17.63	-07 19.8	17.6	-0.82	+	4.7	0.3/11.1	34287
1283 T-2	1999 04 11.3	13 17.69	-07 56.2	18.5	-0.75	+	4.8	0.1/11.3	34270
1996 VZ ₃₇	1999 04 11.3	13 17.73	-06 49.2	19.9	-0.71	+	4.2	0.4/10.9	34295
3188 T-1	1999 04 11.4	13 17.99	+01 18.9	17.2	-0.64	+	15.7	3.1/07.5	34269
1981 EO ₃₉	1999 04 11.4	13 18.03	-05 57.1	18.9	-0.83	+	5.5	0.7/10.7	28611
4044 P-L	1999 04 11.4	13 18.09	-14 02.0	18.4	-0.86	+	2.6	1.7/13.1	34337
1996 US	1999 04 11.4	13 18.09	-08 19.4	18.2	-0.92	+	4.0	0.0/11.5	34295
1998 AP ₇	1999 04 11.4	13 18.15	-01 15.3	18.4	-0.84	+	4.9	2.3/09.3	34300
1992 CN ₃	1999 04 11.4	13 18.21	-09 46.8	16.1	-0.91	+	7.9	0.7/12.0	34288
1997 VU ₃	1999 04 11.4	13 18.27	-07 30.2	18.3	-0.93	+	6.5	0.3/11.2	34298
1993 VZ ₄	1999 04 11.5	13 18.45	-07 50.8	18.2	-0.93	+	5.1	0.1/11.4	34290
1996 SR	1999 04 11.6	13 18.63	-03 49.8	20.6	-0.84	+	6.3	1.4/10.2	29947
1997 YY ₈	1999 04 11.7	13 19.25	+15 57.3	17.0	-0.90	+	2.7	7.7/04.3	34300
1988 CU ₃	1999 04 11.7	13 19.30	-23 10.7	16.9	-0.82	+	4.5	4.5/16.6	31273
1988 RE ₁	1999 04 11.8	13 19.50	-06 04.9	17.1	-0.79	+	9.7	0.7/11.0	34175
(8232)	1999 04 11.8	13 19.67	-09 29.2	17.7	-0.97	+	4.7	0.4/12.2	31093
1998 DP	1999 04 11.8	13 19.77	+12 36.9	17.0	-0.73	+	4.2	5.6/04.7	34301
1981 EH ₂₀	1999 04 11.9	13 20.12	-07 04.5	18.1	-0.82	+	6.2	0.5/11.5	34281
1997 SB ₃₄	1999 04 12.0	13 20.21	-06 35.8	16.9	-1.08	+	4.2	0.7/11.5	34205
1997 TV ₂₂	1999 04 12.0	13 20.44	-10 21.2	19.1	-1.05	+	3.1	0.7/12.6	34206
1997 UM ₃	1999 04 12.0	13 20.50	-10 21.3	17.1	-0.97	+	5.1	0.6/12.6	31146
1996 PD ₃	1999 04 12.1	13 20.51	-02 22.2	17.6	-0.87	+	4.5	2.1/10.3	34295
1992 CR ₂	1999 04 12.1	13 20.71	-08 31.6	16.2	-0.92	+	8.6	0.0/12.2	34288
1983 WM	1999 04 12.1	13 20.83	-16 36.7	16.9	-0.95	+	7.2	3.1/14.8	34282

1989 RN ₂	1999 04 12.1	13 20.92	-18 27.0	17.4	-0.87	+	1.9	3.0/15.0	34176
1998 BA ₂₀	1999 04 12.2	13 20.93	-08 33.4	18.6	-0.82	+	5.0	0.0/12.2	34300
4168 P-L	1999 04 12.2	13 21.02	-11 44.0	17.9	-0.84	+	5.2	1.1/13.2	31161
1997 WL ₃₇	1999 04 12.2	13 21.03	-08 10.9	19.3	-0.91	+	6.4	0.1/12.1	34213
1993 TJ ₁₅	1999 04 12.2	13 21.08	-08 24.3	17.4	-1.12	+	1.8	0.1/12.2	34290
4089 P-L	1999 04 12.2	13 21.17	-09 09.2	18.5	-0.79	+	6.9	0.2/12.5	34337
1996 UQ ₃	1999 04 12.3	13 21.32	-11 38.7	15.6	-1.05	+	0.0	1.2/13.1	34200
1991 VP ₄	1999 04 12.3	13 21.33	+01 39.2	18.1	-0.73	+	4.3	2.7/09.1	34287
1997 YG ₁	1999 04 12.3	13 21.40	-04 57.7	17.7	-0.95	+	4.5	1.4/11.3	34300
1976 UP ₁₈	1999 04 12.3	13 21.41	-05 16.9	19.4	-0.92	+	7.7	1.1/11.3	34280
(8655)	1999 04 12.3	13 21.61	-15 34.1	17.5	-1.05	+	4.9	2.5/14.4	31676
1990 QO ₄	1999 04 12.3	13 21.62	-16 22.3	17.3	-0.88	+	2.2	2.4/14.6	34285
1998 CL ₂	1999 04 12.3	13 21.64	+00 50.7	19.3	-0.88	+	4.9	3.1/09.5	34217
1981 EL ₂₇	1999 04 12.4	13 21.61	-07 30.6	19.2	-0.82	+	5.9	0.4/12.1	26920
1996 TK ₄₈	1999 04 12.4	13 21.78	-05 05.9	17.7	-0.88	+	5.8	1.1/11.3	34295
1997 VS ₃	1999 04 12.4	13 21.94	-04 06.9	19.7	-0.95	+	5.0	1.5/11.1	32969
1979 MG ₆	1999 04 12.5	13 22.10	-17 27.3	17.4	-0.98	+	7.1	3.6/15.3	34281
1997 UO ₁	1999 04 12.5	13 22.27	-13 25.6	18.3	-1.01	+	6.9	1.7/14.0	31280
(8302)	1999 04 12.5	13 22.27	-00 26.7	17.4	-0.98	+	4.9	2.9/10.1	31219
1992 EQ ₉	1999 04 12.5	13 22.39	-08 00.0	16.9	-0.97	+	7.1	0.3/12.4	34288
1990 QT ₈	1999 04 12.6	13 22.54	-01 30.1	17.6	-0.98	+	7.8	3.2/10.3	34179
1998 BM ₁₅	1999 04 12.7	13 22.68	-12 13.6	17.5	-0.75	+	4.7	1.0/13.8	34300
1998 BC ₁₂	1999 04 12.7	13 22.78	+09 48.9	16.9	-0.76	+	4.1	5.6/06.6	34300
1981 EG ₇	1999 04 12.7	13 23.09	-20 40.7	18.6	-0.99	+	4.6	5.0/16.4	26916
1996 XY ₂₅	1999 04 12.8	13 23.06	+08 58.4	18.7	-0.80	+	6.8	5.3/06.7	34295
1981 EU ₃₇	1999 04 12.9	13 23.47	-15 04.5	20.3	-0.85	+	5.7	2.1/14.9	22430
(8347)	1999 04 12.9	13 23.49	-10 32.4	16.6	-0.90	+	5.1	0.6/13.4	31354
1997 UK ₃	1999 04 12.9	13 23.71	-11 47.5	18.6	-0.93	+	6.6	1.0/13.9	34298
1999 BT ₆	1999 04 13.0	13 23.80	-01 35.1	17.6	-1.01	+	4.4	3.0/10.9	34317
1990 RX ₈	1999 04 13.0	13 23.88	-14 50.5	17.8	-1.01	+	7.1	2.2/14.9	25649
1987 SF ₅	1999 04 13.2	13 24.58	-13 48.4	18.2	-1.04	+	5.3	1.8/14.6	31136
1997 WN ₂₄	1999 04 13.3	13 25.10	-07 30.3	19.4	-1.01	+	4.1	0.5/12.9	34212
1996 VJ	1999 04 13.3	13 25.13	-00 19.2	17.5	-0.78	+	2.4	2.3/10.8	34295
(8242)	1999 04 13.3	13 25.17	-07 53.0	16.9	-0.89	+	1.6	0.3/13.1	31206
1978 RN ₅	1999 04 13.4	13 25.27	-17 05.1	18.6	-0.89	+	3.1	2.1/15.7	31579
1985 RP ₃	1999 04 13.4	13 25.38	-10 21.3	16.5	-1.00	+	4.6	0.6/13.8	34282
1993 RX ₅	1999 04 13.4	13 25.57	-08 10.4	18.0	-0.98	+	7.1	0.3/13.2	30980
1996 QX ₁	1999 04 13.4	13 25.62	-27 28.5	18.2	-0.94	+	3.5	5.4/19.1	31791
1998 BD ₅	1999 04 13.4	13 25.68	-01 28.1	17.2	-0.73	+	5.7	2.4/11.0	34300
4843 T-1	1999 04 13.5	13 25.80	-06 41.8	17.9	-0.82	+	2.5	0.8/12.9	21124
1989 WC ₂	1999 04 13.5	13 25.89	+02 11.3	17.2	-0.96	+	2.8	3.9/10.5	31416
1981 EZ ₄₄	1999 04 13.5	13 25.90	-09 55.3	19.4	-0.91	+	8.3	0.3/13.9	26923
1996 VK ₈	1999 04 13.7	13 26.39	-14 27.8	19.0	-0.83	+	4.6	1.4/15.4	28602
2767 P-L	1999 04 13.7	13 26.41	-05 41.0	17.7	-0.73	+	4.1	0.9/12.6	34337
1989 CH ₃	1999 04 13.7	13 26.61	-18 58.1	18.6	-0.85	+	5.9	3.1/17.0	31416
1997 UY ₂	1999 04 13.7	13 26.67	-14 32.0	19.1	-0.93	+	8.5	1.8/15.5	34207
1996 ON	1999 04 13.8	13 26.90	-14 58.8	19.1	-0.97	+	5.9	2.0/15.6	31278
9086 P-L	1999 04 13.8	13 27.03	-10 37.5	20.3	-0.97	+	7.0	0.5/14.3	27328
1994 CA ₅	1999 04 13.9	13 27.41	-14 24.3	18.6	-0.90	+	4.5	1.6/15.5	33239
1990 BH ₁	1999 04 13.9	13 27.45	-01 05.2	16.2	-0.90	+	3.0	3.3/11.7	34285
1996 PB ₁	1999 04 13.9	13 27.49	-11 35.6	19.0	-1.00	+	5.0	0.9/14.7	34295

(10385)	1999 04 13.9	13 27.55	-03 52.3	16.8	-0.96	+	1.9	1.7/12.6	34156	1998 CC ₄	1999 04 16.3	13 36.26	-24 14.9	17.8	-0.84	+	3.6	4.0/20.7	31799
2061 P-L	1999 04 14.0	13 27.53	-19 00.1	16.3	-0.96	+	2.8	4.7/16.8	34337	1997 SO ₃₃	1999 04 16.3	13 36.39	-09 20.8	17.1	-1.01	+	4.3	0.3/16.2	31423
(8329)	1999 04 14.3	13 28.60	-06 33.4	15.9	-0.77	+	3.9	0.9/13.5	31350	1997 XY	1999 04 16.4	13 36.43	-15 03.5	19.2	-0.92	+	4.7	1.6/17.9	31123
1997 SU ₁₀	1999 04 14.3	13 28.79	-11 51.8	18.2	-0.98	+	6.9	0.9/15.1	31145	1188 T-3	1999 04 16.4	13 36.45	-20 38.0	18.4	-0.99	+	4.4	3.8/19.5	31295
1995 GF	1999 04 14.3	13 28.80	-00 52.5	16.7	-0.94	+	3.2	3.1/12.0	34293	(9451)	1999 04 16.4	13 36.57	-07 32.9	16.3	-0.74	+	4.7	0.8/15.7	34280
1981 EZ ₇	1999 04 14.4	13 29.05	-11 51.8	18.2	-0.83	+	6.5	0.8/15.2	34281	1996 UF ₄	1999 04 16.5	13 36.85	-07 37.4	18.0	-0.84	+	3.6	0.7/15.8	34295
1979 MQ ₅	1999 04 14.4	13 29.16	-21 02.2	19.6	-0.78	+	5.2	3.4/18.2	31223	1981 ER ₂₇	1999 04 16.5	13 37.11	-15 40.3	18.8	-1.06	+	3.1	2.0/18.1	31135
1991 RB ₁₂	1999 04 14.4	13 29.17	-27 42.8	18.3	-0.92	+	3.1	5.2/20.0	31785	6102 P-L	1999 04 16.6	13 37.19	-09 54.0	19.6	-0.93	+	6.0	0.1/16.6	31267
1991 VP ₇	1999 04 14.4	13 29.25	-12 37.5	17.3	-0.73	+	8.6	1.0/15.6	34287	1997 WQ ₂	1999 04 16.6	13 37.34	+00 15.1	18.2	-0.97	+	4.2	3.8/13.7	34299
3019 T-3	1999 04 14.4	13 29.25	-06 23.6	17.4	-0.78	+	7.4	0.9/13.5	34339	1981 EM ₄₀	1999 04 16.7	13 37.71	-05 17.3	19.5	-0.83	+	5.1	1.5/15.3	28611
1999 BW ₆	1999 04 14.4	13 29.26	-01 31.0	17.6	-0.87	+	3.7	2.8/12.2	34317	1996 SS ₆	1999 04 16.8	13 37.84	-06 51.7	17.2	-0.81	+	4.0	1.0/15.8	34295
1996 VU ₂	1999 04 14.5	13 29.63	-07 25.2	19.4	-0.72	+	4.6	0.5/13.9	34295	(8320)	1999 04 16.8	13 37.90	-08 20.1	17.4	-0.91	+	5.9	0.6/16.3	31348
1993 FS ₃₈	1999 04 14.5	13 29.75	-08 04.7	18.5	-0.76	+	3.1	0.4/14.2	34188	1981 EH ₃₈	1999 04 16.8	13 37.98	-10 55.2	18.0	-0.90	+	8.0	0.3/17.1	26922
1999 BA ₁₄	1999 04 14.6	13 29.82	-04 31.6	16.8	-1.01	+	2.6	2.3/13.3	34232	4283 T-2	1999 04 16.8	13 37.99	-06 13.2	17.8	-0.75	+	4.3	1.2/15.6	34339
1985 RS ₁	1999 04 14.6	13 29.82	-09 12.6	17.1	-0.98	+	4.8	0.1/14.6	34282	(10352)	1999 04 16.8	13 38.18	-08 40.8	16.5	-1.03	+	1.4	0.5/16.5	34148
1996 HY ₁₂	1999 04 14.6	13 30.15	-09 02.0	17.4	-1.02	+	7.1	0.2/14.6	34294	1993 FW ₄₀	1999 04 16.8	13 38.22	-07 08.0	17.4	-0.75	+	4.1	0.9/15.9	33684
1997 UP ₇	1999 04 14.7	13 30.26	-12 30.1	18.6	-0.94	+	4.8	1.0/16.0	31147	(8149)	1999 04 16.9	13 38.55	+01 13.5	15.8	-0.98	+	3.2	5.2/13.7	31075
1996 WC ₃	1999 04 14.7	13 30.32	-08 10.2	19.3	-0.80	+	7.6	0.4/14.3	34295	(8274)	1999 04 16.9	13 38.60	-05 18.2	18.1	-0.99	+	4.9	1.7/15.6	31213
(8696)	1999 04 14.7	13 30.37	-03 08.0	18.3	-0.73	+	3.4	1.7/12.8	31686	1997 UU	1999 04 17.1	13 39.09	-12 34.1	18.7	-0.93	+	8.2	0.9/17.9	31146
(8426)	1999 04 14.7	13 30.44	-10 08.0	16.6	-0.95	+	7.2	0.3/15.0	31371	4314 P-L	1999 04 17.1	13 39.13	-16 23.3	19.5	-0.86	+	3.6	1.6/18.9	14629
(10332)	1999 04 14.8	13 30.60	+01 41.5	16.0	-0.75	+	12.7	4.2/10.6	34144	1981 EX ₂₈	1999 04 17.1	13 39.23	-22 48.2	17.0	-1.00	+	4.6	5.4/20.8	27726
1993 PZ ₂	1999 04 14.9	13 31.00	-11 21.0	18.1	-0.60	+	4.1	0.4/15.5	32050	1997 YX ₂	1999 04 17.1	13 39.36	-11 21.5	18.4	-0.80	+	4.2	0.3/17.5	31254
1989 RT	1999 04 15.0	13 31.19	-20 51.6	16.9	-1.06	+	3.5	4.6/18.1	33741	1996 VG ₅	1999 04 17.2	13 39.40	-08 24.2	17.0	-0.89	+	3.4	0.6/16.7	31976
1997 VJ ₆	1999 04 15.0	13 31.27	-11 59.3	17.9	-0.95	+	3.8	0.9/15.7	34210	1996 VA ₂₇	1999 04 17.2	13 39.47	-08 53.3	19.7	-0.74	+	4.5	0.5/16.8	32751
1997 YQ ₁	1999 04 15.0	13 31.44	-10 09.9	17.9	-1.00	+	3.7	0.2/15.2	34214	1996 VP ₁	1999 04 17.2	13 39.75	-28 12.0	17.5	-0.93	+	5.5	5.2/22.8	31248
1991 RZ ₈	1999 04 15.1	13 31.63	-10 54.2	16.3	-0.83	+	4.4	0.4/15.5	34287	1995 DE ₉	1999 04 17.4	13 40.07	-11 19.7	20.6	-0.98	+	4.7	0.3/17.7	32944
2252 T-2	1999 04 15.1	13 31.70	-15 30.4	18.5	-0.89	+	2.9	1.7/16.8	19329	1994 GQ	1999 04 17.4	13 40.18	-04 05.2	16.3	-0.95	+	0.2	2.2/15.9	34291
1981 ET ₁₀	1999 04 15.1	13 31.71	-27 33.8	17.0	-1.06	+	0.6	6.7/19.7	31415	1996 QE	1999 04 17.4	13 40.21	+01 27.3	18.5	-0.80	+	8.8	3.8/13.3	31243
1979 MW ₂	1999 04 15.1	13 31.77	-06 21.1	18.8	-0.73	+	5.0	0.9/14.1	28610	1997 XR ₈	1999 04 17.4	13 40.25	-07 25.4	19.9	-0.74	+	4.0	0.8/16.5	32314
1985 TJ ₁	1999 04 15.2	13 32.36	-09 04.5	16.4	-0.87	+	1.9	0.2/15.1	34282	1997 UK ₂₁	1999 04 17.4	13 40.30	-10 48.6	17.3	-0.94	+	3.8	0.1/17.6	34298
1996 OE	1999 04 15.2	13 32.37	-07 01.4	19.0	-0.96	+	4.5	1.0/14.5	34294	1993 QO	1999 04 17.5	13 40.51	-44 57.2	18.6	-1.31	+	2.1	10.5/27.9	31419
(8071)	1999 04 15.3	13 32.37	-05 12.9	16.4	-0.91	+	6.8	1.8/13.9	30960	1981 EE ₆	1999 04 17.5	13 40.65	-20 36.5	18.8	-0.83	+	6.4	4.0/20.8	26915
1991 EA	1999 04 15.4	13 32.77	-16 35.3	16.3	-1.01	+	2.9	2.8/17.3	34286	1981 EC ₄₀	1999 04 17.5	13 40.70	-26 31.1	19.7	-0.92	+	4.2	4.6/22.4	26922
1996 TT ₅₄	1999 04 15.4	13 32.93	+17 01.4	18.0	-0.78	+	8.9	8.7/05.2	31144	4120 T-2	1999 04 17.6	13 40.93	-03 58.6	18.9	-0.97	+	6.1	2.3/15.7	31132
1990 RS ₂	1999 04 15.5	13 33.34	-13 16.7	17.1	-1.01	+	5.8	1.3/16.6	34285	1148 T-3	1999 04 17.6	13 40.99	-19 01.7	18.1	-0.84	+	5.0	2.4/20.2	31609
1981 EL ₃₈	1999 04 15.6	13 33.48	-05 05.0	19.1	-0.78	+	9.2	1.6/14.0	34173	1166 T-2	1999 04 17.6	13 41.13	-17 57.2	18.0	-1.07	+	1.5	3.2/19.5	28088
1996 TV ₁₇	1999 04 15.7	13 33.83	-10 17.6	20.4	-0.90	+	3.5	7.7/27.0	30279	1977 DY ₃	1999 04 17.6	13 41.20	-09 55.5	16.7	-0.81	+	4.0	0.2/17.5	34280
1998 AO ₉	1999 04 15.7	13 33.85	-08 29.7	18.7	-0.81	+	4.0	0.4/15.3	31261	1989 CH	1999 04 17.8	13 41.92	+15 59.4	15.9	-0.74	+	5.5	10.0/08.6	34284
(8409)	1999 04 15.7	13 33.85	-15 14.4	17.9	-0.73	+	4.5	1.4/17.4	31367	1992 CU ₂	1999 04 17.9	13 41.91	-21 51.4	17.9	-0.76	+	4.5	3.1/21.5	31584
1996 TK ₇	1999 04 15.7	13 34.19	-08 10.0	19.2	-0.77	+	4.7	0.5/15.3	31245	1995 QS ₃	1999 04 17.9	13 41.97	-29 01.5	17.6	-0.82	+	3.3	4.9/23.6	33342
1993 SJ ₅	1999 04 15.8	13 34.17	-17 24.9	16.3	-1.06	+	3.2	3.0/17.9	25068	1998 FT ₁₂	1999 04 17.9	13 42.03	+03 59.1	19.2	-0.98	+	4.8	5.0/13.7	32754
1992 GW ₄	1999 04 15.8	13 34.30	-06 08.6	17.0	-1.06	+	1.0	1.7/14.9	34288	1996 QP ₁	1999 04 17.9	13 42.06	-07 24.8	18.5	-0.94	+	6.2	1.1/17.0	32054
1981 EH ₃₅	1999 04 15.9	13 34.60	-14 50.3	19.2	-1.03	+	5.2	1.8/17.4	30780	(8146)	1999 04 18.0	13 42.36	+04 37.0	16.7	-0.91	+	1.9	5.2/13.9	31074
(10294)	1999 04 16.0	13 34.96	-00 47.1	17.2	-1.00	+	4.5	3.5/13.4	34135	1996 VC ₁	1999 04 18.0	13 42.50	-11 55.7	18.1	-0.79	+	4.5	0.4/18.4	34295
1995 OV	1999 04 16.1	13 35.30	-19 20.5	16.1	-1.00	+	1.7	3.7/18.5	34013	(8268)	1999 04 18.0	13 42.57	-01 50.0	17.3	-0.82	+	4.9	3.0/15.4	31212
1992 SF ₁₄	1999 04 16.1	13 35.37	-19 52.1	18.7	-0.85	+	8.0	2.7/19.4	27914	1997 WU ₇	1999 04 18.0	13 42.58	-08 21.7	16.8	-1.02	+	1.8	0.7/17.5	34299
1993 TM	1999 04 16.1	13 35.38	-09 51.7	17.9	-1.03	+	3.2	0.0/16.1	34290	1998 AY ₆	1999 04 18.0	13 42.61	-08 27.1	18.4	-0.80	+	4.1	0.6/17.4	32314
1997 VY ₄	1999 04 16.2	13 35.80	-00 18.2	19.9	-1.03	+	2.0	3.2/13.7	31149	1996 UU ₁	1999 04 18.1	13 42.68	-12 58.3	18.2	-0.80	+	3.2	0.7/18.8	34295
1981 EV ₃₀	1999 04 16.2	13 35.91	-14 36.9	19.0	-0.88	+	4.3	1.5/17.6	26920	1997 YE ₈	1999 04 18.1	13 42.73	-05 25.6	18.6	-0.87	+	7.2	1.7/16.5	34214
(8211)	1999 04 16.3	13 36.17	-04 42.4	17.5	-0.95	+	5.5	1.8/14.8	31089	2315 T-2	1999 04 18.1	13 42.85	-08 46.1	20.7	-0.81	+	4.9	0.5/17.6	16883
1993 SS ₆	1999 04 16.3	13 36.26	-12 19.6	15.7	-0.91	+	5.8	1.0/17.1	32455	6840 P-L	1999 04 18.1	13 42.96	-06 23.5	20.7	-0.90	+	5.0	1.4/16.9	31294

1987 UF ₅	1999 04 18.1	13 43.00	-06 20.8	17.0	-0.85	+	3.6	1.3/16.9	34283
1997 WU ₃₁	1999 04 18.1	13 43.00	-13 12.3	18.7	-0.89	+	6.0	0.8/18.9	31282
1998 BW ₄₃	1999 04 18.2	13 43.13	-08 43.3	17.6	-0.86	+	3.0	0.5/17.7	31799
1995 DZ ₈	1999 04 18.2	13 43.42	-12 31.6	18.3	-0.99	+	4.4	0.7/18.8	30901
1996 TR ₁₀	1999 04 18.3	13 43.72	+03 13.4	16.2	-0.90	+	9.5	5.4/13.5	34295
1997 WB ₂	1999 04 18.4	13 44.03	-07 48.2	18.8	-0.94	+	5.9	1.0/17.6	31151
1995 BD ₁	1999 04 18.5	13 44.21	-03 53.7	17.9	-0.99	+	5.1	2.5/16.6	31105
1993 UB ₁	1999 04 18.5	13 44.38	-27 22.7	16.2	-1.37	-	2.0	6.1/21.9	31788
1998 BM ₇	1999 04 18.5	13 44.44	+09 08.3	16.4	-0.73	+	4.7	6.2/11.9	31264
1997 YP ₁₄	1999 04 18.6	13 44.93	-12 22.2	18.3	-0.81	+	4.3	0.5/19.1	34215
1997 SB ₂	1999 04 18.6	13 44.96	-12 03.3	17.9	-1.08	+	3.6	0.5/19.0	34203
1998 BA ₃₄	1999 04 18.7	13 45.04	+02 07.1	18.2	-0.80	+	2.3	3.7/15.0	31402
(8356)	1999 04 18.7	13 45.06	-34 29.6	17.5	-1.23	+	6.0	7.0/24.8	31356
1998 BD ₄₁	1999 04 18.8	13 45.42	-09 34.5	18.4	-0.95	+	3.8	0.4/18.5	31798
1976 QS	1999 04 18.8	13 45.47	-20 13.1	17.6	-1.13	+	4.0	3.6/21.0	31095
1996 NY ₃	1999 04 18.8	13 45.68	+03 16.5	18.2	-0.85	+	6.6	4.9/14.3	28319
1997 VQ ₅	1999 04 18.9	13 45.67	-07 44.3	19.0	-0.97	+	4.4	1.1/18.0	31149
1992 DA ₉	1999 04 18.9	13 45.73	-16 04.0	16.4	-1.17	+	1.7	2.2/20.1	30896
4349 T-1	1999 04 18.9	13 45.78	-00 48.2	17.8	-0.79	+	6.0	2.8/15.7	31825
1993 FD ₄₂	1999 04 18.9	13 45.98	-10 37.9	18.5	-0.73	+	3.9	0.1/18.9	32230
1988 CW ₄	1999 04 18.9	13 46.07	-18 02.3	16.7	-0.78	+	5.8	2.2/21.2	31273
1998 BT ₁₄	1999 04 19.0	13 46.19	-25 06.8	16.6	-0.83	+	4.4	4.6/23.4	31428
1998 BG ₁₁	1999 04 19.0	13 46.26	-00 11.8	16.7	-0.84	+	4.3	3.7/15.8	31265
1993 OW ₆	1999 04 19.0	13 46.31	-04 35.2	17.5	-0.97	+	5.8	2.3/17.2	31139
1997 WV ₂	1999 04 19.1	13 46.68	-18 43.6	15.9	-0.96	+	6.1	2.8/21.5	31151
1998 DT ₁	1999 04 19.1	13 46.78	-06 43.2	18.8	-0.70	+	4.3	1.2/17.9	32970
1997 AU ₃	1999 04 19.2	13 46.82	-24 04.2	17.7	-0.89	+	2.7	3.7/22.9	31590
1988 ER ₁	1999 04 19.2	13 47.07	-11 25.4	16.1	-1.07	+	1.5	0.2/19.4	34004
1996 MN	1999 04 19.2	13 47.08	-20 04.5	18.6	-1.01	+	6.7	3.7/22.0	34294
1986 TS	1999 04 19.3	13 47.39	-27 33.0	18.8	-0.88	+	2.8	4.2/24.2	34175
1990 UY ₃	1999 04 19.3	13 47.44	-01 19.7	18.3	-0.76	+	2.9	2.5/16.5	31583
1998 BH ₁	1999 04 19.3	13 47.58	-04 59.1	17.7	-1.00	+	4.4	2.1/17.7	31427
1981 EB ₃₇	1999 04 19.4	13 47.52	-18 37.3	18.1	-0.96	+	2.2	2.7/21.4	31272
1998 BE	1999 04 19.4	13 47.53	-08 54.4	16.6	-0.91	+	2.8	0.7/18.8	34019
1991 LW	1999 04 19.4	13 47.68	+11 20.2	16.1	-0.91	+	0.6	10.0/13.1	31138
(8255)	1999 04 19.6	13 48.26	-13 47.9	17.0	-0.87	+	4.9	0.9/20.4	31209
1997 YP ₈	1999 04 19.6	13 48.30	+10 26.5	16.6	-0.76	+	3.0	7.1/12.8	32314
1996 UA	1999 04 19.6	13 48.55	-15 32.0	17.6	-1.03	+	1.1	1.5/20.7	34295
5564 P-L	1999 04 19.6	13 48.64	-08 49.8	19.7	-0.97	+	4.4	0.8/19.0	30914
1993 RH ₉	1999 04 19.7	13 48.78	-13 10.2	19.8	-0.96	+	5.5	0.7/20.3	31007
2012 P-L	1999 04 19.7	13 48.86	-18 07.8	20.0	-0.88	+	3.3	1.8/21.7	27938
1991 RB ₁₃	1999 04 19.8	13 49.13	-19 55.8	18.7	-0.89	+	3.2	2.5/22.3	32047
1979 MD ₂	1999 04 19.8	13 49.17	-08 56.6	17.1	-0.97	+	6.7	0.8/19.2	31134
1998 CC ₁	1999 04 19.9	13 49.70	+03 24.9	17.7	-0.80	+	5.8	4.7/15.2	31430
4313 T-3	1999 04 20.0	13 49.88	-05 58.4	17.5	-1.00	+	5.5	2.0/18.5	30915
1995 CR ₁	1999 04 20.0	13 49.89	-08 18.7	17.5	-0.88	+	16.8	1.2/18.9	25431
2716 P-L	1999 04 20.0	13 50.08	-07 49.3	19.6	-0.96	+	6.3	1.3/19.0	27732
1997 UU ₁₀	1999 04 20.0	13 50.18	-12 21.8	17.3	-1.00	+	3.3	0.4/20.4	34208
1998 AW ₈	1999 04 20.1	13 50.48	-13 24.5	18.6	-0.97	+	7.5	0.8/20.8	34215
1988 VQ ₃	1999 04 20.2	13 50.49	-18 12.4	16.8	-0.81	+	9.2	2.4/22.5	31136
1998 EE ₉	1999 04 20.2	13 50.53	-18 18.3	16.8	-0.86	+	2.2	2.1/22.1	31744

1997 SO ₂₅	1999 04 20.2	13 50.57	-16 21.6	18.3	-1.01	+	6.2	2.1/21.7	34205
1993 HV ₁	1999 04 20.3	13 51.01	-06 53.1	18.8	-1.02	-	1.7	1.4/19.3	26191
4599 P-L	1999 04 20.3	13 51.06	-14 10.6	18.7	-0.90	+	3.2	0.9/21.1	34338
1979 UR	1999 04 20.4	13 51.28	-14 17.2	17.6	-0.93	+	3.2	0.9/21.2	23969
1998 BD ₈	1999 04 20.4	13 51.54	-30 13.4	17.5	-1.01	+	2.7	5.7/25.7	31797
1994 EY ₅	1999 04 20.4	13 51.59	-01 09.5	17.1	-0.83	+	4.5	3.4/17.4	31238
1997 WP ₂	1999 04 20.5	13 51.92	+04 27.6	16.6	-0.93	+	2.0	5.7/16.3	31118
(8118)	1999 04 20.5	13 51.98	-10 43.5	15.7	-0.77	+	11.2	0.3/20.3	30970
7622 P-L	1999 04 20.5	13 52.03	-08 41.6	17.2	-1.08	+	3.4	1.0/19.9	23686
1993 BY ₂	1999 04 20.6	13 52.10	-20 34.5	17.0	-0.83	+	4.1	3.0/23.3	31103
1992 UO ₅	1999 04 20.7	13 52.54	+00 39.3	16.8	-0.88	+	2.6	4.0/17.4	30979
5069 T-2	1999 04 20.7	13 52.68	-16 38.1	18.2	-0.81	+	5.7	1.4/22.3	31609
1993 FE ₇₈	1999 04 20.8	13 52.81	-11 29.5	18.6	-0.75	+	4.5	7.1/01.0	32664
1993 FU ₃₅	1999 04 20.8	13 52.89	-08 10.1	17.4	-0.73	+	3.9	0.9/19.8	31276
1998 DP ₂₂	1999 04 21.0	13 53.63	-27 26.0	20.7	-0.94	+	3.6	4.6/25.6	32971
1997 VA ₅	1999 04 21.1	13 53.85	-06 22.3	18.5	-1.03	+	3.5	1.9/19.7	31281
1981 ET ₃₄	1999 04 21.1	13 53.91	-12 51.1	19.3	-0.84	+	7.7	0.4/21.5	27909
4601 P-L	1999 04 21.1	13 53.92	-08 29.7	18.0	-0.80	+	3.9	0.9/20.2	31161
1981 ER ₂₁	1999 04 21.1	13 53.93	-04 57.6	18.6	-0.70	+	4.6	1.7/19.0	31580
1990 QV ₂	1999 04 21.1	13 54.17	-03 10.7	16.8	-0.73	+	6.8	2.6/18.4	31378
1996 TE ₈	1999 04 21.1	13 54.22	-00 14.8	19.4	-0.79	+	7.1	3.4/17.5	28307
1981 EP ₈	1999 04 21.1	13 54.24	-30 59.0	19.0	-1.01	-	0.4	8.6/26.0	26916
(8375)	1999 04 21.2	13 54.46	-12 45.3	17.0	-0.74	+	4.1	0.3/21.6	31360
(8444)	1999 04 21.3	13 54.69	-13 52.2	16.8	-1.07	+	5.0	0.8/21.9	31483
1998 BQ ₄₀	1999 04 21.3	13 54.99	-17 13.9	17.9	-0.88	+	3.7	1.8/22.9	31739
1996 PY ₆	1999 04 21.3	13 55.03	-12 23.0	17.5	-1.45	-	4.4	0.3/21.5	28319
1998 DC ₆	1999 04 21.4	13 55.21	-11 41.0	18.1	-0.72	+	3.9	0.0/21.4	33508
(8635)	1999 04 21.4	13 55.35	-08 19.4	17.8	-0.95	+	4.2	1.2/20.5	31671
1986 RY ₄	1999 04 21.5	13 55.34	-16 10.7	17.5	-1.08	+	3.9	1.7/22.6	31272
1981 ER ₂₈	1999 04 21.5	13 55.70	-25 12.0	19.0	-1.07	+	0.4	4.5/24.7	26920
1996 XF ₁	1999 04 21.6	13 55.77	-04 43.9	18.2	-0.73	+	3.4	1.8/19.5	31422
1988 BT ₃	1999 04 21.6	13 55.89	-03 32.6	17.6	-0.94	+	6.4	3.1/19.2	22079
1997 QR ₃	1999 04 21.6	13 56.01	-08 41.4	19.5	-0.95	+	7.3	1.2/20.7	31010
1981 QU ₃	1999 04 21.6	13 56.02	+03 59.1	16.5	-0.89	+	8.0	6.1/16.4	31135
(8570)	1999 04 21.7	13 56.08	-20 09.9	17.2	-0.88	+	2.3	2.5/24.0	31513
1978 VU ₅	1999 04 21.7	13 56.39	-10 50.4	18.5	-0.92	+	6.0	0.4/21.5	27708
1992 RS ₇	1999 04 21.7	13 56.41	-05 18.9	20.8	-0.84	+	4.9	1.8/19.8	31382
1998 BF ₄₁	1999 04 21.8	13 56.66	-08 17.5	18.3	-0.75	+	4.4	1.0/20.8	31402
1998 AZ ₅	1999 04 21.8	13 56.81	-17 40.6	18.4	-0.78	+	3.3	1.6/23.5	32314
1993 TE ₃	1999 04 21.8	13 56.85	-17 08.3	16.6	-1.11	+	2.2	2.0/23.2	31276
1997 XM ₁₀	1999 04 21.9	13 56.99	-13 09.2	18.8	-0.96	+	4.5	0.4/22.3	31283
1991 VL ₁₀	1999 04 21.9	13 57.06	-09 31.8	18.2	-0.79	+	4.8	0.7/21.2	32304
1993 FS ₁₄	1999 04 21.9	13 57.25	-02 48.2	17.8	-0.72	+	3.6	2.4/19.3	33339
(8154)	1999 04 22.0	13 57.54	-11 03.5	16.0	-0.94	+	3.9	0.5/21.8	31076
(8269)	1999 04 22.0	13 57.62	-00 01.8	17.5	-0.84	+	5.8	3.6/18.4	31212
1995 CK	1999 04 22.1	13 58.04	+01 09.5	17.8	-0.95	+	4.6	5.0/18.5	32052
1998 BW ₁	1999 04 22.3	13 58.35	-09 23.0	17.7	-0.77	+	4.5	0.7/21.5	31427
1997 YS ₅	1999 04 22.3	13 58.45	-26 31.9	17.3	-0.87	+	4.0	4.1/26.7	31796
1981 PF	1999 04 22.4	13 58.79	+06 56.7	18.1	-0.93	+	7.7	6.7/16.0	28611
1991 PE ₁₀	1999 04 22.4	13 59.02	-23 16.2	18.6	-0.90	+	3.1	3.2/25.5	31583
1993 FW ₃₄	1999 04 22.5	13 59.08	-08 05.4	16.8	-0.75	+	4.3	1.2/21.3	31788

1990 SX ₁₆	1999 04 22.5	13 59.24	-18 02.9	17.5	-0.88	+	2.0	1.7/24.1	31583	4017 P-L	1999 04 24.5	14 06.93	-25 01.9	19.4	-0.96	+	2.1	3.4/27.7	31608
(8244)	1999 04 22.5	13 59.27	-08 55.3	18.0	-0.93	+	6.7	1.1/21.6	31206	1997 WK ₁₃	1999 04 24.5	14 06.98	-09 52.5	18.6	-1.02	+	3.6	1.1/23.8	31281
1982 UZ ₉	1999 04 22.5	13 59.30	-17 36.2	18.1	-0.79	+	8.1	1.5/24.3	31272	1994 GD ₁	1999 04 24.5	14 07.03	-00 25.6	15.8	-0.90	-	1.0	5.3/21.7	34291
1991 CP ₁	1999 04 22.5	13 59.46	-02 55.6	17.5	-0.93	+	4.5	3.7/20.0	31137	1983 QG	1999 04 24.6	14 06.98	+04 04.9	18.4	-0.90	+	2.8	4.8/19.9	28612
1993 TZ ₃₁	1999 04 22.6	13 59.77	-06 22.5	17.1	-1.10	-	0.2	2.7/21.4	27557	1994 CT ₁₁	1999 04 24.6	14 07.25	-08 32.7	17.9	-0.87	+	4.1	1.4/23.5	31238
1985 RN ₄	1999 04 22.6	13 59.81	-10 43.0	19.4	-1.02	+	4.8	0.5/22.3	31272	1993 VM ₂	1999 04 24.6	14 07.42	-13 50.8	17.8	-0.95	+	4.4	0.4/25.0	31007
1990 VR ₁₄	1999 04 22.6	13 59.81	-10 09.1	16.7	-1.02	+	4.3	0.7/22.1	30976	2289 T-1	1999 04 24.7	14 07.55	-16 47.0	17.6	-0.96	+	1.5	1.4/25.7	22087
1997 UE ₂	1999 04 22.6	13 59.83	-11 54.1	18.7	-0.97	+	3.2	0.1/22.6	31146	1995 CW	1999 04 24.8	14 07.79	+00 07.3	16.5	-0.90	+	5.9	5.6/20.9	30874
1997 TA ₁₈	1999 04 22.6	13 59.84	-05 06.2	18.8	-0.80	+	7.3	2.2/20.4	31423	(8251)	1999 04 24.8	14 07.92	-09 15.6	18.9	-0.98	+	5.9	1.2/23.8	31208
1990 US ₃	1999 04 22.8	14 00.42	-02 54.3	18.2	-0.74	+	3.3	2.4/20.1	31784	1995 SJ ₄	1999 04 24.9	14 08.21	-32 46.1	18.5	-0.81	+	6.4	5.4/01.4	29664
1987 RN ₃	1999 04 22.8	14 00.43	-24 15.4	17.4	-0.88	+	4.7	3.6/26.4	31416	1982 HJ	1999 04 24.9	14 08.36	-05 38.8	15.0	-1.08	0.0		3.6/23.3	34282
(10403)	1999 04 22.9	14 00.92	-17 02.0	16.3	-0.95	+	7.9	2.1/24.4	34161	1981 DR ₂	1999 04 24.9	14 08.45	-30 37.1	18.7	-0.99	+	3.7	5.7/30.1	31271
(8540)	1999 04 22.9	14 00.93	-11 33.3	18.4	-0.76	+	3.2	0.2/22.8	31505	4171 T-3	1999 04 25.0	14 08.63	-08 04.3	16.5	-1.08	+	2.5	2.1/23.8	31295
1987 RU ₅	1999 04 22.9	14 00.97	-19 50.9	16.9	-1.03	+	1.8	2.8/24.8	31581	1997 VL ₁	1999 04 25.0	14 08.78	-11 33.4	18.3	-1.06	+	2.6	0.6/24.7	31148
1994 AY ₅	1999 04 23.0	14 01.13	-31 04.7	20.6	-1.01	+	4.5	6.1/28.5	31237	1993 RZ ₆	1999 04 25.0	14 08.87	-18 26.0	17.8	-1.04	+	3.7	2.0/26.5	31234
(8167)	1999 04 23.0	14 01.23	-04 39.1	17.0	-0.92	+	5.1	2.7/20.9	31079	(8283)	1999 04 25.0	14 08.89	-02 40.4	16.3	-0.87	+	2.3	3.2/22.4	34279
2651 P-L	1999 04 23.0	14 01.33	-17 12.2	19.9	-0.97	+	3.7	1.6/24.4	21977	1992 FD ₁	1999 04 25.1	14 08.90	-14 23.2	15.6	-1.03	+	2.0	0.7/25.4	31138
1997 YB ₁₀	1999 04 23.1	14 01.57	-22 54.2	17.5	-0.89	+	4.1	3.1/26.2	31797	6706 P-L	1999 04 25.1	14 08.90	-14 40.4	20.0	-0.96	+	3.4	0.5/25.5	31268
1995 AA ₁	1999 04 23.1	14 01.78	-01 45.9	17.6	-0.98	+	5.0	4.1/20.2	30901	1993 TC ₂₅	1999 04 25.1	14 09.18	-07 23.1	19.1	-0.94	+	4.5	2.0/23.6	31276
1996 XE ₁₉	1999 04 23.3	14 02.10	-09 15.3	17.0	-0.78	+	5.0	0.9/22.4	31793	1998 BP ₇	1999 04 25.1	14 09.21	-10 58.9	19.4	-0.77	+	4.3	0.6/24.6	32314
2177 P-L	1999 04 23.3	14 02.21	-13 31.2	19.5	-0.80	+	4.5	0.3/23.7	31160	1998 CH	1999 04 25.2	14 09.29	+22 43.4	17.4	-0.90	+	1.2	11.2/14.2	34301
1996 TT ₁₁	1999 04 23.3	14 02.31	-11 50.3	18.1	-0.88	+	5.2	0.2/23.2	34295	1996 VT ₈	1999 04 25.2	14 09.38	-01 52.4	17.7	-0.94	+	1.7	3.6/22.4	31249
1994 BL ₄	1999 04 23.4	14 02.58	-30 52.6	18.5	-1.06	+	3.1	6.2/28.7	23686	6570 P-L	1999 04 25.2	14 09.64	-10 52.0	18.6	-0.95	+	5.6	0.8/24.7	31161
1993 FS ₃₄	1999 04 23.5	14 03.02	-11 14.7	17.7	-0.76	+	3.6	0.3/23.2	31536	1992 SM ₂	1999 04 25.3	14 09.86	-21 48.9	16.1	-1.15	-	1.9	3.8/27.1	33232
9085 P-L	1999 04 23.5	14 03.04	-16 13.5	19.1	-1.12	+	3.8	1.5/24.5	24114	1997 WQ ₉	1999 04 25.3	14 10.05	-10 49.1	18.8	-0.95	+	5.6	0.8/24.8	33266
1993 FB ₂₃	1999 04 23.5	14 03.18	-11 31.3	17.6	-0.72	+	5.6	0.3/23.3	26191	1997 WA ₃₀	1999 04 25.4	14 10.16	-19 53.2	17.5	-0.86	+	8.9	2.4/27.6	34212
(8200)	1999 04 23.6	14 03.39	-10 19.8	16.9	-0.88	+	5.0	0.8/23.0	31086	1981 SE ₂	1999 04 25.5	14 10.40	-08 02.1	18.3	-0.94	+	4.7	1.7/24.1	27566
1997 UL ₉	1999 04 23.7	14 03.60	-10 33.5	18.3	-1.09	-	0.1	0.7/23.3	34208	1997 YP ₂	1999 04 25.5	14 10.46	-12 19.3	17.3	-0.98	+	6.6	0.3/25.3	31796
3282 T-2	1999 04 23.7	14 03.72	-12 19.7	18.2	-1.00	+	2.6	0.1/23.7	15085	1981 EG ₄₅	1999 04 25.5	14 10.54	-19 48.3	18.8	-0.97	+	5.4	2.9/27.4	26923
2207 P-L	1999 04 23.7	14 03.82	-22 36.1	16.8	-1.05	+	3.3	4.1/26.4	31160	5008 P-L	1999 04 25.5	14 10.74	-21 18.4	19.0	-1.08	+	2.3	3.2/27.6	25076
1987 UZ ₁	1999 04 23.8	14 04.02	-22 06.3	16.5	-1.09	+	23.2	4.0/27.5	23779	1996 NB ₄	1999 04 25.6	14 10.72	-18 02.6	16.3	-0.95	+	4.6	2.1/26.9	31278
(8393)	1999 04 23.9	14 04.60	-14 36.0	16.4	-1.10	+	3.0	0.8/24.4	31364	1995 MG ₁	1999 04 25.7	14 11.41	-02 28.2	18.5	-0.79	+	5.1	2.9/22.6	31587
(8229)	1999 04 23.9	14 04.63	-04 16.8	17.7	-0.69	+	6.1	2.1/21.3	31093	1996 RL ₄	1999 04 25.8	14 11.81	-25 47.6	19.2	-1.04	+	2.0	4.0/29.0	28088
1997 WM ₂₃	1999 04 23.9	14 04.68	-07 33.3	18.7	-0.81	+	4.2	1.6/22.5	31282	1992 SJ ₂₆	1999 04 25.9	14 12.30	-12 15.1	19.2	-0.94	+	2.6	0.3/25.7	25641
1997 RH ₄	1999 04 24.0	14 04.80	-16 30.2	20.7	-1.10	+	3.8	1.3/25.0	30904	1996 TG ₇	1999 04 26.0	14 12.46	-14 00.4	17.4	-1.01	+	4.0	0.3/26.2	31421
6579 P-L	1999 04 24.1	14 05.14	-09 34.4	17.0	-0.98	+	4.1	1.2/23.3	31294	(9121)	1999 04 26.0	14 12.49	-19 27.4	16.9	-0.67	+	2.9	1.5/27.8	32201
1993 SR ₁	1999 04 24.1	14 05.18	-12 10.7	17.9	-1.03	+	4.1	0.2/24.0	30899	1993 FO ₂₄	1999 04 26.0	14 12.51	-18 28.3	18.7	-0.80	+	3.2	1.4/27.5	32515
1989 TH ₃	1999 04 24.1	14 05.31	-06 34.4	20.1	-0.99	+	5.8	2.4/22.4	25328	6580 P-L	1999 04 26.0	14 12.67	-08 35.9	15.8	-1.01	+	2.7	2.3/24.9	31161
1995 BU ₄	1999 04 24.1	14 05.40	-16 57.2	18.9	-1.13	+	2.7	1.5/25.2	31277	1996 TD ₈	1999 04 26.1	14 12.61	-12 22.1	21.1	-0.79	+	6.5	0.2/25.8	29116
(8152)	1999 04 24.1	14 05.45	-18 10.7	18.1	-1.01	+	4.4	1.8/25.7	31076	1988 CP ₁	1999 04 26.1	14 12.69	-08 45.2	17.8	-0.80	+	4.3	1.4/24.8	31581
(8284)	1999 04 24.1	14 05.53	-29 43.4	16.4	-0.83	+	5.4	5.6/29.6	31215	1996 OJ ₂	1999 04 26.1	14 12.85	-28 52.3	18.8	-1.03	+	4.7	4.9/30.4	31588
1997 YQ ₅	1999 04 24.2	14 05.46	-02 29.2	19.6	-0.85	+	4.3	3.0/21.3	32058	1997 VQ ₇	1999 04 26.1	14 12.92	-16 52.8	18.1	-1.00	+	5.0	1.3/27.1	31117
1996 RE ₁₇	1999 04 24.2	14 05.49	-15 14.6	17.8	-0.94	+	3.4	1.2/24.9	32953	1993 FE ₃₁	1999 04 26.1	14 12.96	+04 01.3	16.5	-0.67	+	8.6	5.1/20.1	34289
1993 TP ₃₇	1999 04 24.2	14 05.51	-04 34.5	17.2	-0.98	+	3.1	3.1/22.1	31104	1981 EW ₄₅	1999 04 26.2	14 13.07	-11 57.1	18.6	-0.71	+	4.7	0.4/25.8	17628
(8331)	1999 04 24.2	14 05.78	-04 07.4	16.3	-1.00	+	4.3	3.6/21.9	31350	1979 PA	1999 04 26.2	14 13.08	-18 05.2	17.5	-0.86	+	11.0	1.9/27.8	25338
1995 OG	1999 04 24.3	14 05.89	-28 11.6	19.3	-0.87	+	3.4	4.4/28.7	31420	1996 TZ ₂₀	1999 04 26.2	14 13.19	-15 05.9	19.3	-0.81	+	4.0	0.5/26.7	31279
(8292)	1999 04 24.3	14 06.00	-28 41.4	16.6	-1.03	+	1.5	5.0/28.4	31217	9530 P-L	1999 04 26.2	14 13.37	-02 53.8	17.1	-0.89	+	7.9	4.0/23.1	31294
1996 TB ₆	1999 04 24.3	14 06.18	-13 28.1	17.8	-0.90	+	2.3	0.2/24.6	32054	1989 GQ ₄	1999 04 26.2	14 13.38	-08 40.8	16.3	-0.89	+	8.2	2.2/24.8	34284
1979 MJ ₈	1999 04 24.4	14 06.35	-14 40.2	20.1	-0.85	+	5.3	0.5/25.0	30779	(8281)	1999 04 26.3	14 13.49	-23 03.5	17.2	-0.87	+	4.4	3.0/29.1	31214
1998 DW ₁₂	1999 04 24.4	14 06.64	-06 50.1	18.6	-0.76	+	4.1	1.6/22.8	31801	1996 RE ₄	1999 04 26.3	14 13.53	-17 06.0	16.1	-1.06	+	0.6	1.3/27.2	32054
1994 LR	1999 04 24.5	14 06.81	+05 44.1	15.8	-0.80	+	2.1	6.0/19.3	31789	1997 WA ₇	1999 04 26.3	14 13.75	+11 38.6	15.6	-0.96	+	1.6	9.8/19.1	34299

1998 BJ ₃₀	1999 04 26.4	14 13.83	-16 48.7	17.4	-0.89	+	4.7	1.1/27.4	31593	1997 YH ₅	1999 04 28.3	14 21.02	-19 54.9	17.5	-1.09	+	4.8	2.1/29.8	31591
1981 EG ₄₀	1999 04 26.4	14 13.86	-10 57.8	19.7	-0.72	+	3.9	0.6/25.7	31781	1993 TS ₂₀	1999 04 28.3	14 21.33	-09 49.3	17.5	-0.95	+	5.5	1.9/27.2	27715
1980 RV ₂	1999 04 26.4	14 13.86	-17 30.1	17.5	-1.09	+	4.6	1.6/27.5	31579	1985 RJ ₅	1999 04 28.3	14 21.35	-12 53.6	19.0	-0.95	+	4.1	0.4/28.1	32044
1995 QL ₅	1999 04 26.4	14 14.09	-27 49.1	19.7	-0.85	+	4.8	4.7/30.8	32239	1993 FA ₂	1999 04 28.4	14 21.38	-05 12.7	17.0	-0.77	+	2.8	2.9/26.0	31787
1997 VG ₂	1999 04 26.5	14 14.34	-16 52.2	18.6	-0.98	+	5.3	1.2/27.5	31148	1998 AA ₁₀	1999 04 28.4	14 21.40	-37 54.0	17.3	-1.01	+	4.9	9.2/05.7	31397
1991 RS ₇	1999 04 26.5	14 14.48	+00 31.8	17.7	-0.85	+	3.6	5.0/22.6	31274	1989 SR ₃	1999 04 28.4	14 21.55	-09 15.6	18.0	-0.71	+	3.3	1.3/27.1	31582
1996 TH ₇	1999 04 26.6	14 14.52	-14 37.8	17.6	-0.88	+	3.6	0.4/26.9	31245	1997 TC ₁₈	1999 04 28.4	14 21.66	-11 03.0	16.0	-1.06	+	2.6	1.3/27.8	31423
1997 WR ₂₁	1999 04 26.6	14 14.54	-20 17.9	18.5	-1.03	+	5.8	2.4/28.5	31424	1991 RB ₉	1999 04 28.5	14 21.98	-12 10.7	17.6	-0.81	+	4.5	0.6/28.0	31584
(8324)	1999 04 26.6	14 14.56	-21 05.7	18.1	-0.99	+	6.5	2.6/28.8	31348	(8428)	1999 04 28.6	14 22.24	-13 27.0	17.2	-0.97	+	5.4	0.3/28.4	31371
1988 BL ₃	1999 04 26.6	14 14.68	-21 23.8	16.7	-1.05	+	6.4	3.0/28.8	31416	(8262)	1999 04 28.7	14 22.49	-14 54.7	18.5	-0.96	+	4.5	0.2/28.9	31210
1981 ES ₂₁	1999 04 26.6	14 14.90	-28 26.2	18.1	-1.05	+	1.6	4.9/30.4	31271	1991 AV ₂	1999 04 28.7	14 22.61	-17 07.1	16.9	-0.97	+	4.6	1.2/29.5	31137
1993 FW ₃₁	1999 04 26.7	14 15.28	-14 44.7	16.5	-0.84	+	1.5	0.3/27.1	31585	1997 YD ₁₄	1999 04 28.7	14 22.83	-25 46.6	18.9	-0.83	+	3.8	3.2/02.1	31425
1988 SF ₃	1999 04 26.9	14 15.74	-02 11.0	17.1	-1.04	-	0.6	4.2/24.5	34284	1997 WO ₁₃	1999 04 28.8	14 22.94	-02 33.7	17.0	-0.99	+	1.7	5.0/26.1	34299
1992 SM ₁₆	1999 04 26.9	14 15.74	-04 00.0	17.4	-0.81	+	7.8	3.5/23.9	33483	4122 T-2	1999 04 28.8	14 22.99	-10 46.9	16.1	-0.86	+	3.6	1.2/27.9	31132
1997 XL ₁₁	1999 04 26.9	14 15.84	-03 11.6	16.9	-0.85	+	3.2	3.5/24.1	31283	1998 BD ₄	1999 04 28.8	14 23.02	-33 25.4	18.4	-1.03	+	3.4	6.0/04.1	31797
3212 T-2	1999 04 27.0	14 16.19	-05 45.1	19.4	-0.88	+	6.0	2.6/24.8	31295	1995 SO ₃₃	1999 04 28.9	14 23.22	-14 58.5	15.9	-0.80	+	3.6	0.3/29.1	31790
1997 WC ₁₀	1999 04 27.0	14 16.38	-10 55.5	19.7	-0.94	+	5.6	1.0/26.3	31281	1998 BX ₂₅	1999 04 28.9	14 23.56	-31 44.2	16.9	-0.91	+	4.4	5.4/04.1	31429
1988 RT ₁₁	1999 04 27.1	14 16.49	-14 26.3	19.6	-0.92	+	4.2	0.3/27.3	18114	1995 DO ₁	1999 04 29.0	14 23.84	-15 13.3	15.5	-0.97	+	0.6	0.5/29.3	31277
1979 MN ₃	1999 04 27.1	14 16.50	-14 54.5	16.8	-0.98	+	6.1	0.5/27.5	31271	1997 VA ₄	1999 04 29.1	14 24.37	-06 49.3	19.0	-0.76	+	5.1	2.2/27.0	34298
1981 ES ₁₈	1999 04 27.1	14 16.60	-13 00.2	18.2	-0.83	+	6.1	0.3/26.9	26918	(8601)	1999 04 29.2	14 24.47	-04 39.1	17.5	-0.74	+	4.0	2.9/26.5	31520
1982 BE ₁	1999 04 27.1	14 16.82	-03 13.6	17.5	-0.88	+	4.6	3.4/24.3	31003	1357 T-2	1999 04 29.2	14 24.73	-17 14.2	20.3	-0.91	+	3.0	1.0/30.0	32732
(8422)	1999 04 27.2	14 16.96	-09 25.3	17.9	-0.81	+	3.8	1.4/26.1	31370	1992 WN ₃	1999 04 29.3	14 24.97	-06 03.4	18.2	-0.86	+	2.5	2.4/27.3	34289
1998 AL ₄	1999 04 27.2	14 17.01	-15 26.5	17.3	-0.83	+	3.9	0.6/27.7	31260	1997 YZ ₂	1999 04 29.4	14 25.16	-29 18.4	16.1	-0.94	+	6.4	4.9/03.9	31254
1986 GY	1999 04 27.3	14 17.34	-15 54.3	16.5	-1.11	+	3.9	0.9/27.9	28612	1996 VP ₄	1999 04 29.4	14 25.24	-14 23.6	18.3	-0.75	+	4.2	0.0/29.4	31792
2675 P-L	1999 04 27.3	14 17.44	-16 37.6	20.9	-0.89	+	3.2	0.9/28.1	33995	1994 CJ ₁₁	1999 04 29.4	14 25.30	+17 28.4	18.4	-0.79	+	5.1	10.1/19.0	27730
1997 UF ₇	1999 04 27.3	14 17.55	-11 08.4	17.0	-1.06	+	2.2	1.0/26.8	31280	1990 OV ₄	1999 04 29.4	14 25.52	-35 51.8	18.3	-0.94	+	4.8	6.2/05.6	29316
1998 CF ₁	1999 04 27.4	14 17.56	-13 52.1	15.5	-0.79	+	3.4	0.0/27.4	31403	1997 UB ₈	1999 04 29.5	14 25.63	-05 08.7	19.1	-0.91	+	10.4	2.9/26.6	31147
1998 CH ₁	1999 04 27.4	14 17.61	-12 17.9	18.7	-0.80	+	4.6	0.4/27.0	31404	6755 P-L	1999 04 29.6	14 26.18	-15 02.4	19.5	-0.80	+	3.7	0.2/29.8	29314
1990 UF ₁	1999 04 27.4	14 17.67	-10 38.0	16.3	-1.08	+	3.6	1.2/26.7	31274	1998 CR	1999 04 29.7	14 26.34	-01 49.6	18.0	-0.72	+	4.9	3.4/26.0	31799
1993 FL ₂₉	1999 04 27.4	14 17.72	-19 09.7	18.0	-0.78	+	4.0	1.4/29.0	31723	1998 BA ₄₆	1999 04 29.7	14 26.40	-15 03.0	18.5	-0.77	+	3.8	0.2/29.9	31557
1996 VM ₂	1999 04 27.4	14 17.78	-02 25.1	18.6	-0.94	+	2.0	3.7/24.6	34295	1998 BM ₁₂	1999 04 29.8	14 26.74	-14 38.4	16.9	-0.80	+	4.1	0.0/29.9	31266
1997 UQ ₃	1999 04 27.4	14 17.86	-13 24.2	16.4	-0.98	+	4.3	0.1/27.4	31146	(8366)	1999 04 29.9	14 27.06	-07 24.3	17.8	-1.01	+	4.4	2.6/28.1	31358
(8919)	1999 04 27.5	14 17.95	-23 21.0	15.8	-1.13	-	2.2	4.1/29.4	31927	1996 PA ₁	1999 04 29.9	14 27.37	-01 49.7	18.5	-0.94	+	5.1	4.7/26.5	34295
1996 MU	1999 04 27.5	14 17.95	+31 45.1	20.2	-1.28	-	2.7	18.9/11.8	30785	1982 SV	1999 04 30.0	14 27.50	+01 25.3	18.8	-0.90	+	8.9	5.0/25.2	8393
1997 UT ₆	1999 04 27.5	14 17.96	-12 50.2	15.3	-0.91	+	7.4	0.5/27.2	34298	1997 VB ₃	1999 04 30.0	14 27.60	-11 33.9	16.5	-1.01	+	3.5	1.1/29.3	31281
1991 LA ₁	1999 04 27.5	14 18.08	+12 48.3	16.6	-0.81	+	4.6	10.8/18.8	27728	(8492)	1999 04 30.0	14 27.61	-38 08.1	17.6	-1.10	+	3.5	8.0/06.6	31494
1997 XZ ₉	1999 04 27.5	14 18.10	-19 42.9	16.2	-0.94	+	6.3	2.2/29.2	31125	1998 AL ₁₀	1999 04 30.0	14 27.75	-06 55.3	18.5	-0.89	+	4.7	2.5/28.0	31797
1996 VB ₁₅	1999 04 27.7	14 18.67	-12 31.3	19.5	-0.78	+	3.1	0.4/27.3	28603	(8372)	1999 04 30.1	14 27.97	-12 25.9	17.3	-0.75	+	6.1	0.6/29.5	31359
1981 ED ₃₇	1999 04 27.7	14 18.74	-14 57.4	17.0	-1.08	+	3.2	0.5/28.0	28084	(8361)	1999 04 30.1	14 28.00	-15 18.1	16.5	-0.84	+	4.5	0.2/30.3	31357
(8337)	1999 04 27.7	14 18.77	-10 05.0	18.5	-0.73	+	3.6	1.0/26.7	31351	(8148)	1999 04 30.2	14 28.46	-15 35.7	16.8	-1.02	+	5.1	0.4/30.5	31075
1980 VO	1999 04 27.7	14 18.79	-13 23.7	18.0	-0.94	+	2.7	0.1/27.6	31579	1997 YB ₁₂	1999 04 30.3	14 28.60	-32 58.3	18.2	-0.97	+	6.0	5.9/05.7	31285
1997 WF ₂₂	1999 04 27.8	14 19.05	-13 06.2	18.3	-0.99	+	3.9	0.3/27.6	31152	1996 SF ₈	1999 04 30.3	14 28.66	-14 02.4	19.0	-0.91	+	4.7	0.2/30.2	29630
1993 QN ₄	1999 04 27.9	14 19.43	-03 57.0	18.3	-0.93	+	5.2	3.4/25.2	31007	1997 YB ₁₇	1999 04 30.3	14 28.76	-16 13.9	16.7	-0.84	+	4.0	0.5/30.8	31591
1990 QH ₈	1999 04 28.0	14 19.80	-11 25.1	18.8	-1.02	+	4.9	0.9/27.3	32922	1991 PN ₈	1999 04 30.4	14 28.95	-12 40.3	18.6	-0.82	+	4.3	0.6/29.9	31785
1996 RD ₄	1999 04 28.0	14 19.87	-08 50.6	16.4	-1.02	-	0.1	1.9/26.9	31421	1996 UO ₂	1999 04 30.5	14 29.29	-15 02.8	20.1	-0.78	+	5.1	0.1/30.6	33255
3507 T-3	1999 04 28.0	14 19.88	-10 22.2	15.2	-0.86	+	12.0	1.9/26.8	27939	1998 BQ	1999 04 30.5	14 29.50	-02 09.6	17.1	-1.01	+	3.2	5.1/27.5	34300
1981 ES ₂₀	1999 04 28.1	14 20.35	-16 53.7	18.0	-0.90	+	3.9	1.0/28.9	31580	1992 SF ₁₇	1999 04 30.5	14 29.53	-13 34.7	19.3	-0.87	+	5.0	0.4/30.2	34186
1983 XC	1999 04 28.1	14 20.57	-04 16.3	17.6	-1.01	+	3.3	3.5/25.7	31135	1998 BV ₆	1999 04 30.5	14 29.54	+01 30.2	17.4	-0.74	+	3.5	5.0/26.0	31427
1981 EK ₁₉	1999 04 28.2	14 20.89	-22 55.5	17.8	-1.06	+	2.8	4.0/30.4	27930	(8440)	1999 04 30.5	14 29.72	-26 13.5	17.5	-0.90	+	4.8	4.0/03.7	31374
1993 SW ₃	1999 04 28.2	14 20.97	-10 24.8	17.3	-1.11	+	2.9	1.5/27.4	31276	1981 EM ₂₂	1999 04 30.6	14 29.80	-18 07.3	19.7	-1.04	+	4.5	1.4/01.5	26919
(8355)	1999 04 28.3	14 21.00	-02 40.6	17.4	-0.96	+	6.5	4.0/25.0	31355	1978 NK	1999 04 30.6	14 29.86	-17 39.6	18.6	-0.89	+	4.9	0.9/01.4	28610

1998 DS ₄	1999 04 30.6	14 29.86 +06 50.8 18.4	-0.73 + 4.8	6.1/24.0	31558	1998 DV ₁₂	1999 05 02.5	14 37.16 +06 19.2 19.1	-0.87 + 3.4	6.5/26.7	31801
1985 GP ₁	1999 04 30.6	14 29.96 +26 54.6 16.6	-1.15 - 1.5	16.5/17.6	34282	1981 UE ₂₆	1999 05 02.5	14 37.27 -11 08.0 17.2	-0.82 + 3.5	1.3/01.5	34282
1979 MZ ₄	1999 04 30.7	14 30.14 -00 02.8 18.5	-0.91 + 4.5	5.4/26.6	30778	1979 MG ₈	1999 05 02.5	14 37.32 +06 29.1 19.3	-0.74 + 2.9	5.7/26.6	30779
1994 GA	1999 04 30.7	14 30.32 -22 02.8 17.4	-0.88 +12.6	2.3/03.2	24112	1981 US ₁₄	1999 05 02.6	14 37.61 -12 41.5 17.0	-0.97 + 3.8	1.0/02.0	28883
1996 VO ₃₈	1999 04 30.7	14 30.45 -10 10.8 17.3	-0.82 + 4.2	1.6/29.5	31391	1987 DN	1999 05 02.7	14 37.81 -24 20.0 16.3	-0.83 + 3.5	2.8/05.1	32740
1277 T-2	1999 04 30.8	14 30.50 -12 53.7 18.9	-0.75 + 3.8	0.5/30.3	31409	1995 CQ	1999 05 02.7	14 37.90 -23 00.8 16.7	-1.09 + 4.2	3.2/04.6	31008
1993 SN ₂	1999 04 30.8	14 30.64 -17 06.8 19.9	-0.99 + 5.2	0.8/01.4	31276	1993 SF ₄	1999 05 02.8	14 38.25 -04 34.8 17.7	-1.01 + 3.7	4.2/30.2	34290
1997 WF ₂₁	1999 04 30.8	14 30.76 -11 58.9 17.6	-0.94 + 5.5	1.0/30.1	31152	1993 XK	1999 05 02.8	14 38.32 -06 45.6 17.5	-0.96 + 3.9	3.2/30.7	31236
1985 TW	1999 04 30.8	14 30.81 -16 03.4 17.8	-1.00 + 4.3	8.8/11.0	31272	1993 TS ₃₃	1999 05 02.9	14 38.58 -08 19.3 18.4	-0.96 + 4.1	2.6/01.2	31007
3189 T-2	1999 04 30.8	14 30.84 -17 11.9 20.2	-1.00 + 2.7	0.8/01.4	22701	1991 PU	1999 05 02.9	14 38.62 -21 31.0 17.9	-0.90 + 4.4	1.9/04.5	34287
1998 BP ₅	1999 04 30.8	14 30.85 -25 06.7 18.3	-1.05 + 4.6	3.9/03.5	31264	(8267)	1999 05 02.9	14 38.71 -11 49.4 17.9	-1.01 + 3.9	1.3/02.1	31211
2610 P-L	1999 04 30.8	14 30.90 -11 40.4 19.0	-0.90 + 5.1	1.0/30.0	28891	1996 TX ₈	1999 05 02.9	14 38.97 -60 51.2 17.6	-1.92 - 5.5	20.0/08.9	29631
1996 PW ₆	1999 04 30.9	14 30.87 -17 19.4 17.9	-0.99 + 4.3	0.9/01.5	31243	1997 SB ₁₀	1999 05 03.0	14 38.86 -16 53.2 16.6	-0.91 + 6.1	0.5/03.4	31423
1997 XM	1999 04 30.9	14 30.94 -15 57.9 17.9	-0.93 + 3.7	0.4/01.2	31796	1994 AZ ₂	1999 05 03.0	14 38.89 -32 54.1 16.5	-0.99 + 5.9	6.5/08.2	34291
1990 VM	1999 04 30.9	14 31.03 -02 31.9 17.8	-0.72 + 3.1	3.2/27.6	31716	1991 VD ₆	1999 05 03.0	14 38.90 -03 48.1 18.8	-0.78 + 3.3	3.3/29.9	31584
1981 EO ₂₄	1999 05 01.0	14 31.31 -10 00.4 17.4	-0.96 + 5.6	1.9/29.7	32739	(8403)	1999 05 03.0	14 38.96 -09 12.9 17.6	-0.75 + 6.0	1.9/01.2	31366
1989 WJ ₁	1999 05 01.0	14 31.44 -14 35.1 17.1	-0.91 + 6.4	0.1/31.0	31416	1992 SC ₁	1999 05 03.0	14 39.09 -07 27.5 17.3	-0.91 + 4.9	2.7/30.9	31721
1997 XZ ₁₀	1999 05 01.0	14 31.58 -18 21.6 18.5	-0.95 + 4.8	1.2/02.0	31424	1997 UZ ₁₄	1999 05 03.0	14 39.09 -14 36.1 16.9	-1.05 + 2.4	0.4/02.8	32969
1992 FG	1999 05 01.1	14 31.67 -20 41.5 15.2	-1.10 + 0.1	2.8/02.3	25340	1997 WA ₈	1999 05 03.0	14 39.28 -13 42.1 18.8	-0.91 + 3.4	0.6/02.6	31119
(10348)	1999 05 01.1	14 31.85 -20 06.7 15.3	-1.13 - 1.6	2.6/02.1	34147	1988 VS ₂	1999 05 03.1	14 39.57 -11 51.2 17.4	-0.85 + 8.0	1.2/02.1	31783
1997 XK ₁₃	1999 05 01.1	14 31.88 +10 50.5 17.8	-0.71 + 5.2	7.4/22.7	31796	1998 HL ₁₄	1999 05 03.2	14 39.84 -09 27.7 17.2	-0.92 - 1.1	1.8/02.0	32264
1979 MX ₇	1999 05 01.1	14 32.03 -25 06.4 19.5	-0.95 + 5.1	3.3/03.9	30779	4790 P-L	1999 05 03.2	14 40.00 -18 04.6 19.9	-0.89 + 3.6	0.8/03.9	28312
6516 P-L	1999 05 01.2	14 32.36 -20 08.7 19.5	-1.13 + 3.0	1.9/02.5	29141	1992 RU ₁	1999 05 03.3	14 40.02 -11 03.1 16.9	-0.86 + 6.3	1.9/02.0	28299
(8151)	1999 05 01.3	14 32.38 -20 39.3 15.1	-0.90 + 7.0	2.8/02.9	31076	1991 LQ	1999 05 03.3	14 40.14 +06 41.6 16.4	-0.97 + 0.6	8.6/27.9	31274
(8293)	1999 05 01.3	14 32.39 -08 58.6 15.4	-0.87 + 6.2	2.4/29.6	31217	1998 BG ₃₄	1999 05 03.3	14 40.20 -14 57.4 18.7	-0.81 + 3.4	0.2/03.2	31402
1988 DD ₃	1999 05 01.3	14 32.55 -25 53.3 17.6	-0.83 + 5.4	3.5/04.5	25537	(8139)	1999 05 03.3	14 40.24 -21 52.2 17.0	-1.04 + 6.2	2.5/05.0	31073
1997 YZ ₁₆	1999 05 01.3	14 32.66 -06 27.7 17.6	-0.91 + 5.1	3.0/29.1	31286	(8383)	1999 05 03.3	14 40.31 -15 21.7 17.2	-0.92 + 3.0	0.1/03.3	31362
2607 P-L	1999 05 01.3	14 32.78 -10 40.7 19.0	-0.81 + 5.2	1.3/30.2	31294	1993 FR ₄₄	1999 05 03.3	14 40.36 -21 34.5 16.6	-0.82 + 3.2	1.8/04.9	31419
1990 SB ₁₁	1999 05 01.4	14 32.84 -22 02.5 18.1	-1.09 + 5.5	2.7/03.2	31137	1998 DH ₃₄	1999 05 03.4	14 40.48 -13 02.5 16.9	-0.65 + 2.6	0.6/02.7	32315
9542 P-L	1999 05 01.5	14 33.40 -13 15.1 18.0	-0.83 + 3.1	0.6/01.1	28607	1990 SZ ₇	1999 05 03.4	14 40.65 -16 04.5 15.9	-1.13 + 1.1	0.2/03.6	34285
1996 PG ₁	1999 05 01.5	14 33.49 -19 46.6 17.2	-1.07 + 3.0	2.1/02.7	31109	(8786)	1999 05 03.4	14 40.74 -13 27.2 18.5	-0.74 + 3.5	0.6/02.9	31896
1989 UF ₁	1999 05 01.7	14 33.87 -17 14.9 18.5	-0.96 + 4.8	0.7/02.3	31228	1992 RO ₁	1999 05 03.5	14 40.81 +07 20.5 17.7	-0.95 + 5.7	9.0/26.5	30782
1997 WR ₃₁	1999 05 01.7	14 34.02 -13 17.3 17.1	-0.97 + 4.9	0.7/01.3	32753	1997 YV ₂	1999 05 03.5	14 41.02 -12 30.1 16.9	-0.80 + 3.4	1.0/02.8	31796
(8386)	1999 05 01.7	14 34.17 -16 54.0 17.4	-0.84 + 3.5	0.6/02.2	31362	1998 DZ ₉	1999 05 03.5	14 41.03 -05 15.9 19.1	-0.72 + 4.7	2.8/30.7	31741
1992 UK ₉	1999 05 01.7	14 34.22 -09 31.2 17.5	-0.90 + 3.5	2.0/30.4	31232	1987 SU	1999 05 03.5	14 41.12 -21 20.5 16.8	-1.13 + 3.7	2.3/04.9	31782
(8321)	1999 05 01.7	14 34.28 -36 09.5 15.8	-1.02 + 4.2	8.0/07.8	31348	(8795)	1999 05 03.6	14 41.15 -31 20.8 17.3	-0.87 + 2.6	4.5/07.6	31898
1993 FJ ₃₈	1999 05 01.8	14 34.25 -04 47.5 18.2	-0.72 + 5.3	3.1/28.8	32229	1993 VO ₄	1999 05 03.7	14 41.59 -09 30.9 17.9	-0.98 + 3.3	2.1/02.2	31539
1996 VR ₃₀	1999 05 01.8	14 34.29 -22 35.6 16.4	-0.78 + 4.8	2.3/03.9	31279	4251 T-3	1999 05 03.7	14 41.62 -12 07.6 18.2	-0.85 + 3.0	1.1/02.8	31412
1981 EO ₂₅	1999 05 01.8	14 34.47 +03 08.6 18.9	-0.68 + 7.3	5.1/26.0	26919	3109 P-L	1999 05 03.7	14 41.64 -31 12.7 18.3	-0.89 + 4.5	5.0/08.0	14628
1988 VO ₃	1999 05 01.8	14 34.72 -18 34.6 18.7	-0.96 + 3.2	1.1/02.7	31783	1998 DX	1999 05 03.7	14 41.76 -05 31.7 16.8	-1.03 + 2.5	4.2/01.4	31800
1988 VC ₁	1999 05 01.9	14 34.88 -28 21.2 18.6	-0.93 + 6.4	4.3/05.8	31273	(8551)	1999 05 03.7	14 41.77 -11 56.5 16.3	-0.71 + 0.8	0.9/02.9	31507
1998 AS ₁	1999 05 01.9	14 34.97 -10 44.9 17.6	-0.79 + 3.5	1.4/30.8	31426	1995 SB ₄	1999 05 03.7	14 41.77 -40 24.8 21.2	-0.88 + 4.1	5.4/10.8	29922
1993 QS ₁	1999 05 02.0	14 35.28 -19 12.2 16.8	-1.03 + 4.0	2.0/03.0	28616	1996 VQ ₆	1999 05 03.7	14 41.88 -03 04.1 16.4	-1.02 - 0.4	4.9/01.1	34295
1998 AV	1999 05 02.1	14 35.49 +18 26.2 17.9	-0.78 + 1.3	9.8/22.3	31797	1997 YQ ₇	1999 05 03.7	14 41.94 -32 22.0 17.5	-1.01 + 2.6	5.1/07.9	31396
1997 UM ₂₄	1999 05 02.2	14 35.88 -15 30.8 15.7	-1.08 + 1.2	0.1/02.3	31281	(8556)	1999 05 03.8	14 42.01 -08 33.7 18.4	-0.82 + 3.5	1.9/02.0	31509
1210 T-2	1999 05 02.2	14 35.88 -21 08.9 16.0	-1.05 + 3.1	2.7/03.6	31161	1979 TH ₂	1999 05 04.0	14 42.86 -16 18.3 18.3	-0.77 + 3.3	0.1/04.2	31780
1991 UC	1999 05 02.2	14 36.07 -16 58.2 17.4	-0.84 + 3.9	0.6/02.7	31584	1998 BU ₂₅	1999 05 04.2	14 43.65 +00 47.2 16.8	-0.76 + 3.5	5.3/29.8	34300
(8121)	1999 05 02.2	14 36.21 -18 00.6 17.2	-1.08 + 3.7	1.2/02.9	30971	1993 FO ₃₄	1999 05 04.2	14 43.68 -06 49.8 17.2	-0.73 + 5.4	3.1/01.7	34289
1997 XB	1999 05 02.3	14 36.36 -01 47.6 18.1	-0.93 + 2.2	5.0/29.1	31123	1993 SK ₁	1999 05 04.2	14 43.78 -14 41.6 16.0	-1.05 + 3.5	0.5/04.0	30899
1986 QH ₂	1999 05 02.4	14 36.61 -02 13.9 17.3	-0.97 + 4.4	5.2/29.1	34283	1996 RE ₁	1999 05 04.2	14 43.81 -11 54.4 19.0	-0.90 + 3.3	1.2/03.3	31588
(8643)	1999 05 02.4	14 36.95 -29 51.5 17.4	-1.09 + 1.4	4.8/05.8	31673	1993 HH	1999 05 04.3	14 44.07 -18 50.9 16.3	-0.95 - 1.1	1.0/04.9	34289